DIRECT AND SPILLOVER EFFECTS OF A BUSINESS SUPPORT PROGRAM: EVIDENCE FROM A RANDOMIZED EXPERIMENT*

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Abstract

Access to capital is widely believed to enable small businesses to grow and create jobs, but the general equilibrium effects of such interventions remain poorly understood. We evaluate the market-level impacts of a large cash grant program offered to microenterprise owners in Liberia. Using a two-stage randomized design—first randomly assigning half of markets to treatment and then allocating grants by public lottery within treated markets—we identify both direct effects on recipients and spillover effects on untreated competitors operating in the same market. We find that grant recipients experience substantial increases in revenues, savings, investment in productive assets, and employment. Strikingly, untreated firms in treated markets also record higher sales and profits relative to firms in untreated markets, with smaller employment gains and little change in assets. This pattern is most consistent with spillovers driven by local demand expansion rather than business stealing or input cost reductions. Our findings suggest that the social returns to such interventions may exceed the private returns, with important implications for policies aimed at firm growth and local economic development.

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1 Introduction

Access to capital is widely believed to enable small businesses to grow and create jobs. But the general equilibrium effects of such interventions remain poorly understood. When only a subset of firms receives support, general equilibrium forces may either amplify or offset the private gains. On one hand, supporting a subset of firms may raise local economic activity if treated firms expand demand, attract new customers, or generate learning externalities. On the other hand, untreated firms may be harmed if treated firms steal business in markets with limited demand (Cai & Szeidl, 2024; Rotemberg, 2019) or if increased scale among beneficiaries intensifies competition for scarce inputs such as suppliers, labor, or credit (De Mel *et al.*, 2008a). Understanding whether business support programs generate positive or negative spillovers is therefore central to assessing their aggregate and welfare effects, particularly in low-income settings where markets are small and firms are highly similar.

This paper evaluates the market-level effects of a large cash-grant program targeting micro-entrepreneurs in Liberia. The program provided a one-time cash transfer equivalent to approximately four months of revenue for the average firm in our sample, alongside basic business training. The intervention was implemented using a two-stage randomized design. First, we randomly assigned 138 markets—defined as unique combinations of sector and geographic location—to treatment or control. Second, within treated markets, grants were allocated through public lotteries among eligible entrepreneurs who attended market-level events. This design generates plausibly exogenous variation both in individual grant receipt and in exposure to treated peers, allowing us to separately identify the direct effects of receiving a grant and the indirect effects on untreated firms operating in the same market. We follow 3,022 micro-entrepreneurs, of whom

1,031 received the grant.

We document two main findings. First, receiving a cash grant leads to substantial changes in business operations. Treated firms increase revenues, expand input use, make investments in assets, and employ more. They are also significantly more likely to innovate along multiple margins and implement management practices, and overall report a higher satisfaction with their job and their lives. These patterns point to a structural transformation of treated businesses.

Second—and more strikingly—we find large and positive spillover effects on untreated firms operating in treated markets. Relative to comparable firms in control markets, untreated firms in treated markets experience significantly higher revenues, profits, and savings, despite receiving no direct support. In contrast to treated firms, however, these spillover effects translate less into increased investment. The gains for untreated firms seem to be less transformative: they reflect higher sales rather than expanded productive capacity.

The evidence is most consistent with a local demand channel. Treated entrepreneurs expand their business and experience income gains, increasing overall market activity in their sector. We find little to no evidence that spillovers are driven by business stealing, input crowding-out, or diffusion of business practices. Instead, the pattern of results–higher revenues without higher costs and limited investment among untreated firms–is most consistent with an expansion of local demand.

Our findings speak to a long-standing debate on whether firm-level support programs in developing countries crowd out competitors or generate broader local benefits. While concerns about business stealing and input competition are particularly salient in low-income contexts where firms sell similar products in small markets, we show that large cash grants can instead generate positive local spillovers that raise outcomes even for un-

treated firms. Importantly, these spillovers differ qualitatively from direct treatment effects, underscoring the importance of distinguishing individual-level and market-level responses when evaluating such programs.

This paper contributes to two strands of the literature on the effect of cash grants, and market spillovers in developing economies.

First, it adds to the literature on cash grants and micro-enterprise growth. A large body of work shows that relaxing capital constraints for small informal firms can increase business investment, revenues, and survival. Early experimental evidence from Sri Lanka demonstrates that one-time cash or in-kind grants can generate large and persistent gains for male-owned micro-enterprises (De Mel *et al.* (2008b); De Mel *et al.* (2012)). Subsequent studies document positive effects of grants and capital infusions on firm growth in a range of low-income settings, including Ghana (Fafchamps *et al.* (2014)), Uganda (Blattman *et al.* (2014)), and Tanzania (Berge *et al.* (2015)). More recent work emphasizes heterogeneity in impacts and the importance of context, business ability, and complementary inputs such as training (McKenzie (2021)).

While this literature primarily focuses on outcomes for program beneficiaries, much less is known about how such interventions affect nearby firms operating in the same local markets. Our results confirm that large cash grants induce substantial changes in treated firms' scale and business practices, but also show that these interventions generate economically meaningful spillovers for untreated firms—an outcome that is rarely measured and often assumed away.

Second, this paper contributes to a growing literature on spillovers and general equilibrium effects of development interventions. A number of recent studies highlight that firm-level policies can generate negative spillovers when treated firms compete directly with untreated firms for customers or inputs. Cai & Szeidl (2024) show that a loan product can reduce the perfor-

mance of untreated competitors when demand is limited, while Rotemberg (2019) documents business stealing effects arising from firm expansion in constrained markets. Similarly, De Mel *et al.* (2008b) discuss the possibility that capital injections may intensify competition for scarce inputs such as suppliers or labor, potentially crowding out untreated firms.

Other studies, however, find limited or no spillover effects. Grimm *et al.* (2024) report that training grants in Burkina Faso generate little impact beyond treated firms, while McKenzie & Puerto (2021) find no evidence of spillovers from entrepreneurship training among informal firms in Kenya. Together, this literature suggests that spillover effects are theoretically ambiguous and highly context-dependent, varying with market structure, demand conditions, and the nature of the intervention.

Our contribution to this literature is threefold. First, we provide experimental evidence of positive spillovers on untreated firms, in contrast to much of the existing evidence emphasizing crowd-out or null effects. Second, our two-stage randomized design–combining market-level assignment with individual-level lotteries–allows us to cleanly separate direct treatment effects from market-level exposure, addressing a key identification challenge in the spillovers literature. Third, we shed light on the mechanisms underlying these spillovers. While much of the existing literature emphasizes competition or learning externalities, our findings point instead to a local demand channel: treated firms attract additional customers and increase overall market activity, from which nearby untreated firms partially benefit.

Taken together, our findings imply that the social returns to business support programs may exceed their private returns. Evaluations that ignore spillovers risk understating the aggregate impact of such interventions and mismeasuring their effects on local market equilibrium. More broadly, our results suggest that in underdeveloped markets, policies that

relax capital constraints for a subset of entrepreneurs can generate broad local benefits through demand-side channels rather than redistributing activity across firms.

2 Experimental design and Data

2.1 Program Background

The Support for Small Businesses (SSB) program is part of a comprehensive set of social protection measures put in place by the Government of Liberia to address the COVID-19 and the 2022 food price crises, with financial support from the World Bank, the French Development Agency (AFD) and the Swedish International Development Cooperation Agency (SIDA).[1]

The poverty and human capital profile of Liberia was alarming even before the insurgence of the COVID-19 pandemic. In 2018, with a gross national income per capita of just USD 600, Liberia was among the ten poorest countries in the world. According to the 2016 household survey data, more than half of the population (50.9 percent) was living under the poverty line. The national headcount poverty rate increased to an estimated 55.5 percent in 2019, reflecting negative per capita GDP growth rates and rising inflation.[2] Non-monetary poverty indicators, including access to healthcare, education, and basic utilities, were also low by regional and international standards, with especially acute rural/urban and gender disparities. Along with pervasive poverty, Liberia faced the challenge of exceptionally weak human capital outcomes among its youthful and fast-growing popu-

[1]The Recovery of Economic Activity for Liberian Informal Sector Employment (REALISE) Project was launched in 2021 and is expected to close in 2026. The project supports four key programs: (i) the SSB program, targeted to urban informal entrepreneurs; (ii) a public work program for urban vulnerable workers; (iii) a community-driven livelihood program targeted to rural areas, and (iv) temporary cash transfers and a strengthening of the national social protection system. Through its various components, the project is expected to benefit about 53,000 households (268,000 vulnerable individuals). The REALISE project is implemented by the Ministry of Youth and Sports (MYS), Ministry of Gender, Children and Social Protection (MGCSP), and the Liberia Agency for Community Empowerment (LACE).

[2]World Bank (2020b)

lation. More than one third (35 percent) of Liberia's population was below the age of 25 and it is estimated that a child born in Liberia in 2019 would only achieve a third of her/his full potential when reaching 18 years old compared to a child who enjoyed complete education and health. This is lower than the averages for Sub-Saharan Africa region (40 percent) or low-income countries (38 percent).[3]

The Liberian labor force is concentrated in informal self-employment. Three out of four workers are self-employed in agriculture (36 percent of all employment) or non-agricultural activities (almost 40 percent). Only 20 percent of workers have access to wage employment, which tends to provide higher and more stable earnings. Although the share of wage work remained relatively stable between 2010 and 2016, self-employment has shifted more decisively out of agricultural and into non-agricultural activities, reflecting an urbanization of employment, especially among young people. Overall, the labor force participation rate had increased from 69.1 percent in 2007 to 75.3 percent in 2016, and unemployment remained low at 3.2 percent, suggesting that unemployment is not an issue *per se* in the Liberian labor market, as most cannot afford to be unemployed. Women have lower labor force participation rates than men (a 10 percentage points gap) and are over-represented in low-productivity and low earning sectors, most specifically farming and retail trade/commerce. Gender disparities are even more pronounced in urban areas such as Greater Monrovia, where only 19 percent of women are in wage employment compared to 55 percent of men.

An analysis of vulnerable households based on the 2016 Household Income and Expenditure Survey (HIES) shows that, of all vulnerable households[4], two thirds (65.3 percent) own non-farm enterprises. These enter-

[3] World Bank (2020a)

[4] Given that national poverty rates reached 55 percent in 2019 and may well have increased since, it is reasonable to count the bottom 60 percent of the population as poor and vulnerable. Since poverty is higher

prises in general tend to be small (on average, two working age persons) and have low revenues/profits, making about USD 23 per month per capita in profits. Virtually all of them are informal: only 1 percent are officially registered.[5] Household enterprises for the most part operate in wholesale and retail (80 percent), a sector dominated by female workers which also tends to be one of the least profitable (less than half of average profits), and that has been heavily affected by reduced economic activity and lockdown measures during the COVID-19 crisis. Youth working in unpaid employment are most likely contributing members to these household enterprises and likely to depend on them as sources of livelihoods. About 75 percent of all households operate only one enterprise. These un-diversified households are even more likely to be vulnerable to economic contraction as their enterprises generally have significantly lower revenues and profits than enterprises in households operating more than one business, are not likely to have accumulated savings, and have little recourse to private or public safety nets.

The COVID-19 pandemic posed a major threat to the Liberian economy and its people, in particular urban informal non-farming firms, which saw large revenue losses, with the risk of closing due to limited access to formal credit. As in other countries, urban areas were the epicenter of COVID-19 infections, with a majority of cases recorded in Montserrado county, which hosts the capital city of Monrovia.[6] Due to the prevalence of street selling and petty trade among the urban informal workers, social distancing rules led to a sudden stop in business activity and prolonged closure.

in rural than in urban areas, higher share of rural households will be below the national 60 percent cut-of than in urban areas.

[5]Enterprises are registered by the GoL on the Liberia Business Register. The registered enterprises are issued a certificate and a corresponding identification number.

[6]About 70 percent as of November 19, 2020. Source: NPHIL.

2.2 Program Description

This study focuses on the first round of implementation of the Support for Small Businesses program (SSB), which took place between September 2022 and June 2023 and covered about 1,300 beneficiaries from 15 selected macro-communities in Greater Monrovia. The implementation team led by the local government oversaw community outreach, intake of applicants and determination of eligibility to participate in the program.

Beneficiaries selected for the program gained access to five components:

1. A five-day long orientation training and support in writing a business plan;
2. Opening of a mobile money account to receive payments;
3. A business grant of US$900;
4. Registration of their business with the national authority;
5. Monthly visits and coaching delivered by community animators.

Training delivery, review of business proposals, and follow-ups with community animators were implemented by Educare Liberia, an NGO with strong experience in skill training.

The 5-day training (component 1), focused on business management and financial literacy. Training sessions were designed to help businesses develop effective business plans, improve record-keeping capabilities, promote savings practices, and enhance customer service skills. The training curriculum also included personal initiative and growth mind-set sessions, leveraging role models, and cost-effective coaching sessions involving peers from the local community.[7] The training was provided at the community level. Classes included up to 40 beneficiaries and lasted a half day. Each trainer was assigned at the community level and oversaw the

[7]The short duration of the training was decided based on findings from a previous project implemented in Liberia, that business owners with pre-existing experience—as the sample of respondents here—needed less intensive training than business owners without previous experience.

training to up to 80 beneficiaries per community, for the duration of a week's time, split between morning and afternoon sessions.

The training manual, developed by Educare Liberia, provided a comprehensive five-day curriculum covering essential business management topics including: business fundamentals (the 6Ps - product, place, price, promotion, population, and passion), cost management and pricing, market analysis, saving money, record keeping, and formal business registration.[8] Each training day consisted of multiple modules delivered over approximately four hours, progressing from basic concepts to more complex business planning. The training culminated in participants developing their own business plans, which is a requirement for receiving the project's grant support.

The training of trainers emphasized a highly interactive teaching methodology specifically designed for adult learners with low literacy levels. Trainers are instructed to avoid academic approaches and instead use participatory techniques such as role-play, storytelling, small group discussions, practical demonstrations, and visual aids. The trainer's role is to facilitate learning by building on participants' existing knowledge and experiences, encouraging active participation, and ensuring concepts are explained in simple, practical terms. Rather than lecturing, trainers are guided to use questions and discussions to help participants discover key concepts, and to provide regular breaks and energizing activities to maintain engagement. The training manual provided detailed instructions for each activity, including specific discussion questions, stories to share, and points to em-

[8]The material was developed by a team that incorporated feedback and content from multiple organizations. Specifically, they acknowledge: Mercy Corps (Liberia), USAID/Liberia Advancing Beneficiary Project, Economic Empowerment of Adolescent Girls and Young Women (EPAG) Project at the Ministry of Gender and Development, International Rescue Committee (Liberia). The manual also builds upon existing curricula shared by AVSI Uganda (their WINGS+ materials), Government of Ivory Coast (PEJEDEC curriculum), Ministry of Education in Liberia (Core Education Skills for Liberian Beneficiary Project materials), Mercy Corps (Business Skills & Entrepreneurship Training for PROSPECTS program). Additionally, the developers consulted with researchers Chris Blattman, Eric Greene and Eve Puffer who shared their experiences with the WINGS+ and other training activities internationally.

phasize.

To receive payments, beneficiaries were set with mobile money accounts (component 2). Beneficiaries also benefited from enrollment in the National ID Registry (NIR) and received National Identification Numbers (NIN) and NIR ID cards, which facilitated their registration for Mobile Money accounts. Most beneficiaries already had a SIM card; however, those who did not were provided one.

The grants, disbursed through mobile money, were intended for investment in inputs, productive assets, and other business expenses necessary to the development of the business plan (component 3). The first tranche of the grant amounted to US$ 500; the second tranche to US$ 100, and the last tranche to US$ 300. The division into separate tranches was decided with the intention to incentivize adequate use of the funding in line with the submitted business plan. At the project's preparation stage, it was expected that about 60 percent of beneficiaries would meet the conditions to receive the third tranche of the grant.[9]

Upon successful completion of the business plan activities, beneficiaries received a certificate of participation issued by the Liberia Agency for Community Empowerment (LACE).

The sequencing of activities was defined to encourage compliance. Payment of the first tranche of the grant was conditional on attendance of at least 3 of the 5 days of orientation training and approval of the business plan by the PMT. Payment of the second tranche was granted to all recipients of the first tranche, with the exception of a small but significant number of beneficiaries who were found by the PMT to have diverted the first round of payment away from the approved business proposal. Reg-

[9]Initially, the payment was supposed to be split into two tranches: a first US$600 tranche and a second US$300 tranche. However, the first tranche was further split into two because the payment transfer via the mobile money platform was capped at US$500. In addition, the time lapsed between the payment of the US$500 and the remaining US$100 was sufficiently long to reveal the presence of patently non-compliant businesses, which were then removed from the project.

istration of the business was offered to beneficiaries qualifying for the second tranche of payments. Payment of the third tranche was conditional on providing evidence of payment of expenses in line with the submitted business plan.

2.3 Sample Selection

This section provides details on the sample of businesses targeted by the program.

Program activities covered 39 communities grouped into 15 macro-communities. The 15 macro-communities were randomly drawn from a list of 20 macro-communities selected by the Liberian government based on a qualitative assessment of poverty and deprivation indicators, as well as proximity to five large street markets. All businesses in these communities that satisfied the eligibility criteria were invited to submit an application to participate in the program.

Businesses were eligible for the program if they were located in one of the 39 target communities and met the following criteria:

- Having had previous business experience, on or before March 30, 2021;
- Business owners aged 18 or more;
- No enrollment in other social assistance programs;
- No more than one applicant per household;
- Monthly household income does not exceed US$ 250;
- No household member can hold a public office;
- Passing a proxy-means poverty assessment (see Appendix Section A.1 for description of the test).

The screening for eligibility was conducted right after application submission, through analysis of the answers provided in the questionnaire completed for application (hereafter referred to as "intake questionnaire"), de-duplication and verification of inconsistent applications. A second layer

of verification of the criteria was conducted at the macro-community level by community oversight committees, which vetted the lists of applicants invited to participate in the lottery used to allocate the benefits.

The sample frame of the impact evaluation was restricted to six main sectors, to ensure that the size of markets would be large enough for allowing randomization. Eligible applicants not belonging to the impact evaluation frame were still able to participate through a separate track. 6,446 applicants were part of the sample for the impact evaluation.

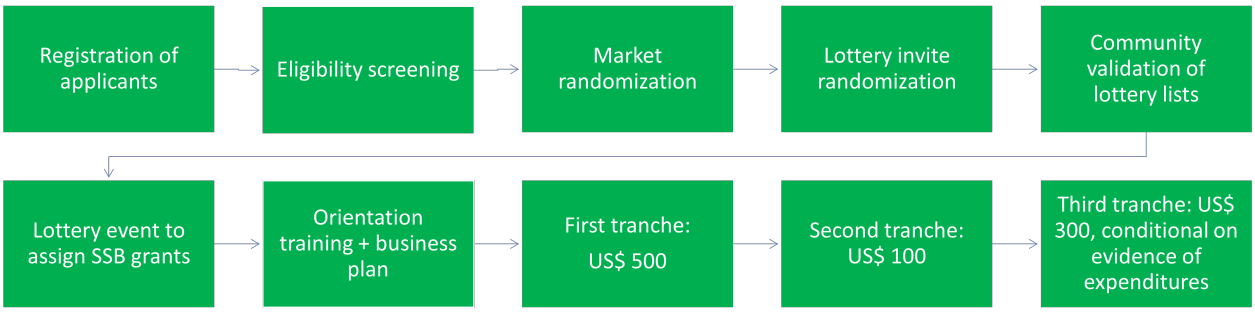
2.4 Randomization of Program Beneficiaries

Businesses were randomly assigned to either the treatment group, who received the program, or the control group, who did not. The randomization was clustered at the market level, with a market defined as a sector and geographical location. The procedure followed three stages:

1. Random selection of treated markets;
2. Random selection of lottery invitees within treated markets;
3. Lottery event, with random selection of lottery winners among attendees.

Figure 1 summarizes the different steps of the project process for businesses, with the corresponding randomization stages.

FIGURE 1: PROJECT PROCESS



1. Random selection of treated markets:

The applicants were classified into 138 different markets, with a market defined as the combination of sector and location of activity. For the two largest sectors, we hypothesize that businesses are more likely to compete in a smaller geographical zone, and a market is defined as the sub-community. For the four smaller sectors, we hypothesize that businesses are competing with businesses that are further away, so a market is defined as a the macro-community (which itself is comprised of sub-communities).

Based on the randomization, a "treated" market is defined as a market where a share of the applicants will be invited to participate in the lottery. A "control" market is defined as a market where none of the applicants will be invited to participate in the lottery (at least not for this round of the SSB).

The market randomization was stratified by sector type and macro-community in order to ensure adequate representation of each sector and community in the treatment group. In particular, the following rules were followed: (1) for each of the four small sectors, at least 7 of the 15 markets in the sector would be treated and at least 7 would be control; (2) for each sub-community, only one of the two large sectors was treated while

the other served as control; (3) in each macro-community, half of the sub-communities were assigned one large sector, and half the other; (4) in each macro-community, two small sectors were treated and two small sectors were controls.

Overall the 69 treated markets comprise 3,347 applicants, while the 69 control markets cover 3,099 applicants.

2. Random selection of lottery invitees within the treated markets

The research team had a budget that allowed to interview about 2,000 respondents, to be interviewed before the lottery events. If they research team had randomly chosen these respondents among the eligible program participants in the treatment markets, there would be a risk that sample is not evenly split between treatment and control groups.[10] To ensure that a sufficiently large number of surveyed individuals would be allocated to both the treatment and control groups, the research team capped the number of lottery invitees, randomized invitees among eligible applicants in each market, and chose survey respondents among lottery invitees only.[11] The sample of survey respondents was selected at a point when the research team was aware of which individuals had been chosen to be invited to the lottery but before the lottery events had occurred. This approach allowed for balanced representation in both groups in the survey, maximizing statistical power. The randomization was not publicly disclosed and was conducted immediately after the randomization of the treated markets.

The number of participants invited to the lottery was capped to 170 per macro-community. Within macro-communities, randomization of invitees was stratified by markets in such a way that smaller markets would receive at least 8 invitees, and the rest of invitees were drawn from the other mar-

[10] These markets comprise of 3,347 applicants, and 1,232 would receive a grant.

[11] In practice, a small number of eligible applicants—26—were not lottery invitees and were also surveyed, but these observations are dropped given the small sample.

kets within the macro-community. Overall, 2,532 applicants from treated markets were invited to the lottery, 2,098 were chosen to be part of the sample survey, and the remaining 815 were not invited.

Out of the 2,098 baseline survey respondents who were invited to the lottery, 1,794 decided to attend the lottery while the remaining 304 did not attend. Table 1 below explore how participants who attended the lottery differ from participants who did not attend.

We observe that there is a slight positive selection into attending the lottery conditional on being invited to it. Those who attended the lottery were slightly richer (as judged by the poverty score), more likely to be literate and to have received formal education than those who did not attend the lottery. They were also more likely to have an active business. This means that the effect of winning a lottery is only causally identified on the subsample of applicants who attended the lottery. One would ideally need to explicitly model selection to compute the causal effects for the broader population. An alternative would be to compute bounds (like Lee bounds) under a few assumptions.

TABLE 1: COMPARISON OF LOTTERY ATTENDEES AND NON-ATTENDEES, AMONG INVITED APPLICANTS

	(1) Did not attend lottery		(2) Attended lottery		(1)-(2) Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Female (intake)	432	0.824 (0.381)	2243	0.817 (0.387)	2675	0.735
Age, HH head (intake)	432	43.417 (13.262)	2243	42.291 (12.130)	2675	0.082*
No. of HH members (intake)	432	5.076 (1.904)	2243	4.994 (1.913)	2675	0.413
Literate (intake)	432	0.442 (0.497)	2243	0.493 (0.500)	2675	0.054*
PPI poverty score (intake)	432	31.991 (15.951)	2243	29.688 (15.453)	2675	0.005***
Age (baseline)	284	38.349 (12.673)	1785	38.123 (12.000)	2069	0.770
No. of children (baseline)	289	3.149 (1.939)	1794	3.182 (1.992)	2083	0.790
Has formal education (baseline)	289	0.637 (0.482)	1794	0.692 (0.462)	2083	0.059*
Married (baseline)	289	0.183 (0.388)	1793	0.201 (0.401)	2082	0.492
Single (baseline)	289	0.360 (0.481)	1793	0.354 (0.478)	2082	0.836
Owns house (baseline)	289	0.415 (0.494)	1794	0.421 (0.494)	2083	0.844
Age started working (baseline)	278	21.043 (5.680)	1724	21.522 (6.264)	2002	0.231
No. of businesses, past 5 yrs (baseline)	431	1.077 (0.322)	2243	1.069 (0.260)	2674	0.579
Has active business (baseline)	431	0.575 (0.495)	2243	0.713 (0.453)	2674	0.000***
Weekly revenue, USD winsor. 1		(74.108)		(80.145)		
Weekly cost, USD winsor. 1% (baseline)	289	30.727 (67.786)	1794	32.599 (63.990)	2083	0.647
Weekly profit, USD winsor. 1% (baseline)	289	19.654 (65.429)	1794	19.658 (64.081)	2083	0.999
Savings, USD winsor. 1% (baseline)	281	65.641 (105.653)	1754	71.727 (113.861)	2035	0.401
Has bank account (baseline)	289	0.114 (0.319)	1794	0.126 (0.332)	2083	0.573
Has mobile money account (baseline)	289	0.751 (0.433)	1793	0.810 (0.393)	2082	0.020**

Notes : This table compares applicants who attended the lottery against those who did not, conditional on being invited to the lottery. Variables drawn from the baseline survey have a smaller sample than the intake survey because only a subset of the intake respondents were sampled for the baseline survey.

3. Lottery event, with random selection of lottery winners among attendees:

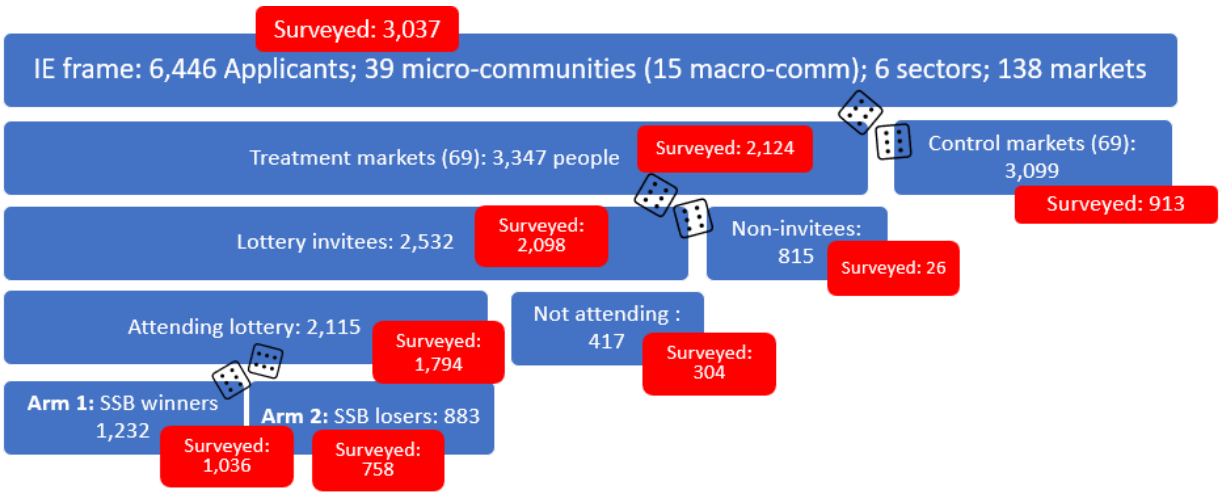
The third stage of randomization was the selection into the SSB program, among the participants who attended the lottery events. The lottery events took place in each of the 15 macro-communities, publicly. Only participants who were on the list of invited participants and who had not been excluded by the community oversight committees were allowed to attend, and only those who attended the lottery were eligible to participate. Upon arrival, each attendee was given a ticket that would be inserted in an urn.

Randomization was stratified by market in order to maintain the same share of SSB winners per market as in the pool of applicants in the macro-community. To implement in practice the stratification, each lottery event had separate urns for the different markets treated in that community, plus one urn for lottery invitees who were outside the impact evaluation frame. At the moment of attendance recording, attendees were asked to insert the ticket in their market of operation. Then, from each urn, a certain number of tickets would be extracted in order to select the lottery winners. The number of winners for each urn was calculated by the PMT, with assistance from the data collection firm for the impact evaluation. The apportionment of the 87 slots available a the community level to each of the urns was made based on the largest remainders method. Minor discrepancies must have occurred due to some attendees not inserting the ticket in the urn corresponding to the sector they had selected at the application stage. The apportionment to different urns was based on the calculation of the *expected* number of tickets in each urn, based on the sector reported at intake.

Additional stratification by gender would have been introduced if women had made fewer than 50% of applicants. However, this was not the case in any of the communities, hence there was no need to enact the quota that had been devised for women inclusion.

Overall, out of the 2,115 applicants attending the lottery events, 1,232 were winners and 883 were losers. Figure 2 details the number of businesses at each stage of the selection and randomization process.

FIGURE 2: SURVEY SAMPLE AT EACH STAGE OF RANDOMIZATION



2.5 Program compliance

Program compliance was high among winners. Among all 1,031 lottery winners, 1,016 attended three or more sessions of the orientation training and submitted a business proposal with the guidance of the community animators, which entitled them to receiving the first tranche of the grant, of US$ 500. Of these, 102 were removed from the project because they had been found not to be operating their business. As a consequence, the remaining 90% received the second tranche of US$100 and was then accompanied to the process of registration. Finally, the 858 participants who showed evidence of compliance with the business proposal were entitled to the final tranche of the grant. Overall, among all lottery winners, the average grant received amounted to US$ 832.

Figure 3 shows the number of compliant businesses at each step of the program, while Figure 4 shows the percentage of compliant businesses.

Figure 5 focuses on the survey sample.

FIGURE 3: NUMBER OF COMPLIANT BUSINESSES

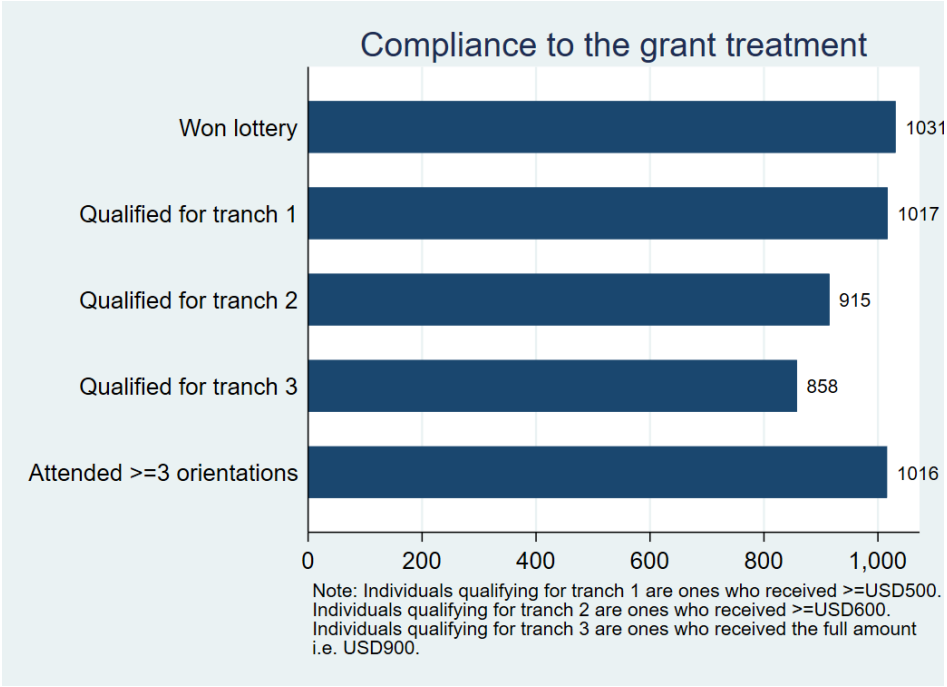


FIGURE 4: SHARE OF COMPLIANT BUSINESSES

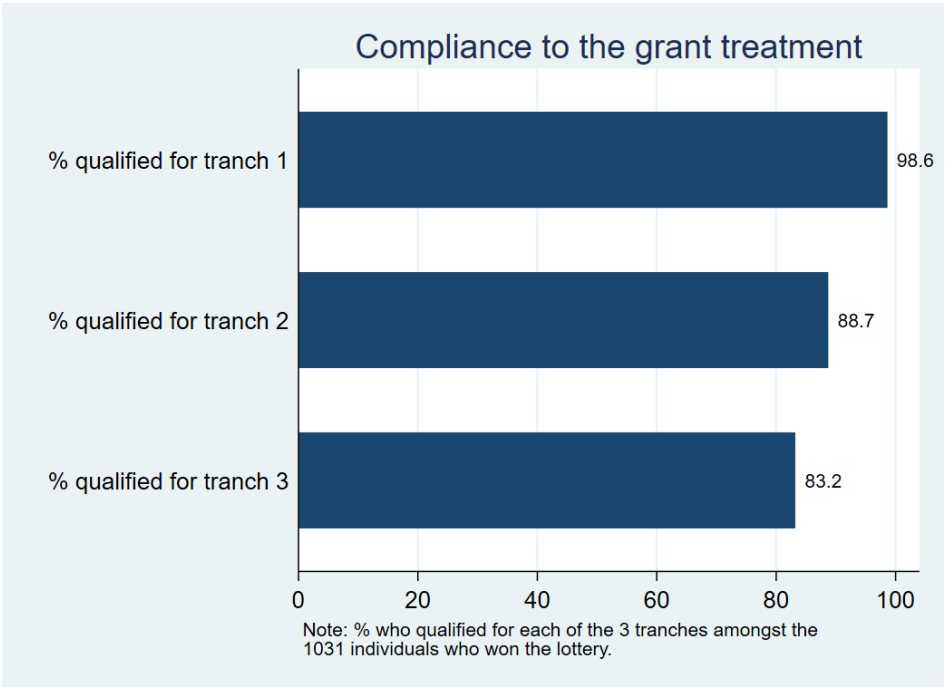
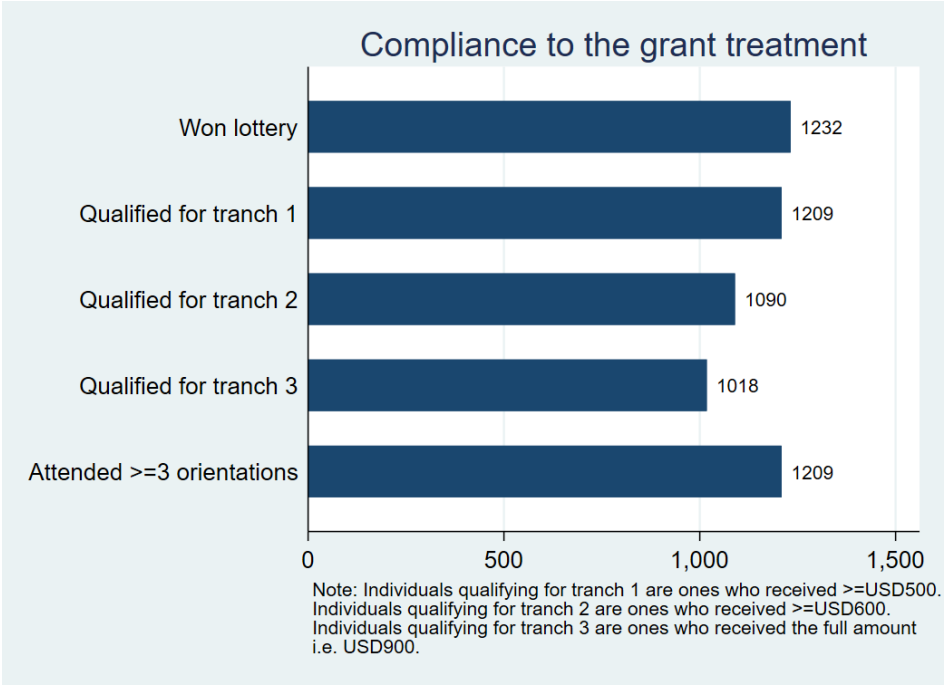


FIGURE 5: NUMBER OF COMPLIANT BUSINESSES IN SURVEY SAMPLE



2.6 Data collection

Survey respondents were sampled from the list of grant applicants. Their random selection was conducted in such a way as to have 210 respondents in each of the 15 macro-communities. The selection of the survey sample (and the baseline data collection) took place after randomization of markets and lottery invitees, but before the lottery events. Respondents were drawn randomly, with the following constraints:

1. In each community, 147 respondents were selected from treated markets and 63 from control markets;

2. At least 15 people were surveyed in each treated market (unless the market was smaller). Within markets, the survey sample prioritized businesses invited to the lottery. Non-invited business were only surveyed if the number of invitees did not allow to reach the minimum

quota of 15 respondents per treated market;[12]

3. At least 8 people from control markets were surveyed (unless the market was smaller).

In descriptive statistics, sampling weights are used to account for the sample selection procedure. Weights are the inverse probability of an applicant being surveyed in a market, or in other word the number of sample businesses in the market over the number of sampled individuals.[13]

Baseline survey

The baseline survey was conducted after the market randomization (of which the results where not publicly known), but before participants were invited to the public lottery events. This was done to ensure that the baseline data would not capture "announcement" effects, where the data is affected by the respondent's knowledge of whether she or he is in the treatment group.

The baseline survey sought to measure a wide array of socio-demographic variables including age, gender, and marital status; household characteristics, such as headship and the number of dependents; and educational background, ascertaining levels of formal education and literacy. These were followed by modules on economic conditions, which included questions on unpaid activities and provided an in-depth look into the non-monetary contributions of the respondents, such as childcare and household chores. A significant portion of such modules was also dedicated to understanding the respondents' business acumen and activities. It probed into the number of businesses owned, the operational capacity of these businesses amidst challenges like COVID-19, and the existence of business

[12]This resulted in 26 businesses surveyed who were not invited to the lottery.
[13]Treatment effects estimations do not use sampling weights.

plans and accounting practices. Furthermore, the survey measured financial behaviors, exploring savings, loans, and investment tendencies, as well as the role of informal financial systems like savings groups called "susu". Future-oriented perspective were also included, enquiring about potential economic activities and the motivations behind self-employment, alongside the respondent's aspirations and decision-making strategies. In addition to economic and financial elements, the survey addressed behavioral aspects such as risk tolerance, self-esteem, and group membership preferences, particularly in the context of social media. Questions related to business communication practices provided insights into how respondents interact with clients and suppliers and how they promote their businesses. Geo-location data was collected to map the business operations across different community clusters, giving a spatial dimension to the economic activities.

Table 2 shows summary statistics on the baseline data collection. The baseline survey aimed for 3,150 responses, and achieved a 96.25% completion rate. This share is very similar across those who were invited to the lottery (96.4%) and those who weren't invited to the lottery (96.1%). Since surveys were collected before participants were invited to the lottery, this does not come as surprise.[14]

TABLE 2: BASELINE DATA COLLECTION SUMMARY STATISTICS

	# of obs	Prop. of sample
Target sample	3150	1.000
Completed surveys	3035	0.963
Missing	115	0.037

Notes: Missing entrepreneurs include both the ones who refused to respond and the ones who could not be reached. We do not have data on the reasons for missingness.

Table 3 shows differences between respondents to the baseline survey

[14]Lottery invitees were selected randomly before the baseline survey, however this was not communicated to the participants.

and the participants who were in the survey sample but did not respond to the survey, based on the intake data. The table shows that the program participants who did not respond to the survey have a higher poverty score and are less literate than the ones who responded.

TABLE 3: COMPARISON OF BASELINE SURVEY RESPONDENTS AND NON-RESPONDENTS

	(1) Did not respond to baseline		(2) Responded to baseline		(1)-(2) Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Female	115	0.843	3035	0.829	3150	0.692
		(0.365)		(0.376)		
Age (HH head)	115	44.096	3035	42.147	3150	0.091*
		(14.673)		(12.011)		
No. of HH members	115	4.843	3035	5.009	3150	0.364
		(1.958)		(1.918)		
Literate	115	0.322	3035	0.501	3150	0.000***
		(0.469)		(0.500)		
PPI poverty score	115	33.144	3035	29.529	3150	0.014**
		(16.310)		(15.373)		

Notes: The data comes from the intake survey.

Endline survey

The endline survey was carried out from November to December 2023, which is 10 to 12 months after the end of the program (final grant disbursement), and 15 months after baseline. Building on the baseline survey, the endline survey sought to capture key outcomes of interest, and included socio-demographic and household characteristics, as well as outcomes on economic conditions of recipients and their business operations.

Table 4 displays summary statistics on the endline data collection. The endline survey achieved a 91.8% completion rate, successfully tracking and enumerating 2,789 beneficiaries.

TABLE 4: ENDLINE DATA COLLECTION SUMMARY STATISTICS

	# of obs	Prop. of sample
Baseline target sample	3150	1.000
Endline target sample	3035	0.963
Endline completed surveys	2788	0.885
Missing	248	0.079
Refused to respond	2	0.001
Relocated	36	0.011
Unavailable	26	0.008
Unreachable	151	0.048
Missing for other reasons	33	0.010

The share of responses was not significantly different between lottery winners and losers, conditional on attending the lottery: of the 1,036 baseline respondents who attended the lottery at baseline and won, 92.8% responded at endline; while among those 758 respondents who attended and lost the lottery, 92% responded at endline. Table 5 shows differences between endline survey respondents and participants who did not respondent to the survey, conditional on being in the overall sampling frame (i.e. the non-respondents include both - the ones who did not respond at baseline and were therefore not contacted again, as well as those who did respond at baseline but not at endline).

TABLE 5: COMPARISON OF ENDLINE SURVEY RESPONDENTS AND NON-RESPONDENTS

	(1)		(2)		(1)-(2)	
	Did not respond to endline		Responded to endline		Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Female	362	0.829	2788	0.830	3150	0.952
		(0.377)		(0.376)		
Age (HH head)	362	42.892	2788	42.130	3150	0.260
		(13.850)		(11.878)		
No. of HH members	362	4.876	2788	5.019	3150	0.180
		(1.987)		(1.910)		
Literate	362	0.376	2788	0.510	3150	0.000***
		(0.485)		(0.500)		
PPI poverty score	362	32.460	2788	29.298	3150	0.000***
		(16.607)		(15.225)		

Notes: The sample is the overall sampling frame. Thus, the non-respondents include both the non-respondents at baseline who were not contacted again, as well as the ones who responded at baseline but attrited at endline. The data comes from the intake survey.

Sample

Table 6 shows the number of program applicants at every step of the selection process and surveys, split by lottery invitation, attendance, and lottery outcome.

2.7 Sample Balance

This section explores balance between lottery winners and lottery losers, among lottery attendees, conditional on answering the endline survey. Tables 7, 8, and 9 show balance on some key covariates used in the analysis and measured at baseline to ensure that the sample is not affected by differential attrition.

TABLE 6: NUMBER OF PROGRAM PARTICIPANTS

	Total Applicants	Not invited to lottery	Invited to lottery				
			Total	Did Not Attend	Attended		
					Total	Winners	Losers
Total Applicants	6446	3932	2514	399	2115	1232	885
Baseline Sample	3150	990	2160	320	1840	1065	775
Baseline Respondents	3035	952	2083	289	1794	1036	758
Endline Respondents	2788	890	1898	236	1662	964	698

TABLE 8: SECTOR BALANCE BETWEEN LOTTERY WINNERS AND LOSERS FOR ENDLINE RESPONDENTS

	(1) Lost lottery		(2) Won lottery		(1)-(2) Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Cooking/Catering/Restaurant	698	0.047	964	0.073	1662	0.034**
		(0.212)		(0.260)		
Petty trade (selling house to house)	698	0.193	964	0.197	1662	0.852
		(0.395)		(0.398)		
Food processing	698	0.150	964	0.166	1662	0.393
		(0.358)		(0.372)		
Retail trader (food and drinks)	698	0.159	964	0.154	1662	0.760
		(0.366)		(0.361)		
Retail trader (clothes and footwear)	698	0.179	964	0.177	1662	0.929
		(0.384)		(0.382)		
Retail trader (other goods)	698	0.324	964	0.296	1662	0.220
		(0.468)		(0.457)		

Notes : Displayed above are the most represented of the 35 subsectors as measured at baseline.

TABLE 7: BALANCE BETWEEN LOTTERY WINNERS AND LOSERS FOR ENDLINE RESPONDENTS

	(1) Lost lottery		(2) Won lottery		(1)-(2) Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Female	698	0.830 (0.376)	964	0.835 (0.371)	1662	0.765
Age, HH head (intake)	698	41.685 (11.810)	964	42.166 (11.768)	1662	0.412
No. of HH members (intake)	698	4.956 (1.875)	964	5.030 (1.904)	1662	0.428
Literate (intake)	698	0.510 (0.500)	964	0.505 (0.500)	1662	0.846
PPI poverty score (intake)	698	29.118 (15.100)	964	29.452 (15.193)	1662	0.657
Age (baseline)	693	37.895 (11.618)	961	38.438 (12.052)	1654	0.358
No. of children (baseline)	698	3.223 (1.961)	964	3.178 (1.993)	1662	0.647
Has formal education (baseline)	698	0.705 (0.456)	964	0.693 (0.462)	1662	0.602
Married (baseline)	697	0.191 (0.393)	964	0.214 (0.410)	1661	0.254
Single (baseline)	697	0.343 (0.475)	964	0.358 (0.480)	1661	0.528
Owns house (baseline)	698	0.415 (0.493)	964	0.430 (0.495)	1662	0.541
Age started working (baseline)	672	21.626 (6.287)	923	21.418 (6.195)	1595	0.510
No. of businesses, past 5 yrs (baseline)	698	1.453 (0.681)	964	1.422 (0.655)	1662	0.357
Has active business (baseline)	698	0.890 (0.314)	964	0.895 (0.306)	1662	0.719
Weekly revenue, USD winsor. 1% (baseline)	698	53.824 (72.509)	964	52.616 (86.428)	1662	0.764
Weekly cost, USD winsor. 1% (baseline)	698	32.707 (59.723)	964	33.947 (68.859)	1662	0.702
Weekly profit, USD winsor. 1% (baseline)	698	21.117 (61.334)	964	18.670 (66.543)	1662	0.445
Savings, USD winsor. 1% (baseline)	687	75.760 (116.830)	936	70.625 (113.699)	1623	0.374
Has bank account (baseline)	698	0.136 (0.343)	964	0.122 (0.328)	1662	0.410
Has mobile money account (baseline)	697	0.806 (0.395)	964	0.820 (0.385)	1661	0.496

Notes : All variables are measured at baseline, with the exception of poverty score. The business motivation index combines respondents' level of agreement to 6 statements on their reasons for running a business. The higher the index, the higher the level of motivation to run a business. The business support activities index combines how often respondents undertake 9 different activities such as advertising, offering discounts, etc. to support their business. The business challenges index averages how severely (measured on a 10-point scale) respondents face 7 different challenges such as access to finance, corruption, etc. The higher the index, the higher the severity of the challenges faced. Total revenues, total costs and profits have been computed by summing over all current businesses and winsorizing at the 5% level.

TABLE 9: COMMUNITY BALANCE BETWEEN LOTTERY WINNERS AND LOSERS FOR END-LINE RESPONDENTS

	(1)		(2)		(1)-(2)	
	Lost lottery		Won lottery		Pairwise t-test	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	P-value
Omega/Kemah Town	698	0.054	964	0.061	1662	0.562
		(0.227)		(0.240)		
Caldwell	698	0.072	964	0.071	1662	0.932
		(0.258)		(0.256)		
GSA Road	698	0.064	964	0.063	1662	0.922
		(0.246)		(0.244)		
New Kru Town	698	0.069	964	0.063	1662	0.656
		(0.253)		(0.244)		
Gardnersville	698	0.064	964	0.067	1662	0.811
		(0.246)		(0.251)		
Rehab	698	0.063	964	0.071	1662	0.547
		(0.243)		(0.256)		
Lakpazee	698	0.044	964	0.065	1662	0.068*
		(0.206)		(0.247)		
Gaye Town	698	0.043	964	0.064	1662	0.061*
		(0.203)		(0.245)		
Crab Hole	698	0.092	964	0.075	1662	0.212
		(0.289)		(0.263)		
Peace Island	698	0.069	964	0.058	1662	0.375
		(0.253)		(0.234)		
West Point	698	0.089	964	0.071	1662	0.171
		(0.285)		(0.256)		
Kesselly Boulevard	698	0.063	964	0.067	1662	0.721
		(0.243)		(0.251)		
Pagos Island	698	0.063	964	0.065	1662	0.850
		(0.243)		(0.247)		
Jacob Town	698	0.079	964	0.068	1662	0.424
		(0.270)		(0.253)		
Vai Town	698	0.072	964	0.070	1662	0.867
		(0.258)		(0.254)		

Notes : Displayed above are the 15 macro-communities as measured at baseline.

3 Empirical Strategy

Following Crepon *et al.* (2013), we run the following specification:

$$y_{ij} = \alpha + \beta \text{wonlottery}_i + \delta \text{treatedmarket}_j + X_{ij}\gamma + \epsilon_{ij}$$

β is the difference between those who won the lottery and those who are in treatment markets but did not win the lottery. δ is the effect of being untreated in a treated market. The sum $\beta + \delta$ is the effect of winning the lottery compared to being in an untreated market. In treated markets, participants who did not win the lottery include both participants who attended the lottery but did not win (random) and those who did not attend the lottery (self-selection). In that sense, β is not well causally identified, unless we assume that the variables leading to the lottery attendance and affecting our outcomes (variables that determine self-selection) are controlled for in X_{ij}.

Since lottery-attendance was recorded, we can also run the following alternative specification:

$$y_{ij} = \alpha + \beta \text{wonlottery}_i + \delta \text{treatedmarket}_j + \delta \text{attendedlottery} + X_{ij}\gamma + \epsilon_{ij}$$

This allows interpreting β causally (conditional on being in a treated market and attending the lottery, winning the lottery is random), but it now captures the effect of winning the lottery compared to those in the treated market who did not, *on those individuals that attended the lottery*.

Because lottery attendance is predictive of business outcomes but orthogonal to market assignment, this is our preferred specification. It improves precision and isolate the randomized margin of individual treatment. Results are robust to excluding this control. In the tables that follow, we report δ, the effect of being in a treated market, and β the additional

effect of the program compared to individuals in the treated markets, on individuals that attend the lottery. The overall effect of the program on individuals who attended the lottery is $\beta + \delta$.

4 Main Results

This section reports the effect of the treatment on participants.

4.1 Training and Grants

Lottery winners have good recall of participating in the training, and are generally aware that the training is government-sponsored. Table 10 shows the effect of the treatment on training participation. This table (and all the tables in the section thereafter) report two coefficients "Won Lottery"—the difference in treatment effect between participants who won the lottery and those who lost, on participants who attended—and "Treated Market"—the difference in outcome between participants in markets where at least a share of participants receive the treatment and participants in markets where no-one received the treatment (the pure control group). Consequently, "Treated Market" can be interpreted as the effect of being in a treated market, while the overall effect of the treatment on businesses who attended the lottery can be measured as the sum of the two coefficients, "Won Lottery" and "Treated Market".

91% of lottery winners report receiving any training in the past 2 years, and 85% report participation in a government-sponsored training. As 21% of lottery losers report participating in some training over the last two years, there is a 70 percentage point increase in overall training participation. The increase in government-training participation is slightly offset by lower participation in other forms of training: lottery winners are less likely than losers to participate in non-government sponsored trainings.

In contrast, being in a treated market does not affect whether participants partake in business training, which means there is no spillover effects of training participation to businesses in the same location and sector.

TABLE 10: AVERAGE IMPACT OF SSB ON TRAINING PARTICIPATION

	Participated in any business trainining		Participated in government trainining		Participated in other trainining	
Treated market	-0.027	-0.021	-0.023	-0.019	-0.0056	-0.0033
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Marginal effect of winning lottery	0.72***	0.72***	0.76***	0.76***	-0.035***	-0.036***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Total effect of winning lottery	0.69***	0.70***	0.74***	0.74***	-0.04*	-0.04*
	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES
Control Mean	0.213	0.213	0.111	0.111	0.106	0.106
Std. Dev.	0.410	0.410	0.315	0.315	0.307	0.307
Observations	2788	2788	2788	2788	2788	2788

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Outputs refer to the period of 2 years preceding the interview. "Other training" is a dummy that equals 1 if the respondent reports attending delivered neither by Educare (within or without the scope of the SSB program), nor by the government. The sample includes endline observations only given that these questions were only asked at endline.

Table 11 shows the effect of the program on grants received by the business. Compared to the pure control group, lottery winners are 99 percentage points more likely to report receiving some form of government-delivered grant in the last two years, and 3.2 percentage points less likely to report receiving grants from other sources, pointing to some form of crowding out from participation in the program. The net effect of winning the lottery is an increase in the average amount of grants received by US$ 814. It is also interesting to note that the grants provided by non government entities seem to be smaller in size: US$ 293 is the average amount received in grants from other organizations among lottery losers who report

receiving some grant. It is also notable that the recollection of the amount received is quite accurate: the average lottery winner reports receiving US$ 824.1 of grants in the past 2 years, which is comparable with the average US$ 832 reported by the administrative records. Being in a treated market by itself did not affect whether businesses received grants.

TABLE 11: AVERAGE IMPACT OF SSB ON GRANTS RECEIVED

	Received any grant		Received government grant		Received other grant		Amount received (USD)	
Treated market	0.0012	0.0029	0.0095	0.011	-0.0079	-0.0078	-0.83	0.56
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(5.46)	(5.83)
Marginal effect of winning lottery	0.95***	0.95***	0.98***	0.98***	-0.031***	-0.031***	813.6***	813.5***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(6.92)	(6.79)
Total effect of winning lottery	0.95***	0.95***	0.99***	0.99***	-0.04***	-0.04***	812.79***	814.04***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(6.89)	(6.74)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.033	0.033	0.001	0.001	0.032	0.032	7.614	7.614
Std. Dev.	0.178	0.178	0.034	0.034	0.175	0.175	54.517	54.517
Observations	2788	2788	2788	2788	2788	2788	2788	2788

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Outputs refer to the period of 2 years preceding the interview. The sample includes endline observations only given that these questions were only asked at endline.

4.2 Business Outputs

Table 12 reports the effect of the program on business activities. Lottery winners are more likely to have an active business, bringing the percentage of respondents from the treatment group with an active business to 95%. Beneficiaries also increased their time commitment to business activities by an additional 7.3 hours per week, from an average of 37 hours in the pure control group. There was also a substantial push towards formalization, with a 61 percentage point increase in business registration rates. Most of this effect is mechanical, as business registration was part of the treatment

and compulsory to receive the grant.

These effects have no significant spillovers to businesses in treated markets who were not part of the treatment. Although not significant, the coefficient on hours spent on the business is interesting: participants in treated markets who did not win the lottery spend 40 minutes to an hour more per week on their business.

TABLE 12: AVERAGE IMPACT OF SSB ON BUSINESS OPERATIONS

	Number of businesses		Has an active business		Number of businesses operating at full capacity		Total hours spent on business		Business is registered	
Treated market	0.050	0.039	0.034*	0.035*	0.058	0.060	0.95	0.66	-0.016	-0.015
	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)	(0.04)	(2.00)	(1.97)	(0.02)	(0.02)
Marginal effect of winning lottery	0.010	0.00093	0.094***	0.091***	0.19***	0.19***	6.45***	6.61***	0.62***	0.62***
	(0.04)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(1.95)	(1.90)	(0.02)	(0.02)
Total effect of winning lottery	0.06	0.04	0.13***	0.13***	0.25***	0.25***	7.40***	7.27***	0.60***	0.60***
	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)	(0.04)	(2.28)	(2.24)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	1.542	1.542	0.863	0.863	0.690	0.690	37.038	37.038	0.084	0.084
Std. Dev.	0.779	0.779	0.344	0.344	0.569	0.569	31.373	31.373	0.277	0.277
Observations	5823	5823	5823	5823	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. For each business mentioned, respondents were asked whether it was operating at full capacity, partial capacity or was closed. Active businesses are those that are operating at full or partial capacity. The number of hours spent on businesses is measured per week and is summed over all businesses. Business registration takes the value one if the respondent has at least one registered business. The sample is the sum of baseline and endline observations for survey respondents.

Table 13 presents the effect of the treatment on business operations. Lottery winners are more likely to operator in a new sector at endline compared to the sector the declared during the baseline survey. Grant winners also do better in terms of operation site, with a 29 percentage point increase in ownership of operation sites and an 13 percentage point rise in operating from permanent locations such as stores or market stalls. Lottery winners are also marginally more likely to report that they operate close to another business that has a similar line of business.

Interestingly, businesses in treated markets who did not win the lottery are also more likely to operate in a new sector, own their operation site, and operate from a permanent place, although these effects are less significant. The magnitude of these effects are between a sixth and a half of the effect of winning the lottery overall.

TABLE 13: AVERAGE IMPACT OF SSB ON BUSINESS OPERATIONS (CONTINUED)

	New sector at endline		Owns operation site		Operates from permanent place (store or market stall)		Competition is next door	
Treated market	0.039	0.058*	0.055	0.053	0.043**	0.041*	0.023	0.021
	(0.03)	(0.03)	(0.08)	(0.08)	(0.02)	(0.02)	(0.02)	(0.02)
Marginal effect of winning lottery	0.053**	0.051**	0.25***	0.24***	0.086***	0.085***	0.074***	0.072***
	(0.02)	(0.02)	(0.07)	(0.07)	(0.03)	(0.03)	(0.02)	(0.02)
Total effect of winning lottery	0.09***	0.11***	0.30***	0.30***	0.13***	0.13***	0.10***	0.09***
	(0.03)	(0.04)	(0.08)	(0.08)	(0.03)	(0.03)	(0.03)	(0.03)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.305	0.305	1.628	1.628	0.554	0.554	0.470	0.470
Std. Dev.	0.461	0.461	1.525	1.525	0.497	0.497	0.499	0.499
Observations	2788	2788	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The variable in the first column takes the value 1 if the individual, at endline, has a business in a new subsector which did not operate in at baseline (there are 35 subsectors in total). Competition next door is a dummy equalling 1 if the respondent answers yes to "do you typically operate business close to another business that has a similar line of business?". All variables take the maximum value over all of the respondent's businesses. The sample for the first two columns includes endline respondent observations as this question was only asked at endline. The sample for the remaining columns is the sum of baseline and endline observations for survey respondents.

Table 14 shows the effect of the program on employment. A minority of the businesses in our sample has employees (20%). The grant led to an increase in overall employment, with businesses of grant recipients being 10 percentage points more likely to employ, and employing an average of 0.43 more workers, which is an increase of more than 100% compared to the pure control group. This increase was primarily driven by unpaid workers, suggesting a reliance on friends and family.

Interestingly, entrepreneurs in treated markets who did not win the lottery are also more likely to employ. The effects are smaller and not always significant, except for paid employees: entrepreneurs in treated markets increase their number of paid employees by 0.074, a 40 percent increase compared to the pure control group. It is interesting that businesses in treated markets who did not win the lottery mostly see an increase in paid employment while businesses who did win the lottery see a bigger increase in informal employment as well. One possible explanation is that there might be social effects of winning the lottery, which may affect ones' friends and family perception of the business need, and incentivize them to work for the business.

TABLE 14: AVERAGE IMPACT OF SSB ON BUSINESS EMPLOYMENT

	Has employees		Total number of employees		Paid employees		Unpaid employees	
Treated market	0.050*	0.055*	0.12	0.14	0.070**	0.074**	0.053	0.064
	(0.03)	(0.03)	(0.10)	(0.10)	(0.03)	(0.03)	(0.09)	(0.09)
Marginal effect of winning lottery	0.094***	0.089***	0.31***	0.29***	0.029	0.024	0.28***	0.26***
	(0.02)	(0.02)	(0.08)	(0.08)	(0.03)	(0.03)	(0.07)	(0.07)
Total effect of winning lottery	0.14***	0.14***	0.43***	0.43***	0.10***	0.10***	0.33***	0.33***
	(0.03)	(0.03)	(0.11)	(0.11)	(0.03)	(0.03)	(0.10)	(0.10)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.194	0.194	0.415	0.415	0.190	0.190	0.225	0.225
Std. Dev.	0.395	0.395	1.097	1.097	0.572	0.572	0.893	0.893
Observations	5823	5823	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The number of workers are aggregated over all the respondent's businesses. The sample size is the sum of baseline and endline observations for survey respondents.

Program participants increased their business size significantly: average revenues rose by 56% from US$ 48 per month in the pure control group. Interestingly, other businesses in treated markets also increased their revenues, albeit more modestly, by 17%. While entrepreneurs who won the

lottery did increase their input costs by a little less than their revenue increase, we see little to no increase in input costs from markets in treated markets who did not win the lottery, and a slight increase of the wage bill, by US$ 0.77. Consequently, all businesses in treated markets, whether they won the lottery or not, report an increase of their weekly profits by US$ 6.7. Businesses who won the lottery report a slightly lower profit, although not significantly lower. This suggests that program recipients reinvested additional revenues into their businesses rather than realizing immediate profit gains, which was not the case of other businesses in treated markets.

Winning the lottery leads to a large and statistically significant increase in revenue per worker. Treated firms experience an increase of USD 13.7 relative to a control mean of USD 38.3, representing a 36 percent gain. By contrast, entrepreneurs who did not receive the grant but operate in treated markets do not experience a statistically significant increase in revenue per worker: the estimated effect is USD 3.79 and is not distinguishable from zero. This divergence suggests that while treated firms increase both revenues and productive scale, the revenue gains observed among untreated firms in treated markets primarily reflect higher sales volumes rather than improvements in labor productivity.

TABLE 15: AVERAGE IMPACT OF SSB ON BUSINESS REVENUES, COSTS, AND PROFITS

	Total revenues (USD)		Purchased inputs (USD)		Wages paid (USD)		Profits (USD)		Revenue per worker	
Treated market	7.58*	8.09*	0.20	0.53	0.73*	0.77*	6.65*	6.79*	3.73	3.79
	(4.15)	(4.22)	(3.26)	(3.34)	(0.39)	(0.40)	(3.69)	(3.67)	(2.38)	(2.43)
Marginal effect of winning lottery	19.4***	18.7***	20.5***	20.1***	-0.0021	-0.051	-1.06	-1.31	9.55***	9.28***
	(4.56)	(4.58)	(2.93)	(3.01)	(0.38)	(0.38)	(3.48)	(3.45)	(2.25)	(2.27)
Total effect of winning lottery	26.98***	26.81***	20.66***	20.62***	0.73**	0.71**	5.59	5.48	13.27***	13.07***
	(4.85)	(4.84)	(3.68)	(3.71)	(0.31)	(0.31)	(3.97)	(3.93)	(2.58)	(2.60)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	47.760	47.760	29.811	29.811	0.926	0.926	17.023	17.023	38.257	38.257
Std. Dev.	60.676	60.676	50.639	50.639	3.927	3.927	51.958	51.958	42.681	42.681
Observations	5823	5823	5823	5823	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Revenues, costs of inputs, and wages are measured over the week preceding the survey and aggregated over the respondent's businesses. Profits are the authors' calculation. Revenue per worker is measured as total revenues over total number of employees (paid and unpaid), including the manager to avoid a null denominator. All outcomes are winsorized at the five percent level. The sample size is the sum of baseline and endline observations for survey respondents.

4.3 Business practices

The intervention had a positive impact on business practices, as evidenced by improvements across various indices, as shown in Table 16. Grant recipients showed a 0.34 standard deviation increase in the Innovation Index, a 1.04 standard deviation increase in the Financial Planning Index, and a 0.16 standard deviation improvement in the Market Intelligence Index. Interestingly, entrepreneurs in treated markets who did not receive the grant are also more likely to innovate. The effect on these businesses is about one-third of the effect on treated businesses, and significant. These businesses, however, do not see any impact of on financial planning and market intelligence.

Table B.2, Table B.3, and Tables B.4 and B.5 provide details on innovation, financial planning, and market intelligence variables, respectively.

TABLE 16: AVERAGE IMPACT OF SSB ON BUSINESS PRACTICES

	Innovation (Any)		Innovation (Index)		Business Practice: Financial Planning Index		Business Practice: Market Intelligence Index	
Treated market	0.040*	0.041*	0.14**	0.15**	0.046	0.062	0.015	0.021
	(0.02)	(0.02)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Marginal effect of winning lottery	0.11***	0.11***	0.29***	0.29***	1.05***	1.04***	0.16***	0.16***
	(0.02)	(0.02)	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)
Total effect of winning lottery	0.15***	0.15***	0.43***	0.43***	1.09***	1.10***	0.18***	0.18***
	(0.02)	(0.02)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.116	0.116	-0.265	-0.265	-0.026	-0.026	-0.022	-0.022
Std. Dev.	0.321	0.321	0.716	0.716	0.916	0.916	0.980	0.980
Observations	5823	5823	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Indexes are all standardized on baseline data, with mean zero and standard deviation one. The sample size is the sum of baseline and endline observations for survey respondents.

4.4 Assets

Table 17 explores assets owned by businesses in the sample. Grant winners acquired more assets overall, with 0.8 more total assets and the same for business use, which suggests all the assets aquired by these businesses are for business use. The total market value of assets increased by US$ 34.1, representing a 91% improvement in the capital base of these businesses. These results confirm that beneficiaries are using the grant to invest in their business and that these results reflect short-term results. Interestingly, the businesses that are in treated markets but that did not receive the grant also upgrade their assets, although this seems to be on a quality margin rather than on the acquisition of additional assets.

TABLE 17: AVERAGE IMPACT OF SSB ON BUSINESS ASSETS

	Total number of assets		Total number of assets for business		Price of assets if sold	
Treated market	-0.096	-0.016	0.19	0.23	8.09*	9.26**
	(0.21)	(0.21)	(0.15)	(0.14)	(4.38)	(4.23)
Marginal effect of winning lottery	0.91***	0.82***	0.72***	0.65***	26.3***	24.9***
	(0.17)	(0.16)	(0.12)	(0.12)	(4.24)	(4.04)
Total effect of winning lottery	0.82***	0.80***	0.91***	0.89***	34.37***	34.11***
	(0.21)	(0.20)	(0.15)	(0.15)	(4.78)	(4.64)
Controls	NO	YES	NO	YES	NO	YES
Control Mean	4.847	4.847	2.464	2.464	37.267	37.267
Std. Dev.	3.675	3.675	2.542	2.542	65.517	65.517
Observations	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Outputs are aggregated over all the assets respondents are asked about: furniture, cellphones, smartphones, computers, internet modems, video decks, bicycles, motorcycles, cars, tricycles, hand tools, small equipment, and large cooking pans. Prices if sold are winsorized at the one percent level. The sample size is the sum of baseline and endline observations for survey respondents.

Table 18 provides details on the type of assets the businesses invested in, which seems to be very diverse. While the biggest magnitude increase seems to be for furniture, other businesses invested in digital devices, vehicles, small equipment or large cooking pots.

TABLE 18: AVERAGE IMPACT OF SSB ON SELECTED BUSINESS ASSETS

	Owns furniture		Owns digital device		Owns vehicle		Owns: hand tool		Owns: small equipment		Owns: large cooking pots	
Treated market	-0.038	-0.033	-0.036**	-0.035**	0.0025	0.0029	0.0036	0.0038	0.0012	0.0028	-0.018	-0.011
	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Marginal effect of winning lottery	0.11***	0.11***	0.039***	0.041***	0.014**	0.014**	0.018	0.017	0.032**	0.030*	0.041***	0.033**
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Total effect of winning lottery	0.08***	0.07***	0.00	0.01	0.02**	0.02**	0.02	0.02	0.03*	0.03*	0.02	0.02
	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.713	0.713	0.921	0.921	0.013	0.013	0.084	0.084	0.053	0.053	0.148	0.148
Std. Dev.	0.452	0.452	0.270	0.270	0.113	0.113	0.278	0.278	0.225	0.225	0.355	0.355
Observations	5823	5823	5823	5823	5823	5823	5823	5823	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Digital devices include phones, smartphones, computer, internet modems, and video decks. Vehicles include bicycles, motorcycles, three wheelers (called *kekes*), and cars. The sample size is the sum of baseline and endline observations for survey respondents.

4.5 Self-Employment Motivation

The grant appeared to strengthen recipients' commitment to self-employment. Table 19 shows impact of the program on entrepreneurs' willingness to pursue other activities. Grant winners were 13 percentage points less likely to have looked for employee jobs. Moreover, their reservation wage for accepting salaried employment increased by US $50 per week, indicating a higher valuation of their self-employment activities. When asked why they had not looked for wage work, recipients reported a preference for being in control and that self-employment offered higher profits. These findings suggest that the grant enhanced the perceived benefits and appeal of self-employment among recipients.

The program seems to not have impacted the self-employment motivation of entrepreneurs in the same markets who did not receive the grant, although their reservation wage seems to have increase, albeit not signficantly.

TABLE 19: AVERAGE IMPACT OF SSB ON SELF EMPLOYMENT MOTIVATION

	Looked for wage work		Lowest weekly pay for acceptance of wage work (USD)		Reason for not seeking wage work: preference for being in control		Reason for not seeking wage work: self-employment has higher profits	
Treated market	-0.027	-0.028	2.62	3.51	-0.021	-0.022	0.015	0.017
	(0.02)	(0.02)	(8.51)	(8.31)	(0.03)	(0.03)	(0.02)	(0.02)
Marginal effect of winning lottery	-0.10***	-0.10***	30.7***	30.7***	0.099***	0.10***	0.078***	0.077***
	(0.02)	(0.02)	(7.30)	(7.28)	(0.02)	(0.02)	(0.02)	(0.02)
Total effect of winning lottery	-0.13***	-0.13***	33.35***	34.25***	0.08**	0.08**	0.09***	0.09***
	(0.02)	(0.02)	(9.70)	(9.62)	(0.03)	(0.03)	(0.03)	(0.03)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.232	0.232	134.608	134.608	0.403	0.403	0.210	0.210
Std. Dev.	0.422	0.422	128.714	128.714	0.491	0.491	0.408	0.408
Observations	5823	5823	5149	5149	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The lowest weekly pay that the respondent would accept for acceptance of a salary job is winsorized at the one percent level. The sample size is the sum of baseline and endline observations for survey respondents. It is a little smaller for columns 3 and 4 because some respondents said "don't know" or refused to respond.

Table 20 reports whether entrepreneur are considering other economic activities. When asked what their dream job is, program participants are 3 percentage points more likely to say their current job is. They are also 4.4 percentage points less likely to say they are considering starting a new economic activity. In a follow-up question when they are asked what new economic activity they are planning to start, most of the decrease in new economic activity comes from not starting other self-employment activity. Again, treatment does not seem to have affected other entrepreneurs' motivation in treated markets.

TABLE 20: AVERAGE IMPACT OF SSB ON SELF EMPLOYMENT MOTIVATION

	Dream job is current job		Plans new econ activity	
Treated market	0.0061	0.0038	-0.00090	-0.00072
	(0.03)	(0.03)	(0.03)	(0.03)
Marginal effect of winning lottery	0.034**	0.033**	-0.046**	-0.044**
	(0.01)	(0.01)	(0.02)	(0.02)
Total effect of winning lottery	0.04	0.04	-0.05	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)
Controls	NO	YES	NO	YES
Control Mean	0.228	0.228	0.565	0.565
Std. Dev.	0.419	0.419	0.496	0.496
Observations	5823	5823	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The sample size is the sum of baseline and endline observations for survey respondents.

4.6 Other Work

From the previous session, treatment seems to have increased participants' value of their own business, and decreased their likelihood to find alternative economic activity. Table 21 explores whether participants provided any wage work in the week preceding the survey.

In the pure control group, around 15 percent of entrepreneurs report having worked a wage work in the week preceding the survey. Around 50% of the wage work provided is casual labor, and another 25% is in the trade sector , rest is a mix of farming, street selling, or working in a shop. The cash grant intervention had a negative impact on engagement in wage work. Grant recipients provided wage work on 0.14 fewer days, and in total spent 1.49 fewer hours in total on such activities, a reduction of 42% compared to the pure control group. This corresponds to a shift to their own businesses, although the magnitude of the effect is smaller than the

overall increase in time spent on their own business, which suggests that entrepreneurs carve time out of their personal time to work on their business. There is also no effect of the program on education enrollment (see Appendix Table B.6). Overall, this suggests that there is a local labor surplus with unused labor among applicants of this program. Interestingly, there was no statistically significant change in the revenue from wage work or the hours spent on unpaid work.

The entrepreneurs who are in treated markets but did not win the lottery see no statistically significant change in the amount of wage work provided, and the magnitude of the effect are smaller on them, suggesting they did not change their provision of wage work.

TABLE 21: AVERAGE IMPACT OF SSB ON OTHER WORK

	Wage work (Y/N)		Days worked in wage work		Hours provided in wage work		Wage work revenue (USD)	
Treated market	-0.0034	-0.0064	-0.011	-0.022	-0.26	-0.38	-0.13	-0.17
	(0.02)	(0.02)	(0.07)	(0.07)	(0.61)	(0.58)	(0.16)	(0.16)
Marginal effect of winning lottery	-0.038***	-0.035**	-0.14**	-0.12**	-1.26***	-1.11**	-0.042	-0.0080
	(0.01)	(0.01)	(0.06)	(0.06)	(0.45)	(0.44)	(0.04)	(0.06)
Total effect of winning lottery	-0.04**	-0.04**	-0.15**	-0.14**	-1.52***	-1.49***	-0.18	-0.18
	(0.02)	(0.02)	(0.07)	(0.06)	(0.55)	(0.53)	(0.19)	(0.20)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.150	0.150	0.442	0.442	3.515	3.515	1.377	1.377
Std. Dev.	0.357	0.357	1.274	1.274	11.015	11.015	4.599	4.599
Observations	5815	5815	5815	5815	5815	5815	5815	5815

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. All outputs are winsorized at the five percent level. The sample size is the sum of baseline and endline observations for survey respondents. It is slightly lower than 5823 because a few respondents refused to respond.

4.7 Personal Finances and financial inclusion

The grant had a positive impact on recipients' personal finances, particularly in terms of savings behavior. Tables 22 and 23 show the effect of the program on recipients' saving behavior. Total savings in 3 months preceding the survey increased by US$ 72, an increase of 111% compared to the pure control group. Grant winners were not more likely to have a bank account, but where 10 percentage points more likely to have a mobile money account (a necessary condition to receive the grant) and 5.7 percentage points more likely to be part of a saving group. Table **??** explores the impact of the treatment on contributions, savings, loans, and repayments to saving groups. While the The lottery winners' contribution to the saving group increases by about two dollars, their total amount of savings with the saving group is US $38 higher than the pure control group, an increase of about 68 percent.

Entrepreneurs in treated markets that did not win the lottery also see an increase in their savings, albeit to a smaller extent. These entrepreneurs have US $ 11 more in savings than the pure control group. These entrepreneurs are not more likely to have a mobile money account, and a smaller and non-significant effect on being part of a saving group.

Entrepreneurs who received the grant saw a shift in saving methods, with recipients being less likely to save in cash, and more likely to save in their bank account, in a saving group, and in mobile money account. This suggests that the grant encouraged more formal and potentially more secure saving practices, including through the opening of a mobile money account. The entrepreneurs in the treated market who did not win the lottery saw no significant change in their saving behavior.

TABLE 22: AVERAGE IMPACT OF SSB ON SAVINGS

	Total Savings in past 3 months (USD)		Has a bank account		Has a mobile money account		Is part of saving group	
Treated market	11.1**	11.7***	-0.031	-0.026	-0.019	-0.017	0.033	0.030
	(4.46)	(4.42)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Marginal effect of winning lottery	61.4***	60.8***	0.029	0.023	0.10***	0.11***	0.056**	0.058**
	(5.62)	(5.57)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Total effect of winning lottery	72.52***	72.48***	-0.00	-0.00	0.08***	0.09***	0.09***	0.09***
	(5.72)	(5.69)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	64.611	64.611	0.168	0.168	0.838	0.838	0.664	0.664
Std. Dev.	87.330	87.330	0.374	0.374	0.369	0.369	0.472	0.472
Observations	5680	5680	3934	3934	3931	3931	3934	3934

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The amount of total savings is winsorized at the five percent level. The sample size is the sum of baseline and endline observations for survey respondents. In columns 1-2, it is lower than 5823 because a few refused to answer the question. It is also lower than 5823 in the remaining columns because those questions were accidentally only asked to those respondents who reported saving in the past 3 months.

TABLE 23: AVERAGE IMPACT OF SSB ON SAVINGS (CONTINUED)

	Saved in bank account		Saved in saving group		Saved cash or at home		Saved in mobile money	
Treated market	0.0019	0.0062	0.053	0.048	-0.012	-0.011	-0.038	-0.036
	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Marginal effect of winning lottery	0.029	0.027	0.035	0.035	-0.097***	-0.10***	0.061**	0.068***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Total effect of winning lottery	0.03	0.03*	0.09**	0.08**	-0.11***	-0.11***	0.02	0.03
	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.071	0.071	0.504	0.504	0.203	0.203	0.176	0.176
Std. Dev.	0.257	0.257	0.500	0.500	0.402	0.402	0.381	0.381
Observations	3933	3933	3933	3933	3933	3933	3933	3933

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The sample size is the sum of baseline and endline observations for survey respondents. It is smaller than 5823 because these questions were accidentally only asked to those respondents who reported saving in the past 3 months.

The grant intervention had a notable impact on the loan behavior of recipients, generally reducing their reliance on borrowed funds, as shown in Table 24. Grant winners showed a significant reduction in the total amount of loans contracted, both formal and informal, with a decrease of $19 in loans contracted in the past 12 months compared to the pure control group. This reduction was observed across both formal and informal loan categories, and the reduction in formal loan is such that the treated group takes no formal loans and very little informal loans. When asked what the formal loans are for, respondents answer that two thirds of the loans contracted are for the business while one third is for household expenses.

Interestingly, while reducing their own borrowing, grant recipients were more likely to extend loans to others. The amount of loans given out by grant winners increased by $2.35 compared to the pure control group. This shift from being net borrowers to net lenders suggests an improvement in

the financial position of grant recipients. It indicates that the grant not only reduced their need for external financing but also enhanced their capacity to support others in their community financially.

Respondents in the treated markets who did not win the lottery are not much affected in terms of loans contrcted and given. Notably, they are not more likely to receive informal loans, which signals that the control group is not more likely to receive a loan from the lottery winners than the pure control group.

TABLE 24: AVERAGE IMPACT OF SSB ON LOANS, TAKEN AND GIVEN

	Loans contracted (total) (USD)		Loans contracted (formal) (USD)		Loans contracted (informal) (USD)		Loans given (USD)	
Treated market	-0.52	-0.27	-0.19	0.075	-0.14	-0.12	-1.37	-1.31
	(3.14)	(3.09)	(2.76)	(2.70)	(1.20)	(1.18)	(1.13)	(1.11)
Marginal effect of winning lottery	-18.5***	-19.0***	-13.6***	-14.1***	-4.99***	-5.04***	3.80***	3.66***
	(3.14)	(3.19)	(2.65)	(2.73)	(0.99)	(0.99)	(1.04)	(1.04)
Total effect of winning lottery	-19.01***	-19.23***	-13.82***	-13.98***	-5.14***	-5.16***	2.43**	2.34**
	(2.76)	(2.81)	(2.45)	(2.49)	(1.08)	(1.08)	(1.12)	(1.13)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	17.064	17.064	9.295	9.295	7.713	7.713	9.121	9.121
Std. Dev.	41.505	41.505	37.505	37.505	17.435	17.435	18.589	18.589
Observations	5792	5792	5823	5823	5792	5792	5763	5763

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The amount of total savings is winsorized at the one percent level. All amounts are winsorized at the five percent level. Loans refer to the period of the last twelve months. The sample size is the sum of baseline and endline observations for survey respondents. It is lower than 5823 is some columns because a few respondents refused to answer those questions or reported that they did not know.

4.8 Household

Table 25 explores the effect of the treatment on the structure of respondents' household. The lottery winners are not more likely to become the household head, or to have more or fewer members in their household.

Household revenues from other members of the household, which average US $30 on average in the pure control group, also seem unaffected by the respondents' participation in the treatment. However, the lottery winners' weight in household decisions, as measured by a series of questions on decisions about how to use their own income, other members' income, household expenses, childbearing and education. Table B.8 in the appendix shows the impact of the grant on each variable separately. Most of the effect comes from an increased input on how to spend their own income. Interestingly, other entrepreneurs in the same market who did not win the lottery but did benefit financially from increased revenues do also have more impact on household decisions.

TABLE 25: AVERAGE IMPACT OF SSB ON HOUSEHOLD

	Household head		# of household members		Household revenues (from others, USD)		Input in household decisions (index)	
Treated market	0.0069	-0.0038	-0.16	-0.11	-5.17	-4.27	0.42**	0.32*
	(0.02)	(0.02)	(0.16)	(0.15)	(4.12)	(4.09)	(0.19)	(0.18)
Marginal effect of winning lottery	0.0093	0.013	0.0033	-0.13	2.64	2.40	0.20	0.19
	(0.02)	(0.02)	(0.11)	(0.11)	(2.96)	(2.87)	(0.16)	(0.17)
Total effect of winning lottery	0.02	0.01	-0.15	-0.24	-2.53	-1.87	0.62***	0.51**
	(0.02)	(0.02)	(0.18)	(0.17)	(5.03)	(5.03)	(0.22)	(0.24)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.637	0.637	4.738	4.738	30.050	30.050	-0.018	-0.018
Std. Dev.	0.481	0.481	2.658	2.658	54.278	54.278	3.017	3.017
Observations	5823	5823	5823	5823	2421	2421	2720	2720

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Household revenue is winsorized at the five percent level, and is measured as all revenue earned by other members of the household, as reported by the respondent. Input in household decisions is a combined index of five variables capturing the respondent's weight in household decisions. The sample in the first 4 columns in the sum of baseline and endline observations for survey respondents. The sample in the last 4 columns includes only endline observations as these questions were only asked at endline. It is lower than 2788 because a few respondents refused to answer or reported that they did not know.

Table 26 shows the impact of the treatment on household expenditure, in

the week preceiding the survey. Household expenditure measurements are pretty noisy, but entrepreneurs in treated markets spend about $1.4 more on food each week. Effects on educaiton and health, while big in magnitude, are not significant, probably because of heterogeneity across entrepreneurs' household. Entrepreneurs who win the lottery are marginally more likely to spend on other types of goods, although this increase amounts only to $0.4.

TABLE 26: AVERAGE IMPACT OF SSB ON HOUSEHOLD EXPENDITURE

	Household food expenditure (USD)		Household education expenditure (USD)		Household health expenditure (USD)		Household other expenditure (USD)	
Treated market	1.50**	1.58**	-0.60	5.33	4.58	5.02	-0.19	-0.14
	(0.71)	(0.67)	(11.63)	(11.32)	(4.76)	(4.75)	(0.32)	(0.31)
Marginal effect of winning lottery	0.044	-0.14	6.31	0.76	6.43*	5.62	0.60**	0.55**
	(0.44)	(0.43)	(9.59)	(9.63)	(3.85)	(3.83)	(0.25)	(0.23)
Total effect of winning lottery	1.55*	1.44*	5.71	6.09	11.02	10.65	0.41	0.40
	(0.90)	(0.84)	(15.56)	(15.36)	(6.84)	(6.73)	(0.41)	(0.38)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	15.628	15.628	202.065	202.065	45.018	45.018	4.507	4.507
Std. Dev.	10.422	10.422	188.471	188.471	64.111	64.111	5.058	5.058
Observations	2706	2706	2737	2737	2720	2720	2777	2777

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. All expenditures are winsorized at the five percent level, and are measure in the week prior to the survey. The sample in the table includes endline observations for survey respondents because these questions were only asked at endline. The sample size is slightly lower than 2788 because a few respondents reported "don't know".

Table 27 explores more in detail the effect of the grant food security. The cash grant intervention had a substantial positive impact on food security among recipient households. Lottery winners were 9.7 percentage points less likely to have skipped a meal in the last three months, a decrease of 12 percent compared to the pure control group. Even more notably, grant recipients were 15 percentage points less likely to report that their household

had gone out of food in the last three months, a decrease of 19 percent. The most severe form of food insecurity—going a full day without eating—also saw a significant reduction, with grant winners being 19 percentage points less likely to experience this in the past three months, which represents a decrease of 37 percent. While the treatment was not targeted at solving food security, these results suggest that supporting these businesses is an important leverage to improve the livelihoods of micro-entrepreneurs in these contexts.

Effects of the program on entrepreneurs in the same markets who did not win the lottery also go in the same direction—they are less likely to show signs of food insecurity—but are smaller in magnitude and not significant.

TABLE 27: AVERAGE IMPACT OF SSB ON FOOD SECURITY

	Skipped a meal in the last three months		Household went out of food in the last three months		Went a full day without eating in the last three months	
Treated market	-0.026	-0.028	-0.022	-0.024	-0.050	-0.054
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Marginal effect of winning lottery	-0.095***	-0.094***	-0.16***	-0.15***	-0.14***	-0.14***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Total effect of winning lottery	-0.12***	-0.12***	-0.18***	-0.18***	-0.19***	-0.19***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Controls	NO	YES	NO	YES	NO	YES
Control Mean	0.785	0.785	0.778	0.778	0.504	0.504
Std. Dev.	0.411	0.411	0.416	0.416	0.500	0.500
Observations	2788	2788	2788	2788	2788	2788

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The sample size is endline observations only because these questions were only asked at endline.

4.9 Shock Resiliency

Table 28 explores the impact of the grant on shocks experienced by respondents' households, their severity and how well the households recover from them. Entrepreneurs in treated markets seem to be overall marginally more likely to experience a shock, as defined by an event that is exogenous to the households' willingness (climate shock, theft, increased food prices, increased input prices, loss of property, loss of employment or the death of a household member). When looking in detail, the increase seems to mainly come from experiencing theft. However, the magnitude of the effect remains small (a 3.6 percentage point increase, corresponding to a relative increase of 4 percent compared to the pure control group).

However, entrepreneurs in treated markets seem to be better a navigating the shock: they are more likely to report that their households have recovered from the shock, and less likely to report that the shock has affected their household's income and food consumption. The effect is stronger for entrepreneurs who won the lottery, which is not surprising giving that the savings effect is also stronger for this group, which presumably helps with dealing with the shock.

TABLE 28: AVERAGE IMPACT OF SSB ON SHOCK RESILIENCY

	Experienced shock		Shock affected household income		Shock affected household food consumption		Household recovered after the shock	
Treated market	0.035*	0.036*	-0.033	-0.033	-0.044	-0.041	0.22**	0.23**
	(0.02)	(0.02)	(0.06)	(0.06)	(0.05)	(0.05)	(0.09)	(0.09)
Marginal effect of winning lottery	-0.014	-0.014	-0.086***	-0.085**	-0.13***	-0.13***	0.047	0.049
	(0.01)	(0.01)	(0.03)	(0.03)	(0.04)	(0.04)	(0.06)	(0.07)
Total effect of winning lottery	0.02	0.02	-0.12*	-0.12	-0.17**	-0.17**	0.27**	0.28***
	(0.02)	(0.02)	(0.07)	(0.07)	(0.07)	(0.07)	(0.11)	(0.11)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.902	0.902	2.970	2.970	2.733	2.733	2.226	2.226
Std. Dev.	0.298	0.298	0.766	0.766	0.822	0.822	1.312	1.312
Observations	2788	2788	2535	2535	2535	2535	2536	2536

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Respondents were asked if they experienced one of the following shocks: climate shock, theft, increasing food prices, increasing prices of inputs, loss of property, loss of employment, or death of a household member. For each shock, respondents were then asked to what extent it affected their income or food consumption, on a scale from 1 (no impact) to 4 (worst ever happened), and whether the household had been able to recover after the shock, on a scale from 1 (did not recover) to 5 (not affected by the event). The measures presented here are the worst reported impact across all shocks. The sample includes endline observations only as these questions were only asked at endline. The sample size is smaller than 2788 for the last 6 columns because those questions were only asked to those respondents who reported experiencing a shock in the last 3 months.

4.10 Digital Adoption

Table 29 explores the effect of the treatment on digitalization. Entrepreneurs who won the lottery are marginally more likely to have a phone, bringing the share of phone owners to 100 percent from 97 percent in the pure control group. They are also more likely to use the phone for business (an increase of about 25% relative to the control group, in both the extensive and intensive margins), and a small share of this usage is shown to come from social media platforms. Note that the treatment did push for digital adoption to some extent, with the opening of a mobile money account, so that some of the digitalization may have been structural at first, and then

entrepreneurs stuck with it. The effect on digitalization purely comes from entrepreneurs who won the lottery, with little impact on entrepreneurs in treated markets who did not win the lottery.

TABLE 29: AVERAGE IMPACT OF SSB ON DIGITALIZATION

	Has a phone (Y/N)		Use of phone for business (Y/N)		Use of phone for business (hours)		Use of social media platform for business	
Treated market	-0.023*	-0.021	-0.017	-0.016	-0.016	0.017	0.0027	0.0020
	(0.01)	(0.01)	(0.03)	(0.03)	(0.32)	(0.32)	(0.01)	(0.01)
Marginal effect of winning lottery	0.037***	0.036***	0.096***	0.096***	0.24	0.24	0.026*	0.027**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.24)	(0.24)	(0.01)	(0.01)
Total effect of winning lottery	0.01	0.02	0.08**	0.08**	0.22	0.25	0.03**	0.03**
	(0.01)	(0.01)	(0.04)	(0.04)	(0.38)	(0.38)	(0.01)	(0.01)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.970	0.970	0.322	0.322	0.804	0.804	0.026	0.026
Std. Dev.	0.172	0.172	0.467	0.467	4.876	4.876	0.160	0.160
Observations	5823	5823	5823	5823	2786	2786	5823	5823

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. The sample size in columns 1-4 and 7-8 is the sum of baseline and endline observations for survey respondents. The sample in columns 5-6 includes endline observations only because this question was only asked at endline. The size is slightly short of 2788 because two respondents said "don't know" or refused to respond.

4.11 Life Satisfaction

Table 30 explores the impact of the treatment on overall life satisfaction. Respondents are asked how satisfied they are with their life, and how they think the next three years will be. Lottery winners show a significantly higher life satisfaction, while there is no effect on current life satisfaction for the rest of entrepreneurs in treated markets. However, these entrepreneurs do show significantly higher optimism about their future life. This may be a sign that they internalize benefits from the program more slowly.

TABLE 30: AVERAGE IMPACT OF SSB ON LIFE SATISFACTION

	Life satisfaction		Future expected life satisfaction	
Treated market	-0.014	-0.014	0.082*	0.083*
	(0.05)	(0.05)	(0.04)	(0.04)
Marginal effect of winning lottery	0.22***	0.22***	-0.023	-0.026
	(0.04)	(0.04)	(0.03)	(0.02)
Total effect of winning lottery	0.21***	0.21***	0.06	0.06
	(0.07)	(0.07)	(0.05)	(0.05)
Controls	NO	YES	NO	YES
Control Mean	2.475	2.475	2.701	2.701
Std. Dev.	0.684	0.684	0.575	0.575
Observations	2788	2788	2752	2752

Notes : Standard errors are in parentheses and clustered at the market level.. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index. Respondents are asked how satisfied they are with their life, and they can answer on a scale from 1 (very unsatisfied) to 4 (very satisfied). They are then asked about the next three years and whether they think they will be less (1), equally (2), or more satisfied (3). The sample includes endline observations only because these questions were only asked at endline. The size in the last 2 columns is slightly short of 2788 because a few respondents reported "don't know" or refused to respond.

5 Conclusion

This paper studies the local market effects of a large cash-grant and training program targeted to micro-entrepreneurs in Liberia. Using a two-stage randomized design that varies both individual grant receipt and market-level exposure, we are able to separately identify the direct effects of receiving a grant and the spillover effects on nearby untreated firms operating in the same sector and location.

We document two main findings. First, cash grants generate large and persistent changes in the businesses of treated entrepreneurs. Grant recipients expand revenues, increase input use, invest in productive assets, and adopt new business practices. These effects go beyond short-term income gains and point to meaningful changes in business scale and structure. Sec-

ond, we find strong positive spillovers on untreated firms in treated markets. Entrepreneurs who do not receive a grant nevertheless experience higher revenues, profits, and savings relative to comparable firms in control markets. Importantly, these spillover effects are qualitatively different from the direct treatment effects: while untreated firms benefit from higher sales, there is little evidence that they increase investment or alter their production structure.

The evidence is consistent with a local demand mechanism driving these spillovers. Treated firms attract additional customers and increase overall market activity, from which nearby firms partially benefit. We find little evidence that spillovers operate through business stealing, input crowding-out, or diffusion of business practices. Instead, the pattern of results-higher revenues without higher costs or investment among untreated firms-suggests that cash grants can generate outward shifts in local demand in underdeveloped markets.

Taken together, our findings contribute to a broader understanding of the market-level effects of firm support programs in low-income settings. While concerns about crowd-out and competition are well-founded in environments with limited demand and highly similar firms, our results show that large cash grants can instead generate positive local spillovers. This highlights the importance of moving beyond beneficiary-only evaluations and explicitly accounting for market equilibrium responses when assessing the impacts of entrepreneurship and firm support policies.

From a policy perspective, our results imply that the social returns to cash-grant programs may exceed their private returns. Programs that relax capital constraints for a subset of entrepreneurs can generate broader local benefits through demand-side channels, even in informal and competitive markets. This has important implications for the design, targeting, and scale-up of business support interventions, particularly in fragile and

low-income contexts where informal enterprises play a central role in employment and livelihoods. More broadly, our findings suggest that policies aimed at supporting small firms can act not only as tools for individual income growth, but also as catalysts for local economic activity.

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A Appendix. Variables description

A.1 Outcome variables

Revenues, costs, profits (time horizon: week, unit of measurement, question in questionnaire, winsorization) innovation index financial planning index market intelligence index

dream job question locus of control index life satisfaction projected life satisfaction

A.2 Poverty score

The poverty score is a proxy means testing tool developed by the World Bank team in the context of the Youth Opportunities Project[15], based on the Household Income and Expenditure Survey (HIES) of 2016. For eligibility purposes, PMT scores above a value of 3.57 were eligible, while applicants with PMT scores below 3.57 were not eligible.

Formula:

[15] Ana Areias (2019), Targeting for Monrovia YOP

$$
\begin{aligned}
\text{PA score} = {} & 7.26 \cdot \text{hh_mbr} - 10.33 \cdot \text{mobile_phones} + 0.33 \cdot \text{hh_head_age} \\
& - 6.10 \cdot \text{hh_head_lit} \\
& + 7.87 \cdot (1 - \text{unpaid_work})(1 - \text{wage_work})(1 - \text{operate_nonfarm}) \\
& \quad \cdot (1 - \text{help_nonfarm})(1 - \text{work_farm}) \\
& - 17.91 \cdot \mathbb{1}\{\text{drinking_water} \in \{6, 7, 12\}\} \\
& + 0.26 \cdot \mathbb{1}\{\text{drinking_water} \in \{4, 8, 9\}\} \\
& + 2.31 \cdot \mathbb{1}\{(\text{toilet} \in \{6, -222\}\} \\
& - 1.68 \cdot \text{radio} + 3.89 \cdot \mathbb{1}(\text{video} > 0) \\
& - 9.15 \cdot \mathbb{1}(\text{watches} > 0) - 11.45 \cdot \mathbb{1}(\text{beds} > 0) \\
& - 3.98 \cdot \mathbb{1}(\text{pressing_irons} > 0) - 16.36 \cdot \mathbb{1}(\text{fans} > 0) \\
& + 5.39 \cdot \text{shock}
\end{aligned}
\tag{A.1}
$$

TABLE A.1: HOUSEHOLD SURVEY QUESTIONNAIRE

Variable	Question	Values
hh_mbr	How many total members live in your household? (Including yourself)	Integer
hh_head	Who is the head of your household? This is the person that makes the financial decisions in your.	text
hh_head_age	How old is hh_head?	integer
hh_head_lit	Can hh_head read and write in English?	yes=1, no=0
unpaid_work	In the last 12 months, did hh_head work as an unpaid apprentice even if just for one hour?	yes=1, no=0

Continued on next page

Table A.1 – continued from previous page

Variable	Question	Values
wage_work	In the last 12 months, did hh_head work as an employee for a wage, salary, commission or payment in kind, including doing paid apprenticeship, domestic work or paid agriculture (farm, livestock, fisheries) work even if for one hour?	yes=1, no=0
operate_nonfarm	In the last 12 months, did hh_head run/operate a non-farm business of any size either owned by the head of your household or by the household even if for one hour?	yes=1, no=0
help_nonfarm	In the last 12 months, did hh_head help in any kind of non-farm business run by this household, even if for one hour?	yes=1, no=0
work_farm	In the last 12 months, did hh_head work on household farm activities (including raising livestock or producing crops whether for sale or for household food) even if just for one hour?	yes=1, no=0

Continued on next page

Table A.1 – continued from previous page

Variable	Question	Values
drinking_water	What is your household's main source of drinking water during the rainy season?	1 = Pipe or pump indoor 2 = Pipe or pump outdoors 3 = Public tap/standpost 4 = Borehole/tube well/mechanical well 5 = Neighboring household 6 = Water vendor (clean water) 7 = Push push water vendor 8 = Closed well 9 = Open well 10 = River, lake, or creek 11 = Rain water 12 = Mineral (bottled/-drum/plastic) -222 = Other
toilet	What are the main toilet facilities used by your household?	1 = Flush/pour flush toilet for household use only 2 = Flush/pour flush toilet shared with other households 3 = Covered pit latrine 4 = Open pit latrine 5 = Ventilated improved pit latrine (VIP) 6 = Bush/beach/dune -222 = Other

Continued on next page

Table A.1 – continued from previous page

Variable	Question	Values
radio	How many radios, radio cassette, CD player, and/or tape recorders does your household own, which are in working condition?	integer
video	How many video/DVD/televisions does your household own, which are in working condition?	integer
watches	How many watches does your household own, which are in working condition?	integer
beds	How many beds (local/imported) does your household own, which are in working condition?	integer
pressing_iron	How many pressing irons (whether charcoal or electric) does your household own?	integer
fans	How many electric fans does your household own, which are in working condition?	integer
shock	In the last 12 months, have you been faced with a situation when you did not have enough food to feed the household?	yes=1, no=0

B Appendix. Additional Tables

TABLE B.2: AVERAGE IMPACT OF SSB ON INNOVATION VARIABLES

	Innovation: suppliers		Innovation: products		Innovation: marketing		Innovation: production process		Innovation: selling location	
Treated market	0.042*	0.043*	0.020	0.021	0.011	0.014	0.026*	0.028*	0.027	0.028
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Marginal effect of winning lottery	0.061***	0.061***	0.12***	0.12***	0.058***	0.056***	0.015	0.013	0.036**	0.035**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Total effect of winning lottery	0.10***	0.10***	0.14***	0.14***	0.07***	0.07***	0.04**	0.04**	0.06***	0.06***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.061	0.061	0.046	0.046	0.050	0.050	0.017	0.017	0.041	0.041
Std. Dev.	0.239	0.239	0.210	0.210	0.217	0.217	0.131	0.131	0.198	0.198
Observations	5824	5824	5824	5824	5824	5824	5824	5824	5824	5824

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.3: AVERAGE IMPACT OF SSB ON FINANCIAL PLANNING VARIABLES

	Knows what business plan is		Has written Business Plan		Kept accounting books		Calculated sales, losses, and profits		Asked friend and family for advice	
Treated market	0.046**	0.055**	0.00013	0.0063	-0.016	-0.011	0.022	0.021	0.055**	0.051**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Marginal effect of winning lottery	0.25***	0.24***	0.41***	0.40***	0.45***	0.45***	0.084***	0.084***	0.072***	0.073***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Total effect of winning lottery	0.29***	0.30***	0.41***	0.41***	0.44***	0.44***	0.11***	0.11***	0.13***	0.12***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.402	0.402	0.139	0.139	0.309	0.309	0.914	0.914	0.680	0.680
Std. Dev.	0.490	0.490	0.346	0.346	0.462	0.462	0.281	0.281	0.467	0.467
Observations	5823	5823	5823	5823	5824	5824	5824	5824	5824	5824

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.4: AVERAGE IMPACT OF SSB ON MARKET INTELLIGENCE VARIABLES

	Visited competitor for prices (frequency)		Visited competitor for products (frequency)		Asked consumers what products (frequency)		Talked with former customer (frequency)	
Treated market	0.0035	0.0039	0.10*	0.10*	-0.020	-0.024	0.00070	0.0023
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Marginal effect of winning lottery	0.061	0.069	0.057	0.063	0.16***	0.16***	0.090**	0.090**
	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Total effect of winning lottery	0.06	0.07	0.16**	0.16**	0.13**	0.14**	0.09	0.09
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	2.462	2.462	2.406	2.406	2.451	2.451	2.647	2.647
Std. Dev.	1.162	1.162	1.146	1.146	1.167	1.167	1.101	1.101
Observations	5742	5742	5741	5741	5742	5742	5744	5744

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.5: AVERAGE IMPACT OF SSB ON MARKET INTELLIGENCE VARIABLES (CONTINUED)

	Asked supplier for products (frequency)		Special offer new customers (frequency)		Advertizing (frequency)		Negotiated with supplier (frequency)		Compared suppliers quality (frequency)	
Treated market	-0.016	-0.016	0.027	0.038	-0.042	-0.030	-0.061	-0.062	0.088	0.096
	(0.06)	(0.06)	(0.07)	(0.07)	(0.08)	(0.08)	(0.06)	(0.06)	(0.06)	(0.06)
Marginal effect of winning lottery	0.20***	0.21***	0.061	0.058	0.24***	0.24***	0.15***	0.15***	0.066	0.064
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)
Total effect of winning lottery	0.18***	0.19***	0.09	0.10	0.20**	0.21**	0.09	0.09	0.15**	0.16**
	(0.06)	(0.06)	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	2.348	2.348	2.542	2.542	2.246	2.246	2.948	2.948	3.044	3.044
Std. Dev.	1.180	1.180	1.107	1.107	1.280	1.280	1.110	1.110	1.109	1.109
Observations	5734	5734	5729	5729	5729	5729	5745	5745	5742	5742

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.6: AVERAGE IMPACT OF SSB ON EDUCATION

	Formal education (Y/N)		Literacy (Y/N)		Enrollment status		Vocational training	
Treated market	-0.030	-0.011	-0.035	0.0034	0.0018	0.0012	-0.0025	0.0046
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Marginal effect of winning lottery	0.0038	-0.0011	0.019	-0.0039	0.0090	0.0033	-0.017	-0.023*
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Total effect of winning lottery	-0.03	-0.01	-0.02	-0.00	0.01	0.00	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	0.701	0.701	0.599	0.599	0.099	0.099	0.212	0.212
Std. Dev.	0.458	0.458	0.490	0.490	0.299	0.299	0.409	0.409
Observations	5823	5823	5823	5823	4153	4153	5822	5822

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.7: AVERAGE IMPACT OF SSB ON SAVING GROUPS

	Susu contribution (USD		Susu total savings (USD)		Susu borrowed (USD.)		Susu repayment left (USD)	
Treated market	-0.010	0.055	3.27	3.95	1.13	1.28	0.14	0.17
	(0.53)	(0.52)	(6.45)	(6.37)	(2.36)	(2.36)	(0.61)	(0.61)
Marginal effect of winning lottery	1.83***	1.84***	34.1***	33.9***	-0.73	-0.81	-0.15	-0.15
	(0.43)	(0.42)	(5.58)	(5.61)	(1.70)	(1.70)	(0.50)	(0.51)
Total effect of winning lottery	1.82***	1.89***	37.33***	37.89***	0.39	0.47	-0.01	0.02
	(0.56)	(0.56)	(6.93)	(6.99)	(2.21)	(2.19)	(0.59)	(0.59)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	4.541	4.541	55.846	55.846	6.302	6.302	1.643	1.643
Std. Dev.	7.631	7.631	91.036	91.036	20.560	20.560	5.981	5.981
Observations	4959	4959	4959	4959	4959	4959	4959	4959

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.

TABLE B.8: AVERAGE IMPACT OF SSB ON INPUT IN HOUSEHOLD DECISIONS

	Input decision own income		Input decision hh income		Input decision hh expenses		Input decision childbearing		Input decision children edu	
Treated market	0.13***	0.11***	0.73	0.65	0.066	0.054	-0.00053	-0.017	0.041	0.035
	(0.04)	(0.04)	(0.48)	(0.46)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)
Marginal effect of winning lottery	0.050	0.047	0.063	0.13	0.017	0.015	-0.0036	-0.0029	0.049	0.043
	(0.03)	(0.03)	(0.05)	(0.12)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Total effect of winning lottery	0.18***	0.16***	0.79	0.78	0.08	0.07	-0.00	-0.02	0.09*	0.08
	(0.05)	(0.05)	(0.49)	(0.52)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Control Mean	2.532	2.532	1.431	1.431	2.464	2.464	2.230	2.230	2.369	2.369
Std. Dev.	0.582	0.582	30.495	30.495	0.643	0.643	0.748	0.748	0.696	0.696
Observations	2788	2788	2788	2788	2787	2787	2728	2728	2776	2776

Notes : Standard errors are in parentheses and are robust. Controls are measured at baseline and include sector, intake community, gender, age, marital status, number of household members, education level, literacy, age when the respondent first worked, where they were during the civil war, and a risk-aversion index.