A Firm of One's Own: Experimental Evidence on Credit Constraints and Occupational Choice

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Abstract

We evaluate two interventions targeting young women in Nairobi, Kenya. The first is a multifaceted program involving vocational training, in-kind transfers of physical capital, and ongoing mentoring. The second is an unrestricted cash grant. Both interventions shift women into self-employment, and impacts persist after six years. Both programs also increase income in the short-term, but those effects disappear over time. Though the two treatments have similar impacts on labor market outcomes, women in the multifaceted program report significantly higher wellbeing six years after treatment relative to both women in the control group and those who received the grants.

Keywords: youth unemployment, vocational training, cash grants, microenterprises, entrepreneurship, occupational choice, credit constraints, Africa, gender

JEL Codes: J24, M53, O12

1 Introduction

Millions of African youth cannot find good jobs. Young people entering the labor market in Africa often spend years transitioning between periods of short-term or informal employment, unpaid work, training, and job search (Filmer and Fox 2014, Bandiera et al. 2022). During the extended period when out-of-school youth are searching for work and gaining relevant experience, they are heavily reliant on their families and social networks for support (Filmer and Fox 2014); this makes young women particularly vulnerable (Dupas 2011, Alfonsi et al. 2020). In addition, credit and savings constraints can create a poverty trap for unemployed women who would like to start a microenterprise (Banerjee et al. 2019, Balboni et al. 2022). In this context, programs that promote female entrepreneurship may have the dual benefit of helping underemployed youth out of poverty traps while providing social protection to those at risk.

We evaluate two interventions intended to promote microentrepreneurship among young women in Nairobi, Kenya. One intervention is a "microfranchising" program designed to help women launch branded franchise businesses that were (loosely) linked to well-known Kenyan brands. The intervention is a multifaceted program that involves life skills training, vocational education, asset transfers, and ongoing mentoring. We evaluate the program through a randomized trial based on oversubscription. Eligible applicants were randomly assigned to either the franchise treatment, a control group, or an alternative grant treatment that offered women an unrestricted, one-off cash transfer (of just over 200 US dollars) without any additional monitoring, training, or mentoring. We analyze the impacts of these two interventions – the **franchise** treatment and the **grant** treatment – using follow-up data collected in the first, second, and sixth years after treatment. Attrition rates are below ten percent in all three rounds of follow-up, and attrition is never correlated with either treatment, allowing us to interpret differences in outcomes between a treatment arm and the comparison group as the average causal impact of the intervention.

Both treatments increase self-employment, and impacts persist for more than five years. In the sixth year after treatment, women assigned to the franchise treatment are 12 percentage

points more likely to be self-employed than those in the control group, while women in the grant treatment are 10 percentage points more likely to be self-employed than control women. Year 6 impacts on self-employment are virtually identical to effects observed in Year 1 and Year 2, suggesting that treatment causes approximately one in ten women to make a permanent shift into microentrepreneurship. Yet, neither intervention leads to a long-term increase in income. In the first year after treatment, both the franchise and grant treatments cause statistically significant and economically meaningful increases in earned income, but these impacts mostly disappear by Year 2 and are completely absent in Year 6.[1] However, over 90 percent of women in all three study arms state that they would prefer self-employment over paid work if the hours and wages were the same, suggesting that the persistence of the observed treatment effects on self-employment reflects women's preference for own account work.

We measure individual wellbeing in three ways: using an objective index of living conditions (such as whether a woman lives in a home with piped water), a measure of food security, and a measure of subjective life satisfaction.[2] We find that the franchise treatment has positive and statistically significant impacts on food security and life satisfaction in the sixth year after treatment. In contrast, cash grants do not increase any measure of individual wellbeing, and women assigned to the franchise arm are significantly better off (in terms of food security and life satisfaction, though not income) than those assigned to the grant treatment.

It may initially seem puzzling that two interventions that have remarkably similar impacts on young women's labor market outcomes have different effects on (relatively) long-run wellbeing. We present several pieces of evidence which, taken together, help to explain this finding. First,

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[1]Mean income in the control group increased more than 150 percent in real terms between Year 1 and Year 6, while Kenyan GDP per capita rose by 42 percent over the same time period. The proportion of the control group that was economically active increased by one third in that time, and women were also gaining experience in the labor force – so we would expect their real earnings to increase. Our results are consistent with Blattman, Fiala, and Martinez (2020), who find that the short-term impacts on income from a youth entrepreneurship program in Uganda disappear over time as the control group enters the labor market. Fiala et al. (2023) conduct an additional round of follow-up during the covid pandemic and again find no long-term impacts on women.

[2]The women in our sample are young – most are still in adolescence at baseline, when more than 80 percent still lived with a parent or other adult relative. Though we piloted conventional measures of household consumption and expenditures (Grosh and Glewwe 2000), we found that they did not yield reliable estimates of household-level outcomes in our sample, largely because the children of household heads often had limited information about expenditures and consumption by older household members. We therefore chose to focus on individual-level measures of wellbeing.

though the two treatments have comparable impacts on self-employment and labor income, the occupational trajectories of women assigned to the franchise and grant treatments differ in other ways. Relative to women in the franchise treatment, women in the grant arm work more hours without earning more income, are less likely to have done vocational training, and are less likely to work in the salon sector. By Year 6, women assigned to the grant treatment are also less likely to live in homes with electricity or television, relative to women in the franchise arm. Our results also suggest that the franchise treatment impacted women's psychological outlook in ways the grant treatment did not. By Year 2, women assigned to the franchise treatment have higher assessments of their own entrepreneurial ability and marginally higher self-esteem, relative to those in the grant treatment. Since the franchise treatment provided women with both life skills and vocational training, observed impacts on wellbeing may not be exclusively mediated by changes in self-employment and labor market outcomes. Moreover, women assigned to the franchise treatment did not have to pay the psychological fixed cost of deciding what type of business to launch and determining what steps to follow in order to start such a business.

Though the specific microfranchising model that we study has not been evaluated, both the individual components (e.g. vocational training) and multifaceted programs combining some of them have been evaluated in a number of settings (Adoho et al. 2014; Brooks, Donovan, and Johnson 2018; Alfonsi et al. 2020; Bandiera et al. 2020).[3] The franchise program that we study differs from existing youth entrepreneurship programs in that it guides participants into specific business sectors, motivated by evidence that potential entrepreneurs may lack the market intelligence needed to identify a successful business opportunity (Berge et al. 2012). Though our work is most directly related to research on youth underemployment in Africa (cf. Blattman, Fiala, and Martinez 2013; Adoho et al. 2014; Bandiera et al. 2020; McIntosh and Zeitlin 2022), we also contribute to active literatures on poverty traps (Kraay and McKenzie 2014, Balboni et al. 2022), cash transfers (Haushofer and Shapiro 2016, Banerjee, Niehaus, and Suri 2019), and microenterprises (De Mel, McKenzie, and Woodruff 2008, Blattman, Fiala, and

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[3]See Cho and Honorati (2014), McKenzie and Woodruff (2014), Kluve et al. (2016), McKenzie (2017), McKenzie et al. (2021) for reviews.

Martinez 2014), and most specifically to work on the returns to capital for self-employed women (De Mel, McKenzie, and Woodruff 2009; Fafchamps et al. 2011; Blattman et al. 2016; Bernhardt et al. 2019; Riley 2022). Our work resonates with existing work suggesting that the returns to capital may be low for female microentrepreneurs (cf. Bernhardt et al. 2019), but alters our interpretation of the existing evidence base: since very few women in our sample were married when they received an infusion of capital, the low return to capital observed in our context cannot be explained by women transferring funds to their husbands. Our results also demonstrate that policy interventions can impact subjective wellbeing without increasing income, echoing findings from the United States (Ludwig et al. 2012).

The rest of this paper is organized as follows. We describe our setting, the interventions we evaluate, and the design of our randomized evaluation in Section 2. We present our impact evaluation results in Section 3. Section 4 discusses cost effectiveness. Section 5 concludes.

2 Experimental Design and Data

We evaluate two interventions targeting young women in Nairobi, Kenya. The implementing partner (the International Rescue Committee, or IRC) worked with community organizations to advertise an entrepreneurship program open to women under 21 years old in three poor neighborhoods. Our research design is based on oversubscription, since more women applied for the program than could be accommodated by the implementing organization. A total of 905 eligible applicants were randomly assigned to one of three treatment arms: forty percent to the **franchise** treatment implemented by the IRC, twenty percent to an unrestricted **grant** treatment described below, and forty percent to the **control** group.[4]

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[4]Treatment assignments were stratified by neighborhood, month of application, applicant year-of-birth, and the applicant's stated preference over the two franchise business models (based on a brief explanation that was provided during the orientation preceding the baseline survey). The trial is registered at `https://www.socialscienceregistry.org/trials/459`.

2.1 Treatments

The first study arm was a multifaceted "microfranchising" program implemented by the IRC. The program helped young women launch branded microenterprises: either salons or food carts, each linked to a nationally-recognized brand. All participants in the franchise treatment completed a two-week business and life-skills training course before being matched with one of the two franchise partners. Women matched to the salon franchise partner completed six weeks of classroom training in a hairstyling school followed by a two-week internship at a local salon. After completing their training, participants identified suitable premises and received necessary capital and business inputs such as branded aprons, a hair washing sink, a hair dryer, and a variety of hair styling products. Women matched to the food cart franchise partner attended a one-day training and then received a mobile food cart, an apron or t-shirt displaying the franchise partner's logo, and an initial stock of prepared food to sell. Each microenterprise launched through the program was assigned a mentor who visited the business every few weeks. Additional details about the implementation of the franchise treatment are provided in Online Appendix B.

Women who were randomly assigned to the grant treatment were offered an unrestricted transfer of 20,000 Kenyan shillings (or 239 US dollars at the prevailing 2013 exchange rate). The value of the grant was selected to make it roughly comparable both to other cash grant programs (cf. Hamory et al. 2016) and to the anticipated value of the bundle received by women assigned to the franchise treatment arm.[5,6] Grant recipients were told that there were no restrictions on how the funds could be used and that the grant did not need to be paid back. Disbursements to grant recipients were timed to coincide with the launch of the microfranchise businesses.[7]

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[5]Crosta et al. (2023) summarize the findings of 25 randomized evaluations of lump-sum cash transfers in low- and middle-income country settings; the grants we study are larger, in real terms, than the grants evaluated in fifteen of those studies (and, consequently, smaller than the grants evaluated in nine studies).

[6]Our research design does not allow for the type of rigorous cash-benchmarking exercise carried out by McIntosh and Zeitlin (2021, 2022) since we evaluate a new program for which the type of implementation data needed to employ the ingredients-based method proposed by Levin et al. (2018) was unavailable. We discuss implementation costs in Online Appendix B. Section 4 compares the costs of the two interventions and discusses cost effectiveness implications.

[7]Online Appendix Table B12 summarizes the timing of project and data collection activities.

2.2 Data Collection

Our analysis draws on four main sources of data. First, we administered a brief baseline survey to all eligible applicants prior to randomization. The baseline survey was conducted in the first half of 2013, and treatments were implemented between August and December of that year. We conducted our first follow-up survey between July and September of 2014. That Year 1 follow-up was conducted by phone; to keep the survey as brief as possible, we only collected information on labor force participation. Our second follow-up survey was conducted in-person in 2015. The Year 2 follow-up was initially intended to be the main endline survey, and we collected information about a broad range of individual outcomes including labor market activities, food security, dietary diversity, expenditures, savings, life satisfaction, human capital, and empowerment.[8] Our final round of follow-up data collection took place between August of 2018 and August of 2019, the sixth year after treatment. The Year 6 survey was designed to assess the durability of the impacts on self-employment documented in the earlier survey rounds. To limit the burden on respondents, we only collected data on labor market outcomes and a small set of measures of individual wellbeing (living conditions, food security, and subjective life satisfaction). To increase statistical power for noisy outcomes such as earned income, we conducted three waves of phone surveys over the course of a year, following McKenzie (2012). For our analysis, we construct individual-level averages of labor market outcomes that were measured multiple times in the Year 6 survey.

2.3 Baseline Characteristics

Online Appendix Table A1 describes the baseline characteristics of the 905 women in our sample. As expected, they are young: aged 17–20 at the time of the baseline survey. At baseline, 55 percent of women in our sample had any paid work experience, and 34 percent had done some form

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[8]We did not collect data on per capita household consumption or household expenditures because we determined, through extensive pretesting of our data collection instruments, that many respondents were unable to provide meaningful information on household-level outcomes. As discussed above, the women in our sample are young. Almost half were still living with a parent at the time of the Year 2 follow-up survey.

of vocational training. Only 15 percent were involved in any type of income-generating activity. 92 percent completed primary school, but only 41 percent completed secondary school (though all women in the sample had left school prior to baseline). The average level of educational attainment was 10.3 years, which is very similar to the average of 10.6 years among women aged 18–20 living in Nairobi who were interviewed for the 2014 Demographic and Health Survey. 48 percent of women in our sample were born outside of Nairobi, and 12 percent had lost both parents. Relative to the women living in Nairobi who were interviewed in the 2014 Kenya DHS, the women in our sample are less likely to be married (16 percent in our sample vs. 28 percent of DHS respondents from Nairobi) and more likely to have given birth (41 percent in our sample vs. 26 percent of DHS respondents). This likely reflects the targeting of the program to women living in some of Nairobi's poorest neighborhoods.

Online Appendix Table A1 reports summary statistics disaggregated by treatment. Most covariates are well-balanced. To adjust for any imbalances, we use lasso to select a set of baseline covariates that predict treatment status after controlling for stratum fixed effects. These variables are included in our main empirical specifications (though we also report specifications excluding baseline covariates in the Online Appendix).

2.4   Compliance with Treatment

Not all women assigned to the franchise and grant arms took up treatment, as is typical in training programs (McKenzie and Woodruff 2014). Just over 61 percent of those assigned to the franchise treatment attended at least one day of business training (which was the first component of the franchise treatment), and 44 percent completed the program and launched a business. We observe very little contamination of the grant and control groups. Online Appendix Table A2 summarizes the impacts of the randomly assigned treatments on take-up of the interventions.

2.5 Attrition

Attrition rates are low in all of our follow-up surveys: we successfully surveyed 94 percent of the baseline sample in the Year 1 follow-up, 93 percent in the Year 2 follow-up, and 91 percent in the Year 6 follow-up. Regressions testing for differential attrition across treatment arms are reported in Online Appendix Table A2. Attrition is not associated with either treatment in any of our three rounds of data collection.

3   Results

3.1   Estimation Strategy

We report intent-to-treat estimates of the impacts of being invited to participate in the franchise and grant treatments on a range of outcomes related to participation in the labor market and individual wellbeing. We report OLS regressions of the form

$$Y_i = \alpha + \beta_F F_i + \beta_G G_i + \eta_s + \gamma X_i + \varepsilon_i \tag{1}$$

where Y_i is an outcome of interest, F_i is an indicator for random assignment to the franchise treatment, G_i is an indicator for random assignment to the grant treatment, η_s is a vector of randomization stratum fixed effects, X_i is a vector of baseline controls chosen by lasso, and ε_i is a conditionally-mean-zero error term.[9] In addition to our coefficient estimates, we report standard errors, unadjusted p-values, and Benjamini-Hochberg q-values that control the false discovery rate (Benjamini and Hochberg 1995, Anderson 2008).

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[9]Online Appendix Table A1 indicates the set of baseline covariates selected by lasso. As a robustness check, we also report specifications that only control for randomization strata.

3.2 Impacts on Labor Market Outcomes

Impacts on labor market outcomes in the first, second, and sixth years after treatment are reported in Table 1.[10] We consider five main labor market outcomes: self-employment, paid work other than self-employment (either formal employment or informal work for which a respondent receives payment in cash or in-kind), involvement in any income-generating activity (either self-employment or paid work), hours worked, and earned income.[11]

Both the franchise and grant treatments shift women into self-employment, seemingly permanently since estimated impacts are nearly identical in Years 1, 2, and 6. Both treatments increase the likelihood of self-employment by between 10 and 12 percentage points, and all coefficients are statistically significant, even after adjusting for multiple inference (q-values across the three rounds of follow-up range from 0.001 to 0.054). 24 percent of women in the control group report being self-employed in the Year 1 follow-up, so the treatment effect reflects a 41–45 percent increase in self-employment. By the Year 6 follow-up, 38 percent of women in the control group are self-employed, but both treatments still increase the likelihood of self-employment by more than 25 percent. We can never reject the hypothesis that the treatment effects of the franchise and grant treatments are equal, suggesting that liquidity alone is enough to shift women into microentrepreneurship.

Though the two treatments both increase self-employment, the types of self-employment that they generate are qualitatively different, as shown in Online Appendix Table A4. As expected, the franchise treatment increases the likelihood of operating a microfranchise, while the grant treatment does not.[12] In Year 1, both treatments decrease the likelihood of working in domestic service, but the franchise treatment also increases the probability of working in a salon (as expected) while the grant treatment increases the probability of working in retail trade.[13] Only

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[10]All results are similar without controls (Online Appendix Table A3).

[11]Online Appendix C describes the survey instrument used to capture women's involvement in income-generating activities. Self-employment and paid work are not mutually exclusive, since many women are involved in more than one activity.

[12]One year post-treatment, the estimated impact of the franchise treatment on the probability of operating a microfranchise is only 0.09, suggesting that many microfranchises close within their first year.

[13]The fact that both treatments increase self-employment within very specific sectors has implications for scalability. Nairobi is a large market and in practice the number of new businesses started by women in the

the impact of the franchise treatment on being in the salon sector persists in Year 2.

Neither the franchise treatment nor the grant treatment has consistent, statistically significant impacts on overall labor force participation. In Year 1, both treatments lead to reductions in the likelihood of doing paid work (q-values 0.110 and 0.067), but these impacts are only marginally statistically significant and disappear by the second year. In Year 2, the franchise treatment causes an overall increase in the likelihood of doing any income-generating activity (q-value 0.025), but this is absent in Year 1 and does not persist into Year 6.[14] We also do not observe statistically significant impacts on hours worked except in Year 1, when the grant treatment increases total hours by more than a third (q-value 0.046).[15] Thus, the treatments seem to impact the likelihood of self-employment, but do not have consistent impacts on the overall likelihood of working or the probability of working for others.

We observe statistically significant and economically meaningful positive impacts on earned income in the first year after treatment, but these effects disappear over time. In Year 1, the franchise treatment increases weekly earned income by 168 Kenyan shillings (q-value 0.069), while the grant treatment increases earned income by 298 shillings (q-value 0.022). Since the average income in the control group is only 496 shillings per week, these effects represent substantial increases in relative income. In contrast, estimated impacts in Year 2 and Year 6 are smaller in magnitude and not statistically significant.

The distribution of income is positively skewed, with many zeros and a long right tail. Because the variance is large relative to the mean, statistical power is a concern.[16] Moreover, the distribution of treatment effects is of intrinsic interest: a program that shifts a large number of

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treatment arms was modest. However, our results show that women using cash grants to launch new businesses do not naturally diversify across sectors, at least in the short term – suggesting that equilibrium effects might eventually be a concern with either intervention.

[14]In Year 6, both treatments have marginally statistically significant impacts on the likelihood that a woman is simultaneously involved in both paid work and self-employment (results not shown, unadjusted p-values 0.032 and 0.095).

[15]Unadjusted p-values also suggest an impact of the grant treatment on hours in Year 6, though the result is not statistically significant after adjusting for multiple hypothesis testing.

[16]In the analysis of treatment effects on earned income reported above, we winsorize the top and bottom 0.5 percent of the data to limit the influence of a small number of outliers. However, even in the winsorized data, the standard deviation of income is well above the mean. Moreover, since incomes in the control group increased over time (as did their standard deviations), in our Year 6 data we are not powered to detect positive impacts on income similar in magnitude to those observed in Year 1.

people from zero income to a low but positive income is quite different, from a policy perspective, than one that has substantial positive impacts on a very small number of treated individuals. We estimate distribution regression models to explore the incidence treatment effects across the distribution of income levels and test the hypothesis that treatment effects are constant (Foresi and Peracchi 1995, Chernozhukov, Fernández-Val, and Melly 2013). We plot our distribution regression results in Figure 1; each panel shows the impact of a treatment on the probability of having income below a range of different income thresholds (Chernozhukov, Fernández-Val, and Melly 2020).[17]

In Year 1, distribution regressions suggest that both treatments have impacts across much of the distribution of income levels observed in the control group (Figure 1). The colored lines and shaded areas in the top two panels of Figure 1 are generally below the horizontal axis, because positive treatment effects across the distribution correspond to a negative difference in CDFs. The distribution regression models suggest that both the franchise and grant treatments increased incomes across the income distribution (Cramer-von-Mises p-values of 0.017 and 0.012, respectively, for the franchise and grant treatments) and fail to reject the hypothesis of constant treatment effects (p-values 0.193 and 0.582).

The treatment effects on earned income observed in Year 1 partially disappear by Year 2 – possibly because control group incomes increased substantially over time. Distribution regression p-values do not allow us to reject the hypothesis of no overall impact on Year 2 income (p-values of 0.165 and 0.160, respectively, for the franchise and grant treatments). Nevertheless, there is some evidence that benefits remain at the lower end of the distribution: in Year 2, the distribution regression p-values associated with a test of the null hypothesis of constant treatment effects are 0.036 for the franchise treatment and 0.059 for the grant treatment. We interpret this as suggestive evidence that treatment effects on income persisted into the second year after treatment, but only near the bottom of the distribution. However, we find no such evidence of treatment effects on income for any part of the distribution by Year 6.

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[17]In addition, Figure A1 presents the CDFs of income in Year 1, Year 2, and Year 6 separately by treatment.

3.2.1 Treatment Effect Heterogeneity

We test for treatment effect heterogeneity using the causal forest approach proposed in Athey and Imbens (2016) and Wager and Athey (2018). Causal forests are a machine learning technique that involves repeatedly partitioning the data based on covariates into sub-samples that show relatively little variation in treatment effect, generating estimates of individual-level conditional average treatment effects (CATEs). Using the approach suggested by Chernozhukov et al. (2018) and Athey and Wager (2019), we do not detect meaningful treatment effect heterogeneity in impacts on self employment, involvement in income-generating activities, or earned income.

3.3 Impacts on Wellbeing

We consider four measures of objective and subjective wellbeing: an (objective) index of living conditions and household assets; a food security index, adapted from USAID's Food Insecurity Access Scale; and measures of current and anticipated future subjective life satisfaction captured through Cantril's Ladder of Life Scale (Cantril 1965).[18] Wellbeing-related outcomes were measured in Year 2 and Year 6, but not in Year 1.

In Year 2, neither treatment had a statistically significant impact on living conditions, food security, or current life satisfaction. Coefficient estimates indicate that the franchise treatment improved anticipated future life satisfaction by 0.18 standard deviations, though the effect is only marginally statistically significant (Table 2, q-value 0.056).[19] We can never reject the hypothesis that the Year 2 impacts of the franchise and grant treatments on our top-level measures of individual wellbeing are equal.[20]

Results from Year 6 indicate that the franchise treatment improved three of four wellbeing-related outcomes while the grant treatment did not. The franchise treatment had a statistically significant positive impact on food security, current life satisfaction, and anticipated future life

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[18]Online Appendix C provides a detailed description of the construction of our food security measure.

[19]Results are similar without controls (Online Appendix Table A5).

[20]In Online Appendix Tables A6 and A7, we report estimated impacts on the individual components of the living conditions and food security indices.

satisfaction (Table 2, q-values 0.020, 0.020, and 0.004, respectively). Though it did not have a positive impact on our index of living conditions, women assigned to the franchise treatment are more likely than women assigned to the grant treatment to live in households with electricity (p-value 0.041) or a television (p-value 0.091) by Year 6 (Online Appendix Table A6). We can also reject the hypothesis that the franchise and grant treatments had the same impacts on food security and current and expected future life satisfaction (Table 2, q-values 0.016, 0.016, and 0.018, respectively). The estimated positive impacts of the franchise treatment are quantitatively large, ranging from 0.18 to 0.25 SD. In contrast, the grant treatment did not improve living conditions, food security, or subjective life satisfaction. Thus, in spite of their comparable impacts on labor market outcomes, the franchise treatment made women better off over the medium-to-long run, while the grant treatment did not.[21]

3.4   Impacts on Other Outcomes

In the Year 2 survey, we collected data on a broad range of individual-level outcomes. Neither treatment had dramatic impacts on household structure or economic variables such as savings or expenditures, but we find suggestive evidence that the grant treatment reduced women's level of training, skills, and self-confidence, both relative to the control group and relative to the franchise treatment (see Online Appendix Tables A8–A11).

4   Cost Effectiveness Implications

The franchise intervention cost more to implement than the cash grant intervention. Though we lack the data on input use required to implement the ingredients-based approach to cost analysis proposed by Levin et al. (2018), detailed expenditure data from the implementing partners allows us to estimate both the cost of each intervention and the amount spent on the bundle of

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[21]Ours is not the first study to detect longer-term effects on outcomes that were not initially impacted. For example, graduation programs in Ethiopia and India impacted political involvement and a similar program in Peru impacted mental health, but these effects were only observed in the second of two follow-up surveys (J-PAL and IPA Policy Bulletin 2015).

program components (excluding NGO management costs, overhead, recruitment costs, and costs associated with designing the intervention). If one considers only the direct costs of delivering the intervention components, the franchise treatment cost just under five percent more per invited participant than the grant intervention.[22] However, though the components' cost are comparable, the complexity of the franchise intervention resulted in higher administrative and development costs – which would not necessarily be relevant if one were to scale up the franchise intervention. Accounting for all inputs, the franchise intervention cost approximately 55 percent more per woman assigned to treatment.

Both interventions increased earned income in Year 1, and the estimated ITT effect of the grant treatment is larger than that of the franchise treatment (though the difference is not statistically significant). This suggests that the cash grant is probably a more effective way of achieving short-term income gains than the bundled intervention – since the costs are lower and the gains are weakly higher. That said, neither intervention led to consistently higher incomes over the longer-term, suggesting that neither approach helped women out of a poverty trap. More intensive and costly versions of either intervention could lead to more durable increases in income, but our results cannot speak to this question since we do not vary either the size of the cash grant or the intensity of the franchise treatment.[23]

While both interventions increased earned income in the short-term, only the franchise treat-

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[22]Since take-up of the franchise treatment was lower than take-up of the grant treatment, cost differences are larger when one calculates costs per participant as opposed to per woman assigned to treatment. Costs also differed across franchise business models, with the food cart franchise costing less than the salon franchise. If one considers only the direct costs of delivering program components, excluding high-level management and recruitment costs, then the direct cost of delivering the grant intervention was approximately 277 dollars per woman assigned to treatment, versus 289 dollars for the franchise intervention. The direct cost of delivering the food cart franchise model was approximately 257 dollars per woman assigned to treatment, whereas the direct cost of delivering the salon franchise intervention was approximately 311 dollars per woman. The total cost of delivering the franchise intervention was approximately 495 dollars per women assigned to treatment, with the salon franchise package costing approximately 520 dollars per woman assigned to treatment and the food cart franchise costing approximately 458 dollars per woman assigned to treatment. The total cost of delivering the grant was approximately 319 dollars per woman assigned to treatment. See Online Appendix B for discussion of cost calculations. For comparison, the more intensive graduation programs in Ethiopia and Ghana studied in Banerjee et al. (2015) both cost over one thousand dollars per participant.

[23]Consistent with this, Balboni et al. (2022) find that more costly bundled interventions can address asset-based poverty traps in some contexts, while Banerjee et al. (2022) find that asset transfers alone do not have the same impacts. Moreover, existing evidence does not suggest that the impacts of cash grants increase more than one-for-one with the size of the grant (Crosta et al. 2023).

ment improved longer-term wellbeing. Though the impacts of the grant treatment are often imprecisely estimated, point estimates are negative for two of the three wellbeing outcomes impacted by the franchise treatment. This makes cost effectiveness analysis inappropriate (for wellbeing outcomes), since we only identify one intervention that impacts wellbeing. We cannot address the question of whether a larger cash grant would have had different effects, but existing evidence does not suggest the sort of sharp non-linearity in the impacts of one-off grants that would be required to make larger grants more effective than the franchise program at improving food security and subjective wellbeing (Crosta et al. 2023), given that the cash grant that we offer does not impact these outcomes at all.

An equally important question is whether all of the components of the franchise intervention were necessary to achieve the observed impacts on longer-term wellbeing – since offering a subset of the intervention components would obviously entail lower costs per participant. Though we lack exogenous variation in program components, variation in treatment effects across randomization strata provides some evidence on this issue. As discussed above, applicants to the program were stratified by application date (into three groups), neighborhood, and their stated preference over the two franchise business models (based on short descriptions that were provided during the baseline survey). In Online Appendix Figure A2, we present treatment effects disaggregated by application round. The final round of applications (Round 3) differs from the two earlier rounds because Round 3 applicants were treated at the very end of the implementation window. As a result, they received only a few weeks of mentoring and almost all were assigned to the food cart treatment (because there was not enough time to complete the salon skills training). Hence, if the mentoring was a critical channel of impact or if the salon franchise model had substantially larger impacts than the food cart franchise model, we would expect to see a smaller effect of the franchise treatment in the third recruitment round (either in absolute terms or in comparison to the treatment effect of the cash grant in the same strata). Online Appendix Figure A2 does not support this interpretation. If anything, the impacts of the franchise treatment on Year 6 wellbeing are slightly larger for the last recruitment cohort than for the earlier recruitment rounds,

while impacts on self-employment and earned income do not appear to differ across rounds. This provides some evidence that the mentoring was not the key channel of impact, and also that the food cart franchise model was not measurably less effective than the salon franchise model.

Online Appendix Figure A3 provides complementary evidence, aggregating randomization strata based on stated preferences over the two franchise business models. Since the NGO sought to match participants with their preferred business model whenever possible, their initial preference is a strong predictor or the eventual franchise partner with whom they were matched. Here, we find some evidence that impacts on self-employment were larger among women who preferred the salon business model, but these differences disappeared by Year 6. The two franchise models do not appear to have different impacts on outcomes related to longer-term wellbeing. Taken together, our results do not provide consistent evidence that one franchise business model was noticeably more effective than the other.

5   Conclusion

We evaluate two interventions intended to promote self-employment among women in three of Nairobi's poorest neighborhoods. The first is a multifaceted franchise treatment that provided life skills training, vocational education, physical capital, and ongoing mentoring. The second was a cash grant of 20,000 Kenyan shillings (equivalent to 239 US dollars in 2013). Though other multifaceted programs have been evaluated in a variety of contexts (cf. Banerjee et al. 2015), and long-term studies are becoming more commonplace (cf. Banerjee, Duflo, and Sharma 2021), the microfranchising model has not previously been evaluated in this way.

Both the franchise and grant treatments increased the likelihood of self-employment: roughly one in ten women in each of the treatment arms was shifted into self-employment relative to the comparison group. Estimated impacts are nearly identical in Years 1, 2, and 6, suggesting that they are likely to persist for the foreseeable future. As in other studies of cash transfers, we see that if anything, cash grants temporarily induced an increase in labor force participation, with no evidence of a decrease in either the short or long term (Banerjee et al. 2017). How-

ever, neither treatment leads to a long-run increase in the likelihood of being involved in any income-generating activity. Both the franchise treatment and the grant treatment had large and statistically significant impacts on income in the year after the program. However, the impacts on income disappeared after the first year, and did not return – though incomes among treated women are no lower than those in the control group.

Though the cash grant and the microfranchising program are similar in having persistent impacts on self-employment and only temporary effects on income, they differ in terms of their impacts on overall wellbeing. More than five years after treatment, women randomly assigned to the IRC's franchise treatment are significantly better off than those in the control group and those offered unrestricted cash grants in lieu of the multifaceted program.

Our results speak to ongoing policy debates about youth unemployment and female microentrepreneurship. To the extent that savings or credit constraints create a poverty trap by limiting young women's ability to launch profitable small businesses, providing them with the financial capital alone could yield the same benefits as a multifaceted entrepreneurship program, but with lower implementation costs. However, our results do not point to an asset-based trap, since impacts on income disappear over time. Instead, we find that two interventions that fail to help women out of poverty have persistent impacts on their occupational trajectories, but only the multifaceted program improves women's overall wellbeing.

References

ADOHO, F., S. CHAKRAVARTY, D. T. KORKOYAH JR., M. LUNDBERG, AND A. TASNEEM (2014): "The Impact of an Adolescent Girls Employment Program: The EPAG Project in Liberia," World Bank Policy Research Working Paper 6832.

ALFONSI, L., O. BANDIERA, V. BASSI, R. BURGESS, I. RASUL, M. SULAIMAN, AND A. VITALI (2020): "Tackling youth unemployment: Evidence from a labor market experiment in Uganda," *Econometrica*, 88(6), 2369–2414.

ANDERSON, M. L. (2008): "Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects," *Journal of the American Statistical Association*, 103(484), 1481–1495.

ATHEY, S., AND G. IMBENS (2016): "Recursive partitioning for heterogeneous causal effects," *Proceedings of the National Academy of Sciences*, 113(27), 7353–7360.

ATHEY, S., AND S. WAGER (2019): "Estimating Treatment Effects with Causal Forests: An Application," *Observational Studies*, 5(2), 37–51.

BALBONI, C., O. BANDIERA, R. BURGESS, M. GHATAK, AND A. HEIL (2022): "Why do people stay poor?," *The Quarterly Journal of Economics*, 137(2), 785–844.

BANDIERA, O., N. BUEHREN, R. BURGESS, M. GOLDSTEIN, S. GULESCI, I. RASUL, AND M. SULAIMAN (2020): "Women's empowerment in action: evidence from a randomized control trial in Africa," *American Economic Journal: Applied Economics*, 12(1), 210–59.

BANDIERA, O., A. ELSAYED, A. SMURRA, AND C. ZIPFEL (2022): "Young Adults and Labor Markets in Africa," *Journal of Economic Perspectives*, 36(1), 81–100.

BANERJEE, A., E. BREZA, E. DUFLO, AND C. KINNAN (2019): "Can Microfinance Unlock a Poverty Trap for Some Entrepreneurs?," National Bureau of Economic Research Working Paper 26346.

BANERJEE, A., E. DUFLO, N. GOLDBERG, D. KARLAN, R. OSEI, W. PARIENTÉ, J. SHAPIRO, B. THUYSBAERT, AND C. UDRY (2015): "A Multifaceted Program Causes Lasting Progress for the Very Poor: Evidence from Six Countries," *Science*, 348(6236).

BANERJEE, A., E. DUFLO, AND G. SHARMA (2021): "Long-term effects of the targeting the ultra poor program," *American Economic Review: Insights*, 3(4), 471–86.

BANERJEE, A., D. KARLAN, R. OSEI, H. TRACHTMAN, AND C. UDRY (2022): "Unpacking a multifaceted program to build sustainable income for the very poor," *Journal of Development Economics*, 155, 102781.

BANERJEE, A., P. NIEHAUS, AND T. SURI (2019): "Universal basic income in the developing world," *Annual Review of Economics*, 11, 959–983.

BANERJEE, A. V., R. HANNA, G. E. KREINDLER, AND B. A. OLKEN (2017): "Debunking the stereotype of the lazy welfare recipient: Evidence from cash transfer programs," *The World Bank Research Observer*, 32(2), 155–184.

BENJAMINI, Y., AND Y. HOCHBERG (1995): "Controlling the False Discovery Rate: a Practical and Powerful Approach to Multiple Testing," *Journal of the Royal Statistical Society. Series B (Methodological)*, 57(1), 289–300.

BERGE, L. I., K. BJORVATN, K. S. JUNIWATY, AND B. TUNGODDEN (2012): "Business Training in Tanzania: From Research Driven Experiment to Local Implementation," *Journal of African Economies*, 21(5), 808–827.

BERGE, L. I. O., K. BJORVATN, AND B. TUNGODDEN (2014): "Human and financial capital for microenterprise development: Evidence from a field and lab experiment," *Management Science*, 61(4), 707–722.

BERNHARDT, A., E. FIELD, R. PANDE, AND N. RIGOL (2019): "Household Matters: Revisiting the Returns to Capital among Female Microentrepreneurs," *American Economic Review: Insights*, 1(2), 141–60.

BLATTMAN, C., N. FIALA, AND S. MARTINEZ (2014): "Generating Skilled Self-Employment in Developing Countries: Experimental Evidence from Uganda," *Quarterly Journal of Economics*, 129(2), 697–752.

——— (2020): "The Long-Term Impacts of Grants on Poverty: Nine-Year Evidence from Uganda's Youth Opportunities Program," *American Economic Review: Insights*, 2(3), 287–304.

BLATTMAN, C., E. P. GREEN, J. JAMISON, M. C. LEHMANN, AND J. ANNAN (2016): "The Returns to Microenterprise Support among the Ultrapoor: A Field Experiment in Postwar Uganda," *American Economic Journal: Applied Economics*, 8(2), 35–64.

BROOKS, W., K. DONOVAN, AND T. R. JOHNSON (2018): "Mentors or Teachers? Microenterprise Training in Kenya," *American Economic Journal: Applied Economics*, 10(4), 196–221.

CANTRIL, H. (1965): *The Pattern of Human Concerns.* New Brunswick, NJ: Rutgers University Press.

CHERNOZHUKOV, V., M. DEMIRER, E. DUFLO, AND I. FERNANDEZ-VAL (2018): "Generic Machine Learning Inference on Heterogeneous Treatment Effects in Randomized Experiments, with an Application to Immunization in India," Discussion paper, National Bureau of Economic Research.

CHERNOZHUKOV, V., I. FERNÁNDEZ-VAL, AND B. MELLY (2013): "Inference on Counterfactual Distributions," *Econometrica*, 81(6), 2205–2268.

——— (2020): "Quantile and distribution regression in Stata: algorithms, pointwise and functional inference.," Discussion paper, working paper.

CHIODA, L., D. CONTRERAS-LOYA, P. GERTLER, AND D. CARNEY (2021): "Making Entrepreneurs: Returns to Training Youth in Hard Versus Soft Business Skills," National Bureau of Economic Research Working Paper 28845.

CHO, Y., AND M. HONORATI (2014): "Entrepreneurship Programs in Developing Countries: A Meta Regression Analysis," *Labour Economics*, 28, 110–130.

CROSTA, T., D. KARLAN, F. ONG, RÜSCHENPÖHLER, AND C. UDRY (2023): "Unconditional Cash Transfers: A Bayesian Meta-Analysis of 50 Randomized Evaluations in Low and Medium Income Countries," unpublished working paper.

DE MEL, S., D. MCKENZIE, AND C. WOODRUFF (2008): "Returns to Capital in Microenterprises: Evidence from a Field Experiment," *Quarterly Journal of Economics*, 123(4), 1329–1372.

——— (2009): "Are Women More Credit Constrained? Experimental Evidence on Gender and Microenterprise Returns," *American Economic Journal: Applied Economics*, 1(3), 1–32.

DUPAS, P. (2011): "Do Teenagers Respond to HIV Risk Information? Evidence from a Field Experiment in Kenya," *American Economic Journal: Applied Economics*, 3(1), 1–34.

FAFCHAMPS, M., D. MCKENZIE, S. QUINN, AND C. WOODRUFF (2011): "Microenterprise Growth and the Flypaper Effect: Evidence from a Randomized Experiment in Ghana," *Journal of Development Economics*, 106, 211–226.

FIALA, N., J. ROSE, F. ARYEMO, AND J. ANKEL-PETERS (2023): "The (very) long-run impacts of cash gratns during a crisis," unpublished working paper.

FILMER, D., AND L. FOX (2014): "Youth Employment in Sub-Saharan Africa: Overview," Washington, DC: World Bank.

FORESI, S., AND F. PERACCHI (1995): "The Conditional Distribution of Excess returns: An Empirical Analysis," *Journal of the American Statistical Association*, 90(430), 451–466.

GROSH, M., AND P. GLEWWE (2000): *Designing Household Survey Questionnaires for Developing Countries.* Washington, DC: World Bank.

HAMORY, J., M. KREMER, I. MBITI, AND E. MIGUEL (2016): "Start-Up Capital for Youth," AEA RCT Registry.

HAUSHOFER, J., AND J. SHAPIRO (2016): "The Short-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya," *Quarterly Journal of Economics*, 131(4), 1973–2042.

J-PAL AND IPA POLICY BULLETIN (2015): "Building Stable Livelihoods for the Ultra-Poor," Cambridge, MA: Abdul Latif Jameel Poverty Action Lab and Innovations for Poverty Action.

KLUVE, J., S. PUERTO, D. ROBALINO, J. M. ROMERO, F. ROTHER, J. STÖTERAU, F. WEIDENKAFF, AND M. WITTE (2016): "Do Youth Employment Programs Improve Labor Market Outcomes? A Systematic Review," IZA Discussion Paper No. 10263.

KRAAY, A., AND D. MCKENZIE (2014): "Do Poverty Traps Exist? Assessing the Evidence," *Journal of Economic Perspectives*, 28(3), 127–48.

LEVIN, H. M., P. J. MCEWAN, C. BELFIED, A. B. BOWDEN, AND R. SHAND (2018): *Economic Evaluation in Education: Cost-Effectiveness and Benefit-Cost Analysis.* SAGE Publishing.

LUDWIG, J., G. J. DUNCAN, L. A. GENNETIAN, L. F. KATZ, R. C. KESSLER, J. R. KLING, AND L. SANBONMATSU (2012): "Neighborhood Effects on the Long-Term Well-Being of Low-Income Adults," *Science*, 337(6101), 1505–1510.

MCINTOSH, C., AND A. ZEITLIN (2021): "Cash versus Kind: Benchmarking a Child Nutrition Program against Unconditional Cash Transfers in Rwanda," *arXiv preprint arXiv:2106.00213*.

———— (2022): "Using Household Grants to Benchmark the Cost Effectiveness of a USAID Workforce Readiness Program," *Journal of Development Economics*, 157, 102875.

MCKENZIE, D. (2012): "Beyond Baseline and Follow-Up: The Case for More T in Experiments," *Journal of Development Economics*, 99(2), 210–221.

———— (2017): "How Effective Are Active Labor Market Policies in Developing Countries? A Critical Review of Recent Evidence," *World Bank Research Observer*, 32(2), 127–154.

MCKENZIE, D., AND C. WOODRUFF (2014): "What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World?," *World Bank Research Observer*, 29(1), 48–82.

MCKENZIE, D., C. WOODRUFF, K. BJORVATN, M. BRUHN, J. CAI, J. GONZALEZ-URIBE, S. QUINN, S. TETSUSHI, AND M. VALDIVIA (2021): "Can Entrepreneurial Activity be Taught? Quasi-Experimental Evidence from Central America," *VoxDevLit*, 1(2).

RILEY, E. (2022): "Resisting social pressure in the household using mobile money: Experimental evidence on microenterprise investment in Uganda," CSAE Working Paper 2022-04.

WAGER, S., AND S. ATHEY (2018): "Estimation and Inference of Heterogeneous Treatment Effects Using Random Forests," *Journal of the American Statistical Association*, 113(523), 1228–1242.

Table 1: Impacts on Income-Generating Activities

		Year 1				Year 2				Year 6		
Outcome	Mean	Franchise	Grant	F=G	Mean	Franchise	Grant	F=G	Mean	Franchise	Grant	F=G
Self-employed	0.24	0.10	0.11		0.24	0.11	0.12		0.38	0.12	0.10	
		(0.04)	(0.04)			(0.04)	(0.04)			(0.03)	(0.04)	
		[0.006]	[0.009]	[0.692]		[0.002]	[0.006]	[0.817]		[0.000]	[0.011]	[0.585]
		{0.030}	{0.022}	{0.865}		{0.009}	{0.031}	{0.817}		{0.001}	{0.054}	{0.707}
Working for others	0.38	-0.07	-0.09		0.50	-0.02	-0.05		0.59	-0.04	0.01	
		(0.04)	(0.04)			(0.04)	(0.05)			(0.03)	(0.04)	
		[0.066]	[0.053]	[0.673]		[0.685]	[0.272]	[0.442]		[0.203]	[0.800]	[0.173]
		{0.110}	{0.067}	{0.865}		{0.685}	{0.453}	{0.817}		{0.508}	{0.911}	{0.431}
Currently working	0.59	0.02	0.02		0.66	0.09	0.06		0.80	0.01	0.03	
		(0.04)	(0.05)			(0.03)	(0.04)			(0.02)	(0.03)	
		[0.621]	[0.709]	[0.972]		[0.010]	[0.181]	[0.452]		[0.602]	[0.251]	[0.502]
		{0.735}	{0.709}	{0.972}		{0.025}	{0.453}	{0.817}		{0.753}	{0.418}	{0.707}
Hours worked	18.13	0.75	6.84		19.14	2.40	1.10		25.75	0.42	4.74	
		(2.21)	(3.09)			(2.16)	(2.67)			(1.85)	(2.41)	
		[0.735]	[0.027]	[0.045]		[0.267]	[0.679]	[0.639]		[0.821]	[0.050]	[0.072]
		{0.735}	{0.046}	{0.224}		{0.445}	{0.849}	{0.817}		{0.821}	{0.124}	{0.360}
Earned income	495.80	168.01	298.36		961.76	-58.53	-14.34		1582.80	96.92	23.16	
		(76.12)	(110.11)			(119.17)	(159.47)			(171.80)	(207.13)	
		[0.028]	[0.007]	[0.245]		[0.623]	[0.928]	[0.753]		[0.573]	[0.911]	[0.707]
		{0.069}	{0.022}	{0.612}		{0.685}	{0.928}	{0.817}		{0.753}	{0.911}	{0.707}

Coefficients in the Franchise and Grant columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses, unadjusted p-values in square brackets, and Benjamini-Hochberg q-values in curly brackets. Self-employed is an indicator for having done any self-employment activity in the past month. Working for others is an indicator for having done any paid work, either for a firm or for an individual, in the past month. Currently working is an indicator for being self-employed or working for others. Hours worked is the total number of labor hours worked over the past week. Earned income is wages, profits, and income (including in-kind income) from all labor activities over the past week. We winsorize the top and bottom 0.5 percent of earned income data to limit the influence of a small number of outliers. See Online Appendix C for additional information on the construction of outcome variables.

Table 2: Impacts on Living Conditions and Wellbeing

|	Year 2			Year 6		
	Franchise	Grant	F=G	Franchise	Grant	F=G
Living conditions	-0.04	-0.01		-0.06	-0.15	
	(0.07)	(0.09)		(0.07)	(0.09)	
	[0.553]	[0.912]	[0.712]	[0.397]	[0.074]	[0.235]
	{0.553}	{0.912}	{0.712}	{0.397}	{0.295}	{0.235}
Food security	0.06	-0.13		0.21	-0.04	
	(0.08)	(0.09)		(0.08)	(0.09)	
	[0.402]	[0.175]	[0.040]	[0.010]	[0.648]	[0.006]
	{0.537}	{0.670}	{0.161}	{0.020}	{0.672}	{0.016}
Current wellbeing	0.07	-0.01		0.18	-0.04	
	(0.08)	(0.09)		(0.07)	(0.09)	
	[0.389]	[0.897]	[0.392]	[0.015]	[0.672]	[0.008]
	{0.537}	{0.912}	{0.523}	{0.020}	{0.672}	{0.016}
Future wellbeing	0.18	0.09		0.25	0.04	
	(0.07)	(0.09)		(0.07)	(0.09)	
	[0.014]	[0.335]	[0.299]	[0.001]	[0.641]	[0.014]
	{0.056}	{0.670}	{0.523}	{0.004}	{0.672}	{0.018}

Coefficients in the Franchise and Grant columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses, unadjusted p-values in square brackets, and Benjamini-Hochberg q-values in curly brackets. Living conditions is an index that takes the first principal component of indicators for having piped water, having (grid-based) electricity, having a private toilet or latrine, having a television at home, and having a computer at home, and owning your own mobile phone. In Year 2, Living conditions is strongly associated with 30-day expenditure, savings, dietary diversity, and the first principal component of other assets (the Other household assets variable reported in Online Appendix Table A9). The p-values associated with these relationships are smaller than 10^{-5} in the first two cases, 0.000023, and 0.012, respectively. Food security is the Household Food Insecurity Access Scale (FIAS), inverted so that higher numbers indicate greater food security. The FIAS asks about a 30-day recall period, and includes objective questions, such as "In the last 30 days, did you go a whole day without eating anything because there was not enough to eat?" as well as more subjective questions, such as "In the last 30 days, did you worry that you would not have enough food?" Current wellbeing is a ranking of current life satisfaction on an ordinal scale (Cantril's Ladder of Life), and Future wellbeing is anticipated life satisfaction in five years. All outcomes are normalized z-scores. See Online Appendix C for additional information on the construction of outcome variables.

Figure 1: Distribution Regressions of the Impact of Treatment on Earned Income
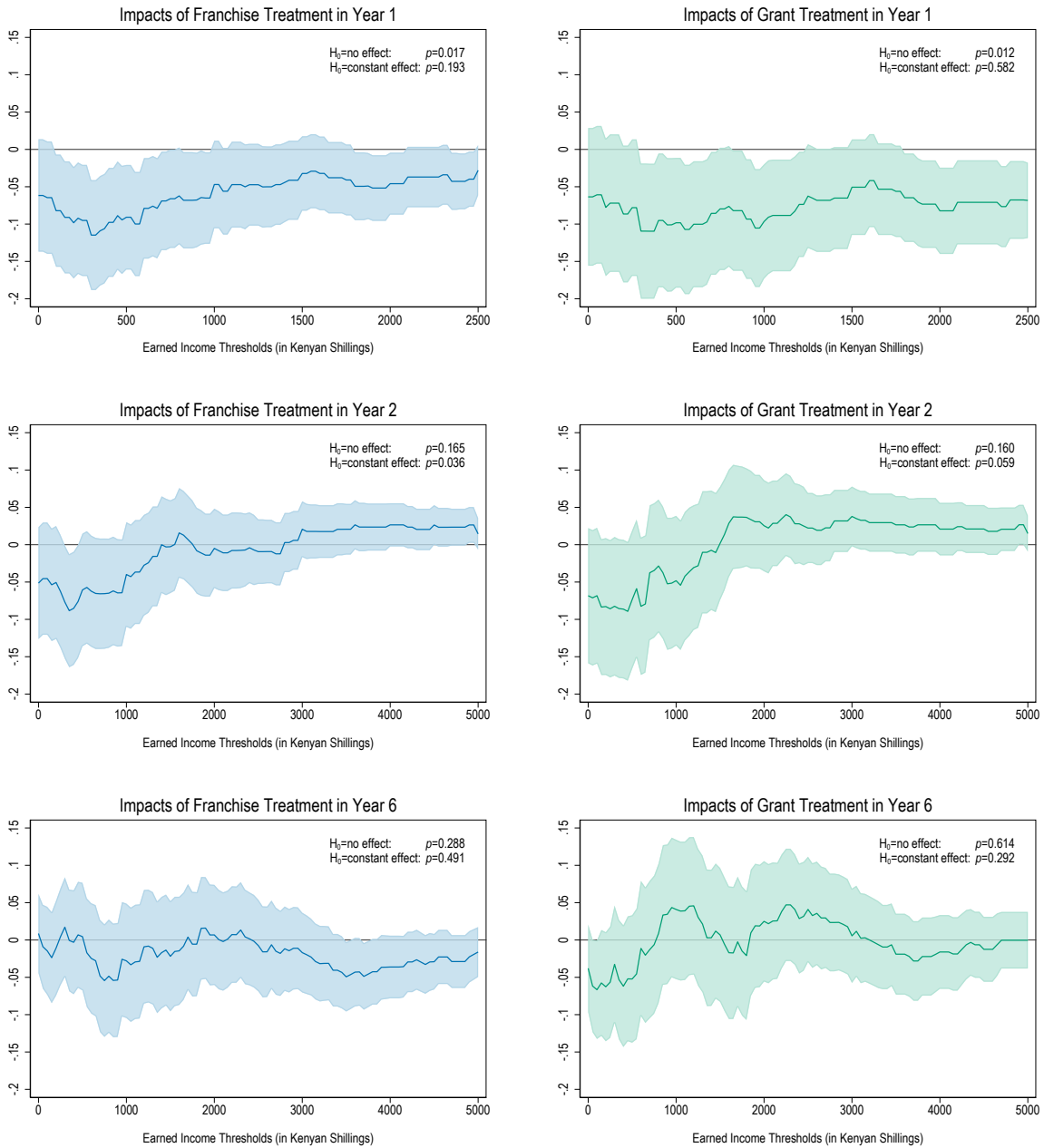
EARNED INCOME is wages, profits, and income (including in-kind income) from all labor activities over the past week. Figures plot the estimated impacts of treatment (the franchise treatment in the left column, the grant treatment in the right column) on the probability of having an income below each of 100 grid points between the minimum and maximum values on the x-axis (shaded areas represent 95 percent confidence intervals). Cramer-von Mises p-values calculated following Chernozhukov, Fernández-Val, and Melly (2020), based on tests of the hypotheses that (1) there is no effect of treatment on the distribution of earned income and (2) that the effect of treatment on earned income is constant across the distribution.

Online Appendix: not for print publication

A Additional Tables and Figures

Table A1: Baseline Covariates

		By Treatment Arm			
Variable	All	Control	Franchise	Grant	Selected by Lasso?
Age	18.78	18.76	18.80	18.78	No
	(0.03)	(0.04)	(0.04)	(0.06)	
Kikuyu	0.37	0.39	0.36	0.35	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Luo	0.26	0.27	0.25	0.27	No
	(0.01)	(0.02)	(0.02)	(0.03)	
Born outside Nairobi	0.48	0.45	0.52	0.47	Yes
	(0.02)	(0.03)	(0.03)	(0.04)	
Years of education	10.26	10.40	10.30	9.89	Yes
	(0.07)	(0.11)	(0.11)	(0.18)	
Took primary school leaving exam	0.92	0.93	0.91	0.90	No
	(0.01)	(0.01)	(0.02)	(0.02)	
Took secondary school leaving exam	0.41	0.44	0.41	0.34	Yes
	(0.02)	(0.03)	(0.03)	(0.04)	
Numeracy index	0.85	0.86	0.84	0.84	Yes
	(0.01)	(0.01)	(0.01)	(0.02)	
Any vocational training	0.34	0.37	0.32	0.35	No
	(0.02)	(0.03)	(0.02)	(0.04)	
Mother's education (if known)	4.78	4.62	4.84	4.99	No
	(0.16)	(0.26)	(0.27)	(0.36)	
Mother or father alive	0.88	0.89	0.88	0.88	No
	(0.01)	(0.02)	(0.02)	(0.02)	
Married or cohabitating	0.16	0.15	0.19	0.15	No
	(0.01)	(0.02)	(0.02)	(0.03)	
Has given birth	0.41	0.36	0.44	0.44	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Household size	4.89	5.13	4.71	4.76	Yes
	(0.07)	(0.12)	(0.11)	(0.17)	
Lives with a parent	0.50	0.56	0.46	0.46	Yes
	(0.02)	(0.03)	(0.03)	(0.04)	
Lives with own child	0.36	0.32	0.41	0.35	Yes
	(0.02)	(0.02)	(0.03)	(0.04)	

Continued on next page

A1

Table A1 – *continued from previous page*

VARIABLE	ALL	BY TREATMENT ARM			SELECTED BY LASSO?
		CONTROL	FRANCHISE	GRANT	
Lives with other relatives (not parents)	0.31	0.28	0.32	0.38	Yes
	(0.02)	(0.02)	(0.02)	(0.04)	
Household has electricty	0.75	0.75	0.76	0.74	No
	(0.01)	(0.02)	(0.02)	(0.03)	
Household has piped water	0.49	0.49	0.49	0.48	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Household owns a television	0.57	0.57	0.57	0.55	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Household owns a computer	0.03	0.02	0.03	0.03	No
	(0.01)	(0.01)	(0.01)	(0.01)	
Owns a personal mobile phone	0.73	0.74	0.73	0.73	No
	(0.01)	(0.02)	(0.02)	(0.03)	
Food security	-0.00	0.02	-0.03	0.03	No
	(0.03)	(0.06)	(0.05)	(0.07)	
Has any savings (including jewelry)	0.33	0.34	0.34	0.30	No
	(0.02)	(0.02)	(0.02)	(0.03)	
Value of savings (in USD)	5.47	5.32	5.79	5.14	No
	(0.63)	(1.02)	(1.04)	(1.25)	
Has a personal bank account	0.09	0.09	0.09	0.08	No
	(0.01)	(0.01)	(0.02)	(0.02)	
Any (paid) work experience	0.55	0.54	0.54	0.57	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Currently working	0.15	0.12	0.17	0.15	No
	(0.01)	(0.02)	(0.02)	(0.03)	
Self-employed	0.05	0.04	0.06	0.05	No
	(0.01)	(0.01)	(0.01)	(0.02)	
Working for others	0.10	0.09	0.11	0.10	No
	(0.01)	(0.01)	(0.02)	(0.02)	
Over 20 hours housework last week	0.63	0.60	0.66	0.65	No
	(0.02)	(0.03)	(0.03)	(0.04)	
Observations	905	363	360	182	

Standard errors in parentheses. SELECTED BY LASSO indicates baseline covariates chosen by lasso as predictors of either the grant treatment or the franchise treatment. Lasso is implemented using adaptive cross-validation to choose the penalty parameter.

Table A2: Compliance and Attrition

	CONTROL MEAN	FRANCHISE	GRANT	F=G
Attended business training	0.00	0.61	0.00	
		(0.03)	(0.01)	
		[0.000]	[0.620]	[0.000]
Launched microfranchise	0.01	0.44	0.00	
		(0.03)	(0.01)	
		[0.000]	[0.878]	[0.000]
Received grant	0.00	-0.00	0.95	
		(0.00)	(0.02)	
		[0.344]	[0.000]	[0.000]
Attritted from Year 1 Survey	0.06	0.01	0.01	
		(0.02)	(0.02)	
		[0.616]	[0.806]	[0.871]
Attritted from Year 2 Survey	0.07	0.01	0.01	
		(0.02)	(0.02)	
		[0.639]	[0.568]	[0.848]
Attritted from Year 6 Survey	0.08	0.02	0.02	
		(0.02)	(0.03)	
		[0.435]	[0.547]	[0.976]

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects. Standard errors in parentheses, and unadjusted p-values in square brackets.

Table A3: Impacts on Income-Generating Activities: Regressions Excluding Baseline Covariates

	YEAR 1				YEAR 2				YEAR 6			
	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G
Self-employed	0.24	0.10	0.12		0.24	0.12	0.13		0.38	0.14	0.11	
		(0.03)	(0.04)			(0.04)	(0.04)			(0.03)	(0.04)	
		[0.003]	[0.005]	[0.666]		[0.001]	[0.003]	[0.831]		[0.000]	[0.003]	[0.573]
		{0.014}	{0.015}	{0.862}		{0.004}	{0.017}	{0.881}		{0.000}	{0.017}	{0.594}
Working for others	0.38	-0.07	-0.08		0.50	-0.02	-0.05		0.59	-0.04	0.01	
		(0.04)	(0.04)			(0.04)	(0.05)			(0.03)	(0.04)	
		[0.060]	[0.060]	[0.743]		[0.625]	[0.314]	[0.545]		[0.153]	[0.682]	[0.103]
		{0.099}	{0.075}	{0.862}		{0.625}	{0.523}	{0.881}		{0.383}	{0.781}	{0.258}
Currently working	0.59	0.03	0.03		0.66	0.10	0.07		0.80	0.02	0.04	
		(0.04)	(0.05)			(0.03)	(0.04)			(0.02)	(0.03)	
		[0.497]	[0.465]	[0.862]		[0.006]	[0.111]	[0.528]		[0.436]	[0.130]	[0.415]
		{0.578}	{0.465}	{0.862}		{0.015}	{0.278}	{0.881}		{0.727}	{0.217}	{0.594}
Hours worked	18.13	1.22	7.33		19.14	2.83	1.50		25.75	0.33	4.43	
		(2.19)	(3.01)			(2.14)	(2.58)			(1.84)	(2.36)	
		[0.578]	[0.015]	[0.041]		[0.185]	[0.561]	[0.621]		[0.857]	[0.061]	[0.082]
		{0.578}	{0.025}	{0.205}		{0.309}	{0.701}	{0.881}		{0.857}	{0.152}	{0.258}
Earned income	495.80	166.29	295.02		961.76	-66.64	-46.32		1582.80	45.96	-55.64	
		(74.12)	(107.37)			(119.48)	(154.88)			(168.01)	(199.73)	
		[0.025]	[0.006]	[0.246]		[0.577]	[0.765]	[0.881]		[0.784]	[0.781]	[0.594]
		{0.063}	{0.015}	{0.615}		{0.625}	{0.765}	{0.881}		{0.857}	{0.781}	{0.594}

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects. Standard errors in parentheses, unadjusted p-values in square brackets, and Benjamini-Hochberg q-values in curly brackets. SELF-EMPLOYED is an indicator for having done any self-employment activity in the past month. WORKING FOR OTHERS is an indicator for having done any paid work, either for a firm or for an individual, in the past month. CURRENTLY WORKING is an indicator for being self-employed or working for others. HOURS WORKED is the total number of labor hours worked over the past week. EARNED INCOME is wages, profits, and income (including in-kind income) from all labor activities over the past week. We winsorize the top and bottom 0.5 percent of earned income data to limit the influence of a small number of outliers. See Online Appendix C for additional information on the construction of outcome variables.

Table A4: Impacts on Occupational Sector and Likelihood of Operating a Microfranchise

	YEAR 1				YEAR 2				YEAR 6			
OUTCOME	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G
Panel A. Microfranchises												
Runs a microfranchise	0.00	0.09	0.00	0.000	0.00	0.04	0.00	0.001	0.00	0.07	0.00	0.000
		(0.02)	(0.00)			(0.01)	(0.00)			(0.01)	(0.01)	
		[0.000]	[0.647]			[0.001]	[0.962]			[0.000]	[0.816]	
Runs a salon franchise	0.00	0.05	0.00	0.000	0.00	0.03	-0.00	0.003	0.00	0.05	-0.00	0.000
		(0.01)	(0.00)			(0.01)	(0.00)			(0.01)	(0.00)	
		[0.000]	[0.906]			[0.003]	[0.649]			[0.000]	[0.184]	
Runs a food cart franchise	0.00	0.04	0.00	0.001	0.00	0.01	0.00	0.109	0.00	0.02	0.01	0.086
		(0.01)	(0.00)			(0.01)	(0.00)			(0.01)	(0.00)	
		[0.000]	[0.639]			[0.091]	[0.418]			[0.006]	[0.240]	
Non-microfranchise self-employment	0.24	0.01	0.11	0.018	0.24	0.08	0.12	0.321	0.37	0.06	0.10	0.282
		(0.03)	(0.04)			(0.04)	(0.04)			(0.03)	(0.04)	
		[0.796]	[0.010]			[0.029]	[0.006]			[0.071]	[0.011]	
Panel B. Industrial Sectors												
Household help	0.14	-0.04	-0.05	0.820	0.20	-0.02	0.02	0.404	0.25	0.01	0.02	0.812
		(0.02)	(0.03)			(0.03)	(0.04)			(0.03)	(0.03)	
		[0.072]	[0.087]			[0.601]	[0.670]			[0.790]	[0.647]	
Hairdressing or salon	0.14	0.08	-0.07	0.000	0.17	0.12	-0.01	0.001	0.22	0.12	0.02	0.006
		(0.03)	(0.03)			(0.03)	(0.04)			(0.03)	(0.03)	
		[0.004]	[0.028]			[0.000]	[0.819]			[0.000]	[0.499]	
Retail trade	0.12	0.02	0.15	0.002	0.13	0.01	0.06	0.167	0.21	0.02	0.03	0.953
		(0.03)	(0.04)			(0.03)	(0.03)			(0.03)	(0.03)	
		[0.412]	[0.000]			[0.733]	[0.099]			[0.354]	[0.429]	
Food service	0.09	0.03	0.03	0.895	0.11	0.03	-0.02	0.097	0.09	0.01	0.02	0.709
		(0.02)	(0.03)			(0.03)	(0.03)			(0.02)	(0.02)	
		[0.245]	[0.289]			[0.224]	[0.541]			[0.458]	[0.302]	

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets. Outcomes in Panel A are self-reported indicators for operating either a salon microfranchise or a prepared food microfranchise launched through the intervention. Outcomes in Panel B reflect aggregations of ISIC-codes for industrial sectors. HOUSEHOLD HELP is an indicator for doing work that falls into ISIC Division 97, "activities of households as employers of domestic personnel." HAIRDRESSING OR SALON is an indicator for doing work that falls into ISIC Division 96, 'other personal service activities" which includes "hairdressing and other beauty treatment." RETAIL TRADE is an indicator for doing work that falls into ISIC Division 47, "retail trade, except of motor vehicles and motorcycles" which includes "retail sale via stalls and markets." FOOD SERVICE is an indicator for doing work that falls into ISIC Division 56, "food and beverage service activities" which includes "restaurants and mobile food service activities." These four categories cover more than 80 percent of women involved in an income-generating activity in all survey rounds.

Table A5: Impacts on Wellbeing: Regressions Excluding Baseline Covariates

	Year 2			Year 6		
	Franchise	Grant	F=G	Franchise	Grant	F=G
Living conditions	-0.06	-0.04		-0.09	-0.20	
	(0.07)	(0.09)		(0.07)	(0.09)	
	[0.440]	[0.660]	[0.850]	[0.180]	[0.022]	[0.194]
	{0.650}	{0.727}	{0.850}	{0.180}	{0.087}	{0.194}
Food security	0.03	-0.17		0.20	-0.07	
	(0.08)	(0.09)		(0.08)	(0.09)	
	[0.650]	[0.063]	[0.025]	[0.013]	[0.474]	[0.003]
	{0.650}	{0.253}	{0.101}	{0.025}	{0.632}	{0.012}
Current wellbeing	0.05	-0.03		0.15	-0.07	
	(0.08)	(0.09)		(0.07)	(0.09)	
	[0.506]	[0.727]	[0.363]	[0.041]	[0.384]	[0.006]
	{0.650}	{0.727}	{0.484}	{0.054}	{0.632}	{0.012}
Future wellbeing	0.15	0.05		0.20	0.00	
	(0.07)	(0.09)		(0.07)	(0.09)	
	[0.042]	[0.556]	[0.288]	[0.006]	[0.961]	[0.016]
	{0.168}	{0.727}	{0.484}	{0.025}	{0.961}	{0.022}

Coefficients in the Franchise and Grant columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses, unadjusted p-values in square brackets, and Benjamini-Hochberg q-values in curly brackets. Living conditions is an index that takes the first principal component of indicators for having piped water, having (grid-based) electricity, having a private toilet or latrine, having a television at home, and having a computer at home, and owning your own mobile phone. In Year 2, Living conditions is strongly associated with 30-day expenditure, savings, dietary diversity, and the first principal component of other assets (the Other household assets variable reported in Online Appendix Table A9). The p-values associated with these relationships are smaller than 10^{-5} in the first two cases, 0.000023, and 0.012, respectively. Food security is the Household Food Insecurity Access Scale (FIAS), inverted so that higher numbers indicate greater food security. The FIAS asks about a 30-day recall period, and includes objective questions, such as "In the last 30 days, did you go a whole day without eating anything because there was not enough to eat?" as well as more subjective questions, such as "In the last 30 days, did you worry that you would not have enough food?" Current wellbeing is a ranking of current life satisfaction on an ordinal scale (Cantril's Ladder of Life), and Future wellbeing is anticipated life satisfaction in five years. All outcomes are normalized z-scores. See Online Appendix C for additional information on the construction of outcome variables.

Table A6: Impacts on Individual Components of Living Conditions Index

	YEAR 2				YEAR 6			
	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G
Household has electricity	0.85	-0.03	-0.05		0.88	0.02	-0.04	
		(0.03)	(0.04)			(0.02)	(0.03)	
		[0.264]	[0.222]	[0.716]		[0.354]	[0.160]	[0.041]
Household has piped water	0.47	0.04	0.06		0.16	-0.04	-0.04	
		(0.04)	(0.04)			(0.02)	(0.03)	
		[0.321]	[0.153]	[0.551]		[0.123]	[0.169]	[0.906]
Household has flush toilet	0.39	0.04	0.08		0.17	-0.02	-0.03	
		(0.04)	(0.04)			(0.02)	(0.03)	
		[0.261]	[0.065]	[0.357]		[0.473]	[0.372]	[0.763]
Household owns a TV	0.60	-0.04	-0.01		0.58	0.04	-0.03	
		(0.04)	(0.05)			(0.03)	(0.04)	
		[0.287]	[0.834]	[0.494]		[0.259]	[0.436]	[0.091]
Household owns computer	0.08	-0.05	-0.05		0.08	-0.02	-0.04	
		(0.02)	(0.02)			(0.02)	(0.02)	
		[0.007]	[0.020]	[0.977]		[0.168]	[0.028]	[0.319]
Owns a personal mobile phone	0.89	-0.01	-0.06		0.89	0.01	0.03	
		(0.02)	(0.03)			(0.02)	(0.02)	
		[0.760]	[0.068]	[0.115]		[0.536]	[0.116]	[0.281]

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets.

Table A7: Impacts on Individual Components of Food Security Index

	YEAR 2				YEAR 6			
	MEAN	FRANCHISE	GRANT	F=G	MEAN	FRANCHISE	GRANT	F=G
Worried about having enough food	1.11	-0.04	0.02		0.95	-0.19	0.06	
		(0.09)	(0.10)			(0.09)	(0.10)	
		[0.607]	[0.813]	[0.511]		[0.026]	[0.583]	[0.014]
Forced to eat less preferred foods	1.59	-0.03	0.06		1.56	-0.22	0.05	
		(0.08)	(0.10)			(0.09)	(0.11)	
		[0.683]	[0.534]	[0.337]		[0.020]	[0.666]	[0.013]
Forced to limit food variety	1.49	-0.05	0.09		1.33	-0.12	0.12	
		(0.09)	(0.10)			(0.09)	(0.11)	
		[0.584]	[0.395]	[0.192]		[0.199]	[0.256]	[0.024]
Forced to eat something not wanted	1.48	-0.05	0.19		1.33	-0.13	0.07	
		(0.09)	(0.10)			(0.09)	(0.11)	
		[0.546]	[0.058]	[0.019]		[0.158]	[0.540]	[0.068]
Forced to eat smaller meals	1.13	0.11	0.31		1.05	-0.18	0.03	
		(0.09)	(0.11)			(0.09)	(0.11)	
		[0.192]	[0.004]	[0.073]		[0.056]	[0.777]	[0.057]
Forced to eat fewer meals	1.18	-0.03	0.15		1.03	-0.24	-0.02	
		(0.09)	(0.11)			(0.09)	(0.11)	
		[0.730]	[0.183]	[0.109]		[0.007]	[0.888]	[0.030]
No food at all in house	0.54	-0.08	0.07		0.40	-0.11	-0.02	
		(0.06)	(0.08)			(0.06)	(0.07)	
		[0.224]	[0.423]	[0.080]		[0.042]	[0.801]	[0.157]
Went to sleep hungry	0.48	-0.13	-0.02		0.32	-0.08	0.00	
		(0.06)	(0.07)			(0.05)	(0.06)	
		[0.023]	[0.819]	[0.117]		[0.104]	[0.939]	[0.159]
Went all day without food	0.58	-0.13	-0.03		0.20	-0.06	-0.02	
		(0.07)	(0.08)			(0.04)	(0.05)	
		[0.042]	[0.737]	[0.171]		[0.131]	[0.628]	[0.445]

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets. Questions refer to a 30-day recall window, and are implemented following standard procedures for the Food Insecurity Access Scale questionnaire. All outcomes are measured on a 0 to 3 scale, with higher numbers indicating greater food insecurity: 0 = never, 1 = rarely, 2 = sometimes, 3 = often. Further details are provided in Online Appendix C.

Table A8: Impacts of Treatments on Living Arrangements in Year 2

	CONTROL MEAN	FRANCHISE	GRANT	F=G
Household size	4.70	-0.01	0.19	
		(0.17)	(0.21)	
		[0.958]	[0.362]	[0.336]
Lives with a parent	0.42	-0.00	0.04	
		(0.03)	(0.04)	
		[0.902]	[0.372]	[0.319]
Married or cohabitating	0.27	0.00	-0.01	
		(0.03)	(0.04)	
		[0.998]	[0.709]	[0.713]
Number of live births	0.59	0.07	0.05	
		(0.04)	(0.05)	
		[0.110]	[0.318]	[0.744]
Lives in Nairobi	0.89	-0.03	-0.03	
		(0.03)	(0.03)	
		[0.245]	[0.307]	[0.918]

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets.

Table A9: Impacts of Treatments on Expenditures, Consumption, and Savings in Year 2

	Control Mean	Franchise	Grant	F=G
Total expenditures	1211.36	49.31	-23.90	
		(105.28)	(124.03)	
		[0.640]	[0.847]	[0.522]
Savings	4734.75	-414.65	301.08	
		(766.78)	(935.36)	
		[0.589]	[0.748]	[0.422]
Dietary diversity	0.00	0.12	0.03	
		(0.08)	(0.10)	
		[0.157]	[0.740]	[0.407]
Other household assets	0.04	-0.11	0.03	
		(0.12)	(0.17)	
		[0.368]	[0.861]	[0.393]

Coefficients in the Franchise and Grant columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets. Total expenditures and Savings are measured in Kenyan shillings, winsorized at the 99th percentile. Dietary diversity is measured using the Women's Dietary Diversity instrument produced by the FANTA project, and is reported as a z-score with higher numbers indicating greater dietary diversity. Other household assets is constructed by predicting the first principal component of the following household assets: radios, refrigerators, bicycles, electric cooking stoves, gas cooking stoves, motorcycles, sewing machines, DVD players, cows, goats, sheep, pigs, donkeys, chickens, ducks, quail, rabbits, turkeys, and guinea fowl (i.e. all household assets that were measured in Year 2 but not included in the Living conditions index). See Online Appendix C for additional information on the construction of outcome variables.

Table A10: Impacts of Treatments on Human Capital in Year 2

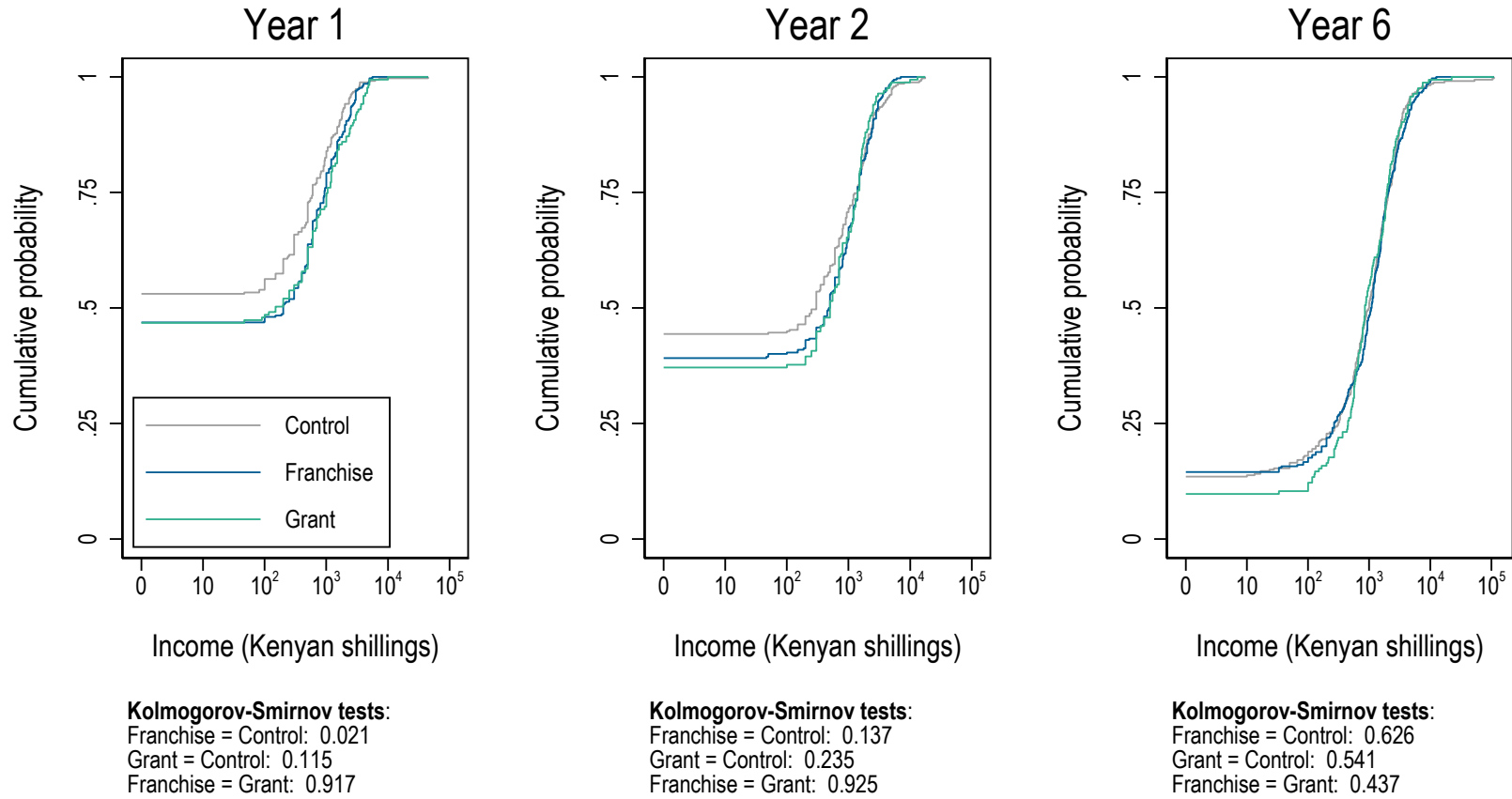|	Control Mean	Franchise	Grant	F=G
Years of education	10.20	-0.04	-0.06	
		(0.10)	(0.11)	
		[0.715]	[0.575]	[0.832]
Curently enrolled in school	0.10	-0.01	-0.01	
		(0.02)	(0.03)	
		[0.576]	[0.572]	[0.931]
Human capital index	-0.00	0.03	0.01	
		(0.06)	(0.07)	
		[0.620]	[0.935]	[0.737]
Has done any vocational training	0.57	0.28	0.04	
		(0.03)	(0.05)	
		[0.000]	[0.408]	[0.000]
Has done culinary training	0.04	0.23	-0.00	
		(0.02)	(0.02)	
		[0.000]	[0.814]	[0.000]
Has done salon skills training	0.21	0.28	0.01	
		(0.03)	(0.04)	
		[0.000]	[0.834]	[0.000]
Salon skills index	-0.00	0.03	-0.26	
		(0.08)	(0.10)	
		[0.712]	[0.007]	[0.002]
Has done tailoring training	0.06	-0.01	0.02	
		(0.02)	(0.03)	
		[0.740]	[0.458]	[0.329]
Tailoring skills index	-0.00	-0.02	0.07	
		(0.08)	(0.09)	
		[0.799]	[0.474]	[0.347]
Has done computer training	0.24	-0.07	0.00	
		(0.03)	(0.03)	
		[0.010]	[0.932]	[0.025]
Computer skills index	0.00	-0.05	-0.26	
		(0.07)	(0.07)	
		[0.450]	[0.000]	[0.003]

Coefficients in the Franchise and Grant columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets.

Table A11: Impacts of Treatments on Gender Attitudes and Agency in Year 2

	CONTROL MEAN	FRANCHISE	GRANT	F=G
Gender empowerment index (0 to 100)	52.87	-0.18	1.60	
		(1.54)	(1.93)	
		[0.909]	[0.408]	[0.358]
Suitable age for woman to marry	24.83	-0.35	-0.26	
		(0.20)	(0.23)	
		[0.090]	[0.257]	[0.721]
Suitable age for man to marry	28.28	-0.28	0.07	
		(0.26)	(0.29)	
		[0.291]	[0.798]	[0.254]
Suitable age for woman to have baby	24.89	-0.21	-0.23	
		(0.25)	(0.29)	
		[0.393]	[0.421]	[0.950]
Desired number of children	2.76	0.05	0.06	
		(0.07)	(0.08)	
		[0.487]	[0.483]	[0.902]
Desired age at marriage for daughter	26.10	-0.30	-0.39	
		(0.20)	(0.23)	
		[0.148]	[0.096]	[0.687]
Desired age at marriage for son	28.86	-0.33	0.08	
		(0.25)	(0.28)	
		[0.175]	[0.791]	[0.148]
Rosenberg self-esteem scale (0 to 30)	19.13	0.28	-0.35	
		(0.32)	(0.38)	
		[0.383]	[0.349]	[0.095]
Entrepreneurial ability index (1 to 100)	83.57	0.54	-2.57	
		(0.98)	(1.25)	
		[0.579]	[0.039]	[0.014]
Control over resources	0.80	0.08	0.05	
		(0.03)	(0.04)	
		[0.002]	[0.138]	[0.331]
Confidence score (1 to 6)	4.26	0.09	-0.07	
		(0.09)	(0.11)	
		[0.288]	[0.511]	[0.122]

Coefficients in the FRANCHISE and GRANT columns are the intent-to-treat effect of the franchise and grant treatment on each outcome, estimated through an OLS regression controlling for randomization stratum fixed effects and the set of baseline controls selected by lasso (see Online Appendix Table A1). Standard errors in parentheses and unadjusted p-values in square brackets. See Online Appendix C for additional information on the construction of outcome variables.

Figure A1: CDFs of Earned Income by Treatment

Year 1 — Year 2 — Year 6

Kolmogorov-Smirnov tests:
Franchise = Control: 0.021
Grant = Control: 0.115
Franchise = Grant: 0.917

Kolmogorov-Smirnov tests:
Franchise = Control: 0.137
Grant = Control: 0.235
Franchise = Grant: 0.925

Kolmogorov-Smirnov tests:
Franchise = Control: 0.626
Grant = Control: 0.541
Franchise = Grant: 0.437

EARNED INCOME is wages, profits, and income (including in-kind income) from all labor activities over the past week.

Figure A2: Treatment Effects by Recruitment Round
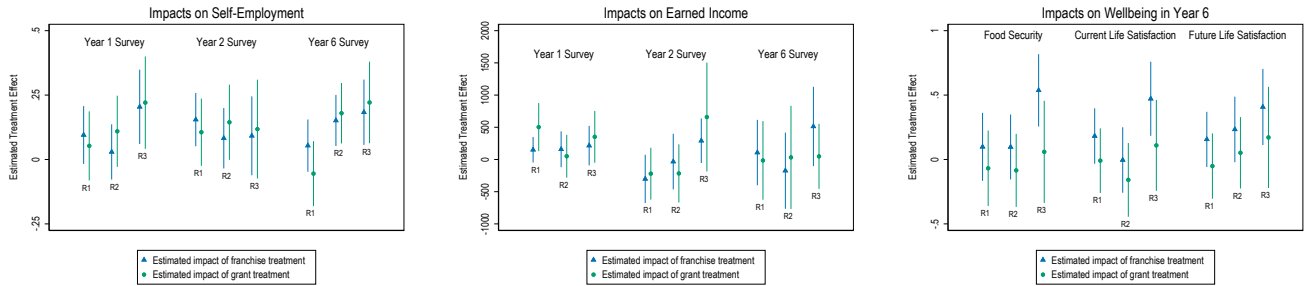
Women assigned to the franchise treatment in recruitment round 3 were three times more likely to launch a food cart microfranchise than those recruited in the earlier rounds, while those recruited in the earlier rounds were four times more likely to launch a salon franchise.

Figure A3: Treatment Effects by Preference over Microfranchise Business Models
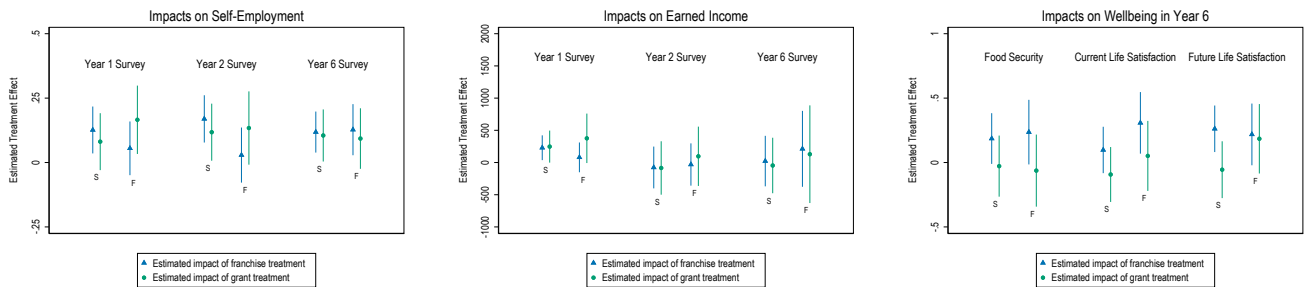
S indicates an initial preference for the salon franchise business model. F indicates an initial preference for the food cart franchise business model. Women who stated that they preferred the food care franchise model were 4.5 times more likely to launch a food cart microfranchise than those who stated that they preferred the salon franchise model. Those who preferred the salon franchise model were four times more likely to launch a salon franchise than those who preferred the food care model.

B   Intervention Details

B.1   Recruitment

The microfranchising program we study was geared toward young women in Nairobi's poorest neighborhoods. Applications for the program came from women between the ages of 16 and 19. In practice, only 14.6 percent of applicants were below 18 years of age when they applied. Only those who had attained the age of legal majority prior to treatment were eligible to receive cash grants, so our analysis focuses on the older age cohorts. Applications were stratified by neighborhood, month of application, year-of-birth (those born after 1995 were grouped into the younger cohort), and their ranking of the possible franchise partners (whether they would prefer to be matched with the salon franchise partner or the mobile food cart franchise partner). The cash grant treatment was not announced in advance; women applied for entrepreneurship program and were randomized into one of three treatment arms.

B.2   Implementation of the Franchise Treatment

The IRC's microfranchising program helped young women launch branded franchise businesses: either salons or mobile food carts. The intervention combined a number of distinct elements: business and life skills training, franchise-specific vocational training, start-up capital (in the form of the specific physical capital required to start the franchise), and ongoing business mentoring. Several of the intervention's components are common to many entrepreneurship promotion and job skills programs; what distinguishes microfranchise programs from other interventions is the focus on a small number of specific franchise business models that are tailored to the skills and constraints of program participants (i.e. poor young women in urban Nairobi) and to local market conditions. In this case, the implementing organization (the IRC) partnered with two Kenyan businesses looking to expand their presence in slum neighborhoods. The franchise partners are both relatively well-known firms (within Kenya), so their reputations added value to the franchise package that program participants received.

The first component of the franchise program was a two-week training course. In addition to a standard curriculum of business and life skills training topics, it included modules about the two specific franchise models. At the end of the course, participants indicated their preference between the two franchise partners and were then matched with one of them (almost always their first choice).

After the business and life skills course, program participants received training from the franchise business partner with whom they had been matched. Women assigned to the salon franchise received six weeks of classroom training followed by a two-week internship with a local salon. After the internship, participants received their business start-up kits (which included branded aprons, a hair washing sink, a hair dryer, and a variety of hair styling products). For women assigned to the food cart franchise, the franchise-specific training was a one-day session where franchisees were introduced to the brand, available products, and appropriate preparation methods. Following the franchise training, program participants received business start-up kits that included a mobile cart, an apron or t-shirt displaying the company logo, and an initial stock of smoked chicken sausages. Regardless of which franchise model they were matched with, the program did not require any borrowing by participants.

Each franchise business launched through the program was assigned a mentor who visited the business every few weeks. Mentors helped the young women in the program get their businesses off the ground — for example, by coordinating additional training with the franchise partners, helping the businesses set up bank accounts, or assisting with financial management and record keeping.

Figure B12 summarizes the timing of program implementation and data collection activities. The franchise intervention took place between August and December of 2013.[B1]

B.3   Implementation of the Grant Treatment

Cash grants were distributed by Innovations for Poverty Action (IPA) between November of 2013 and January of 2014. Women assigned to the grant treatment were context by phone and then met with field team members

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[B1]Prior to our evaluation, the IRC implemented the microfranchise intervention in three other neighborhoods, also on the eastern outskirts of Nairobi. Our evaluation covers the three rounds of program implementation in the Baba Dogo, Lunga Lunga, and Dandora neighborhoods.

twice. During the first meeting, IPA staff explained the no-strings-attached grant and the possible payment modalities (mobile money or cash). Women received their grants, either as physical cash or an immediate mobile money transfer, during the second meeting.

B.4 Comparing Implementation Costs

Expenditure data from both implementing organizations allows us to compare the costs of the two interventions. Costs in the cash grant arm are relatively straightforward. The cash grant itself was worth 239 US dollars.[B2] Because compliance was slightly below 100 percent, the average disbursement per respondent in the cash grant arm was 228 dollars. Besides simply transferring the money, there were direct costs associated with delivering the cash grants – having field team members meet with participants; confirming, via fingerprint reader, that the individuals our team met with were indeed the intended recipients; and reimbursing participants for their transport expenses. In addition to this, there were management and other indirect costs. Additional direct costs amounted to 49 dollars per woman assigned to treatment, while management and indirect costs were an additional 32 dollars per person. Because women assigned to the grant treatment were recruited by the IRC and its local partners, we must also add the estimated cost per recruited participant (9 US dollars) to the total cost of implementing the grant arm. Thus, the total cost of the cash grant arm per intended recipient was approximately 319 dollars, and the direct cost of delivering the grant was 277 dollars per woman assigned to treatment. This does not include the cost of designing the grant intervention or raising the funding, since these tasks were undertaken the principal investigators.

Costing the microfranchising intervention is more complicated. While we have detailed expenditure data from the implementing partner, we do not have the sufficiently precise data to implement the ingredients-based approach discussed in Levin, McEwan, Belfied, Bowden, and Shand (2018). This has several implications, all of which are common to NGO-provided programs in low-income settings, where markets cannot be assumed to be complete or competitive. The IRC worked with several local partners to implement the microfranchising intervention: for example, franchise partners that conducted vocational training specific to each business model and local community-based organizations who recruited participants and provided mentoring. To the extent that these partners provided services at below their opportunity costs – either because they are mission-driven or because they hoped that the franchises would provide valuable publicity for their brand – expenditure data will under-state the true cost of the program. However, expenditure data may overstate the true cost of the program because of labor market imperfections (e.g. if it is not possible to hire fractional units of skilled managers).

If we are willing to assume that the IRC's expenditures are broadly consistent with program costs, there is still a question of how to account for differing management structures across organizations – and, in particular, whether to compare the amount spent delivering each intervention or the cost of the bundle of services received by participants. The implementing partner spent approximately 178 thousand USD delivering the intervention to women assigned to the franchise treatment, suggesting that the total cost of the program was approximately 495 dollars per woman assigned to treatment (or 520 for the salon franchise model and 458 for the food cart franchise model), or 792 dollars per participant (given imperfect compliance). Recruiting participants accounts for approximately two percent of the cost of the program, and 58 percent reflects the direct costs of implementing the individual components of the intervention (e.g. business and life skills training, or the physical capital provided to participants) including staff costs related to the provision of training and mentoring. The remaining costs reflect expenditure on program design, management staff not directly involved in delivering the interventions, and overhead. If one were to exclude these costs to obtain an approximate cost associated with providing the components of the program, that would be 289 dollars (or 311 dollars for the salon intervention and 256 for the food cart intervention).

Thus, the franchise intervention cost approximately 55 percent more than the grant intervention per woman assigned to treatment, and the ratio of costs is even higher if we calculate expenses per participant because of differential take-up. However, much of this difference in costs results from the fact that the franchise intervention was more complex to design and required greater managerial oversight. If we instead consider the costs of delivering the intervention components received by participants, excluding management, overhead, and design costs, the franchise treatment is only slightly (4 percent) more expensive per woman assigned to treatment. The direct costs of delivering the franchise business model were lower per woman assigned to treatment than the costs

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[B2]All dollar amounts refer to 2013 dollars.

of delivering the cash grant.

Table B12: Timeline of Intervention and Data Collection Activities

Activity	Dates
Baseline surveys	July 2013 – October 2013
Franchise intervention	August 2013 – December 2013
Microfranchises launched between September 30 and December 20, 2013	
Grants dispersed	November 2013 – January 2014
Year 1 surveys	July 2014 – September 2014
Year 2 surveys	February 2015 – December 2015
Year 6 surveys	August 2018 – August 2019
Year 6, Round 1	*August 2018 – November 2018*
Year 6, Round 2	*November 2018 – February 2019*
Year 6, Round 3	*March 2019 – August 2019*

C Outcome Variables

C.1 Labor Market Outcomes

Our module measuring participation in income-generating activities (IGAs) was developed and refined through extensive piloting over several years, informed by the draft modules on Employment and Household Enterprise included in the World Bank's *Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 Years of the World Bank's Living Standards Measurement Surveys* as well as other IGA surveys that had been used by Innovations for Poverty Action in Kenya (e.g. as part of the Kenya Life Panel Survey).

Enumeration of IGAs proceeded in two steps. First, we used the following four questions to prompt respondents to list all of the economic activities that they were involved in:

Now I would like you to think about activities that you are involved in during the day or at night that help you provide for yourself, your family, or your household. We are interested in businesses that you own or operate and any other activities you do to make money or for which you are paid money.

1. *Do you own or operate a business?*

2. *Do you do any work for which you earn a wage or salary?*

3. *Do you sell products or services to make a profit?*

4. *Do you do any other activities where you are paid or you generate income?*

Enumerators then asked detailed follow-up questions about each activity that the respondent was involved in. Based on responses to the follow-up questions, we excluded work that was not compensated in cash or kind, characterized work that was not done for either someone else or for a business as self-employment, and calculated total earnings and/or microenterprise profits.

Responses to these questions allowed us to define the following variables:

- SELF-EMPLOYMENT is an indicator for having done own-account work in the past month.

- WORKING FOR OTHERS is an indicator for having done any paid work, either for a firm or for an individual, in the past month.

- CURRENTLY WORKING is an indicator for being self-employed or working for others.

- HOURS WORKED is the total number of labor hours worked over the past week.

- EARNED INCOME is wages, profits, and income (including in-kind income) from all labor activities over the past week.

Labor market outcomes were measured in Year 2, and Year 6.

C.2 Wellbeing Outcomes

- LIVING CONDITIONS is an index that takes the first principal component of indicators for having piped water, having (grid-based) electricity, having a toilet or private latrine, having a television at home, and having a computer at home, and owning your own mobile phone.

- FOOD SECURITY is the Food Insecurity Access Scale, developed through the USAID-funded Food and Nutrition Technical Assistance (FANTA) project, inverted so that higher numbers indicate greater food security. The Kenyan adaptation of the HFIAS involves nine questions:

  1. In the last 30 days, did you worry that you would not have enough food?

  2. In the last 30 days, were you not able to eat the kinds of foods you preferred because of lack of resources?

  3. In the last 30 days, did you have to limit the variety of foods you ate because of lack of resources?

4. In the last 30 days, did you eat food that you preferred not to eat because of a lack of resources to obtain other types of food?

5. In the last 30 days, did you eat a smaller meal than you felt you needed because there was not enough food?

6. In the last 30 days, did you eat fewer meals in a day because there was not enough food?

7. In the last 30 days, was there ever no food at all in your household because of lack of resources?

8. In the last 30 days, did you go to sleep at night hungry because there was not enough food?

9. In the last 30 days, did you go a whole day without eating anything because there was not enough to eat?

Responses to each question are on a four-point scale: 0 = never, 1 = rarely, 2 = sometimes, 3 = often. Responses are summed across all nine questions, creating an index that ranges from 0 to 27, with higher numbers indicating greater food insecurity. We invert this scale, so that higher numbers are better (indicate greater food security), and convert it into a z-score that is normalized relative to the mean and standard deviation in the control group.

- CURRENT WELLBEING is is a ranking of current life satisfaction on an ordinal scale (Cantril's Ladder of Life). Respondents were shown a picture of a ladder and prompted with:

  "I want you to imagine a ladder like this, with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder (10) represents the best possible life for you and the bottom of the ladder (0) represents the worst possible life for you. Please think about where you are on the ladder of life right now, where you will be two years from now, and where you will be five years from now."

  Responses are given on a 0 to 10 scale, based on the prompt above, with 10 indicating greater life satisfaction. We convert responses into normalized z-scores.

- FUTURE WELLBEING is anticipated life satisfaction in five years, based on the question described above.

Wellbeing outcomes were measured in Year 2 and Year 6.

C.3 Other Outcomes

- TOTAL EXPENDITURES is the sum of food and non-food expenditures over the seven days prior to the survey.

- SAVINGS is the value (in Kenyan shillings) of total savings in in money and jewelry.

- DIETARY DIVERSITY is measured using the Women's Dietary Diversity Scale (WDDS), aggregated following FAO guidelines and then converted to a z-score normalized by the control group mean and standard deviation. The WDDS captures consumption of starchy staples (cereals and white roots and tubers), green leafy vegetables, other fruits and vegetables rich in Vitamin A (pumpkins, carrots, squash, etc.), other fruits and vegetables, organ meats, other meat and fish, eggs, legumes and seeds, and dairy products.

- HOUSEHOLD ASSETS is the first principal component of a vector of measures of ownership of a radio, a bicycle, a refrigerator, a cooking stove, a motorcycle, a sewing machine, a VCR or DVD player, cows, goats, sheep, pigs, donkeys, chickens, and other livestock.

- The HUMAN CAPITAL INDEX is the average of normalized scores on the Mill Hill vocabulary test, the Silly Sentences task, a sentence completion task, and a short test of arithmetic.

- The SALON SKILLS INDEX is the normalized score on a nine-question assessment of hair-related knowledge designed by the instructors leading the classroom component of the salon franchise training. In the control group, the SALON SKILLS INDEX is associated with experience in the salon sector in either Year 1 or Year 2 (p-value 0.002).

- The TAILORING SKILLS INDEX is the normalized score on an eight-question assessment of tailoring knowledge. In the control group, the TAILORING SKILLS INDEX is associated with vocational training in the tailoring sector (p-value 0.018).

- The TAILORING SKILLS INDEX is the normalized score on an eight-question assessment of tailoring knowledge. In the control group, the TAILORING SKILLS INDEX is associated with vocational training in the tailoring sector (p-value 0.018).

- The COMPUTER SKILLS INDEX is calculated by taking minus one times the natural log of the time (in seconds) that a respondent took to complete a typing test, and then normalizing scores relative to the mean and the standard deviation in the control group. In the control group, the COMPUTER SKILLS INDEX is associated with vocational training in computers (p-value < 0.001).

- The GENDER EMPOWERMENT INDEX is adapted from Bandiera, Buehren, Burgess, Goldstein, Gulesci, Rasul, and Sulaiman (2020). It codes responses to the following questions: (1) "Who should earn money for the family?" (2) "Who should have a higher level of education in the family?" (3) "Who should be responsible for washing, cleaning, and cooking?" (4) "If there is no pump or tap, who should fetch water?" (5) "Who should be responsible for feeding/bathing children?" (6) "Who should help the children in their studies at home?" (7) "Who should be responsible for looking after ill persons?" For questions 1, 2, and 6 (respectively, 3, 4, 5, and 7) answering either "the woman" or "both" (respectively, either "the man" or "both") is coded as a 1 and other responses are coded as 0. The mean across all seven questions is then scaled such that 0 indicates complete support to traditional gender roles and higher scores indicate greater empowerment.

- The ROSENBERG SELF-ESTEEM SCALE measures the extent to which respondents agree with the following ten statements: (1) "On the whole, I am satisfied with myself," (2) "At times I think I am no good at all," (3) "I feel that I have a number of good qualities," (4) "I am able to do things as well as most other people," (5) "I feel I do not have much to be proud of," (6) "I certainly feel useless at times," (7) I feel that I'm a person of worth, at least on an equal plane with others," (8) "I wish I could have more respect for myself," (9) "All in all, I am inclined to feel that I am a failure," (10) "I take a positive attitude toward myself." Answers are given on a four-point scale (0 to 3), and items 2, 5, 6, 8, and 9 are reversed in the calculation of the index.

- The ENTREPRENEURIAL ABILITY INDEX is taken from (Bandiera, Buehren, Burgess, Goldstein, Gulesci, Rasul, and Sulaiman 2020). Respondents are asked to rate their ability to complete the following eleven tasks on a scale from 1 to 10 where 1 indicates that a respondent believes that she definitely cannot do the task and a 10 indicates that the respondent believes she can definitely do the task. The eleven tasks are: (1) "find information about job opportunities in your area," (2) "run your own business," (3) "save in order to invest in future business opportunities," (4) "manage business finances effectively," (5) "bargain with a supplier to obtain good prices when you are purchasing anything for business," (6) "bargain with a customer to obtain high prices when you are selling anything for business," (7) "identify business opportunities to start up a new business," (8) "make sure that your employees get the work done properly" (9) "collect money someone owes you," (10) "protect your business assets from harm by others," and (11) "obtain credit to start up a new business or expand an existing business." The items are totaled and then rescaled so that the index ranges from 1 to 100.

- CONTROL OVER RESOURCES is adapted from Adoho, Chakravarty, Korkoyah Jr., Lundberg, and Tasneem (2014), based on responses to the the question "Do you most of the time have money of your own for basic uses that you alone can decide how to use, without having to ask for permission?"

- The CONFIDENCE SCORE is adapted from Adoho, Chakravarty, Korkoyah Jr., Lundberg, and Tasneem (2014). Respondents are asked to rate the following items on a 1 to 6 scale: (1) "ability to rely on yourself for money rather than rely on a boyfriend, husband, or parents;" (2) "ability to return to school if you choose to;" (3) "ability to get a rewarding job now or in the future;" (4) "ability to provide for your own children now or in the future;" (5) "ability to present yourself positively in front of others."

- HOUSEHOLD SIZE, LIVES WITH A PARENT, MARRIED OR COHABITATING, NUMBER OF LIVE BIRTHS, LIVES IN NAIROBI, YEARS OF EDUCATION, CURRENTLY ENROLLED IN SCHOOL, HAS DONE ANY VOCATIONAL TRAINING, HAS DONE CULINARY TRAINING, HAS DONE SALON SKILLS TRAINING, HAS DONE TAILORING TRAINING, HAS DONE COMPUTER TRAINING, SUITABLE AGE FOR A WOMAN TO MARRY, SUITABLE AGE FOR A MAN TO MARRY, SUITABLE AGE FOR A WOMAN TO HAVE A BABY, DESIRED NUMBER OF CHILDREN, DESIRED AGE AT MARRIAGE FOR DAUGHTER, and DESIRED AGE AT MARRIAGE FOR SON are self-explanatory.