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Business is Tough, but Family is Worse: Household Bargaining and Investment in Microenterprises in Uganda

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Business is tough, but family is worse: Household bargaining and investment in microenterprises in Uganda[1]

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Abstract

I present evidence that intra-household decision making affects business investment decisions and household welfare. I interact the results from a behavioral experiment that allows spouses to hide money from each other with an experiment that delivered capital to business owners in Uganda. Businesses were randomly selected to receive capital through a loan or grant, or capital paired with training. I find evidence that the grant with training treatment had medium-term economic impacts when given to men, but there are no effects from the other treatments for men or women. I also find that the loan with training treatment had impacts on the income of spouses of women, though women do not know about these effects. The results from the incentivized behavioral game correlate significantly with household economic outcomes: men who do not hide money from their wives show higher economic outcomes from the treatments, while those who hide money show a negative change relative to a control group. The opposite is the case for women: women who hide money from their husbands show increased economic outcomes, while those who do not hide money see a decrease in outcomes. The results are consistent with strong female household constraints where women have little control over resources in the family and so hiding money is the only way to keep control of it. Men have less fear of losing control of money in the household, and so those that hide money likely have serious household issues that lead to significant negative investment behavior. The results help to explain why women with existing enterprises have performed so poorly in previous capital experiments and why researchers have failed to find impacts from microfinance.

JEL codes: O12, O16, C93, J16, L26, M53

Key words: Economic development; microenterprises; microfinance; cash grants; entrepreneurship training; credit constraints

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1 Introduction

Household decision making over resources is often the result of a bargaining process between spouses. For instance, recent experimental research has shown that households do not generally conform to a unitary model. The decision of how to utilize household resources for productive investment has been found to be complex and, in some cases, can lead to sub-optimal investment decisions[3]. How this bargaining process works, and what it means for the economic outcomes of households and individual members, is still not well understood.

Governments and international organizations have focused a lot of attention on alleviating capital constraints to microenterprises, especially female-owned businesses, with the goal of increasing income and employment. However, recent research has consistently found a lack of effect from capital programs on enterprise growth for existing female-run enterprises and mixed results for men. For instance, cash transfers have been shown to have a significant effect on business development for men that currently run a business (de Mel, McKenzie and Woodruff, 2008; Fafchamps et al., 2013; and Berge et al., 2012), though recent experimental research has failed to find effects on business development from market delivered finance, or results from any kind of capital for women with existing businesses (Banerjee et al., 2015; Fischer, 2012; Augsburg et al., 2015; and Gine and Mansuri, 2011).

It remains unclear why female-owned enterprises do not benefit from capital programs. One explanation is that women's objective functions are different than men's: rather than investing capital in their enterprises, women are more interested in spending cash on household needs, especially consumption and education. Even if this is not their personal objective, there is strong evidence that women face pressures from family to share income, whether they want to or not (Townsend, 1994; Kocherlakota, 1996; Grimm

[3] See Fiala and He (2017) for a review of research on the unitary model and inefficiencies from household bargaining.

et al., 2013; Platteau, 2014). Jakiela and Ozier (2015) find women willing to forgo significant amounts of money to obscure investment outcomes from family using an artefacual field experiment. Interestingly, they did not find men systematically hiding money. There is significant evidence that, for some women, sharing money with the household is not their preferred choice. This issue is especially common in countries where women have few rights to household resources (Baland et al., 2015; di Falco and Bulte, 2011; Boltz, 2015; Ashraf, 2009; Castilla and Walker, 2012).

I explore the role of intra-household bargaining on the effects of a capital and training intervention with existing businesses in Uganda. From August to October 2012, 1,550 microenterprise owners were offered either a loan, grant, a loan paired with businesses skills training, a grant paired with businesses skills training, or no program (the control group). Results from six and nine months after the programs ended, described in Fiala (2016), are consistent with the existing literature noted above: there is no effect for female-owned enterprises from any of the programs. However, men benefitted initially from both loan programs.

During qualitative interviews conducted at the end of the 9-month survey, business owners, especially women, expressed that they feel pressure from their families, particularly their husbands, to contribute to household expenses. Many expressed that this pressure made it difficult for them to invest in their businesses as they wanted to. The interviews also suggested there may be an alternative objective for women in business beyond profit maximization: women stated that their businesses offered a way to increase autonomy and independence from their families, but this was only possible if family members do not know about the true size of their business. Optimal investment for these women may thus mean that investment is strategic and based on how easily women can hide money from their family.

To test for the role of household pressure on economic outcomes, the survey team invited husbands and wives to participate in a small game at the end of the 2-year follow-up. The survey team first asked the main respondent if their spouse can be interviewed the next day. We then offered respondents the opportunity to receive a small windfall amount of money with the option of either having it delivered to their spouse, or they can keep a smaller amount of money for themselves. The game is meant to test for whether individuals are willing to hide money from their spouse, even at a significant cost, and was developed from other research that experimentally explores household bargaining, including Mani (2011), Iversen et al. (2006), Kebede et al. (2011), Baland et al. (2015), di Falco and Bulte (2011), Boltz (2015), Ashraf (2009), Castilla and Walker (2012), Murillo (2015) and Almas et al. (2015). The results of the game show that business owners in the sample studied here will pay to keep control over the money: 67% of the respondents chose to hide the money from their spouses; 75% of women hide money from their spouse, compared to 58% of men. These rates are consistent with the studies previously mentioned.

Following a pre-specified analysis plan, I interact the results from the bargaining game with the four treatments and control group described above. I look at the impacts from the treatments and whether an individual chose to hide money from their spouse or not on an index of economic outcomes. The results confirm the prior belief of the role of household interactions on investment decisions: men who are married and do not hide money from their spouses show positive impacts from the treatments. However, men who hide money from their spouses show no or even negative effects from the treatments.

I find the opposite results for women: women who hide money from their spouses show large but insignificant postive impacts from the treatments. Those who do not hide money from their spouses show large and very significant decreases in economic outcomes, relative to the control group.

I argue that the key to interpreting these seemingly conflicting results is to understand the power relationships within households in Uganda, as well as sub-Saharan Africa and many developing countries. As shown in research cited above, men generally enjoy near complete control over resources in a household. If a man asks his wife for cash or other household resources, such as labor from the children, women generally must comply. Unless the husband acquiesces to her request, the same is not true for women that ask men for resources. Thus, women that want to keep control of their money must often hide it from their husbands, while men do not need to hide money from their wives as they can get it back later. That men who hide money from their spouses show negative returns from the interventions suggests there is a deeper problem within the household. For instance, during qualitative interviews, women have accused their husbands of using extra cash for alcohol or spending on other women. In this case, men may wish to use the money for themselves, but unproductively and controversially, and so prefer to keep it hidden.

The negative effects for women are likely happening from appropriation of funds by family members. This result is consistent with qualitative and anecdotal evidence from this sample: women expressed concern that family members, especially husbands, take their earnings. In one case, I observed a husband forcing his wife to close her business because her earnings were becoming too large. While such an extreme case is rare, it is a common story that husbands who know a lot about their wife's business are more likely to decrease investment in those businesses if they get too large. In households where women are making a significant amount of the cash income, which is common in this sample, this could lead to a large negative shock to household economic outcomes.

In addition to the effects on an economic index, I explore the differences between what an individual knows about their spouse's income and what the spouse reports to the survey team. I find two main results. First, individuals have very little idea of what their

spouse makes in income. I find very close to zero correlation between what an individual thinks their spouse made in the last month and what that spouse tells the survey team they made. This likely reflects ignorance about what one's spouse makes, which is a common issue in surveys that ask individuals about other household member's income. It also reflects the difference between self-reported and second hand data. I assume that the self-reported data, while potentially affected by normal concerns about noise and misreporting, is likely to be of higher precision as it is reported directly.

Second, this lack of knowledge of spouse's income has important implications for the outcomes of the treatments. While I do not find impacts from the loan-with-training treatment for women in the unconditional sample, I do find impacts for the spouses (husbands) of these women, even though neither the training nor the loans were given to the men. The women who were given the training and loan are unaware of the increased income of their husbands. I also find large positive effects on spouse (husband) income under both loan treatments for women that don't hide money from their husbands in the game. These results are consistent with other research that has found that individuals do not know the income of their spouse well (Murillo, 2015).

In countries where there is little formal employment, the informal microenterprises I study here are increasingly relied on to help produce employment and household income. Efforts to expand enterprises though have failed to identify what holds entrepreneurs back from investing in their enterprises. The results presented here, and other results from the literature, suggest that family pressure can be an important problem, especially for women.

This paper makes three main contributions. First, this study covers a large number of individuals and their spouses, relative to other studies that measure household interactions. Second, I connect the results of a household bargaining game to a randomized experiment to study investment decisions within a household. This extends a

growing literature that finds a connection between behavior in the lab with real-life outcomes (Karlan, 2005; Fiala, 2015; and Berge et al., 2015). However, to my knowledge, behavioral games have never been used to explore heterogeneity within randomized control trials. Finally, I am able to use the results from the bargaining game to understand an important mechanism behind why researchers do not find improved business outcomes from cash grant or other programs for women: husbands may demand a substantial part of the money received. This result has important implications for future studies of household investment programs, including conditional and unconditional cash grant and microfinance programs, and suggests that household bargaining and unequal power relationships can be important constraints for outcomes.

This paper proceeds as follows. In Section 2 I describe how family pressure affects both male and female business investment decisions. In Section 3 I present the experimental design, including the behavioral games. In Section 4 I discuss the data and in Section 5 I present the results for men and women and the role of family interactions in outcomes. I then conclude with a discussion of these results in Section 6.

2 Family pressure, investment decisions and control of money

In this section, I describe how household bargaining and pressures can affect the usage of a shock to business capital. This discussion is based on a large literature on household bargaining and decision making, as well as formal and informal qualitative research conducted with the participants before the beginning of the endline survey.

Suppose an entrepreneur owns capital K, labor l and ability θ. Her business has a production function $f(K,l,\theta)$ that faces the standard production assumption of diminishing marginal returns. The entrepreneur maximizes utility, $U(c, L-l)$, where c is consumption and $L-l$ is leisure time. In a neoclassical model of business investment, assuming open capital markets, the entrepreneur invests in the business until the marginal rate of return

on investment is equal to the market interest rate. She also invests in her own ability, up to the point where the marginal return on ability is equal to the cost of acquiring new ability.

If there is a constraint to the availability of capital, or if capital is more expensive than her return, she may not be able to invest in her business. Relaxing this constraint can then lead to increased investment in the business, *K*, and thus higher returns.

Whether there is a formal capital constraint or not, there may be many reasons why she cannot optimally invest in her business. For instance, researchers have discussed the role of family constraints on household money decisions extensively in the literature[4] (Townsend, 1994; Kocherlakota, 1996; Jakiela and Ozier, 2015; Grimm et al., 2013). When household and family needs are given preference over business investment, they lead to suboptimal investment, with money not being spent on the business but instead on the needs of the household. Extended family can also put pressure on cash holdings in some societies where communities expect that people not just support their immediate family but also siblings and cousins, making optimal investment in the business difficult.

The result of this pressure is that if a family constrained individual receives a shock to capital *K*, they may not be able to invest the money into the business optimally. Instead, some or all of the windfall may be taken for immediate purchases or to fulfill family constraints. In this case, investment will be suboptimal and the business will not reach equilibrium returns. However, the money may be spent in another business. It is common for both spouses to own a business, and, in such cases, capital may be transferred from one spouse to the other. If the spouse business is more efficient, this could be an optimal decision for the household.

[4] See also Batista, Silverman and Yang (2015) for control over transfers in games with members outside of the household and Ashraf (2009) on spousal control. Hoel (2015) presents an expanded review of the literature on the household bargaining model and efficiency in developing countries.

Family pressure could instead help increase investment in a business by providing household assets, such as cash, tools and labor. Obtaining access to these can be difficult in some families, while in others they are considered natural to use in the business. In many societies, including Uganda, this difference is determined by sex, with men utilizing household resources for business while women can use these resources only at the discretion of men.

Household members may also provide important nonphysical assets, such as skills. If an individual business owner is unable to cope with the demands of the business, they could turn to their spouses for specialized skills or other support in the running of the business. This is separate from time spent on business and assumes $\theta = \theta_1 + \theta_2$. That is, ability for the business may be composed of the ability of the owner (θ_1) and the spouse (θ_2).

This discussion posits several ways household and broader family members can affect an individual's investment decision for their business in the presence of a capital shock. First, for those who have a spouse or family living nearby, there may be pressure to spend capital outside of the business. This may have positive long-term implications (such as investment in child education), but there will be no investment and thus no business growth in the main business. If the money is instead transferred to another family member business, it is possible that other business could experience growth. Second, there may be a positive influence from family that can lead to increased investment in the business in the form of additional physical investment or nonphysical support.

The sex of the business owner potentially affects the outcome of the investment. The cultural norms in most developing countries present defined roles in the household that are often inflexible. Men are relatively unconstrained to conduct business activities and can often take money and time from family members for their own use. Women, on

the other hand, are often highly constrained in capital and time use. When they are able to work outside the home, they may still be responsible for household chores, spending on family needs such as clothing, schooling and health, and are last to be able to use household assets for the business. For instance, Rubalcava, Teruel and Thomas (2009) discuss how men and women have clearly different roles in the household and present evidence from a natural experiment that women have preferences toward spending on children. Non-experimental work has also shown that women use resources under their control to spend more on child consumption and health than men do (Lundberg, Pollak, and Wales, 1997; Thomas, 1990; Duflo, 2000). However, none of these studies are able to say why women have these roles, only that this is what women generally tend to do with their time and resources.

The freedom that men have does not necessarily mean they make optimal investment decisions. Per the discussion above, men may not have the household objective in mind when deciding how to utilize cash. That is, c in the utility function of the owner could be a weighted average of household consumption. That is, $c=\delta*c_1 + (1-\delta-\gamma)*c_2 + \gamma*c_3$, where c_1 is own consumption, c_2 is the consumption of the spouse, and c_3 is the consumption of the rest of the household. δ is then the weight of own consumption, γ is the weight on the children and other household members, and $1- \delta - \gamma$ is the weight of the spouse's consumption.

The size of δ and γ can thus affect decisions on when to share and when to hide money, depending on the decision functions of the spouses. If the wife values family consumption, either due to personal reasons or social pressure, but the husband values his own consumption, there is a mismatch in preferences.

This difference in preferences is also affected by social norms for money usage. In most developing countries, women have very little control over money. So, while they may have a particular preference for how money is to be spent, their preference is not

weighted the same as the husband, who generally has significant control over household resource usage. For women that receive a windfall of capital, hiding money may be the only way they can utilize the windfall as they see fit. For men, hiding may not be so important as they expect they will have full control over it, whether it is in their hands or their spouses. As will be seen below, in a behavioral game designed to measure how much individuals want to keep control over money, men still hide cash from their wives. This is, however, strongly correlated with negative returns from capital.

3 Design

The experiment described here is composed of two designs. The first is a randomized controlled trial of the cash, loan and training interventions. The second is a behavioral game played between the main respondent and their spouse. I describe each in this section.

3.1 Program design

A survey of existing businesses was conducted in two trading areas in Uganda in early 2012. This survey covered over 4,500 microenterprises in these areas and included questions on whether individuals were interested in receiving a loan from a local microfinance organization or training from the ILO. From this sample, 1,550 microenterprise owners were identified as interested in the programs and appropriate for the loans and training.

I then randomly divided business owners into five different groups. 406 were assigned to the loans intervention, 401 to the loans and training, 167 to grants, 219 to grants and training, and 357 to the control group. The sample sizes were based on power calculations after considering implementation budget limitations, which was determined

by the ILO and not the research team. I present the design in Figure 1, which shows the sample sizes by treatment arm and gender[5].

A local microfinance organization, PRIDE Microfinance, provided the loans. Unknown to the participants or branch management of PRIDE, the ILO guaranteed the loans. This was done because the sample came from all businesses that expressed interest in a loan and these businesses may not have fit the lending requirements of PRIDE. PRIDE normally provides loans with an interest rate of 26% and requires 100% collateral. Lenders reduced the interest rate to 20% and described the program as a special promotion to certain individuals. For those who were not able to provide 100% collateral, PRIDE agreed to accept 50% collateral instead. The ILO designed this special promotion to encourage participation in the loan program and to reflect what a subsidized loan program might be like if conducted in the future. Individuals were then required to repay the loan in monthly installments, starting in the first month.

The loans ranged between $180 and $220. The cash grants were $200 and delivered through PRIDE bank accounts. The ILO contacted individuals to attend information meetings explaining how the cash grant program would work and asked them to open a free savings account, where the money would be deposited. The participants were free to use this account as they pleased.

For those selected into the training programs, the ILO conducted the trainings before offering the loan or grant using the Start and Improve Your Business (SIYB) modules. This training has been given to over 4.5 million people in 100 countries and covers a number of simple modules focused on business development, including how to develop a business plan and create a budget, how to manage employees and stock, and basic financial literacy.

[5] The online appendix contains more details of the selection of the sample, as well as a discussion of how the sample here differs from the normal microfinance model.

Researchers have evaluated SIYB trainings experimentally at least twice before. First, Mano et al. (2012) looked at the effect of giving training to 53 business owners. In keeping with other training results, they found survival rates increased, as did the incidence of good business practices such as keeping budgets, with no consistent effects on business profit. de Mel et al. (2008) also use the SIYB training on female business training and cash grants in Sri Lanka. They found no effect on profits for those already in business for training, but some initial effect for the grants that disappears after the second year. There is also increased entry for those without business and some income growth. The trainings have thus been evaluated previously and have presented mixed results. We decided not to pursue a pure training treatment arm, but instead use trainings as a potential augmenting effect on the use of cash grants and loans to test if training can increase the effects of decreasing capital constraints through better business management practices or attitudes.

Take-up of the programs was not perfect. The take-up of the training and loan programs were 70% and 40%, respectively. These are relatively high rates of take-up for such programs and either meet or exceed take-up by other research projects. Unfortunately, take-up was also not universal for the cash grant program. Based on qualitative interviews, individuals were highly suspicious of the offering of free cash, and so only 70% of those offered the cash took it. While this was a surprise to the implementation and research teams, it is in fact common with cash grant programs to have less than full take-up, with some recent examples of less than 50% take-up[6].

These take-up rates, while relatively large, are still lower than ideal and suggest there was some selection into the programs. However, this selection does not correlate

[6] Oportunidades, a conditional cash transfer program implemented by the government of Mexico had take-up rates of only 50%. A recent cash grant experiment in Kenya implemented by Give Directly, which specializes in cash grant programs throughout East Africa, found take-up rates of 55% in some counties. See https://givedirectly.org/blog-post?id=3343219868516533613 for a description of take-up issues in Kenya.

with observable characteristics. Take-up analysis, presented in the online appendix, shows that the most predictive characteristic for take-up of the loan and grant was whether the person also attended the training. It appears that the trainings increased trust in the program and the program team. Due to the potential unobserved selection, I do not make strong comparisons between treatment groups, focusing instead on differences between treatment and control groups.

3.2 Behavioral game

At the end of the two-year follow-up data collection, described in the next section, the survey team asked business owners who were married or living with a partner two questions: (1) could the survey team visit the spouse or partner to ask some questions about their own income, and (2) their decision in an incentivized game. All but one business owner responded positively for the team to visit his or her spouse and provided contact information for the spouse or partner. Of the spouses that we then visit, 84% told us their income. The purpose of this extra visit was thus twofold: (1) the survey team interviewed the spouse or partner about income to confirm the information on their income provided by the business owner, and (2) to ensure the next question asked of the main respondent would be credible.

The second question is inspired by Mani's (2011) work in India. She found participants were willing to accept a low return option over a high return option to have greater personal control of money over their spouse. To gauge individual preference for control of money, the survey team read the business owner the following:

> Thank you very much for letting us meet with you and your partner. Before I go, I have one final question. This question involves real money. I have 2,000 USH to give you for your time. You can choose to invest the money in two businesses.

> Let's call them business A and business B. If you invest in business A, the money will be doubled to 4,000 USH. I can pay this money to you now in cash. If you invest in business B, the money will be tripled to 6,000 USH. Another member of our research team will then give this money to your partner tomorrow at their business. Which investment would you prefer to make?

As the average business owner in the sample makes approximately 15,000 USH per day, the amount of money being offered is relative large.

The question is meant to measure whether an individual is willing to pay a cost to ensure they have control over the money. That is, what is their preference to hide money from their spouse, and are they willing to pay to do so? Another interpretation is how much the individual trusts their spouse with money. That is, individuals that trust their spouses with the money believe their spouses will use the money responsibly for a shared goal. Interestingly, there was considerable willingness to pay for control of money in the households studied here: 67% of the respondents chose to hide the money from their spouses, suggesting there is not a lot of expectation that money will be used in the way the respondent would prefer. Control over money was thus preferred by a clear majority of people.

Mani (2011) reports the results of a similar behavioral experiment, conducted with spouses across various treatments. The highest level of inefficient investment to obtain control over money she observes is 51%, with most treatments ranging from 10-30%. The results presented here suggest significantly lower levels of efficient household allocation. This is likely due to the context: the experiment in Mani (2011) is conducted with household in India where some people have business income, but generally income is through farm labor.

The assumption from the game presented here, and for similar games conducted by other researchers, is that we are capturing an underlying characteristic about an individual's willingness to hide money from their spouse. It is of course possible that respondents did not trust the survey team to deliver the money to the spouse as promised. In this case, it would be reasonable for the respondent to take the money immediately. However, there are a few reasons to believe the respondent did trust the team. First, this represented the fifth time the research team had visited the respondent. From discussions with respondents, there is still an expectation that the team will return in the future. Second, we obtained detailed contact information about their spouse, which made the future more credible. The research team also shared contact information in the informed consent and presented letters of support from local government.

Another potential issue is related to the timing of the question. It is possible that individuals simply prefer money today rather than tomorrow. In order to control for both time discounting and risk preferences, I include measures of risk and patience in all of the regressions that include the results of the money control experiment. However, given the size of the amount of money that was at stake, time discounting would have to be extremely large. For instance, Balakrishnan et al. (2015) find present bias is an issue for participants in East Africa, but it is of a significantly smaller amount than the money used in this study.

4 Data

The research team conducted two baseline surveys in February and May 2012. These surveys were designed to collect base-level data on individual businesses owners, as well as gauge the interest of potential participants in the loan and training programs. The program teams gave the interventions to individuals from August to October 2012. The follow-up data collection analyzed here was conducted in August to October 2014, two

years after the program completion[7]. The types of businesses contained in the sample are presented in Figure 2, by gender. While not representative of the average business in Uganda, it represents a common cross section of businesses. Men and women participate in most of the businesses, though many are dominated by one sex, such as restaurants and boutiques, which are predominately run by women.

I present a summary of the baseline data in Table 1, which divides the sample into men, women and separate treatment groups with test of balance. The business owners who are part of this study are more likely to be female (61%), ages 24 to 35. Most business owners are also married (69%) and report being literate (77%). A significant number (26%) report having received business-skills training in the past. Most businesses (67%) report having at least one employee and keep written records of their business (59%), though a significant number report only keeping the records "in their head" (32%). Average revenue in the last 4 weeks was 732,000 USH (approximately $285), though this includes a significant amount of variation, with some businesses reporting exceptionally high revenues. Last month profits for the businesses averaged 318,000 USH ($120) and showed a much lower variation. Women report making 82% as much as men in the last month. Using self-reported measures, 54% of women make more than their husbands, while 80% of men make more than their wives.

Business owners were also asked several basic intelligence and ability questions in the baseline. In a number recall question, enumerators read off a list of eight numbers and asked owners to repeat the numbers back to them from memory. On average, the

[7] There were also two additional follow-up data collections conducted on the sample, six and nine months after the program was completed. The results from these data collections are reported in Fiala (2017). I am not able to utilize data from these data collections as the main outcomes I examine here were not collected as part of those data collections. Specifically, the previous two follow-ups focused only on the main business of the main respondent in the sample, not all business activities for the household. The follow-up data collection used in this paper includes all business and income activities in the household, by household member. The results obtained here are robust to only looking at the main business.

business owners could repeat four numbers back. The survey team also asked four math questions, though most business owners could respond correctly to them. I then created an ability index by normalizing and summing the results from the number recall and math tests, along with years of education and literacy. I then normalized this index again.

Before informing the business owners of the intent of the survey to identify businesses that wanted loans and training, the survey team asked business owners if they had ever taken loans. 49% said yes, with women being much more likely to have taken a loan (53%) than men (38%). A range of assets questions were also asked with the intent of developing an asset index using principal component analysis. I normalize this at 0, and there is significant variation in the number of items people own.

The final three columns of this table report the mean values for the control and treated groups as well as the p-value for a test of balance between treatment and control. Most variables are very well balanced, except for whether the individual was of age 41-50.

Table 1 also contains the results for balance tests for treatment assignment. In expectation, 10% of the variables should be significant at the 90% level or better. Of the 26 variables of interest collected during the baseline, 3 are significant. The control group is more likely to be female, slightly younger and reports higher average months' profit, though not last month's profit. Additional balance tests by sex and treatment type are presented in the online appendix. All of the tests suggest a good balance of baseline characteristics.

The survey team made significant efforts to follow-up businesses during the endline data collection. As the business owners were very busy, the survey was kept short. Some business owners were also visited after business hours to ensure they had time to speak with an enumerator. Of the 1,550 business owners the survey team tracked, the survey team was unable to find 211 people, or 13% of the sample. Of those found, 8

were not willing to share their profit data. Thus, for the main variable of interest I have data on 86% of the sample. This is a common attrition rate for a mobile population such as this. However, the missing individuals could present a bias to the results. I test for selection on attrition in Table 2. This presents the results of an OLS regression on whether the person was found at endline or not, with the full set of baseline controls included as dependent variables. Of largest concern is that there is significantly different attrition rates between the control group and the loan (8% more likely to be found), grant (16% more likely) and grant with training (10%) treatment groups. Differential attrition rates are a concern as they may introduce bias into the results. To test for potential bias, I include analysis with different trimming rates as robustness tests and find trimming does not affect the main results.

As mentioned, in addition to the main survey of the business owner, the survey team visited the spouse of the business owner. This was done so as to independently ascertain the income of the spouse, along with allowing for the behavioral game to be credible. The reporting of spousal income by the main respondent was very imprecise. The correlation between what the main respondent reported as spousal income and what the spouse reported was zero. Only 47% reported their spouse's income within $20 of the value reported by the spouse. On average, the main respondent underestimated their spouse's monthly income by 476,000 USH, or approximately $170. Only 12% overestimated their spouse's income. Whether someone knew their spouse's income is not correlated with the results of the money hiding behavioral game. This result is similar to what Murillo (2015) has found in Mexico on a sample of households that participate in the Oportunidades program.

This is obviously a very large amount of error and represents, in real terms, a significant amount of money for this group. It suggests there is a poor understanding of

the income of the spouse for most individuals. As will be shown, this miss-estimation also has implications for the analysis to be conducted.

Table 3 presents the correlation between the results of the behavioral game and reported characteristics of the participants and treatment status. The dependent variable is a dummy for whether the respondent hid money from their spouse (1) or did not hide money (0), as measured through the behavioral game. This is significantly and negatively correlated with an index of empowerment, which is composed of questions to participants about their role in decision making in the household that were asked at the endline survey. The coefficient is small, suggesting that while the behavioral game is correlated with empowerment, it is likely picking up a different relationship between spouses than can be captured by measures of empowerment alone.

The indicator is also negatively related to whether the participant is a woman. I also find a negative correlation with whether the male participant has a child, but a positive relationship for women with children. In both cases this coefficient is relatively small. It is possible that having children reflects that a woman trusts her spouse to use money in a way similar to her preferences, though this is not the case for men. This could also be due to the greater need for money in households with children as there are more people to feed in the household, or a greater belief by the wife that her husband will use the money for total household consumption.

Most importantly, the behavioral measure is not correlated with any treatment status. The treatments do not themselves appear to affect whether an individual is willing to hide money from their spouse. While the behavioral game was conducted during the endline survey, which may introduce bias into the sample, the lack of treatment effects on the rate of hiding money from a spouse suggests there is likely minimal if any bias introduced.

The remaining variables, wealth of the respondent's family, income, age, whether married at baseline, a measure of ability, baseline employees, assets, and whether the person has defaulted on the loan, are all not significant[8]. While the decision to not pass money onto the spouse is inefficient from the perspective of a unitary model of the household, it does not appear to relate to general household performance. This is also suggestive that the differential size and profitability of male business is unlikely to explain whether the spouse hides money.

5 Results

To identify the impact of the programs on individual business outcomes, I run the following intention to treat (ITT) OLS regression model:

$$Y_{it} = \alpha + \beta\, T_{it} + \gamma\, T_{it} * F + \theta\, R + \pi\, X_{i,t-1} + \varepsilon_{it} \qquad (1)$$

where t is time, i refers to an individual and Y_{it} is the outcome of interest. T_{it} is the treatment status of an individual. F is a dummy for whether the participant is a woman. The effect of the program on men is thus obtained through β, while the effect on women is obtained through $\beta+\gamma$. R is a matrix of region and sample dummies, X are baseline variables used as controls and ε_{it} is the error term.

The control variables include age, marital status at baseline, an index of ability, which is composed of level of education, literacy, previous training and scores on a math test, a measure of patience composed of responses to a set of time discounting questions (both patience and ability are measured six months after the interventions had begun) and baseline levels of employees, personal assets and business profits. The main specification

[8] Only 5% of the sample were behind in some way on their loan, as reported by the microfinance institution. This is balanced between men and women.

does not include trimming of the outcomes, though I also present results from different dropping rules at the end of this section. For all analysis, I present the p-values so as to allow for easy calculation of multiple-hypothesis tests.

In the appendix I present a test of whether individuals in the treatment groups had any more outstanding loans than those in the control group at the time of the endline. In companion work looking at the short-run impacts of the treatments, I find a large increase in the number of loans six and nine months after treatment (Fiala 2016). However, by the two-year follow-up I do not find significant differences in the amount of money that the treatment groups have borrowed.

5.1 Main results on income and wealth

I present the results for the impact of the treatments on participant and household economic outcomes in Table 4. Overall, the results show a significant improvement in household and respondent economic outcomes when men were offered the grant and training treatment. This result is driven by increases in household expenditures.

The first four rows of Table 4 are the impact of the treatments on men, while the final four rows are the interaction effects for women. The first column looks at the effect of treatment on the household economic outcome, which is an additive index of household assets, household expenditures and household income, and is the main outcome of interest. None of the treatments led to a change in broad economic conditions, though there is a marginally insignificant treatment effect for men who were offered the grant with training treatment. The coefficient for interacting this treatment with the female indicator is negative and significant. A joint test of significance for the effect of the grant with training treatment on women is not significant. A test of joint significance for all treatments to either men or women likewise shows no significant effects.

Column 2 presents the index of economic outcomes for the individual respondent. The difference between this index and the household economic index is that it does not include spouse income. The effect of the grant with training treatment is now significant at the 7% level for men. The remaining treatments show no impacts, including the grant with training for women.

In columns 3 to 7 I present the individual components of the household and respondent economic indices. These include total household assets, income and expenditures, as well as respondent and spouse income. Spouse income is reported by the spouse and is coded as zero when there is no spouse present.

These individual indicators suggest that there is a small impact from the loan only treatment given to men on household assets, an increase of respondent income for men that were offered the loan and training treatment, and an increase in spouse income when women were offered the loan with training treatment. None of these outcomes survive multiple-hypothesis correction. However, there is a large and very significant effect on household expenditures for men that were offered grants with training. This effect is significant at the 0.4% level and survives the most restrictive multiple-hypothesis correction.

The final column presents the treatment effects for spouse income, as reported by the main respondent. This is shown to determine if women are aware of the increase in income their spouses reported from the loan with training intervention. None of the estimated treatment effects are significant. The results of columns 7 and 8 suggest that there was a transfer from the women to their husband that led to an increase in business profit, but the women do not know about this increase.

5.2 Household interactions

To test the role of household interaction on the outcomes obtained, the survey team ran a set of games with respondents and spouses as described in Section 3.2. The results show the quality of intra-household interactions matters a lot for the whether the treatments impacted household economic outcomes, especially for outcomes for women. Three outcomes are especially robust and significant: (1) women that hid money from their spouses obtain large impacts on their own income from the grant and training treatment; (2) men who do not hide money show large increases in individual and household economic outcomes; (3) women that don't hide money have lower economic returns.

As the game is conditional upon the respondent having a spouse, I thus first look at the interaction with treatment for whether the respondent was single (column 1) or married (column 2) in Table 5. The outcome of interest is the household economic outcome index. Table A5 in the appendix presents the full outcomes, similar to those presented in Table 4.

The impact on male respondent income from the loan with training treatment in Table 4, column 6 was marginally not significant. However, the coefficient on the loan with training treatment is statistically significant at the 9% level for single men. In the appendix I show that this comes from increased respondent income. The impacts from the grant and training treatment found in Table 4, column 1 is significant for married men at the 7% level in Table 5, column 2. This effect comes from increased household expenditures. The remaining treatment outcomes are not significant for either men or women, whether married or not.

In Table 6 I look at the heterogeneous impacts for the treatments on whether respondents were willing to pay a relatively large price to keep the windfall money hidden from their spouses (columns 1 to 3), or give control of the full amount of windfall money to their spouse (columns 4 o 6). I report results from the household economic index (columns 1 and 4), the respondent economic index (columns 2 and 5) and

respondent income in the last month (columns 3 and 6). As with previous analysis, the first four rows are the impacts for men, while the last four rows present the interaction with whether the respondent is a woman.

None of the coefficients in columns 1 or 2 are statistically significant. There does not appear to be a long-term treatment effect on household economic outcomes from any of the interventions for married men or women that hide money from their spouses in the behavioral game.

I also present individual income in column 3 to explore whether the act of hiding money in the game may be closer related to whether individuals make more money for themselves. Note that the goal of the behavioral game is to understand how much individuals are willing to keep control of their own money. Those that hid money may be less likely to invest in household outcomes such as expenditures and assets – both of which are included in columns 1 and 2 – and instead keep resources for themselves.

Men that received the cash grant program and hid money from their spouse show a decrease in income from the cash grant treatment. This is significant at the 8% level, and so does not survive multiple-hypothesis correction. This effect is not significant for women. However, women that hid money from their spouse and were offered the grant with training treatment show a large increase in income, significant at the 2% level. This effect does not survive the strongest multiple-hypothesis correction, but does survive with more modest assumptions.

The results for respondents that do not hide money from their spouses is the mirror opposite from those that do hide money. There is a large, positive and very significant effect for men that were offered the loan and grant with training treatments on the household and individual economic indices. A test of joint significance for all treatments for men is significant at the 6% level.

The results for women are also large and very significant, and negative. Women that did not hide money from their spouse during the behavioral game show a large decrease in household and individual economic indices. A test of joint significance is significant for the respondent economic index. There are no statistically significant effects at traditional levels for respondent income from any of the treatments, though the sign and size of the coefficients is similar to columns 4 and 5.

5.3 Trimming and controlling for attrition

As shown in the analysis presented in Table 2, attrition in the endline survey was relatively low, but there were differential attrition rates between the control and treatment groups. It is possible that this could introduce bias in the estimation if the treatment and control group samples are composed of different individuals. To test for this potential bias, I explore different dropping rules for the entire sample and for just those in the treatment group to determine how robust the estimates obtained thus far are. Overall, the results are very robust to this sensitivity test and, in some cases, become even more statistically significant.

In Table 7, I look at the effect of applying different trimming rules to the household economic index outcome presented in Table 6. In even columns, I drop all of the top 0.5%, 1% or 5% observations. In the odd columns, I drop only the top observations in the treated sample. Dropping the top treatment outcomes only is done so as to create conservative estimates of treatment effects. Columns 1 to 6 report outcomes for those that hid money in the behavioral game and columns 7 to 12 report for those that did not hide money.

The result of trimming the sample is an increase in the statistical significance of observed outcomes, both positive and negative. The grant and training treatment given to men who hid money from their spouse, which was found to have positive but

insignificant impacts in Table 6, is now negative, large and significant at the .001% to 5% level. This coefficient is now similar to the coefficients on the other treatments for men, and so the joint significance of all treatments to men is now very significant. The results for women that hid money are not significantly different from zero across any of the dropping rules.

The results for those that did not hide money robust to those found in Table 6 for men and women, though joint significance of treatments has increased substantially for women. Men did not hide money from their spouse show large, positive and statistically significant impacts from the loan, loan with training and grant with training treatments across all dropping rules. Likewise for women, the negative effects from the loan, loan with training and grant with training treatments are statistically significant across all dropping rules.

6 Discussion

The problem of how to help businesses to expand, especially female-owned businesses, has been a pressing problem for researchers and policy makers. The experiments presented here offers some evidence on why business owners fail to invest and expand, while opening up additional questions.

I find that the unconditional sample of men and women do not obtain medium-term economic impacts from the capital and training treatments described here, though there is some evidence that the grant with training treatment to men improved economic outcomes. I also find that the spouses of women that were given the loan with training treatment show some income growth. However, women did not know about these effects.

Interacting treatment status with the results from a behavioral game where individuals can hide money from their spouse at a significant cost produces interesting results. Married men who do not hide money from their wives show economic growth

from the treatments, while those who do hide money show a negative change relative to a control group. The opposite is the case for women: women who hide money from their husbands obtain either none or economic growth, while those who do not hide money see a large decrease in economic outcomes. These effects are larger even larger and more significant when different trimming rules are applied.

These results are consistent with strong female household constraints where women have little control over resources in the family and so hiding money means they keep control of it and can use it in their business. Men have less fear of losing control of money in the household. Those that hide money likely have serious household issues that lead to significant negative investment behavior. This confirms the results from formal and informal qualitative analysis conducted before the final survey, where women stated their preferences to keep their income private from their family, especially their husbands, to exercise greater control over their businesses. It is especially striking that households where women gave control of the money in the behavioral game show large, negative effects. This is evidence against the possibility that women hand their income to their husband to obtain overall higher returns.

These results present mixed news for policy makers. Women and men can benefit from programs that deliver capital, but only under certain conditions within the household. This interpretation also has implications for how we look at results from other studies of cash grant and loan programs to existing business owners. It may not be that women obtain no impacts from such programs and generally have lower returns to business. Instead, differential, unequal power relationships within the household may be driving the null results.

There are three limitations to this study that should be noted. First, I am unable to say for certain why training and offering grants to women had such large impacts on their husband's businesses. Field et al. (2014) find similar results in a microfinance experiment

that was done with women in India and find the effects were limited to the husbands of the women and is likewise unable to show mechanisms. Second, while the study utilizes a significantly larger sample size compared to other studies that measure intra-household bargaining, there may still be issues with power. The main sample is composed of 1,550 business owners. However, much of the sub-analysis is on sample sizes much lower than this. Tests of impact on individual treatments may thus be more misleading than thinking about overall treatment impacts, as is presented in the joint significance tests.

A final limitation is that there is undoubtedly unobserved selection by men and women into who hides money. The choice to hide money is endogenous and cannot be observed by the researcher. Future research is needed to understand why all women don't hide money, and what determines the choice to hide.

The results obtained in this study are generally consistent with the literature on household control of resources. Women in Africa and many developing countries have a significant lack of control over resources in the household. For these women, if they want to keep control of money they must hide it from their spouse, even if this appears to be an inefficient decision for the household. Hiding money means they keep control of it and can use it in productive investment. This is not what I find for men, who do not generally face the problem of control over household resources. In fact, men often utilize household members and resources for their businesses. The results I find here are consistent with men not fearing having money taken away in general. If family cannot take money, whether they see it or not, hiding money is pointless. However, when a man does hide money from his spouse, business outcomes are significantly less from the treatments. There may be further issues within these households that lead men to prefer to hide money from their spouse. More research on the interaction of household decision making and preferences is needed to fully understand how resources are used effectively, or not, within households, and how this interacts with economic outcomes.

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Fig. 1: Experimental design with sample sizes

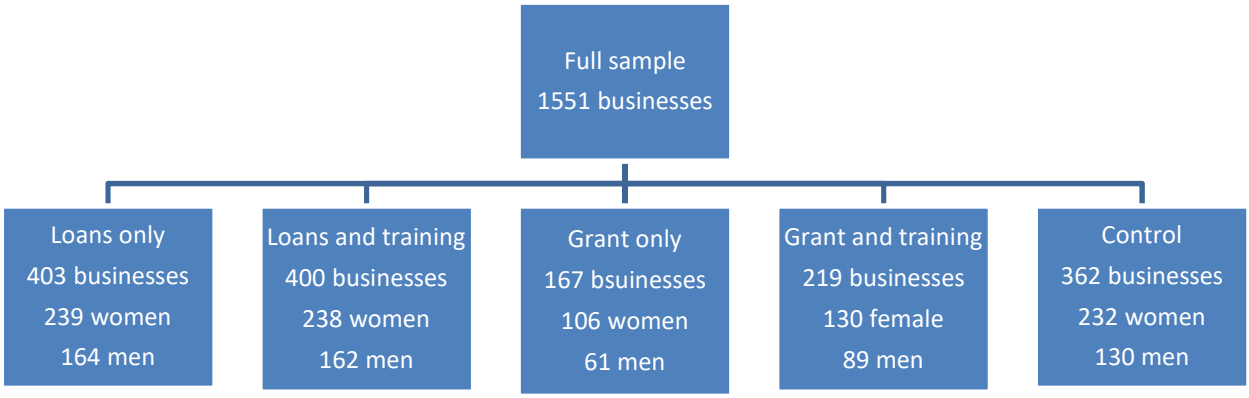

Fig. 2: Business in the sample by sex of business owner

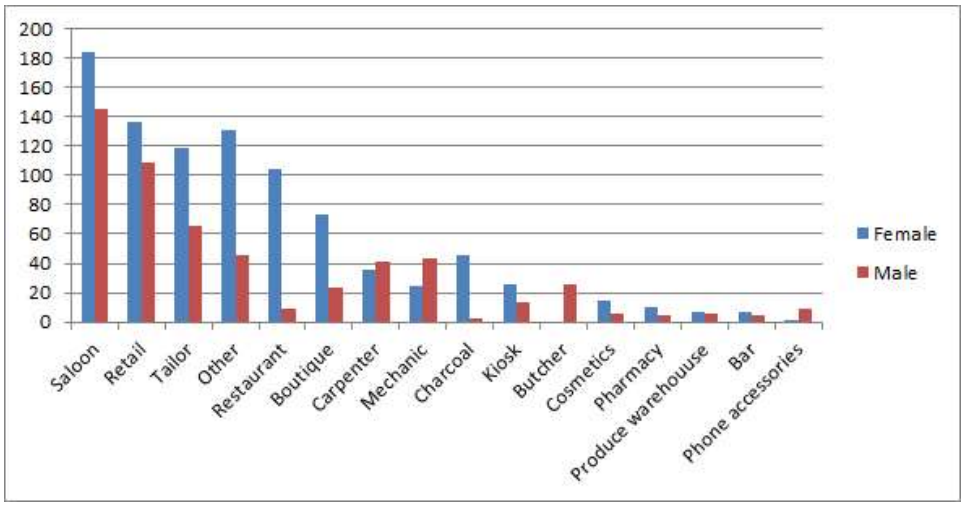

Table 1: Summary statistics and balance tests

	Male Sample			Female Sample			Means by Treatment Group: Full Sample		
Baseline Characteristic	N	Mean	Std. Dev.	N	Mean	Std. Dev.	Control	Treated	p-value
Female	604	0.00	0.00	942	1.00	0.00	0.630	0.595	0.25
Age 18-23	604	0.18	0.39	942	0.08	0.27	0.140	0.117	0.25
Age 24-29	604	0.37	0.48	942	0.32	0.47	0.350	0.366	0.58
Age 30-35	604	0.26	0.44	942	0.32	0.47	0.310	0.305	0.87
Age 36-41	604	0.10	0.30	942	0.16	0.37	0.150	0.127	0.26
Age 41-50	604	0.09	0.28	942	0.12	0.33	0.060	0.095	0.06
Married	604	0.65	0.48	942	0.72	0.45	0.650	0.638	0.68
Literate	604	0.87	0.33	942	0.70	0.46	0.810	0.807	0.90
Previous training	604	0.26	0.44	942	0.25	0.43	0.260	0.254	0.83
Number of employees	604	0.90	1.51	942	0.52	1.20	0.340	0.369	0.51
Employees hours worked	417	55.69	94.50	606	34.39	60.93	0.630	0.700	0.39
Does not keep records	601	0.04	0.20	937	0.07	0.25	43.200	50.150	0.21
Keeps records on computer	601	0.04	0.20	937	0.02	0.13	0.009	0.009	0.99
Keeps written records	601	0.67	0.47	937	0.55	0.50	0.025	0.037	0.22
Keeps record in head	601	0.24	0.43	937	0.35	0.48	0.600	0.605	0.86
Keeps money in separate bags	601	0.00	0.00	937	0.01	0.09	0.380	0.357	0.40
Last month's revenue (1000 USh)	604	807.72	774.11	942	662.94	643.75	715.100	663.600	0.23
Average month's revenue (1000 USh)	593	1126.62	2112.66	932	1087.13	7257.18	759.300	1067.400	0.39
Last month's profit (1000 USh)	604	387.66	1032.37	942	259.89	533.24	341.900	320.000	0.64
Average month's profit (1000 USh)	583	543.91	2391.52	907	297.43	469.87	600.300	450.000	0.12
Stock value (1000 USh)	568	3662.82	10811.38	879	1519.77	3171.81	3336.600	2858.800	0.30
Value of liabilities (1000 USh)	437	252.07	936.50	680	136.29	534.77	145.400	179.500	0.52
Longest string of numbers recalled	604	4.59	2.20	942	3.83	1.98	3.800	3.790	0.94
Math questions answered correctly	604	3.65	0.52	942	3.47	0.61	3.540	3.558	0.61
Ability Index	604	0.29	0.88	942	-0.17	1.02	-0.005	0.009	0.82
Had a loan previously	599	0.38	0.49	934	0.53	0.50	0.440	0.478	0.21
Asset index	604	0.29	1.80	942	-0.16	1.45	-0.150	-0.061	0.37

Table 2: Attrition analysis

Loan	0.0779*
	(0.0421)
Loan and Training	0.0672
	(0.0424)
Grant	0.164***
	(0.0573)
Grant and Training	0.101**
	(0.0502)
Female x loan	-0.00528
	(0.0536)
Female x loan and training	-0.0395
	(0.0537)
Female x grant	-0.0450
	(0.0706)
Female x grant and training	-0.0475
	(0.0635)
Female	0.0463
	(0.0389)
Buikwe district	0.0673***
	(0.0260)
Gulu district	0.0491**
	(0.0245)
Jinja district	0.00259
	(0.0361)
Baseline age	0.0252**
	(0.0108)
Baseline married	0.00848
	(0.0210)
Ability index	0.0227**
	(0.00969)
Baseline employees	-0.00107
	(0.00721)
Baseline assets	-0.0123**
	(0.00608)
Observations	1551
R-squared	0.026

Notes: This table reports an OLS regression on whether the respondent was found at the endline data collection. *** p< 0.01, ** p< 0.05, *p< 0.1.

Table 3: Correlates of control

Empowerment index	-0.05***
	(0.02)
Loans	0.05
	(0.07)
Loan and training	0.00
	(0.08)
Grant	0.13
	(0.10)
Grant and training	0.08
	(0.09)
Female	-0.26***
	(0.06)
Own family is richer	0.04
	(0.04)
Total income of participant	0.00
	(0.00)
Has children	-0.0238*
	(0.01)
Has children x female	0.0385**
	(0.02)
Age	0.03
	(0.02)
Married at baseline	-0.06
	(0.05)
Ability score	0.01
	(0.02)
Baseline employees	0.02
	(0.01)
Assets	0.01
	(0.01)
Default on loan	-0.07
	(0.13)
Baseline profits	0.00
	(0.00)
Observations	705
R-squared	0.08

Notes: This table reports an OLS regression for whether a participant does not hide money from their spouse. *** p< 0.01, ** p< 0.05, *p< 0.1.

Table 4: Treatment effects on respondent and household economic outcomes

	(1) HH economic	(2) Respondent economic	(3) HH assets	(4) HH income	(5) HH expenditures	(6) Respondent income	(7) Spouse income	(8) Spouse income, by respondent
Loan	0.252	0.222	0.220*	0.0903	-0.0169	0.0603	28.74	-0.0860
	(0.340)	(0.394)	(0.0738)	(0.492)	(0.897)	(0.642)	(0.628)	(0.549)
Loan and Training	0.229	0.273	0.0738	0.183	-0.0491	0.215	-39.96	-0.0100
	(0.390)	(0.301)	(0.551)	(0.168)	(0.709)	(0.101)	(0.503)	(0.944)
Grant	-0.222	-0.207	0.0487	-0.198	-0.0553	-0.187	-52.15	-0.0636
	(0.519)	(0.541)	(0.763)	(0.252)	(0.744)	(0.271)	(0.505)	(0.731)
Grant and Training	0.505	0.548*	0.0107	0.0773	0.438***	0.112	-66.95	-0.00781
	(0.103)	(0.0736)	(0.941)	(0.618)	(0.00432)	(0.466)	(0.340)	(0.963)
Female x loan	-0.325	-0.342	-0.249	-0.0849	-0.0454	-0.116	44.36	-0.0402
	(0.324)	(0.294)	(0.107)	(0.606)	(0.782)	(0.476)	(0.553)	(0.823)
Female x loan and training	-0.121	-0.239	-0.0282	-0.179	0.112	-0.287*	134.4*	-0.0223
	(0.718)	(0.469)	(0.856)	(0.280)	(0.500)	(0.0811)	(0.0742)	(0.901)
Female x grant	0.304	0.362	0.0671	0.219	0.0466	0.211	19.68	0.00885
	(0.469)	(0.381)	(0.734)	(0.301)	(0.823)	(0.310)	(0.838)	(0.969)
Female x grant and training	-0.838**	-0.882**	-0.230	-0.114	-0.547***	-0.137	42.88	0.00183
	(0.0303)	(0.0210)	(0.206)	(0.558)	(0.00440)	(0.477)	(0.626)	(0.993)
Observations	1,245	1,272	1,321	1,291	1,301	1,319	1,310	1,137
R-squared	0.083	0.086	0.129	0.031	0.032	0.034	0.031	0.019
Joint significance men	0.401	0.352	0.407	0.738	0.479	0.655	0.524	0.735
Joint significance women	0.749	0.689	0.784	0.983	0.726	0.700	0.471	0.540
Control mean	-0.0404	-0.0204	0.0125	-0.0298	-0.00537	-0.0149	117	0.0689

Notes: This table reports the OLS regression results for the different treatments on economic outcomes. The dependent variable in column 1 is an aggregate index of columns 3 to 5. Column 2 is an aggregate index of columns 3, 5 and 6. Column 4 is an aggregate of columns 6 and 7. Column 7 reports income of the spouse of the main respondent, as reported by the spouse. Column 8 is the spouse income, as reported by the main respondent. Joint significance refers to a test for the significance of all male or all female treatments. P-values are reported below the coefficients. Columns 1 and 2 do not require multiple hypothesis correction. For the remaining columns, divide the p-values by either 6 (controlling for multiple measured outcomes) or 10 (also controlling for multiple treatments) to calculate the FWER. Regressions include controls for sex, age, marital status, and baseline measures of ability, employees, household assets and income. *** p< 0.01, ** p< 0.05, *p< 0.1.

Table 5: Treatment effects by marital status

	(1) Unmarried HH economic	(2) Married HH economic
Loan	-0.226	0.432
	(0.583)	(0.205)
Loan and Training	0.657*	0.0246
	(0.0943)	(0.945)
Grant	-0.607	-0.0229
	(0.246)	(0.960)
Grant and Training	0.0480	0.697*
	(0.923)	(0.0815)
Female x loan	0.185	-0.531
	(0.698)	(0.252)
Female x loan and training	-0.529	0.0485
	(0.250)	(0.919)
Female x grant	0.678	0.00855
	(0.266)	(0.988)
Female x grant and training	-0.486	-0.457
	(0.384)	(0.432)
Observations	588	657
R-squared	0.103	0.070
Joint significance men	0.926	0.344
Joint significance women	0.727	0.852
Control mean	-0.461	0.335

Notes: This table reports the OLS regression results for the different treatments on the household economic index, described in Table 4, separated by whether the main respondent reports being either single, or married or living with a partner. P-values are reported below the coefficients. *** p< 0.01, ** p< 0.05, *p< 0.1.

Table 6: Treatment effects on income by whether hid money from spouse

	(1)	(2)	(3)	(4)	(5)	(6)
	Hid money			Did not hide money		
	HH economic	Respondent economic	Respondent income	HH economic	Respondent economic	Respondent income
Loan	-0.140	-0.185	-0.189	1.336***	1.395***	0.352
	(0.755)	(0.671)	(0.202)	(0.00953)	(0.00435)	(0.161)
Loan and Training	-0.449	-0.443	-0.150	0.688	0.861*	0.121
	(0.332)	(0.326)	(0.321)	(0.206)	(0.0922)	(0.643)
Grant	-0.538	-0.534	-0.377*	0.472	0.636	-0.00974
	(0.414)	(0.387)	(0.0787)	(0.448)	(0.280)	(0.975)
Grant and Training	0.670	0.724	-0.0897	0.955	1.081*	0.140
	(0.218)	(0.169)	(0.616)	(0.103)	(0.0527)	(0.629)
Female x loan	0.116	0.141	0.160	-2.061**	-2.288***	-0.521
	(0.841)	(0.802)	(0.401)	(0.0134)	(0.00387)	(0.200)
Female x loan and training	0.578	0.525	0.128	-1.224	-1.711**	-0.616
	(0.331)	(0.365)	(0.514)	(0.150)	(0.0329)	(0.132)
Female x grant	0.453	0.701	0.474*	-0.398	-0.798	0.139
	(0.557)	(0.338)	(0.0614)	(0.703)	(0.400)	(0.778)
Female x grant and training	0.228	0.0230	0.581**	-2.641***	-2.683***	-0.608
	(0.761)	(0.974)	(0.0188)	(0.00650)	(0.00382)	(0.196)
Observations	443	462	485	214	221	233
R-squared	0.071	0.072	0.060	0.185	0.190	0.113
Joint significance men	0.772	0.774	0.121	0.0591	0.0214	0.499
Joint significance women	0.458	0.428	0.192	0.213	0.109	0.371
Control mean	0.299	0.230	0.0306	0.442	0.466	0.0976

Notes: This table reports the OLS regression results for the different treatments on the household economic index, main respondent economic index, and main respondent income in the last month. The results are separated by whether the main respondent hid money from their spouse in the behavioral game. P-values are reported below the coefficients. *** p< 0.01, ** p< 0.05, *p< 0.1.

Table 7: Trimming effects on household economic index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Hide money						Did not hide money					
	Top 0.5%	Top treat 0.5%	Top 1%	Top treat 1%	Top 5%	Top treat 5%	Top 0.5%	Top treat 0.5%	Top 1%	Top treat 1%	Top 5%	Top treat 5%
Loan	-0.189	-0.189	-0.194	-0.192	-0.101	-0.325	0.812*	0.996**	0.852**	0.834*	0.442	0.452
	(0.500)	(0.500)	(0.448)	(0.477)	(0.641)	(0.166)	(0.0613)	(0.0329)	(0.0401)	(0.0511)	(0.149)	(0.168)
Loan and Training	-0.409	-0.409	-0.410	-0.409	-0.314	-0.543**	0.736	0.663	0.768*	0.756*	0.441	0.422
	(0.157)	(0.157)	(0.119)	(0.142)	(0.156)	(0.0245)	(0.106)	(0.177)	(0.0780)	(0.0919)	(0.170)	(0.219)
Grant	-0.413	-0.413	-0.427	-0.394	-0.220	-0.447	0.443	0.332	0.215	0.504	0.216	0.236
	(0.316)	(0.316)	(0.255)	(0.321)	(0.479)	(0.190)	(0.395)	(0.555)	(0.670)	(0.326)	(0.558)	(0.549)
Grant and Training	-0.670*	-0.670*	-0.670**	-0.681**	-0.713***	-0.950***	0.931*	0.836	0.986**	0.974**	0.611*	0.740**
	(0.0515)	(0.0515)	(0.0327)	(0.0403)	(0.00851)	(0.00133)	(0.0576)	(0.114)	(0.0356)	(0.0439)	(0.0793)	(0.0439)
Female x loan	0.174	0.174	0.174	0.179	0.118	0.145	-1.826***	-1.750**	-1.866***	-1.836***	-1.202**	-1.829***
	(0.630)	(0.630)	(0.595)	(0.606)	(0.670)	(0.631)	(0.00953)	(0.0201)	(0.00562)	(0.00811)	(0.0219)	(0.000640)
Female x loan and training	0.530	0.530	0.446	0.535	0.484*	0.515*	-1.391*	-1.280*	-1.448**	-1.423**	-0.858*	-1.506***
	(0.153)	(0.153)	(0.188)	(0.135)	(0.0889)	(0.0964)	(0.0510)	(0.0957)	(0.0336)	(0.0427)	(0.0999)	(0.00541)
Female x grant	0.427	0.427	0.0588	0.221	0.0895	0.1000	-0.353	-0.369	-0.717	-0.994	-0.987	-1.650**
	(0.375)	(0.375)	(0.894)	(0.635)	(0.807)	(0.803)	(0.686)	(0.695)	(0.409)	(0.265)	(0.164)	(0.0268)
Female x grant and training	1.071**	1.071**	1.096**	1.083**	1.231***	1.258***	-2.798***	-2.676***	-2.876***	-2.848***	-1.909***	-2.637***
	(0.0251)	(0.0251)	(0.0119)	(0.0189)	(0.000995)	(0.00206)	(0.000609)	(0.00232)	(0.000236)	(0.000402)	(0.00109)	(1.55e-05)
Observations	441	441	438	440	422	428	211	213	209	210	186	191
R-squared	0.131	0.131	0.157	0.145	0.159	0.148	0.216	0.217	0.204	0.195	0.177	0.226
Joint significance men	0.0888	0.0888	0.0588	0.0785	0.0774	0.00617	0.0564	0.0870	0.0543	0.0421	0.108	0.103
Joint significance women	0.500	0.500	0.916	0.646	0.335	0.702	0.0750	0.119	0.0285	0.0358	0.0299	0.000116
Control mean	0.299	0.299	0.299	0.299	0.0667	0.299	0.442	0.442	0.442	0.442	0.0973	0.442

Notes: This table reports the OLS regression results for the different treatments on the household economic index using different trimming rules. The results are separated by whether the main respondent hid money from their spouse in the behavioral game. P-values are reported below the coefficients. *** p< 0.01, ** p< 0.05, *p< 0.1.

Online Appendix

1 Ugandan context

Uganda is a landlocked country that borders Kenya, Tanzania, Rwanda, the Democratic Republic of the Congo and South Sudan. It is one of the poorest countries in the world. In 2009, 38% of the population lived on less than US$1.25 per day. GDP per capita in 2005 US dollars was $384, ranking it in the bottom third of countries in sub-Saharan Africa (WDI 2014).

A map of the country is presented in Figure A.1. The sample areas are highlighted. The central region includes Mukono, Buikwe and Jinja districts. During the baseline survey, the survey team attempted to interview all of the businesses in these districts, with a focus on businesses located near the main road-way that connects the capital, Kampala, to the border with Kenya. This corridor is the main trading network for Uganda.

The northern region is composed of Gulu district, specifically Gulu town, the main trading center in the north. Once the civil war in the north of the country finished in 2007 this town became the main trading center with Sudan and Congo. It is currently the second largest town in Uganda, behind only the capital. The survey team focused in Gulu on the main trading center in the town, which has grown significantly in size since the end of the conflict.

2 Selection into the final sample

Individuals in the sample come from people who answered yes to two questions: "The ILO is looking for people willing to take a class to help improve their businesses. It takes five days and is completely free. Would you be interested?" and "A local microfinance organization is looking for people who are interested in taking out loans to expand their businesses. These loans would be about 500,000 USH. Would you be interested?" These questions were asked twice: once during the baseline census and once during the second baseline survey. To be included in the sample, individuals had to answer yes to both questions both times they were asked. This then comprises my main sample of 1,550 businesses. Therefore, this sample potentially presents a select group of people. I next look at correlations between the interest of individuals in receiving the two treatments and some basic demographics to determine how unique this sample might be. The regression conducted on individual i uses an OLS specification on the following model:

$$I_i = \alpha + \beta X_i + \gamma R + \varepsilon_i \qquad \text{(A1)}$$

where I is a person's expressed interest in the program, X is a range of characteristics, R is a region dummy, and ε is the error term. This regression is run on both of the baseline surveys. A person is coded as interested if they answer both times "yes" to the loan and training offers and coded as "no" otherwise.

The results are presented in Table A.1. Interest in a loan (column 1), interest in training (column 2) and interest in both a loan and training (column 3) are all significantly associated with several individual characteristics, most them the same across the interest categories. Younger people are more likely to be interested in the programs, as are those who are married and have had loans previously. Ability and assets are also correlated with interest in training. Baseline profits are

negatively correlated with interest in loans or trainings, though the effect is small considering these values are in thousands of Ugandan shillings. These correlations suggest that there is some selection into the sample, though none of the coefficients is very large.

3 Comparison of normal microcredit and training clients

PRIDE Microfinance, which has been operating across Uganda for many years, administered the loans. The sample of participants was drawn from the populations in the two baseline surveys. Individuals had to express interest in expanding their business, taking a loan and receiving training from the ILO in each of the surveys. In practice, everyone who wanted a loan and training also said they wanted to expand their business.

PRIDE also reviewed the full sample of business owners to ensure they would accept all of the participants as clients if selected. It was agreed in cooperation with the researcher that PRIDE would accept everyone that had a monthly profit high enough to cover the cost of the loan. This meant a few businesses were not included in the final sample due to low profits.

I chose the sample to reflect what a program from an international organization or government would look like if they were interested in expanding loan access. It does reflect what PRIDE or other microfinance organizations normally do. Data from a separate ILO study of PRIDE clients in Uganda suggests that there is at least one difference between the businesses in this sample and normal PRIDE clients: the profit level of the business. The average profit level of the businesses in this study at baseline is 307,000 USH, while the previous PRIDE study found business profits to be 835,000 USH. The difference is large and statistically significant, suggesting that this program targeted much smaller businesses, as intended.

4 Take-up

Actual take-up of training and loan programs by those who have expressed interest in such programs has been problematic in the literature. This evaluation faced some issues as well. To test for the characteristics of people who took the programs, I ran the following OLS regression:

$$P_i = \alpha + \beta X_i + \varphi R + \varepsilon_i \qquad \text{(A2)}$$

where P is a dummy for whether person i participated in the particular treatment, X is a matrix of individual baseline characteristics and R is a matrix of region and sample dummies. The results of this regression are presented in Table A.2 and are divided between the full (columns 1 and 2), central (columns 3–5) and northern samples (columns 6 and 7).

Of those who were offered the loans, 40% accepted. This is similar to the literature on loan take-up, which finds lower than expected take-up after people have expressed interest. Karlan, Morduch and Mullainathan (2010) document several microcredit studies that have take-up rates of between 2% and 80%. Columns 1, 3 and 6 present the take-up analysis for the loans. There are few significant correlations across individual characteristics, though older people were more likely to take the loan. The largest predictor of take-up for loans is whether the person was offered and attended the trainings. The results of the qualitative interviews suggest that many people who did not take the loans did so because they were either worried about repaying the money or that they

distrusted the implementing agency. As the trainings were given just before the loans were offered, the differential take-up for those who attended the trainings is most likely due to either increased time with the implementing organizations, and thus increased trust, or a greater confidence due to the trainings in being able to repay the loans.

Most surprising was that grant take-up was not universal. This was money that was to be given to the businesses without a repayment requirement and with no strings attached and was framed to businesses as such. Still, only 71% of those selected took the money. Column 3 presents the take-up analysis for the grants. None of the individual characteristics tested predicts take-up for the grants. Similar to the effect on loan take-up, whether the person attended the trainings has a large positive correlation with grant take-up. Qualitative interviews suggest that many people simply did not believe the offer of the grants, thinking it too good to be true. The trainings most likely increased confidence in individuals that the offer was real.

Despite the indication of interest, only 71% of people invited to attend the trainings attended. This is similar to other studies, as summarized in McKenzie and Woodruff (2012b). Out of 14 studies they survey, only four had attendance above 80%. Most vary from 39% to 75%. For instance, Bruhn and Zia (2011) and Valdivia (2012) worked only with businesses that expressed interest in training but only had attendance of 39% and 51%, respectively. Take-up analysis for training is presented in columns 2, 5 and 7. Only experience with having attended trainings and age predicts whether the person attended the offered training. The effect of previous training is positive, significant and large, suggesting that people with training felt a strong interest in receiving more training. The qualitative surveys identified several other reasons people did not take the training. Most people reported that the time away from the business necessary for the training was too difficult for them. The ILO made efforts to schedule evening and half-day sessions, but this was still too onerous for some business owners.

The evidence presented here on grant take-up presents a cautionary tale for organizations interested in unconditional cash transfers. The ILO was to inform people of their selection to receive the grants. They decided to do this first by phone, which was not effective as people did not believe the caller. The ILO then organized information sessions, but not all people showed up due to suspicions that the offer was not to be believed. Proper implementation of such programs is difficult and should be approached with some caution.

5 Additional balance tests

As the main analysis is conducted by program and gender, I present here balance tests for the individual treatment arms by gender. Table A.3 presents balance tests for the female sample, and Table A.4 for the male sample. There is generally very good balance across the variables, with 10% or less of the coefficients significant at the 90% or greater level.

The main analysis conducted on treatment effects is a fixed-effects estimation. This method both improves power and means individual effects are controlled for. Differences in level values of characteristics will therefore be less critical for the analysis. Of more importance will be understanding any systematic differences in changes over time for individuals. Thus, in addition to the balance levels, I also present the balance of *changes* between the two baseline surveys. The last two variables in Tables B.3 and B.4 are the changes for women and men by treatment arm for profit

and revenue, the only values collected in both baseline surveys. The results are balanced for all of the samples, except for some imbalance in the male sample. Men in the loan-only and grant-only programs have greater revenue changes than the control group, as well as profit changes for men in the grant-only program.

Figure A.1: Map of Uganda with treatment districts

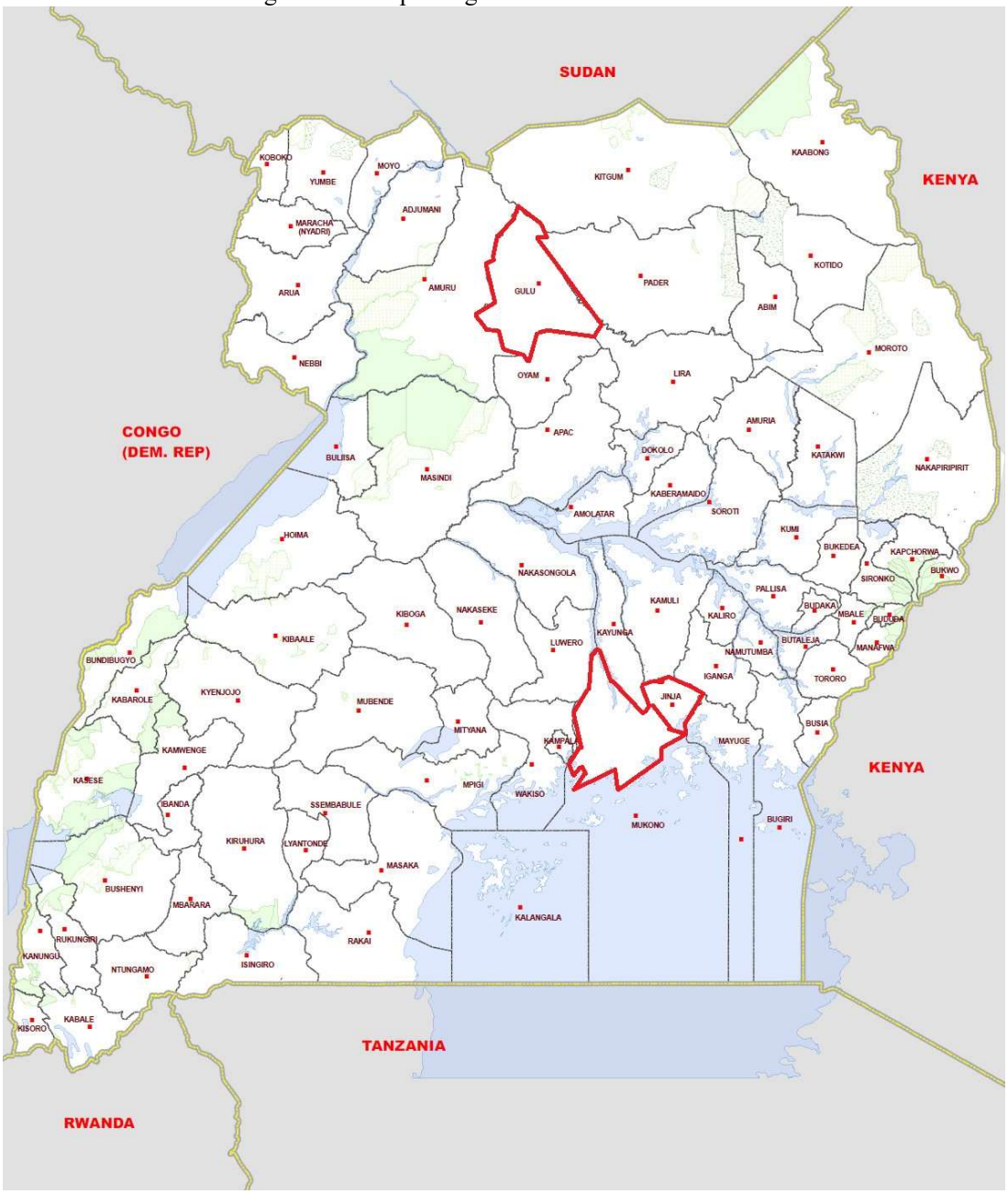

Table A.1: Determinants of interest for the treatments

	(1) Interest in loan	(2) Interest in training	(3) Interest in both
Female	-0.0071	-0.0048	-0.011
	(0.01)	(0.01)	(0.01)
Age	-0.053***	-0.063***	-0.052***
	(0.01)	(0.01)	(0.01)
Married	0.033**	0.032**	0.035***
	(0.01)	(0.02)	(0.01)
Literacy	0.011	-0.028	0.0061
	(0.02)	(0.02)	(0.02)
Previous Training	0.016	0.0025	0.017
	(0.02)	(0.02)	(0.02)
Previous Loan	0.10***	0.089***	0.099***
	(0.01)	(0.01)	(0.01)
Revenues - 1 Lag	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Profits - 1 Lag	-0.000038	-0.00041***	-0.000037
	(0.00)	(0.00)	(0.00)
Ability	0.0035	0.024**	0.0049
	(0.01)	(0.01)	(0.01)
Assets	-0.0039	-0.0096***	-0.0049*
	(0.00)	(0.00)	(0.00)
Control Mean			
R2	0.38	0.30	0.38
N	4201	4201	4201

Notes: Columns (1) to (3) report the results of an OLS regression on whether the individual expressed interest in the loan, training or loan and training programs. Data is from the first baseline data collection. Sample is from the first baseline. Robust p-values are in parentheses below the coefficients. *** p< 0.01, ** p< 0.05, * p< 0.1.

Table A.2: Take-up analysis

	All		Central			North	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Loans	Training	Loans	Grants	Training	Loans	Training
Received Training	0.10***		0.15***	0.21***		0.064	
	(0.04)		(0.05)	(0.05)		(0.05)	
Female	-0.0074	-0.0075	0.0073	-0.017	-0.050	-0.022	0.13
	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)	(0.06)	(0.08)
Age	0.043**	0.045*	0.065**	0.018	0.052	0.025	0.047
	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.04)
Married	0.026	-0.054	0.023	-0.0059	-0.069	0.045	-0.067
	(0.04)	(0.04)	(0.06)	(0.04)	(0.05)	(0.06)	(0.08)
Literacy	-0.023	-0.016	-0.11	-0.087	0.068	0.044	-0.21
	(0.06)	(0.07)	(0.09)	(0.07)	(0.09)	(0.08)	(0.13)
Previous Training	0.018	0.098*	0.014	-0.0020	0.19***	0.022	-0.083
	(0.05)	(0.05)	(0.07)	(0.05)	(0.07)	(0.07)	(0.09)
Total Employees	-0.012	-0.0072	-0.020*	-0.011	-0.0071	-0.0020	-0.049
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)
Revenues - 1 Lag	0.0069	-0.011	0.0077	0.0011	-0.0056	-0.0067	-0.065***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Revenues - 2 Lags	0.0029	-0.0035	0.035	0.050*	-0.015	-0.023	0.043
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Profits - 1 Lag	-0.023	0.0085	-0.014	0.010	-0.0065	-0.011	0.13
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Profits - 2 Lags	-0.017	-0.032***	-0.057*	-0.032***	-0.036***	0.015	0.015
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Ability	0.019	0.020	0.059	0.016	-0.038	-0.0096	0.11**
	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)
Assets	-0.0024	0.025	-0.0079	-0.0069	0.033	-0.0018	0.034
	(0.01)	(0.02)	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)
Previous Loan	0.087**	0.064	0.047	0.062	0.066	0.13**	0.064
	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.07)
Control Mean							
R2	0.18	0.053	0.24	0.45	0.065	0.043	0.100
N	695	514	358	324	348	337	166

Notes: Columns (1) to (3) report the results of an OLS regression on whether the invited individual took the program that was offered for the loans, grants and training programs, respectively. Note that training was always done before the offer for grant or loan, and is the biggest predictor of take-up. Robust standard errors clustered at the individual level are in parentheses below the coefficients. *** p< 0.01, ** p< 0.05, * p< 0.1.

Table A.3: Balance tests by treatment arm for women

	Loan		Loans and Training		Grant		Grants and Training	
Baseline Characteristic	Coef	P-value	Coef	P-value	Coef	P-value	Coef	P-value
Age 18-23	-0.01	(0.61)	-0.05	(0.04)	-0.05	(0.21)	0.01	(0.76)
Age 24-29	0.08	(0.08)	0.07	(0.10)	0.04	(0.56)	0.06	(0.39)
Age 30-35	-0.01	(0.83)	0.02	(0.67)	0.07	(0.34)	-0.05	(0.48)
Age 36-41	-0.01	(0.70)	-0.03	(0.38)	-0.06	(0.29)	-0.02	(0.68)
Age 41-50	-0.04	(0.10)	-0.01	(0.69)	0.00	(0.39)	0.00	(0.39)
Married	0.01	(0.72)	0.00	(0.94)	0.00	(1.00)	-0.02	(0.71)
Literate	-0.03	(0.54)	0.05	(0.25)	-0.02	(0.76)	-0.06	(0.39)
Previous training	-0.05	(0.25)	-0.01	(0.89)	0.00	(1.00)	-0.01	(0.80)
Number of employees	0.16	(0.23)	0.01	(0.88)	0.21	(0.09)	0.19	(0.07)
Employees hours worked	6.30	(0.35)	0.92	(0.88)	6.19	(0.61)	3.70	(0.75)
Does not keep records	0.00	(0.95)	-0.02	(0.39)	0.01	(0.32)	0.01	(0.30)
Keeps records on computer	0.00	(0.89)	0.00	(0.92)	-0.02	(0.29)	0.00	(1.00)
Keeps written records	-0.02	(0.67)	0.04	(0.44)	0.06	(0.36)	0.08	(0.25)
Keeps record in head	0.00	(0.97)	-0.03	(0.55)	-0.05	(0.46)	-0.09	(0.19)
Keeps money in separate bags	0.02	(0.15)	0.01	(0.26)	0.00	(0.98)	0.00	(0.07)
Last month's revenue (1000 USh)	-48.47	(0.44)	-76.15	(0.21)	-27.59	(0.77)	26.74	(0.80)
Average months revenue (1000 USh)	1106.02	(0.32)	-89.99	(0.28)	151.73	(0.41)	-4.01	(0.98)
Last month's profit (1000 USh)	5.96	(0.92)	42.32	(0.41)	-52.75	(0.24)	-9.28	(0.85)
Average month's profit (1000 USh)	-16.47	(0.64)	54.69	(0.28)	20.14	(0.75)	47.04	(0.38)
Stock value (1000 USh)	297.16	(0.38)	91.34	(0.69)	507.49	(0.32)	648.20	(0.24)
Value of liabilities (1000 USh)	91.99	(0.16)	46.82	(0.28)	73.51	(0.23)	82.73	(0.50)
Longest string of numbers recalled	-0.11	(0.56)	-0.12	(0.55)	-0.08	(0.72)	0.17	(0.49)
Math questions answered correctly	0.00	(0.94)	0.01	(0.89)	0.13	(0.10)	-0.01	(0.93)
Ability Index	-0.06	(0.55)	0.06	(0.55)	0.06	(0.67)	0.02	(0.90)
Had a loan previously	0.04	(0.36)	0.09	(0.07)	0.07	(0.29)	0.05	(0.53)
Asset index	0.01	(0.95)	-0.05	(0.71)	-0.28	(0.08)	-0.06	(0.74)
Difference of Profit	-11.20	(0.86)	-11.46	(0.85)	156.52	(0.27)	165.16	(0.15)
Difference of Revenue	130.68	(0.48)	64.33	(0.71)	581.17	(0.45)	59.06	(0.86)

Notes: Robust p-values from an OLS regression with baseline characteristic as the dependent and treatment arm as the independent variable are reported for each treatment. * denotes significance at the 10% level, ** at 5% and *** at 1%.

Table A.4: Balance tests by treatment arm for men

	Loan		Loans and Training		Grant		Grants and Training	
Baseline Characteristic	Coef	P-value	Coef	P-value	Coef	P-value	Coef	P-value
Age 18-23	-0.06	(0.23)	0.01	(0.88)	-0.05	(0.46)	-0.05	(0.44)
Age 24-29	-0.01	(0.88)	0.00	(0.97)	-0.05	(0.56)	0.06	(0.50)
Age 30-35	0.06	(0.30)	-0.01	(0.88)	0.13	(0.10)	0.01	(0.88)
Age 36-41	0.03	(0.39)	0.02	(0.66)	-0.03	(0.54)	-0.02	(0.73)
Age 41-50	-0.02	(0.35)	-0.02	(0.50)	0.00	0.00	0.00	(0.86)
Married	0.02	(0.79)	-0.02	(0.77)	0.03	(0.70)	0.01	(0.93)
Literate	0.02	(0.54)	0.00	(0.96)	0.00	(0.99)	-0.01	(0.86)
Previous training	0.02	(0.69)	0.00	(0.96)	0.02	(0.80)	0.07	(0.35)
Number of employees	0.02	(0.91)	0.05	(0.79)	0.35	(0.09)	0.35	(0.15)
Employees hours worked	12.73	(0.23)	17.50	(0.12)	30.58	(0.07)	54.00	(0.02)
Does not keep records	0.02	(0.39)	0.01	(0.60)	0.00	(0.93)	0.00	(0.99)
Keeps records on computer	0.04	(0.07)	0.02	(0.27)	0.00	(0.93)	0.04	(0.16)
Keeps written records	0.01	(0.86)	-0.03	(0.60)	0.12	(0.15)	0.12	(0.13)
Keeps record in head	-0.07	(0.13)	-0.01	(0.90)	-0.12	(0.13)	-0.16	(0.03)
Keeps money in separate bags	0.00	(.)	0.00	(.)	0.00	(.)	0.00	(.)
Last month's revenue (1000 USh)	-108.15	(0.28)	-122.38	(0.20)	-118.91	(0.31)	13.62	(0.91)
Average months revenue (1000 USh)	-20.26	(0.90)	29.19	(0.89)	2.37	(0.99)	373.80	(0.40)
Last month's profit (1000 USh)	-103.41	(0.27)	-131.86	(0.19)	-217.66	(0.20)	79.60	(0.80)
Average month's profit (1000 USh)	-415.64	(0.25)	-487.78	(0.20)	-740.75	(0.31)	-354.32	(0.64)
Stock value (1000 USh)	-542.56	(0.75)	-2141.20	(0.16)	-3037.04	(0.31)	-3577.94	(0.17)
Value of liabilities (1000 USh)	-120.26	(0.36)	-52.01	(0.73)	-148.65	(0.52)	-106.12	(0.60)
Longest string of numbers recalled	0.17	(0.53)	-0.15	(0.58)	0.12	(0.72)	0.02	(0.96)
Math questions answered correctly	0.05	(0.36)	-0.01	(0.88)	0.02	(0.85)	0.00	(1.00)
Ability Index	0.08	(0.45)	-0.05	(0.67)	-0.03	(0.83)	0.02	(0.88)
Had a loan previously	-0.04	(0.48)	-0.02	(0.79)	0.09	(0.32)	0.01	(0.88)
Asset index	0.19	(0.30)	0.18	(0.32)	0.28	(0.15)	0.36	(0.02)
Difference of Profit	137.66	(0.26)	98.49	(0.31)	676.97	(0.02)	-117.58	(0.71)
Difference of Revenue	460.10	(0.10)	-7.12	(0.97)	1283.51	(0.06)	192.32	(0.64)

Notes: Robust p-values from an OLS regression with baseline characteristic as the dependent and treatment arm as the independent variable are reported for each treatment. * denotes significance at the 10% level, ** at 5% and *** at 1%.

Table A.5: Value of current loans

Loan	193,769
	(0.490)
Loan and Training	-262,364
	(0.353)
Grant	237,557
	(0.517)
Grant and Training	-97,309
	(0.769)
Female x loan	-130,471
	(0.712)
Female x loan and training	354,359
	(0.319)
Female x grant	-268,459
	(0.550)
Female x grant and training	88,587
	(0.831)
Female	-208,159
	(0.429)
Buikwe district	8,557
	(0.959)
Gulu district	-138,057
	(0.390)
Jinja district	158,500
	(0.502)
Baseline age	165,685**
	(0.0168)
Baseline married	278,635**
	(0.0407)
Ability index	187,727***
	(0.00258)
Baseline employees	194,491***
	(2.10e-05)
Baseline assets	81,077*
	(0.0614)
Baseline profits	75.14
	(0.311)
Observations	1,326
R-squared	0.048
Joint significance men	0.941
Joint significance women	0.873
Control mean	877410

Table A.6: Treatment effects by marital status

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Unmarried				Married							
	HH economic	HH assets	Respondent income	HH expenditures	HH economic	HH assets	HH income	HH expenditures	Respondent economic	Respondent income	Spouse income	Spouse income, by respondent
Loan	-0.226	-0.0325	0.0663	-0.163	0.432	0.312**	0.0957	0.0297	0.393	0.0508	57.72	-0.0229
	(0.583)	(0.865)	(0.811)	(0.182)	(0.205)	(0.0498)	(0.509)	(0.882)	(0.231)	(0.694)	(0.534)	(0.914)
Loan and Training	0.657*	0.0465	0.692***	-0.0536	0.0246	0.0959	-0.0398	-0.0618	0.0677	-0.0139	-38.91	-0.0189
	(0.0943)	(0.799)	(0.00954)	(0.644)	(0.945)	(0.558)	(0.790)	(0.767)	(0.844)	(0.917)	(0.684)	(0.930)
Grant	-0.607	-0.263	-0.183	-0.168	-0.0229	0.188	-0.186	-0.0383	0.000181	-0.165	-48.59	-0.0616
	(0.246)	(0.283)	(0.606)	(0.275)	(0.960)	(0.374)	(0.337)	(0.885)	(1.000)	(0.336)	(0.695)	(0.825)
Grant and Training	0.0480	-0.212	0.311	-0.0228	0.697*	0.0948	-0.00265	0.601**	0.757*	0.0481	-86.90	-0.0128
	(0.923)	(0.361)	(0.355)	(0.876)	(0.0815)	(0.614)	(0.988)	(0.0109)	(0.0501)	(0.752)	(0.426)	(0.958)
Female x loan	0.185	0.0664	-0.133	0.133	-0.531	-0.403*	-0.00693	-0.135	-0.585	-0.0813	87.23	-0.247
	(0.698)	(0.764)	(0.677)	(0.344)	(0.252)	(0.0627)	(0.972)	(0.622)	(0.188)	(0.643)	(0.492)	(0.395)
Female x loan and training	-0.529	-0.0183	-0.735**	0.164	0.0485	-0.0489	0.0969	0.0421	-0.162	-0.0887	240.5*	-0.100
	(0.250)	(0.932)	(0.0179)	(0.224)	(0.919)	(0.825)	(0.632)	(0.881)	(0.725)	(0.622)	(0.0646)	(0.731)
Female x grant	0.678	0.366	0.0692	0.232	0.00855	-0.0974	0.311	-0.0964	0.129	0.313	-36.11	-0.118
	(0.266)	(0.199)	(0.867)	(0.196)	(0.988)	(0.719)	(0.212)	(0.776)	(0.815)	(0.154)	(0.822)	(0.742)
Female x grant and training	-0.486	-0.0213	-0.445	-0.0620	-0.457	-0.172	0.284	-0.672**	-0.620	0.177	151.5	-0.430
	(0.384)	(0.935)	(0.239)	(0.706)	(0.432)	(0.524)	(0.255)	(0.0484)	(0.264)	(0.422)	(0.344)	(0.246)
Observations	588	598	600	595	657	723	691	701	684	719	702	579
R-squared	0.103	0.169	0.052	0.056	0.070	0.107	0.042	0.040	0.077	0.047	0.071	0.034
Joint significance men	0.926	0.477	0.345	0.319	0.344	0.216	0.793	0.449	0.289	0.860	0.719	0.875
Joint significance women	0.727	0.854	0.506	0.800	0.852	0.951	0.231	0.605	0.985	0.557	0.274	0.129
Control mean	-0.461	-0.174	-0.0879	-0.104	0.335	0.170	0.0961	0.0930	0.289	0.0478	207.1	0.229

Table A.7a: Treatment effects on income by whether hid money from spouse

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Hid money							
	HH economic	HH assets	HH income	HH expenditures	Respondent economic	Respondent income	Spouse income	Spouse income, by respondent
Loan	-0.140	0.0152	-0.128	0.00174	-0.185	-0.189	48.07	0.0521
	(0.755)	(0.930)	(0.436)	(0.995)	(0.671)	(0.202)	(0.691)	(0.836)
Loan and Training	-0.449	-0.151	-0.161	-0.175	-0.443	-0.150	-43.79	0.0277
	(0.332)	(0.391)	(0.333)	(0.574)	(0.326)	(0.321)	(0.722)	(0.912)
Grant	-0.538	0.00575	-0.377	-0.169	-0.534	-0.377*	-41.42	-0.0800
	(0.414)	(0.981)	(0.125)	(0.699)	(0.387)	(0.0787)	(0.817)	(0.832)
Grant and Training	0.670	-0.282	-0.143	1.036***	0.724	-0.0897	-132.6	-0.0517
	(0.218)	(0.184)	(0.472)	(0.00499)	(0.169)	(0.616)	(0.371)	(0.865)
Female x loan	0.116	0.0181	0.228	-0.0702	0.141	0.160	104.4	-0.558*
	(0.841)	(0.935)	(0.281)	(0.858)	(0.802)	(0.401)	(0.505)	(0.0872)
Female x loan and training	0.578	0.248	0.279	0.214	0.525	0.128	223.1	-0.497
	(0.331)	(0.277)	(0.197)	(0.596)	(0.365)	(0.514)	(0.164)	(0.126)
Female x grant	0.453	0.0884	0.396	0.146	0.701	0.474*	-120.7	-0.293
	(0.557)	(0.762)	(0.169)	(0.778)	(0.338)	(0.0614)	(0.568)	(0.509)
Female x grant and training	0.228	0.526*	0.787***	-1.026**	0.0230	0.581**	314.7	-0.406
	(0.761)	(0.0683)	(0.00484)	(0.0406)	(0.974)	(0.0188)	(0.127)	(0.352)
Observations	443	486	465	474	462	485	472	382
R-squared	0.071	0.129	0.060	0.058	0.072	0.060	0.068	0.041
Joint significance men	0.772	0.497	0.161	0.516	0.774	0.121	0.690	0.953
Joint significance women	0.458	0.332	0.0552	0.959	0.428	0.192	0.303	0.00990
Control mean	0.299	0.143	0.0873	0.0655	0.230	0.0306	219.2	0.325

Table A.7b: Treatment effects on income by whether hid money from spouse

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Did not hide money							
	HH economic	HH assets	HH income	HH expenditures	Respondent economic	Respondent income	Spouse income	Spouse income, by respondent
Loan	1.336***	0.822***	0.379	0.171	1.395***	0.352	80.76	-0.179
	(0.00953)	(0.00958)	(0.177)	(0.201)	(0.00435)	(0.161)	(0.587)	(0.652)
Loan and Training	0.688	0.571*	0.0692	0.129	0.861*	0.121	-49.44	-0.146
	(0.206)	(0.0824)	(0.814)	(0.362)	(0.0922)	(0.643)	(0.751)	(0.727)
Grant	0.472	0.534	-0.0495	0.105	0.636	-0.00974	-48.25	-0.173
	(0.448)	(0.171)	(0.885)	(0.515)	(0.280)	(0.975)	(0.790)	(0.712)
Grant and Training	0.955	0.730**	0.0959	0.198	1.081*	0.140	-33.61	-0.00390
	(0.103)	(0.0445)	(0.766)	(0.196)	(0.0527)	(0.629)	(0.843)	(0.993)
Female x loan	-2.061**	-1.298**	-0.438	-0.512**	-2.288***	-0.521	33.06	0.764
	(0.0134)	(0.0121)	(0.335)	(0.0198)	(0.00387)	(0.200)	(0.891)	(0.233)
Female x loan and training	-1.224	-0.702	-0.313	-0.400*	-1.711**	-0.616	333.1	1.064
	(0.150)	(0.174)	(0.496)	(0.0718)	(0.0329)	(0.132)	(0.174)	(0.100)
Female x grant	-0.398	-0.283	0.502	-0.768***	-0.798	0.139	254.5	0.964
	(0.703)	(0.648)	(0.386)	(0.00329)	(0.400)	(0.778)	(0.399)	(0.207)
Female x grant and training	-2.641***	-1.527**	-0.661	-0.672***	-2.683***	-0.608	-154.9	-0.0938
	(0.00650)	(0.0109)	(0.206)	(0.00918)	(0.00382)	(0.196)	(0.578)	(0.899)
Observations	214	236	226	226	221	233	230	197
R-squared	0.185	0.155	0.122	0.134	0.190	0.113	0.138	0.109
Joint significance men	0.0591	0.0178	0.621	0.202	0.0214	0.499	0.923	0.723
Joint significance women	0.213	0.418	0.741	0.00447	0.109	0.371	0.536	0.205
Control mean	0.442	0.245	0.122	0.173	0.466	0.0976	172.6	-0.0732