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Money or Ideas?

A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan

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Development Research Group
Finance and Private Sector Development Team
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Abstract

This paper identifies the relative importance of human and physical capital for entrepreneurship. A subset of rural microfinance clients were offered eight full time days of business training and the opportunity to participate in a loan lottery of up to Rs. 100,000 (USD 1,700), about seven times the average loan size. The study finds that business training increased business knowledge, reduced business failure, improved business practices and increased household expenditures by about $40 per year. It also improved financial and labor allocation decisions. These effects are concentrated among male clients, however. Women improve business knowledge but show no improvements in other outcomes. A cost-benefit analysis suggests that business training was not cost-effective for the microfinance institution, despite having a positive impact on clients. This may explain why so few microfinance institutions offer training. Access to the larger loan, in contrast, had little effect, indicating that existing loan size limits may already meet the demand for credit for these clients.

This paper is a product of the Finance and Private Sector Development Team; and the Agriculture and Rural Development Team, Development Research Group. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at xgine@worldbank.org and gmansuri@worldbank.org.

Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan*

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1. Introduction

Self-employment accounts for as much as 70 percent of employment in developing countries, especially among low income households. The majority of self-employed individuals, however, operate enterprises that are typically small, without paid employees and often poorly run (Gindling and Newhouse, 2014; De Mel et al. 2008; Banerjee and Duflo, 2008). As a result, estimates of the size of the informal economy as a percentage of "official" GDP are smaller, at around 33 percent (Schneider et al. 2010). As most individuals' standards of living are determined by their labor, this suggests that policies designed to alleviate the barriers to productive self-employment could raise standards of living significantly. Donors, financial institutions and governments devote considerable resources trying to alleviate these constraints but they are met with differing degree of success.

Policies typically target two main barriers: finance and managerial capital. There is a large empirical and theoretical literature that emphasizes distortions in the capital market as critical for business creation and survival (Blanchflower and Oswald, 1998; Holtz-Eakin, Joulfaian and Rosen, 1994a and 1994b and more recently Paulson, Townsend and Karaivanov, 2006; De Mel et al. 2008 and Banerjee et al. 2010).[1] Mohammed Yunus, founder of Grameen Bank, sides with this view by stating that "giving the poor access to credit allows them to immediately put into practice the skills they already know".[2]

Borrowing constraints can also reinforce poverty if the production technology is non-convex, featuring a region with returns that quickly taper off at low levels of investment and another region with higher returns at levels of investment above some threshold. Removing borrowing constraints could then allow liquidity-constrained individuals to access the more productive technology, increasing their income and reducing the level of poverty.

[1] See Banerjee and Newman, 1993; King and Levine, 1993; Giné and Townsend, 2004 or Buera, Kaboski and Shin, 2011, for examples of macro models of entrepreneurship with financial imperfections.
[2] Quote from Yunus, M "*Banker to the Poor",* 1999.

An alternative view suggests that business skills, or managerial capital more generally, is missing in poor countries (Bloom and Van Reenen, 2010; Bruhn, Karlan and Schoar, 2011 and Schoar, 2010) and, moreover, that such skills can be taught.[3]

This paper reports on a field experiment that takes both barriers seriously by offering microfinance clients in rural Pakistan an eight day business training course and access to a loan lottery where eligible clients can borrow up to 7 times the average loan size. We randomly offered the training to half of 747 groups of borrowers from 5 different branches in three districts. Training sessions were held from February to May 2007 and focused on business planning, marketing and financial management. From November 2007 to June 2008 a lottery was introduced that allowed eligible members to apply for a loan of up to Rs 100,000 (1,667 USD at the time of the baseline). Loan requests were subject to the usual screening and amounts approved above the usual cycle limit were forwarded to headquarters, where the results of the lottery were maintained. Lottery winners could borrow the approved amount, while those who lost the lottery could borrow up to their maximum loan size, which depended on the number of loans they had previously repaid successfully.

We develop a simple model of a technology-based poverty trap where agents differ in their business knowledge and ability, the latter of which is unknown. In the model, business training improves business knowledge and reveals ability, allowing individuals to tailor labor and credit decisions to their true ability level. In addition, the loan lottery allows individuals to meet the higher capital requirements of the most productive technology.

Consistent with the model, we find that offering business training leads to increased business knowledge, better business practices and higher household expenditures. Business training also enhances group cohesion and improves the general outlook on life. These effects are mainly concentrated among male clients, however. Among men, business training also leads to lower business failure. This need not be a desirable outcome if those whose businesses fail switch to more profitable occupations. We show that this is not the case because failed businesses in the control group appear to

[3] Yet another view is that regulations in the labor market create important distortions (Hsieh and Klenow, 2009, Schoar, 2010).

be among the worst. Given this potential selection in business survival, a lack of impact on business sales and profit is not very informative, and indeed we fail to find any impact on business sales or profit overall. Once we correct for differences in the composition of businesses due to the induced difference in failure rates, however, business training could have improved business sales and profits substantially, if it is indeed the case that worse businesses managed to survive among those offered business training.

While these compositional effects in the businesses that survive could explain the lack of impact on business sales or profits, another reason for the increase in household expenditures but not business sales nor profits is that households without non-farm enterprises may also benefit from business training, particularly those engaged in farming or livestock rearing. Indeed, we find that increases in income and assets from business training are concentrated among these self-employed households.

Unlike men, women increase business knowledge but show no improvements in any other outcomes, particularly income and assets, business practices and business operations. While there are substantial differences between male and female clients, perhaps due to the different process by which they become both self-employed and clients, the inclusion of additional controls and their interactions with treatment dummies does not qualitatively affect the estimates.

One plausible explanation for these gender differences is rooted in the role of women as caregivers and other social norms that limit their labor supply. In our data most men are active in the labor force, but 71 percent of females report staying at home without a primary occupation. If women are excluded from the labor market, then businesses run by women should be of lower quality because the marginal female entrepreneur will be indifferent between running a business and earning a low wage (Lucas, 1978 or more recently Emran, Morshed and Stiglitz, 2007). In addition, the same social and cultural norms that restrict female labor supply also affect their mobility outside the home. This might explain why women are primarily engaged in home-based manufacture.

What is perhaps more surprising is that the intervention did not even improve the performance of existing female businesses. After all, better decisions about production and marketing, etc. may not require additional time or mobility. What we do find, is that

some 40 percent of female entrepreneurs report that their (male) spouses are responsible for all of the business decisions, and, on average, women involved in businesses spend less time in managerial decisions than their male counterparts. This suggests low decision-making power among women business owners. Indeed, business creation in households of women offered business training and assigned to be winners of the lottery increases, but only when the female client is not directly involved in the new business. Instead, their spouses or other household members use the proceeds of the loan to start the business.[4]

One could argue that households could capitalize on the training that a woman receives by letting her take on more business decisions. However, husbands may be reluctant to share control of the business if this leads to a longer-term shift in the wife's decision-making power.[5]

Business training also increased the probability of borrowing, as did being assigned to be a lottery winner. Being assigned a lottery winner also increased average loan size, perhaps unsurprisingly, but it had little effect on household welfare, suggesting perhaps that the limit on the current loan size already meets the demands of most borrowers. Put differently, we find little evidence of a technology-based poverty trap, at least among the sample of microfinance clients that we study.

Also consistent with the model, we find that business training improved financial decision-making and labor allocation. In particular, among men offered business training, those with low entrepreneurial ability (proxied by a high ex-ante probability of loan default or low growth in expenditures between baseline and follow-up), were less likely to borrow during the lottery and devoted less time to the business. This suggests that attending business training helped individuals realize how successful they really were as entrepreneurs, validating the assumption made by many business training programs around the world that use training as a screening device to later provide additional services, such as credit or mentoring.

[4] A recent report by the World Bank (2012) conducted extensive focus groups with clients of several microfinance institutions and reports that women in Pakistan are not the final users of loans but rather the conduits of their husbands.

[5] Udry (1996) finds evidence of this rejection of efficiency in the intra-household allocation of resources.

Since we find neither an increase in default nor an increase in the workload of credit officers handling larger loans, we conclude that these larger loans were profitable for the lender. In addition, when we compare the benefits of offering business training to the estimated costs of implementation, we find that the business training program is not cost-effective from the perspective of microfinance institution despite being profitable for (male) clients. This may help explain why few lenders offer such business training programs voluntarily.

These results taken together contribute to the literature that highlights the importance of heterogeneity in the impacts of relaxing credit constraints and enhancing business skills (De Mel, McKenzie and Woodruff, 2009; Karlan and Valdivia, 2010; Drexler, Fischer and Schoar, 2014; Calderon, Cunha and de Giorgi, 2013; Berge, Bjorvatn and Tungodden, Forthcoming; De Mel, McKenzie and Woodruff, 2012 and McKenzie and Woodruff, 2014 for a review).

Our paper is perhaps closest to Berge, Bjorvatn and Tungodden (Forthcoming) and De Mel, McKenzie and Woodruff (2012) in that both combine business training with access to capital. However, our paper differs from theirs and the rest of the literature in several respects. First, while most papers study a sample of business owners in urban areas, we use a large sample of male and female microfinance clients from rural areas with diverse occupations ranging from non-farm enterprises, to farming to salaried work. Second, we offer large loans instead of grants, which allow us to measure the prevalence of borrowing constraints and the impact of business training on actual take-up of credit. Finally, we use rich administrative and survey data that allow us to focus on a wide range of business, household and individual outcomes.

The remainder of the paper is structured as follows. Section 2 describes the context in Pakistan and the experiment. Section 3 discusses the data and Section 4 presents the intuition behind a simple model of technology choice under credit constraints and unknown ability. Appendix C develops the model and its predictions. Section 5 describes the empirical strategy and the results of the experiment. Section 6 presents the benefit-cost analysis of offering business training and Section 7 concludes.

2. Context and Experiment Design

The experiment was carried out in collaboration with the Pakistan Poverty Alleviation Fund (PPAF), the National Rural Support Program (NRSP), and the World Bank. ECI, a local firm that specializes in capacity building activities for micro entrepreneurs, designed the business training modules, trained NRSP staff and was a key partner during all phases of field implementation. Baseline and follow up data were collected by Research Consultants (RCons).

PPAF is an apex institution created in 2000 with World Bank funding that provides capacity building and funding to numerous partner microfinance institutions and NGOs. More than half of its funds, however, go to the Rural Support Programs of which NRSP is by far the largest.[6] PPAF funding has allowed NRSP to grow rapidly over the past decade. It is now present in 51 districts and is considered the second largest microcredit provider in Pakistan.

NRSP provides uncollateralized microloans to individual clients who are required to become members of a community organization (CO). COs typically have between 5 and 30 members that meet regularly and contribute towards individual and group savings. Meetings are also used to make loan payments. Besides credit, NRSP offers training in vocational skills and provides up to 80 percent financing for infrastructure projects in the village. Due to budgetary constraints, only 8.2 percent of the members in our sample had received training prior to the baseline. NRSP records indicate that over the past decade, it has organized more than a million poor households into a network of more than 100,000 COs across the country. In principle, all loans have a joint liability clause at the CO level, but it is seldom enforced. In practice, new loans are often issued to members who belong to a CO with overdue loans.[7]

NRSP has three main credit products: a single installment loan for agricultural inputs (fertilizer, seeds, etc) with maturity of 6 to 12 months; an enterprise loan of up to

[6] Established in 1991, NRSP is modeled after the Aga Khan Rural Support Program, established in the early 1980s as a not-for-profit rural development organization. NRSP, along with Khushali Bank and Kashf Foundation, accounts for approximately 70 percent of the sector's active clients according to MicroWatch, 2008. In 2010, NRSP also obtained a microfinance bank license and began operating as a bank in March 2011, after the study had concluded.

[7] Borrowers are required to find two guarantors, who can be members of the same CO. NRSP appears to use guarantors as a means of exerting peer pressure, rather than enforcing repayment from them.

one year with monthly installments, and a livestock loan of 6 to 12 months with either a single or quarterly or monthly installments. At the time of the baseline, 32 percent of the loans disbursed were enterprise loans, 46 percent were livestock loans and the remainder were agricultural inputs loans. During the experiment, the interest rate on all the loan products was 20 percent per year on a declining balance.[8] The maximum amount that can be borrowed depends on the number of loans successfully repaid. A new borrower starts with a loan limit of Rs 10,000 (USD 167) which can increase in intervals of up to Rs 5,000 per loan cycle until a maximum of Rs. 30,000 (USD 500).[9] As a point of comparison, a cow cost around Rs 60,000 at the time of the baseline. In our sample, 60 percent of borrowers are in the first cycle, 25 percent in the second cycle and 15 percent in the third cycle and above. In addition, 88 percent of the borrowers in the first cycle are borrowing the limit of Rs 10,000 (USD 267) but this percentage declines to 35 and 24 for the second and third cycle respectively. At the fifth cycle the percentage of borrowers with loan amounts at the limit is only 9.4. The fact that many borrowers are not borrowing at the limit should not be taken as evidence against borrowing constraints, as the limit may be too small to make the more productive technology worthwhile. In Figure 1, this is the case if the borrowing limit falls between k_L and $\hat{k}$. The client will only borrow k_L (below the limit), but if offered a larger amount past investment $\hat{k}$, then the client will be willing to borrow and invest in the more profitable technology. The client will be constrained and borrow up to the limit if it falls between $\hat{k}$ and k_H and will be unconstrained and borrow k_H if the limit is larger than k_H.[10]

The experiment was conducted in five branches in the districts of Bahawalpur, Hyderabad, and Attock, spanning different agro-climatic regions of Pakistan.[11] Figure 2 shows the location of the study districts.

We randomly selected 747 COs in the study branches based on membership between 5 and 20 members. In each of these COs, NRSP staff conducted a complete

[8] In November 2008 the interest rate was increased to 25 percent per year.
[9] The exchange rate at the time of the baseline (November 2006) was roughly 60 Rs / USD.
[10] Investment $\hat{k}$ is defined as the level of capital that achieves the same level of profits using the productive technology as investing k_L in the unproductive technology. As a result, the individual is indifferent between either technology.
[11] These branches are as follows: Matiari and Tando Muhammad Khan in Hyderabad, Attock in Attock and Bahawalpur (rural and urban) in Bahawalpur.

listing of the gender and occupation of its members to identify those that were engaged in a non-farm enterprise. Most COs are segregated by gender. In our sample, there are 447 male COs (60 percent), 251 female COs (33.6 percent) and 49 mixed COs (6.5 percent).[12] Using data from this listing exercise, half of the COs were randomly assigned to receive business training while the rest did not (control group).

The timeline of the experiment is reported in Figure 3. A baseline survey was conducted in November 2006. The original sampling framework included all male and female CO members that according to the listing exercise had a non-farm business and five other members selected at random from each CO. In practice, enumerators ended up interviewing everyone that attended a special CO meeting that was called to conduct the baseline survey. Individuals with businesses were encouraged to attend the meeting. The resulting sample consisted of a total of 4,161 members of which 2,532 had a business. The break-up by gender yields 2,144 men (and 1,325 businesses) and 2,017 women, of which 1,207 had a business. The sample accounts for 61 percent of all members and roughly 90 percent of all businesses in the listing exercise. During the meeting, interest in hypothetical business training was elicited in a uniform manner across all COs.

While the baseline was underway, 24 NRSP staff members attended a 31-day "training of trainers" course taught by ECI.[13] In January 2007, trained NRSP staff held orientation meetings in treatment COs to announce the business training. Interested members were asked to sign up for training and to suggest the most convenient time and venue. Training sessions were organized by area, trying to accommodate time and venue constraints, especially for women.

From February to May 2007, 47 business training sessions were held. Appendix A describes the content of the training sessions, which were based on the "Know About

[12] In mixed COs, enumerators had to draw randomly from among male and female members separately.

[13] In October 2006, NRSP submitted the CVs of about 30 staff members (10 in each of the study districts) From these, ECI selected 24 (8 per district) based on their presentation and communication skills, facility with basic math skills, basic computer literacy and diligence. Potential trainers were required to also have 3 to 4 years of experience working with communities and to have at least a Bachelor degree in commerce or a related field. After the training, ECI finalized the list of 18 NRSP staff members who were to offer EDT to CO members. The Training of Trainers had three main modules. The first (11 days) introduced basic business concepts, the key modules of the business training. Trainees also engaged in a business creation exercise (See Appendix A). During the following 10 days, trainers conducted a center assessment (see Appendix A) and selected trainees for a business training session. The third module (10 days) provided teaching resources to deal with both literate and non-literate audiences and gave trainers an opportunity to test their teaching skills through mock training sessions.

Business" modules designed by the International Labor Organization but adapted as a series of role-play and case-studies and thus more hands-on, rather than being lecture-based. Each session lasted 6 days, typically from 9am to 4pm with a 20 minutes tea break and a 40 minutes lunch break, except for the fourth day that participants visited a local market, and the last day that concluded at noon followed by an awards ceremony.[14] Sessions were conducted near the participants' place of residence by two ECI trained NRSP staff and were attended by 25 CO members on average. There were 3 pairs with a male of a female trainer, while 6 remaining pairs were all male. A total of 1,252 individuals (601 males and 651 females) participated in the training and were given a travel allowance, a snack and lunch. Attendance was remarkably high. Around 93 percent of the 50 percent that signed up during orientation attended, and among these, virtually everyone completed the training with full attendance. There are no differences in the uptake of training or attendance by gender.

Appendix Table A1 reports the household and individual correlates of interest in business training (columns 1 to 3) and actual uptake of business training (columns 4 to 6). Perhaps not surprisingly, business owners, more educated clients, risk tolerant and older members as well as officers in the CO tend to be more interested in business training. Among female members, mobility and being less observant of Purdah are also correlated with interest in training. Actual take-up of business training is strongly correlated with interest (among other variables).[15] Furthermore, individual characteristics of female members should be less predictive of actual attendance in business training if women had less decision-making power because some spouses could prevent interested women from attending and vice-versa. Appendix Table A1 reports an R-squared of 0.20 among males (column 5) that is higher than that among females at 0.09 (column 6). In contrast, interest in business training elicited from male clients (column 2) has similar R-squared to that of female clients (column 3).

[14] Given the low levels of literacy, especially among women, the training was adapted to the illiterate population. As an example, checklists contained icons that could be visualized and remembered. In addition, the concept of costing an item was explained by bringing a shirt, taking apart every component and costing each one separately.

[15] While it is not surprising that members that expressed interest in a hypothetical training sign up for it when offered, NRSP staff could have devoted more resources in signing them up. As a result, we interpret the point estimates of columns 4 to 6 of Appendix Table A2 as correlations.

In June 2007, trainers met for a second two day 'training of trainers' workshop and discussed business needs identified during the training sessions. With ECI staff, they identified the right resources and training to support their CO clients. A second set of 2-day sessions were conducted in July 2007.[16]

While recent evaluations of business training programs differ significantly in their method of delivery, intensity, location and implementing organization, in part reflecting a different target population, it is nonetheless informative to compare the business training implemented in our experiment to others reviewed in McKenzie and Woodruff (2014). While most studies target exclusively urban entrepreneurs, this experiment covers a sample of rural microfinance clients engaged in diverse occupations. All training courses reviewed were classroom-based, delivered to groups of individuals with sessions of 15-25 participants per trainer. Ours was more hands-on, included a visit to a market and required participants to set up a business for a day. In addition, our training is relatively more intensive, containing a total of 46 hours of training compared to an average of 28.6 hours, and is taught by the staff of the microfinance institution in contrast to most programs that are taught by professional trainers.

From October 2007 to January 2008 one-on-one follow-up sessions called "Hand-Holding" sessions were organized for all participants in half of the COs that were offered training, selected at random. NRSP trainers would visit the member at their home or place of business once or twice a month and discuss the topics learned, answer questions and suggest solutions to potential problems.[17]

While the business training sessions were being conducted, NRSP identified all the study members that were eligible for the loan lottery. Eligible members had to be borrowers of NRSP in good standing, that is, they were required to have successfully repaid at least one loan on time and to have no overdue loans. Roughly 55 percent of CO members in our sample were eligible (58 percent among male members and 52 percent among women). All eligible members, including those in COs not offered the business

[16] The contents of the second training session included identification of technical/skill training needs, product design and marketing, and choice of input and output markets and distribution systems.
[17] To the extent possible, men were visited by male trainers while women where visited by female trainers, but given that there were 15 male trainers and only 3 female trainers, some women had to be visited by male trainers. Another form of mentoring delivered by volunteer business owners is studied in Valdivia (2013).

training were invited to another orientation session and were given a brochure that explained the loan lottery.[18] Orientations occurred successfully in 596 COs. In the remaining 151 COs orientation meetings could not be held because the CO had either disbanded (95 percent of cases) or was newly formed and thus none of its members was eligible for the lottery.[19] Most loan orientation sessions took place in regularly scheduled CO meetings that lasted about an hour and a half and were delivered by trained NRSP staff to ensure uniformity of message. [20]

During the loan orientation, eligible CO members were informed that they could request a loan of up to Rs. 100,000, roughly up to 7 times the maximum loan size available. The request was appraised by NRSP credit officers, who then determined the loan amount to be approved. Loans with an approved amount larger than the limit set by the number of prior loans (i.e. loan cycle) were forwarded to headquarters, where the results of the lottery for all clients were maintained, irrespective of whether they had applied or not. The lottery was designed with a chance of 50 percent of winning. Lottery winners could borrow the approved amount, while losers could borrow up to their regular loan amount based on their cycle. Although members were encouraged to borrow for productive purposes, in practice there were no restrictions on the use of the loan. In addition, qualifying members who already had an outstanding loan with NRSP were allowed to apply for the larger loan, with the condition that part of the new loan would be used to pay off the outstanding debt.

Eligible CO members had seven months spanning the planting period for the main growing season (from November 2007 to June 2008), to apply for the larger loan. Of the 2,284 eligible CO members, 577 (25.3 percent) applied. NRSP approved 416 loans (72.1 percent) and some had their loan amounts reduced after appraisal. While the median amount requested was approved in full, the average amount approved over amount requested was 81.6 percent. The average loan size approved among lottery winners was Rs 45,095 (764 USD) and Rs 21,654 among lottery losers. Of the customers approved, 202 were assigned to win the lottery (48.6 percent) and 178 ended up borrowing (88.1

[18] See Giné, Mansuri and Picón (2011) for a marketing experiment conducted during the loan orientation meetings using the brochure.
[19] First time borrowers were not eligible to participate in the lottery because they did not have sufficient credit history. They could however apply to the initial loan of up to Rs 10,000.
[20] There were 12 teams of two NRSP staff each in Attock, 29 in Bahawalpur and 7 in Hyderabad.

percent). Among these lottery winners, 62.3 percent took agricultural (lump-sum) loans, 20.5 percent took enterprise loans and the rest took livestock loans. Among the 214 loan applicants that lost the lottery, only 113 borrowed (52.8 percent). Among the reasons cited for changing their mind were time elapsed from request to approval (average time was 2 months), and for losers the fact that the new loan size was not too different from the loan they currently had. This low take-up of larger loans provides the first evidence that only a fraction of clients faced borrowing constraints given the existing loan limits. [21]

A follow-up survey was conducted in December 2008,

3. Data

We use two main sources of data, administrative records from NRSP and survey data collected in November 2006 and in December 2008.

Administrative data

We use NRSP administrative records on every loan taken by borrowers in our sample from November 2006 to November 2009. The data includes the disbursement date, amount, type of loan and repayment performance.

Survey data

Baseline data collected in November 2006, prior to the business training and loan lottery orientations, included questions about the CO member, the member's household, the business if they had one, and the CO. The follow-up survey was similar in structure to the baseline and was collected in December 2008, 2 years after the baseline 22 months after the trainings began and about 13 months after the loan orientation meetings.[22] Summary statistics from the baseline survey are presented in Table 1, and variable definitions are provided in Appendix B.

The average age among CO members at baseline is 38 years, with 3.9 years of education. Households have average landholdings of 3.9 acres and average monthly expenditures of Rs 4,740 which amounts to daily per capita expenditure of roughly 3.30 dollars a day (PPP adjusted). About 61 percent of the households in the sample run at least one business. This percentage is significantly higher than the population average in

[21] According to the model in Appendix C, the distribution of business knowledge may be such that few individuals find it profitable to use technology y_H (see also Figure 1).
[22] At the time of the follow-up, roughly half of the loans taken during the lottery period were still active.

the study areas because households with businesses are more likely to be microfinance clients.[23] Although most businesses have a fixed location and operate all year round, the average scale is small. About 90 percent of businesses do not have a paid employee, and monthly sales are about Rs 8,760 (USD 146). These numbers are typical of micro-entrepreneurs in developing countries (see for example Banerjee and Duflo, 2011).

Columns 7 and 8 of Table 1 report mean baseline characteristics by gender along with the associated *p*-values of the difference in means' t-test (column 9). It is clear that the type of businesses managed by male and female CO members is quite different. While women are primarily engaged in small home based manufacture (handicrafts or tailoring), men are involved primarily in the agribusiness sector which requires much greater contact with markets outside the village. The scale and profitability of male and female businesses is also quite different (see also De Mel et al. 2009). Average sales among male businesses are Rs 13,001 (USD 217) while only Rs 4,104 (USD 68) among businesses run by female CO members. Women tend to operate mainly from home and are less likely to employ paid employees.[24] More importantly, business women report far less decision making autonomy than their male counterparts (see Sathar and Kazi, 1997). Out of a total of 8 decisions on a range of household, individual and business outcomes, women report complete autonomy over roughly 1.76 decisions compared to 3.31 decisions among men. There is also evidence that the selection process to become a CO member differs by gender. Female members tend to have less education, are less likely to run a business and, perhaps relatedly, are also less risk tolerant on a 0 to 10 scale. Female members are also more likely to come from households that have less land wealth, as compared to households of male CO members. This selection of women CO members by wealth is consistent with more stringent female seclusion practices among landed rural households (see Jacoby and Mansuri, 2013).

In sum, there are substantial differences in individual and business characteristics between male and female CO members. Because the process by which women select to

[23] According to the Demographic and Heath Survey conducted in 2006-07, 31 percent of households in rural areas reported having at least one household member engaged in non-agriculture self-employment. Among all the 6,837 microfinance clients in the study COs, roughly 40 percent have a business at the time of baseline.

[24] There is also weak evidence suggesting that female businesses are more of a fall back option: among households of male CO members, businesses are concentrated among the richer households. In contrast, businesses are more prevalent among the poorer households of female CO members.

become CO members and into self-employment may be different from that of men, it will be important to take these characteristics into account when assessing treatment impacts by gender because impacts may be driven by these characteristics rather than gender per se.

Table 2 checks that the random assignment of COs to business training and members to win or lose the loan lottery was successful. Columns (2) and (3) compare mean baseline characteristics, at the member, household and business level, for members in COs that were assigned to business training against those in the control group. Columns (5) and (6) compare individuals assigned to be lottery winners to those assigned to be lottery losers among the subsample of eligible members. Columns (3) and (7) report the *p*-values of the t-test for each comparison.

Overall, we find balance between the two groups. The difference in means for members receiving business training and participating in the loan lottery is significant at conventional levels for only 2 out of 40 variables, such as being an office bearer and reporting having credit constraints for the business training comparison and for 5 out of 40 variables, such as marital status, the index of stress, the index of business knowledge, whether there is household member that has held a hereditary or a political office and business sector for the lottery comparison. These differences, however, are small in magnitude, and while significant, there is no clear pattern that higher values are systematically in the treatment or control group. For example, the group assigned to business training has more members that are office bearers but also more individuals that report credit constraints. We also run a regression of "offered Business Training" against all individual, household and business baseline characteristics reported in Table 2 and find a *p*-value of 0.67, 0.29 and 0.93, respectively, of an F-test that all the covariates are not jointly different from zero. The analogous p-values for the regression using "assigned to be a Lottery Winner" as dependent variable are 0.22, 0.08 and 0.33.

The attrition rate between the baseline and follow-up two years after is 16 percent. Attrition is larger at 22.1 percent among CO members in COs that disbanded. In Appendix Table A2, we check that the attrition rate does not differ by treatment status. In Panel A none of the coefficients are significant at conventional levels but in Panel B, which includes interactions with gender, individuals assigned to be lottery winners are 4

percentage points more likely to be interviewed at follow-up. At any rate, the differential attrition rate is too small to be a source of concern.

4. Theory

In order to understand the impacts of the business training and access to a larger loan, Appendix C develops a simple model of technology choice under borrowing constraints. Here we provide an intuitive discussion and state the main predictions.

We assume that prospective borrowers have no liquid assets and decide how much labor to devote to production or wage work and how much to borrow to purchase capital subject to a limit given by the number of prior loans successfully repaid.[25] Borrowers differ in ability and business knowledge both of which affect the probability that production is successful. If the entrepreneur is unsuccessful, the enterprise is closed and he or she consumes nothing. While business knowledge is known to both the borrower and the lender and can be increased with training, the ability level is unknown but revealed through training. After the week of training in contact with other participants, and exposure to successful businesses during visits to nearby markets, participants realize how likely they really are to succeed as entrepreneurs.

We assume that borrowers can produce using a subsistence technology that is unproductive but does not require capital or one of the two technologies in Figure 1 that require capital. In the absence of the loan lottery, the only feasible technology in Figure 1 is the one that requires low investment and has a low return, irrespective of the level of business knowledge. Once larger loans become available, the high-return – high investment technology becomes feasible. We therefore model explicitly the existence of a technology-based poverty trap where individuals will choose among technologies depending on borrowing limits, ability and their level of business knowledge.

With this setup, the model predicts that business training and access to the larger loan will have the following effects:

1) Business training increases the probability of business survival as it increases business knowledge. Consequently, it also increases net income.

[25] While individuals may not simultaneously engage in self-employment and wage labor, we consider the decision-maker to allocate all family labor, and thus both self-employment and wage work are possible simultaneously.

2) Business training improves financial and labor decision-making. In particular, individuals adjust their labor supply and borrowing choices once their ability is revealed through training. Individuals of low ability will devote less time to production and may decide not to borrow altogether while individuals with high ability will devote more time to the business and borrow larger amounts.
3) Access to a larger loan will increase borrowing as individuals with large enough business knowledge switch to the high return – high investment technology.

The model provides a useful framework to assess the results, but it abstracts from several aspects of the context of the experiment. First, the model assumes that everyone offered training would participate in it. Put simply, there is perfect compliance. Second, household dynamics are not modeled, and in particular it is assumed that decision-makers have the power to decide their labor supply and credit demand. As we discuss in the next section, the model is better suited for explaining the decision-making process of male clients, who can exercise requisite levels of agency.

5. Empirical Strategy and Results

By virtue of the design, clients are in one of four groups: (i) offered business training (BT) and assigned to be a lottery winner (LW), (ii) BT but no LW, (iii) no BT but LW and (iv) no BT nor LW. Because both treatments (BT and LW) are assigned randomly, their separate and joint impact on various business, household and member outcomes can be estimated via the following OLS regression equation:

$$Y_{ijb1} = \beta_1 BT_{ijb} + \beta_2 LW_{ijb} + \beta_3 BT \text{ and } LW_{ijb} + \gamma X_{ijb} + \delta Y_{ijb0} + \varepsilon_{ijb,} \quad (1)$$

in case both baseline and follow-up data were collected, or

$$Y_{ijb1} = \beta_1 BT_{jb} + \beta_2 LW_{ijb} + \beta_3 BT \text{ and } LW_{ijb} + \gamma X_{ijb} + \varepsilon_{ijb,} \quad (2)$$

when only follow-up data exist. In both specifications, Y_{ijbt} is a given outcome for individual *i* in CO *j* in branch *b* at time *t* (*1* for follow-up, *0* for baseline), BT_{ijb} is a dummy that takes value 1 if business training was offered in CO *j* in branch *b* but individual *i* was not assigned as winner in the loan lottery, LW_{ijb} is a dummy that takes value 1 if individual *i* in CO *j* in branch *b* was assigned to be a lottery winner but CO *j* was not offered business training, and *BT* and LW_{ijb} is a dummy that takes value 1 if CO *j* in branch *b* was offered business training and individual *i* in CO *j* was assigned to be a

lottery winner. The vector X_{ijb} contains the stratification variables (gender, business ownership, eligibility for loan lottery and branch dummies). The term ε_{ijb} is a mean-zero error and because the unit of randomization for business training is the CO, standard errors are clustered at this level (Moulton, 1986). The coefficient β_1 measures the impact of being offered business training alone, the coefficient β_2 measures the impact of being assigned a winner of the loan lottery alone while the combined effect of being offered business training and winning the lottery is measured by β_3. We report the *p*-value of a t-test that $\beta_1 = \beta_3$, $\beta_2 = \beta_3$ and that $\beta_1 = \beta_2$.[26]

We focus on intent-to-treat estimates because as mentioned before, not every CO member offered training chose to participate, nor did every member eligible for a larger loan, apply for one. We do not report average treatment on the treated estimates because non-participants may well have been influenced by participants in their own CO, given the frequent interaction between CO members, thereby violating SUTVA (Rubin, 1974).

Given that we examine a wide range of business, household and member outcomes we follow Kling, Liebman, and Katz (2007), Karlan and Valdivia (2010) and Drexler, Fischer and Schoar (2014) and construct summary measures of standardized treatment effects for several families of outcomes. Within each class or family, we rescale each outcome such that larger values indicate more desirable values and convert each measure to a z-score such that $z_{ijk} = (y_{ijk} - \mu_k)/\sigma_k$, where μ_k and σ_k are the mean and standard deviation of the variable y_{ijk} for CO members that were not offered business training nor were assigned to be winners of the lottery. For each class, we then construct a summary measure $Z_{ij} = \sum_k z_{ijk}/k$.

While this summary measure is useful when assessing changes in relative terms, it is less useful if one is interested in the absolute size of the effect. For this reason, Appendix Tables A4 and A5 report the results for each individual outcome by family.

5.1 Business Outcomes

[26] Notice that an alternative specification to (1) would be

$$Y_{ijb1} = \beta'_1 BT_{ijb} + \beta'_2 LL_{ijb} + \beta'_3 BT_{ijb} \, x \, LL_{ijb} + \gamma X_{ijb} + \delta Y_{ijb0} + \varepsilon_{ijb,}$$

where the combined effect of the business training offer and winning the lottery would be the sum of $\beta'_1 + \beta'_2 + \beta'_3$. We prefer specification (1) because it is easier to interpret.

Panel A of Table 3 reports the intent to treat effects on business related outcomes. The dependent variable in column 1 is an aggregate index of business knowledge that includes questions on competition and basic business concepts, not necessarily taught during the training. As mentioned, Appendix Table A4 reports the intent to treat impacts for the individual items that are used to construct the aggregate index. The definition of the aggregate variables is reported in Appendix B. Because these aggregates include some variables that are only observed at follow-up, the number of observations for the aggregate is 3,494 instead of 4,161 observations included in the baseline.

Consistent with the assumption of the model, we find that business training (and not being assigned a winner of the lottery) increases business knowledge for all CO members interviewed. This is remarkable because business knowledge was assessed 18 months after the business training was implemented. Given that a substantial amount of time has elapsed from training to testing, it is plausible that the acquired business knowledge will not be forgotten. The next two columns report business creation in the household with (column 2) or without (column 3) the CO member's involvement in the business. The sample includes again all study CO members. We find no effect of business training on business creation either with or without access to the larger loan. We next examine business failure among business owners at baseline and again find no effect. The point estimate on business training is negative and large, but so is the standard error. The model is silent on business entry as it assumes that all households are simultaneously involved in self-employment and wage work, but it does predict that business failure should be lower among clients offered business training.

Columns 6 and 7 report intent to treat impacts on operations and business practices for the sample of business owners at baseline. We find that the offer of business training leads to improvements in business practices such as recording the sales on a piece of paper as well as separating business from household accounts by recording money taken for household needs. There are also some improvements in business operations, especially among business owners assigned as winners of the lottery.[27] In

[27] Appendix Table A4 shows that the reason there is no overall improvements in business operations for the sample of CO members offered business training is due to opposing changes in individual items. In particular, business training encouraged entrepreneurs to secure a buyer which led to reductions in marketing and the need to open the business to the public.

particular, Appendix Table A4 shows that businesses of CO members assigned to be lottery winners are more likely to operate all year round and to have a secured buyer. Perhaps more importantly, and consistent with the larger loan being used to purchase capital, we find a higher level of business assets measured using principal component analysis. These improvements in business operations, however, do not translate into higher sales and profits (column 7).

Panel B of Table 3 includes interactions with gender. Even though the effects on business knowledge are only significant at conventional levels for male CO members that were assigned as lottery winners and were offered business training (*BT* and *LW*), female CO members also increase their business knowledge by about 11 percent of a standard deviation (*p*-value 0.05). Column 3 shows that households of female CO members in the *BT* and *WL* group are more likely to create a business *without* the CO member's involvement, compared to households of male CO members. This is suggestive evidence that spouses or other household members may use the funds borrowed by the female CO member to set up a business without her involvement, as reported in the review of empirical evidence on the impact of micro-credit in Pakistan by Hussein and Hussein (2003) and the more recent report by the World Bank (2012). Both argue that most female borrowers have only partial control over the loans they take and that they are required to obtain written permission from their husbands to borrow. [28]

Consistent with the model's prediction, column 4 shows that among male business owners, business training led to a reduction in business failure of 6.1 percent compared to the control group. Business failure is also lower among men in the *BT* and *LW* group, as the model predicts, but is not significant at conventional levels. There is no effect at all among women (*p*-value is 0.98 in the *BT* group). The overall business failure rate between baseline and follow-up (2 years) among business owners that were not offered training and were not assigned winners is 40 percent, which is somewhat higher than that of other countries (Mead and Liedholm, 1998). The model predicts that a lower business failure rate is desirable. Consistent with this prediction, more than three quarters of all entrepreneurs whose businesses fail report not being actively employed in the

[28] Most microfinance institutions in the country have now removed such restrictions on female borrowers.

follow-up survey and experience a decline in per capita household expenditure, relative to the owners of businesses that survived.[29]

Columns 5 and 6 show treatment effects on business practices and operations among men, but again not among women. However, given that business training led to differential attrition among male businesses, we follow Lee (2008) and construct non-parametric bounds on the same business outcomes.[30] The bounds, presented in Table 4, create intervals that are rather wide, and so for all aggregate categories the impact of business training on male business could be positive and significant or negative and significant, depending on the assumptions about the characteristics of businesses in the control group that attrite. Appendix Table A3 runs a regression with business failure as the dependent variable against baseline characteristics for businesses in the control group. Land wealth and interest in business training are negatively correlated with business failure while credit constraints are positively correlated, all suggesting that business failures may be driven by worse quality entrepreneurs operating at a smaller scale.[31] Consequently, it is likely that business training led to a positive and significant increase in business income among male businesses.[32]

5.2 Individual and Household Outcomes

Table 5 examines the impact of the two treatments on household outcomes. In Panel A, CO members offered business training (irrespective of the lottery assignment) show a significant increase of roughly 7 percent of a standard deviation in assets and expenditures. According to Appendix Table A5, showing the individual components of the aggregated outcomes, both monthly expenditures and housing quality improved significantly. Among individuals not offered business training, those assigned to be

[29] The model also predicts that business failure will be higher among lottery winners if the most productive technology H were riskier in the sense that $p_L^a(\mathrm{x}) > p_H^a(\mathrm{x})$. Since this is not supported by the data, we conclude that $p_L^a(\mathrm{x})$ and $p_H^a(\mathrm{x})$ must be similar.

[30] The idea behind Lee (2008) bounds is as follows. Since attrition in the control group is 6.1 percent larger than in the treatment group, 115 observations from the treatment group are eliminated to make both groups comparable. The upper bound is computed as the difference between the treatment and control group when observations are removed from the bottom of the distribution. Similarly, the lower bound is computed by removing observations from the top of the distribution.

[31] We note that business knowledge is negatively correlated with business failure, as the model predicts, but it is not statistically significant. Business knowledge is however positively and significantly correlated with having a business, risk tolerance, stress and being a CO office bearer (results not reported).

[32] In Appendix Table A3 we do not find that individual characteristics are more predictive of actual business failure among males. The R-squared is 0.05 for both males (column 2) and females (column 3).

lottery winners also increased household expenditure and assets but only by about 4 percent of a standard deviation (the increase is not statistically significant). The difference between this increase and that of members offered business training is not statistically significant either (p-value of 0.61 or 0.27 depending on the comparison, as reported in the table).

While CO cohesion was not emphasized in the training, it is interesting that business training fostered more cooperation. In column 2 we find an increase in the aggregate that comes from increases in the collective purchase and sale of inputs and outputs and an increase in the borrowing and lending between CO members (Appendix Table A5). In column 3, all CO members, either assigned to be lottery winners or offered business training also report a better outlook on life by 9.5 to 14.1 percent of a standard deviation in the aggregate. Satisfaction with life increases for everyone, while those offered business training also increase the stress index (Appendix Table A5). Finally, the index of decision-making power (column 4) does not change as a result of the treatments.

In Table 3 we found no improvement in business sales or profits as the model would predict, yet Table 5 shows significant increases in expenditures and assets. What might thus reconcile this apparent contradiction? First, we note that the Lee (2008) bounds reported in Table 4 are consistent with increases in sales and profits. In addition, there are households engaged in self-employment activities such as farming and livestock rearing that do not own a non-farm business and yet may have benefited from business training. Likewise, there are business-owning households whose main activity may not be self-employment. Following the spirit of the model we define a household as self-employed if household income comes exclusively from self-employment (both farm and non-farm) activities. According to this definition, Table 1 reports that 27 percent of households can be classified as self-employed.[33] In Appendix Table A6, we check whether the gains by households offered business training are concentrated among the self-employed and we find that this is indeed the case. Self-employed households that receive training increase business knowledge by 8.2 to 9.6 percent of a standard deviation (p-values of 0.09 and 0.12) depending on the lottery assignment relative to those not

[33] Twenty eight percent of business owners and 15.5 percent of non-business owners are self-employed households. This indicates that even among business owners, income from business may not be large, relative to other sources of household income.

offered business training. In contrast, households that are not self-employed only increase business knowledge by 4.7 and 4.8 percent of a standard deviation, and these increases are not statistically significant. The same pattern arises with the expenditure and assets aggregate. Self-employed households offered business training experience increases of 17.3 and 16.3 percent of a standard deviation (p-value of 0.00 in both cases) while households that are not self-employed only gain 4.3 and 1.6 percent of a standard deviation, neither significant at conventional levels.

We now turn to Panel B of Table 5 to examine the impacts on individual and household outcomes by gender. By and large, the impacts on expenditure and assets (column 1) and CO Cohesion (column 2) are concentrated among male CO members. Assets and expenditures increase by 11 percent of a standard deviation among male members offered BT only and by 14.3 among male CO members offered BT and assigned to be lottery winners. In contrast, women's outlook on life improves substantially, which is surprising given the lack of improvements in the other aggregates.

To sum up, female CO members improve business knowledge but do not seem to put it into practice in their existing or new businesses. As a result, we see no improvements in expenditures and assets or CO cohesion. In contrast, and more consistent with the model, business training leads to lower business failure and likely improvements in business practices, operations and sales for men in addition to improvements in expenditure and assets and CO cohesion.

5.3 Exploring Gender Differences

Given the results just described, a question of interest is why women fail to capitalize on the training offered. There are several potential answers. First, given the substantial differences between male and female CO members and the process by which women select into CO membership and into self-employment, gender differences may simply reflect differences in other characteristics. These male-female differences may stem from biological factors or from "learned" social behavior, that is, may be the result of culture and the environment (Gneezy, Leonard, and List 2009, for example and World Bank, 2012). Similarly to del Mel et al (2009), we address this possibility by including a range of controls and their interaction with the treatment dummies in the specifications of

Table 5 and business knowledge of Table 3, column 1.[34] Appendix Table A7 report the results. We find that the coefficients of the interactions of treatment dummies with genders are smaller in magnitude but qualitatively, the results are the same as those reported in Table 5.

Second, one might also argue that given the low levels of literacy among women, they were unable to understand the training, or that women attended training sessions delivered by trainers of poorer quality. As we have noted in Panel B of Table 3, however, business training did lead to an increase in business knowledge among women comparable to that of men, so lack of understanding is not the issue. In addition, the same team of trainers taught both male and female sessions. Related, as discussed in Section 2, we note that a random sub-sample of business training participants were selected for follow-up visits ("Hand-Holding") after the training had concluded. The goal of these visits was to provide entrepreneurs an opportunity to discuss the concepts learned during business training and to ask specific questions about how to run their business. Appendix Table A8 reports the impact of Hand Holding on the same aggregates as Table 5. The sample includes the 1,140 clients that were offered business training, out of the 1,252 individuals that were successfully interviewed during follow-up. We find that Hand Holding had no effect on any aggregate variable and that this lack of impact does not vary by gender.[35] This is consistent with the view that training was delivered successfully and that the barriers that women face as entrepreneurs may not be overcome by more intense visits.[36]

A perhaps more convincing explanation of why impacts differ by gender comes from the fact that in Pakistan, as in other South Asian and Middle Eastern countries, labor markets are segregated by gender (see Samina and Gooher, 2003). According to the ILO (2010), female labor force participation in Pakistan was only 22 percent in 2009, compared to 52 percent worldwide. In our data, while most male CO members who lack a non-farm a business at baseline are involved in other self-employment activities

[34] We include risk aversion, education, landholdings, digit span recall and interactions of these variables with treatment dummies.
[35] Hand Holding did not have any impact either on aggregates other than those in Table 5 (results not reported).
[36] In conversations with trainers, some mentioned that they dropped one of the two scheduled business visits, after realizing that entrepreneurs in the sample did not want them. While male entrepreneurs reported not needing the mentoring, some female entrepreneurs were reluctant to be visited by a male.

(mainly agriculture) or wage work, 71 percent of females report staying at home without a primary occupation. One of the reasons for the limited female labor supply may be the prevalence of social norms about the role of women as caregivers.

We explore this hypothesis by examining self-reported time allocation during the day prior to when the follow-up survey took place. Women do spend a lot more time in household chores than men (6.6 hours for women compared to 2.3 for men) and about half as much time in the business than their male counterparts (2.9 versus 5.4 hours among business owners). The spouses of CO members behave along similar gender lines, that is, female spouses of male CO members show similar hours in household chores and the business as female CO members and vice versa.

Finally, the same social and cultural norms that restrict female labor supply also affect women's mobility outside the home. In a study of female entrepreneurs in Pakistan, Roomi (2005) finds that the social unacceptability of females interacting with unrelated males is responsible for the low number of female borrowers (less than 40 percent in Pakistan in 2009) compared to more than 85 percent in India or Bangladesh. The lack of mobility also affects women's involvement in the business. Since women cannot sell products or purchase inputs in the market, their decision-making power is limited. In our data, 40 percent of female CO members involved in a business report that all business decisions are made by their husband. Indeed, not only do women spend less time in the business, the share of time devoted to managerial activities is also lower (16 percent for women compared to 27 percent for men). Therefore, even if one argued that business training could have improved business performance because better decisions about production and marketing, etc. may not require additional time, the fact is that women show no improvement because they have little control over the businesses they are involved in.

5.4 Labor Supply

We have argued that female labor supply is restricted, and indeed Panel B of Table 6 shows that female labor supply in the business does not respond to any of the treatments, either for females or their male spouses. Women in the *LW* and the *BT* and *LW* groups do reduce the labor supply in agriculture but the overall impact is small because women spend only 0.4 hours on average in agricultural activities. Male CO

members seem to devote more time to business activities in the *BT* groups (p-value is 0.14).[37] These results however may mask important heterogeneity in labor supply responses as highlighted in the model, if business training also revealed the ability of individuals in self-employment activities.

To explore this dimension of heterogeneity, we first compute two proxies for ability based on the ex-ante probability of loan default and growth in monthly expenditures. In particular, we take the sample of CO members not offered business training nor assigned to be lottery winners and run a regression of either an indicator variable for whether the individual has at least one loan in default at maturity (among borrowers) or the difference between follow-up and baseline in log expenditures against individual characteristics measured at baseline. The results are in Table A9. We then use the estimated coefficients to predict these proxies for ability for every CO member in the sample. Table 7 reports the results of a regression equation with a dummy for being offered business training and its interaction with each of our proxies for ability. The coefficient on this interaction term reveals the extent to which the labor supply response of those offered business training varies by ability. Standard errors are bootstrapped with 2000 repetitions preserving the CO structure because the ex-ante probability of default is a generated regressor.[38]

Consistent with the model, male CO members offered business training adjust their labor supply according to their (revealed) ability, compared to those not offered training. In particular, according to Panel B, male CO members with a probability of default corresponding to the 25th percentile devote 0.15 more hours to the business relative to those not offered business training in the same percentile of default, while individuals with a probability of default in the 75th percentile devote around 3.7 fewer hours.[39] A similar pattern is observed in column 2 when ability is measured by the growth in expenditures (normalized). An increase of one standard deviation in ability results in an increase of 0.26 hours spent in the business among those that were offered training,

[37] Male spouses in households of female CO members in the *BT* and *LW* group where new businesses were created (see Table 3, column 3) reduce labor supply in agricultural activities but we fail to see an increase in labor supply in business activities (column 4).
[38] In each replication, we re-sample COs from our original data (which preserves the original CO-level clustering), compute predicted repayment based on the new sample, and re-run the regression in question using the new value of predicted repayment for that replication. See Efron and Tibshirani (1993) for details.
[39] These are the reported marginal effects of the truncated expected value of hours worked.

although the result is not significant at conventional levels. Columns 3 and 4 report hours of paid work as the dependent variable and, as expected, they exhibit the reverse pattern, though results are again not significant.[40] As before, female labor supply does not vary by ability or treatment.

5.5 Loan Uptake and Repayment

We now turn to the impacts on loan demand and repayment. We use administrative data on 542 loans disbursed after November 2006 that matured from February 2007 to November 2007, the period before the loan lottery and on 1,815 loans disbursed from November 2007 to November 2008, the period during which the lottery was available until 5 months after the lottery. We have repayment data from February 2007 to November 2009, at which point all loans had matured.

Table 8 presents the results on loan uptake (column 1), loan size (column 2) and default (columns 3-4) before the lottery. We measure default as the percentage of the due amount that had not been repaid by the 20th of the month (column 2) and at maturity (column 3).[41] While there are no treatment effects before the lottery, the loan lottery leads to an increase in the loan size among winners. The effect sizes are however small. The ITT estimate is an increase of Rs 1,307 or USD 22.

The model predicts that repayment should be lower among clients offered business training as increased business knowledge increases the probability of business success and thus repayment. However, default among controls both by the 20th of the month and at maturity is very low at less that 2 percent. During and after the lottery period, loan sizes are higher among lottery winners but there is no increase in default. The model can rationalize the same default among lottery winners by assuming that the high return – high investment technology is as risky as the low return – low investment one. However, contrary to the results, the model does predict that repayment should be lower among those that were offered business training.

[40] Hours spent in agricultural activities show a similar pattern to that of columns 1 and 2 but the results are not statistically significant (not shown).

[41] NRSP uses the repayment of loans by the 20th of each month when an installment is due as an early warning signal. Repayment by the 20th of the month is used to trigger the bonus scheme of credit officers (see Giné, Mansuri and Shrestha (In Progress) for details on an evaluation of two incentive schemes in NRSP).

In Panel B we explore gender differences and once again find that effects are concentrated among male CO members. Men offered business training are 4.4 percentage points more likely to borrow, representing an increase of 15 percent in the probability of borrowing, relative to those not offered business training. The model predicts a higher likelihood of borrowing if training makes technology *S* (which does not require capital) less attractive to participants, shifting them towards technologies that require some capital and hence a loan.[42] Since only lottery winners have an incentive to borrow when they already have an existing loan, the model predicts that the probability of borrowing should also be higher among lottery winners. Indeed, Table 8 column 5 indicates that lottery winners do increase loan uptake by 5.8 percentage points.[43]

Male lottery winners also take our larger loans, but the differences remain small (Rs 1,698 or USD 29). Female CO members assigned to be lottery winners (or offered business training) borrow significantly less than their male counterparts. As for repayment, while there is lower default among women offered business training and assigned to be lottery losers, women assigned to be lottery winners have significantly higher amounts due by the 20th of the month, but not at maturity.[44]

In Table 7 we also explore whether business training led to more informed financial decisions and thus less scope for mistakes (column 5). Again, consistent with the model, male CO members with a lower ex-ante probability of default are more likely to borrow during the lottery if they were offered business training. Taken together, the results of Table 7 are remarkable because they suggest that training leads to increased knowledge about one's entrepreneurial ability thus contributing to better labor and financial decisions. The fact that effects are concentrated among male CO members suggests again that females are restricted in their labor supply and may not be able to decide whether and how much to borrow on their own as they need the approval of their husbands.

[42] More formally, the probability of borrowing among individuals offered business training will be higher if $F(\underline{x}^e) > \lambda F'(\underline{x}^H) + (1-\lambda)F'(\underline{x}^L)$.

[43] According to the model the increase in loan uptake is given by $(1-\theta)\left(1-F(\underline{x}^e)\right)$.

[44] This is consistent with evidence that women borrow but provide the proceeds to their husbands or another male household member. Administrative data from the lender for this time period show that about 65 percent of loans taken out by female borrowers are not used by them but by their husbands or sons.

We emphasize that this "learning" mechanism is distinguishable from a story where training simply increases the probability of success in business and thus of repayment because ex-ante worse borrowers have a *lower* probability of borrowing and devote *fewer* hours in the business compared to the control group. If training had only increased the probability of success for more able clients, then ex-ante worse clients would borrow the same as individuals in the control group.

5.6 Child Labor

Because both treatments may raise household labor productivity, we also study children's schooling outcomes. On the one hand, given that schooling is a normal good, higher net income should translate into better schooling outcomes (income effect). On the other, higher household labor productivity raises the opportunity cost of children's time (price effect), so the net effect is ambiguous. Table 9 shows that children, especially boys, residing in households of a male CO member assigned to be a winner of the lottery, were about 9 percent more likely to be absent during the last school day, suggesting that the price effect dominated the income effect.[45]

7.Benefit-Cost Analysis

Since we find neither an increase in default nor an increase in the workload of credit officers handling larger loans, we conclude that these larger loans are profitable for the lender.

The gains from business training to the lender can be obtained from Table 8. The combined increase in profits due to higher loan disbursement as a result of business training (from columns 1 and 5) is about Rs 138 (2.34 USD) per person and year or Rs 735 (12.45 USD) per person using the average 6 years that individuals remain as clients of NRSP and a 5 percent interest rate to compute the present value. The gains to the client as a result of increased expenditures (Table 5, column 1) do not benefit the lender directly but are large. The increase in household expenditure is about Rs 2726 (46 USD) per year

[45] Girls from female CO members that were offered business training also appear to work more for income (column 6). Since these households experience the highest loan repayment rates (Table 8, column 6), the proceeds from the children labor may have been used towards repayment.

or Rs 14,529 (246.25 USD) using again the same (conservative) duration spell of individuals as clients and interest rate to compute the present value.[46]

The provision of training involves two main costs. First, the one-time costs of developing the materials for trainers and trainees as well as the transport, lodging and salaries for the training of trainers (NRSP staff). Second, the recurring costs of training clients including the actual training sessions as well as the travel allowances and salaries of the staff involved. The cost per trainee if the one-time costs were included is USD 126.32 and USD 20.44 if they are not. Since the one-time fixed cost can be amortized over many trainees (not just the ones trained in the study), we only include the recurring costs in the benefit-cost calculation. The net benefit per individual offered training to the lender is therefore -8 USD and around 225.80 USD to the client. In other words, the lender loses money by offering training, while the client would benefit even if he paid for it.

7.Conclusions

In this paper we take borrowing and managerial capital constraints as the two main barriers to firm growth in developing countries. The experimental design alleviates each potential barrier in turn by offering a subset of the borrower groups an 8 day long business training course and the opportunity to participate in a lottery for a loan up to 7 times the average loan size. We find that offering business training leads to improved business and household outcomes, but only among men.

The gender differences we find are not unique to the context we study. De Mel et al. (2009) study a comparable sample of female entrepreneurs in Sri Lanka and find that they tend to overinvest in fixed assets relative to male entrepreneurs, consistent with the idea that investment in fixed assets is a (costly) strategy to protect resources that might otherwise be expropriated by men in the household. Using a similar experimental design with a larger sample that includes businesses with five or more employees, Fafchamps et al. (2014) find that small female businesses in Ghana are very similar to those in Sri

[46] While the average spell of individuals as clients is the correct duration to compute the benefit to the lender, one may argue for a longer duration when computing the private benefits to the client from increased expenditure.

Lanka (and in this study) in that they do not benefit from capital injections. However, female owners of larger businesses, who report full decision-making power, are able to generate profits in response to treatment. In sum, the ability of women to capitalize on business training or increased access to capital seems to depend not only on the social context, more broadly but also on their level of agency.

We also find positive returns to offering larger loans for the lender insofar as the offer of larger loans led to increased lending without a rise in default. The benefits from relaxing borrower constraints were more modest for clients, however. Perhaps because in the context we study, the prevailing loan limits were adequate for most clients. In contrast, while clients do benefit from the offer of business training, the lender realizes negative returns. This may explain why only a third of the reporting institutions in the MIX Market data claim to offer enterprise skill development training.

Despite these encouraging results, we note that ninety percent of businesses in our sample have no hired employees and most business owners have low levels of literacy. They are therefore "subsistence" entrepreneurs, that is, individuals that engage in self-employed activities to survive and perhaps provide employment to family members (Schoar, 2010; Woodruff, 2006). However, even if the impact of these businesses on the aggregate economy is small, they do account for a large share of the population and as a result, business training could serve both as an effective poverty alleviation strategy, as well as a screening device for the provision of microcredit.

References

Banerjee, Abhijit and Esther Duflo. 2008. "What is Middle Class About the Middle Classes Around the World?" *Journal of Economic Perspectives* 24(3): 61-80.

Banerjee, Abhijit and Esther Duflo. 2011. *Poor Economics*. PublicAffairs.

Banerjee, Abhijit V, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan. 2010. "The Miracle of Microfinance? Evidence from a Randomized Evaluation." *MIT mimeo*.

Banerjee, Abhijit and Andrew Newman. 1993. "Occupational choice and the process of development." *Journal of Political Economy* 101 (2): 274– 298.

Berge, Lars Ivar Oppedal , Kjetil Bjorvatn and Bertil Tungodden. Forthcoming. "On the role of human and financial capital for microenterprise development: Evidence from a field experiment in Tanzania", *Management Science.*

Blanchflower, David G. and Andrew J. Oswald. 1998. "What Makes an Entrepreneur?" *Journal of Labor Economics* 16(1): 26-60.

Bloom, Nicholas, and John Van Reenen. 2010. "Why do management practices differ across firms and countries?" *Journal of Economic Perspectives*, 24(1): 203-224.

Bruhn, Miriam, Dean Karlan, and Antoinette Schoar. 2011. "What Capital is Missing in Developing Countries?" *American Economic Review Papers and Proceedings.*

Buera, Francisco J. Joseph P. Kaboski, and Yongseok Shin. 2011. "Finance and Development: A Tale of Two Sectors." *American Economic Review* 101(5): 1964-2002.

Calderón, Gabriela, Jesse M. Cunha and Giacomo De Giorgi, 2013. Business Literacy and Development: Evidence From a Randomized Controlled Trial in Rural Mexico, *Barcelona GSE Working Paper No. 742*.

De Mel, Suresh, David McKenzie and Christopher Woodruff. 2009. "Are Women More Credit Constrained? Experimental Evidence on Gender and Microentreprise Returns" *American Economic Journal: Applied Economics*, 1(3):1-32.

De Mel, Suresh, David McKenzie and Christopher Woodruff. 2008. "Returns to Capital: Results from a Randomized Experiment." *Quarterly Journal of Economics* 123(4): 1329-72.

de Mel, Suresh, David McKenzie and Christopher Woodruff. 2014. "Business training and female enterprise start-up, growth, and dynamics: Experimental evidence from Sri Lanka." *Journal of Development Economics* 106: 199-210.

Drexler, Alejandro, Greg Fischer and Antoinette Schoar. 2014. “Keeping it Simple: Financial Literacy and Rules of Thumb” *American Economic Journal: Applied Economics* 6(2): 1-31.

Efron, Bradley and Robert Tibshirani, *An Introduction to the Bootstrap*, Monographs on Statistics and Applied Probability 57, Chapman Hall, 1993.

Emran, M. Sahe, AKM Mahbub Morshed and Joseph Stiglitz. 2007. “Microfinance and Missing Markets”, mimeo.

Fafchamps, Marcel, David Mckenzie, Simon Quinn and Christopher Woodruff. 2014. “Microenterprise Growth and the Fly-paper Effect: Evidence from a Randomized Experiment in Ghana”. J*ournal of Development Economics* 106: 211-226.

Gindling, T.H. and David Newhouse. 2014. “Self-Employment in the Developing World”, *World Development* 56: 313-331.

Giné, Xavier and Robert M. Townsend. 2004. “Evaluation of Financial Liberalization: A General Equilibrium Model with Constrained Occupation Choice.” *Journal of Development Economics* 74: 269-307.

Giné, Xavier, Ghazala Mansuri and Mario Picón. 2011. “Does a Picture Paint a Thousand Words? Evidence from a Microcredit Marketing Experiment”, *World Bank Economic Review* 25(3): 508-542.

Giné, Xavier, Ghazala Mansuri and Slesh Shrestha. In Progress. Performance Incentives in Multi-Mission Organizations. World Bank.

Gneezy, Uri, Kenneth L. Leonard, and John A. List. 2009. “Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society.” *Econometrica* 77 (5): 1637–64.

Goheer, Nabeel A. 2003. *Women Entrepreneurs in Pakistan: How to Improve Their Bargaining Power.* Geneva: International Labour Organisation.

Jacoby, Hanan G. and Ghazala Mansuri. 2011. "Crossing Boundaries: Gender, Caste and Schooling in Rural Pakistan," Policy Research Working Paper Series 5710, World Bank.

Holtz-Eakin, D., D. Joulfaian and H. S. Rosen. 1994a. “Sticking it Out: Entrepreneurial Survival and Liquidity Constraints” *Journal of Political Economy* 102(1): 53-75.

Holtz-Eakin, D., D. Joulfaian and H. S. Rosen. 1994b. “Entrepreneurial Decisions and Liquidity Constraints”, *Rand Journal of Economics*, 23 (2): 334-347.

Hussein, Maliha and Shazreh Hussein. 2003. “The Impact of Micro Finance on Poverty and Gender Equity: Approaches and Evidence from Pakistan,” Pakistan Micro Finance Network working paper.

Hsieh, Chang-Tai and Peter Klenow. 2009. "Misallocation and Manufacturing TFP in China and India." *Quarterly Journal of Economics*, 124(4): 1403–1448.

International Labor Organization. 2010. *Women in Labor Markets: Measuring Progress and Identifying Challenges*. ILO: Geneva.

Kamal, Samina. 1997. *Women, empowerment and poverty alleviation in South Asia: The dual benefits of Microcredit.* South Asia Poverty Alleviation Program, UNDP.

Karlan, Dean S, and Martin Valdivia. 2010. "Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions." *Review of Economics and Statistics* 93(2): 510-527.

King, Robert G. and Ross Levine. 1993. "Finance and Growth: Schumpeter Might be Right." *Quarterly Journal of Economics*, 108(3): 717-737.

Kling, Jeffrey R, Jeffrey B Liebman, and Lawrence F Katz. 2007. "Experimental Analysis of Neighborhood Effects." *Econometrica* 75:83-119.

Lee, David S. 2008. "Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects" *Review of Economic Studies*, 76(3): 1071-1102.

Lucas, Robert E. 1978. "On the size distribution of business firms." *Bell Journal of Economics* 9(2): 508-523.

McKenzie, David and Christopher Woodruff. 2014. "What are we learning from business training and entrepreneurship evaluations around the developing world?" *World Bank Research Observer* 29(1): 48-82.

Mead, Donald and Carl Liedholm. 1998. "The Dynamics of Micro and Small Entreprises in Developing Countries" *World Development***,** 26 (1): 61-74.

Moulton, Brent, "Random Group Effects and the Precision of Regression Estimates" *Journal of Econometrics*, 32, 3, August 1986, p. 385-397.

Paulson, A. R. Townsend and A. Karaivanov. 2006. "Distinguishing Limited Liability from Moral Hazard in a Model of Entrepreneurship." *Journal of Political Economy*, 144(1): 100-144.

Pearlin L.I., M.A. Lieberman, E.G. Menaghan, and J.T. Mullan. 1981. "The stress process." *Journal of Health Social Behavior* **22:**337-356.

Roomi, Muhammad Azam. 2005. Women Entrepreneurs in Pakistan: Profile, Challenges and Practical Recommendations. University of London, School of Management.

Rubin, D.B. 1974. “Estimating causal effects of treatments in randomized and nonrandomized studies.” *Journal of Educational Psychology* 66: 688–701

Sathar, Z. A. and S. Kazi. 1997. Women's Autonomy, Livelihood and Fertility. A Study of Rural Punjab. Islamabad: Pakistan Institute of Development Studies.

Schneider, Friedrich, Buehn, Andreas and Claudio E. Montenegro. 2010. “New Estimates for the Shadow Economies all over the World”, *International Economic Journal*, 24(4): 443-461.

Schoar, Antoinette. 2010. “The Divide between Subsistence and Transformational Entrepreneurship.” in *Innovation Policy and the Economy vol. 10*. Chicago: National Bureau of Economic Research, pp. 57-81.

Udry, Christopher. 1996. “Gender, Agricultural Production, and the Theory of the Household”, *Journal of Political Economy* 104(5): 1010-1046.

UNDP. 1998, Human Development Report 1998: Consumption for Human Development. New York: Oxford University Press.

Valdivia, Martin. 2013. Business Training Plus for Female Entrepreneurship? Evidence From a Field Experiment in Peru. Mimeo. Grade, Peru.

Yunus, Muhammad. 1999. Banker to the Poor. London: Aurum Press Ltd.

Woodruff, Christopher. 2006. “Self-employment: Engine of Growth or Self-help Safety Net?” Prepared for the World Bank Conference on “Rethinking the Role of Jobs for Shared Growth”.

World Bank. 2012. “Are Pakistan’s Women Entrepreneurs being Served by the Microfinance Sector?”, World Bank: Washington, DC.

Appendix A: Business Training

The training includes a village assessment, four modules that cover key dimensions of the business and a business creation exercise (BCE) where participants identify, prepare, implement and close a micro business during the last day of training. The training combines field visits to markets, input suppliers and wholesalers, group work and one on one coaching and is designed for both literate and non-literate audiences.

Village Assessment

A Village Assessment is a mapping of all infrastructure, utilities/amenities, population, resources and local institutions and organizations in the village. The goal is to determine the socio-economic status of the population, assess the local production of goods and services and identify potential businesses.

Module 1. The entrepreneur

In this module, basic entrepreneurial competencies are defined. They include, for example the ability to take risks, to plan and set goals, to gather information for decision-making, to persuade and negotiate effectively, etc. Participants identify and assess personal competencies, and are provided tools to develop them.

Module 2. The project

This module focused on how to identify businesses ideas and select the most viable one based on the village assessment and the qualities of the entrepreneur. The concepts of feasibility and the components of a business plan are introduced and participants are asked to develop one for their own business creation exercise to be implemented in the last day of training.

Module 3. Marketing

In this module, participants visit a nearby market and are introduced to the 4-Ps (product, price, place and promotion). The importance of establishing links with wholesale buyers is discussed.

Module 4. Financial Management

In this module, participants learn the importance of using receipts, and keeping records of all sales, purchases and expenses, inventory, debt and receivables. Participants are required to develop an accounting system for their own BCEs. With the example of interactive exercises, participants are introduced to the concept of a balance sheet and profit and loss statement. Participants realize that these statements are important to track business profitability.

Business Creation Exercise

During the last day of training, participants apply the topics learned during the training by starting and closing a mini business of their choosing for a day. Through the BCE, participants are able to analyze their own competence for business, are required to generate a number of business ideas, choose one, assess its viability and assess their expected profit. They are given a small budget and have to cost their product/ service, and maintain record of sales and expenses.

Appendix B: Variable definitions

Baseline characteristics

Individual

Female is a dummy that equals 1 for women and 0 for men.

Age is respondent's age in years.

Years of education is years of completed schooling, and is top-coded at 16.

Married, a dummy taking the value of 1 if member is married, 0 if single, divorced or widowed.

Digital span recall reports the number of digits correctly recalled after being shown an eight digit number for 30 seconds.

Index of Stress comes from the 7-item scale in Pearlin et al. (1981) and is the first component of a PCA for the following questions on attitudes towards own life that have been coded in a way that a positive answer receives a score of 1 (0 otherwise): (i) There is really no way I can solve some of the problems I have; (ii) Sometimes I feel that I am being pushed around in life; (iii) I have little control over the things that happen to me; (iv) I can do just about anything I really set my mind to do; (v) I often feel helpless in dealing with the problems of life; (vi) What happens to me in the future mostly depends on me; (vii) There is little I can do to change many of the important things in my life.

Index of Knowledge of Competition is the first component of a PCA of two questions about knowledge of competition: (i) "Suppose 10 traders set up a market right outside your village to sell ghee. These traders never talk or cooperate with each other in any way. They have the capacity to sell as much ghee as they want and their only cost of supplying one tin of ghee is Rs 100/kg. The current price of ghee is Rs 200/kg. What do you think would happen to the price of ghee over time?" and (ii) What would happen if these 10 traders were able to cooperate with each other in setting the price? What would be the price of ghee? For each question is answer correctly, a value of 1 is assigned, 0 otherwise.

Index of female mobility and No purdah index are also the first component of a PCA of several variables with negative values indicating less mobility (or observing more types of purdah). For female mobility, the questions are (i) Would you be willing to travel outside your settlement if your work required it? And (ii) Would you be allowed to travel outside your settlement if your work required it?.
The "No Purdah" the questions are (i) Do you observe any type of purdah? and (ii) When you are within your settlement do you […], (iii) When you are outside your settlement do you […], (iv) When you are working in the field, do you […], which accepts as answers a) Cover your head only; b) Cover both your head and your bosom; or c) Cover your whole body, including your face.

Aversion to risk general is measured on a 0-10 scale where 0 indicates the most risk averse and 10 the most risk-tolerant/lover.
Trust in Formal System, scores of component 1 of a PCA for the response on considering six different institutions as useful or not to resolve payment disputes.
Months as member, number of months as member of NRSP group.
Holds Office in Group, takes value 1 if member has or has had in the past a leadership position in group.
Business owner equals 1 if the member had a business at baseline, 0 otherwise.
Fraction of Members of same Zaat (caste), is a percentage of members in the group that share the same cast of the member.
.
Eligibility for Loan Lottery, dummy takes value of 1 if an individual is eligible to apply for a loan under the lottery following NRSP protocols.
<u>*Household*</u>
Household size, number of people living in the household (excludes migrants, students living away).

Ever in business, captures business experience within the household. Equals 1 when this is the case, 0 otherwise.
Household member has held hereditary, political office.
Land is the total owned land inside and outside the village.
Distance, to CO meeting place.
Credit constraints, dummy taking a value of 1 if the member faced any type of credit constraint, formal or informal.
Household expenditures, expressed as logs of average monthly expenditures at the time of baseline.
Decision Making, is the number of household decisions out of a total of eight that the member usually takes on his or her own. The decisions are: children's schooling, consumption expenditures, major investments in business or land, the respondent's participation in community or political activities, the respondent's spouse participation in community or political activities, whether or not the respondent should work for an income, whether or not the spouse should work for an income and how much the household saves. In the analysis, a dummy is used that takes value 1 if the variable is above the median for each gender subsample.
Bank deposit, dummy taking the value of 1 if the member has a bank account, 0 otherwise.
Education is years of completed schooling of the respondent, if any. Top coded at 16.

<u>*Business characteristics*</u>
Type of business, dummy variables for businesses shown on brochure
Fixed location, dummy equal to 1 when the business is not mobile, 0 otherwise.
Operates all months, dummy equal to 1 when business operates year round, 0 otherwise.
Purchase on credit, equal to 1 if sales can be made on credit to customers.
Records of sales and of money taken from business, 1 if the member does keep records, 0 otherwise.
Number of workers, includes both paid and unpaid workers.
Paid workers, dummy equal to 1 if the business owner employs people for wages, 0 otherwise.
Log of SalesGood, Average, Bad month, considers average sales the year the baseline was taken, considering goods, average and bad month.
Sales in '000 rupees, sales of business in an average month at the time of baseline.

<u>Aggregate Outcomes</u>
Business Knowledge, simple average of standardized z-scores of the following variables: knowledge of competition, bookkeeping and business concepts, all calculated as the first component of a PCA of several survey questions. In particular, *bookkeeping* includes the following true / false and multiple choice questions: "Receipts are always recorded on the right side of the cash book" (1=Yes), "Sales records are useful for understanding the profitability of a business" (1=Yes) and "How often should entries in a cash book be made?" (Daily = 1). *Business concepts* include "One can ignore product quality if it reduces production cost" (1=No),

"With financial resources, anybody can become a businessman" (1 = No), "There is no relationship between product marketing or advertising and the amount of sales" (1=No), "Product variety is important for sales" (1=Yes), "Customers only look at the price when deciding whom to purchase from" (1=No), "A successful business person cares about customer loyalty" (1=Yes), "What is an important aspect of the marketing and sale of products and services?" (Packing and Packaging = 1), "Profit is Revenue minus?" (Cost = 1), "How do you determine the full cost of a product or service?" (Check cost of inputs, materials and time spent = 1).
Business Practices, simple average for standardized z-scores of the following dummy variables: allowing purchases on credit (1=Yes), record of sales (1=Yes), record of money taken from business (1=Yes) and record anything at all (1=Yes).

Business Operations, simple average for standardized z-scores of the following dummy variables: having a fixed location (1=Yes), year-round operation (1=Yes), investing in marketing (1=Yes), having a business open to the public (1=Yes), or having secured buyers (1=Yes); and z-scores of two indexes built around a number of questions on business appearance ("Is business visible from the street?" (1=Yes). Does business have a sign board?" (1=Yes), Does business have adequate lighting? (1=Yes), "Does business have good ventilation?" (1=Yes), "What is the condition of the wall/roof/floor?"), and ownership of several business assets including "Land and buildings", "Plants, machinery etc", "Hand tools", "Transport equipment", "Furniture and fixtures", "Office equipment", "Other durable goods owned by the business", "Goods in inventory", and "Raw material in stock".

Sales and Profits, simple average for standardized z-scores of the following variables: log of sales and profits in November 2008, and the log of sales at baseline for a good, average, and bad month.

Expenditures/Assets, simple average for standardized z-scores of the following variables: log of monthly expenditures, log of savings, log of livestock value, and a PCA index of housing quality measured by ownership of house (owns house=1) , number of rooms, type of walls and roof.

CO Cohesion, simple average for standardized z-scores of four dummies taking the value of 1 if the member considers that can rely more on other CO members, if reports more collective action among the group, or if the member lends or borrows to/from other members.

General Outlook of Life simple average for standardized z-scores of three PCA indexes for questions related to trust in people's intentions, stress and satisfaction with life. The *Trust index* includes the 3 GSS questions "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?", "Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?" and "Would you say that most of the time people try to be helpful, or that they are

mostly just looking out for themselves?" and a measure of trust in formal conflict resolution mechanisms (police, court and elected local officials). *Stress Index* comes from the 7-item scale in Pearlin et al. (1981). *Satisfaction with life* comes from the response on a 1 (very satisfied) to 7 (very unsatisfied) scale to the question "Overall, how satisfied (content, happy) are you with your life?".

Appendix C: A Model of Self-Employment

Consider an individual with ability level a and business knowledge x that decides how to allocate one unit of labor between self-employment and wage work. Ability a can either be high $a = H$ or low $a = L$ and is not known to the individual. A fraction λ of the population has ability $a = H$.

There are three self-employment technologies $j \in \{S, L, H\}$. Technology S requires only labor and is the least productive. The other two technologies L and H require capital as shown in Figure 1. Technology L does not require a fixed investment but the returns to capital quickly taper off. Technology H entails a fixed cost K but is more productive. The individual must decide which technology to use and how much capital and labor to invest to maximize net income $\pi_j^a(x)$, where a denotes the ability level and j the self-employment technology. In particular,

$$\begin{aligned} \pi_S^a(x) &= p_S^a(x) y_S(l) + (1-l)w \\ \pi_L^a(x) &= p_L^a(x) y_L(k,l) - Rk + (1-l)w \\ \pi_H^a(x) &= p_H^a(x) y_H(k,l) - R(k+K) + (1-l)w \end{aligned} \tag{1}$$

The production function $y_S(l)$ is increasing in l and concave, and $y_j(k,l)$, $j \in \{L, H\}$ satisfies the usual conditions $y_k(k,l) > 0$, $y_l(k,l) > 0$, $y_{kk}(k,l) < 0$ $y_{ll}(k,l) < 0$, $y_{kl}(k,l) > 0$, where we drop the dependency on $j \in \{L, H\}$ for simplicity. We also assume an interior solution for k and l, and in particular, $y_{jk}(0,l) > R$, $y_{jk}(\infty,l) < R$ for all $l \in [0,1]$ and $j \in \{L, H\}$ and $y_{Sl}(0) > w$, $y_{Sl}(1) < w$ and $y_{jl}(k,0) > w$, $y_{jl}(k,1) < w$, for all $k \in [0,\infty)$ and $j \in \{L, H\}$. We finally assume that $y_{kk}(k,l)y_{ll}(k,l) > y_{kl}(k,l)^2$, again dropping the dependency on $j \in \{L, H\}$. This assumption simplifies to $\alpha + \beta < 1$, when the production function takes the familiar Cobb-Douglas form $y(k,l) = Ak^\alpha l^\beta$. In other words, the production function exhibits diminishing returns to scale. The function $p_j^a(x)$ denotes the probability of success of an individual of ability a using technology j. Individuals do not have liquid assets but can

borrow up to $k_m < \hat{k}$ (see Figure 1). As a result, only technologies S and L are worthwhile because technology H is only attractive when investment k satisfies $k > \hat{k}$.

In the context of the experiment, individuals are offered business training (BT) and the possibility of increasing the borrowing limit by winning the loan lottery (LW). We assume that business training increases business knowledge x and reveals the ability level a of the individual. In addition, the loan lottery increases the loan limit to $k_M > \hat{k}$, so that technology H becomes attractive.

Because the ability level is unknown when business training is not offered, an individual faces a probability of success when using technology j of

$$p_j^e(x) = \lambda p_j^H(x) + (1-\lambda)p_j^L(x). \tag{2}$$

We can now characterize the optimization problem of individuals in each design bin of the $2x2$ experimental design.

No BT, no LW. An individual not offered business training nor assigned to be a lottery winner chooses the technology to maximize

$$\max_{S,L} \{\pi_S^e(x), \pi_L^e(x)\}$$

where the expressions for $\pi_j^e(x)$, $j \in S, L$ are given above in equation (1). Under general assumptions about $p_j^a(x)$, the solution to the maximization problem above depends on a cutoff level of business knowledge $\underline{x}^e$ such that if business knowledge $x \geq \underline{x}^e$, the individual chooses technology L, and technology S otherwise.[1]

BT, no LW. An individual offered business training and assigned to be a lottery loser faces a similar problem to the one above with two key differences. First, thanks to the training business knowledge x is now higher, and second, because the ability level is revealed, the individual chooses a production technology based on the cutoff $\underline{x}^a$, where ability a is the true ability.

No BT, LW. An individual not offered business training but assigned to be a lottery winner can choose among all three technologies:

$$\max_{S,L,H} \{\pi_S^e(x), \pi_L^e(x), \pi_H^e(x)\}$$

[1]Cutoff $\underline{x}^a$ obtains if for example $\pi_j^a(x) = x$, for all ability levels a and technologies j, $y_S(l) = A_S l^{\beta_S}$ and $y_L(k,l) = A_L k^{\alpha_L} l^{\beta_L}$.

The solution to this maximization problem now involves two cutoff values of business knowledge $\underline{x}^e$ and $\bar{x}^e$ such that if business knowledge $x < \underline{x}^e$, the optimal technology is S, if business knowledge x satisfies $\underline{x}^e \leq x < \bar{x}^e$ the optimal technology is L and if business knowledge is $x \geq \bar{x}^e$, the optimal technology is H. Therefore, not every lottery winner will choose technology H. The optimal investments in capital $k_j(x)$ and labor $l_j(x)$ and thus net income $\pi_j(x)$ depend on ability and business knowledge x, and so the net income obtained under technology H could be lower than that obtained under technology L for an individual with relatively low levels of business knowledge x, even if borrowing constraints did not bind.

BT and LW. An individual offered business training and assigned to be a lottery winner faces an optimization problem similar to those in the "No BT, LW" group with two differences. First, the individual's business knowledge is higher thanks to the training and second, the true ability a is revealed. The individual will thus choose the production technology based on cutoffs $\underline{x}^a$ and $\bar{x}^a$ (rather than $\underline{x}^e$ and $\bar{x}^e$ as was the case for individuals in the "No BT, LW" group).

We can now assess the effect of business training on the optimal investments in capital k and labor l. When the optimal technologies are either L or H, the first order conditions for k and l can be written as

$$p(x)y_k(k,l) = R$$
$$p(x)y_l(k,l) = w$$

where the dependency of the probability of success $p(x)$ on ability is dropped for simplicity. Differentiating the first order conditions and using Cramer's rule, one can show that

$$\frac{dk}{dp} > 0 \quad \text{and} \quad \frac{dl}{dp} > 0 \quad \text{if and only if} \quad y_{kk}(k,l)y_{ll}(k,l) > y_{kl}(k,l)^2,$$

which by assumption is true. This result highlights another key prediction of the model. Because $p_j^H(x) > p_j^e(x) > p_j^L(x)$, where $p_L^e(j)$ is defined in equation (2), the revelation of ability through business training will lead individuals with ability $a = H$ to invest more capital and labor in the business, while individuals with ability $a = L$ will reduce investments in capital and labor. Since business training also increases business knowledge x and thus the probability of success, all individuals offered business training will also increase investment relative to their conterparts not offered the training. As a result, individuals with ability $a = H$ increase investment in capital and labor both because ability is revealed to be higher

than expected and because business knowledge increased. For individuals with ability $a = L$ the two effects have opposing signs. Investment decreases because ability is revealed to be lower than expected, but it increases because business knowledge has increased.

In order to derive expressions for the outcomes studied in the paper we make two additional assumptions. First, we assume that business knowledge x is distributed according to the cumulative density function $F(x)$, with $x = [0, \infty)$. In addition, some individuals may already have a loan when the lottery is introduced. Among individuals with active loans, only those assigned to win the lottery have incentives to borrow befoer the loan matures to access the larger loan and use part of the loan to pay off the existing loan. Put differently, while all lottery winners with technology L or H will borrow, only those with loans that mature will borrow among lottery losers. Let θ denote the probability that an individual has a loan that matures during period of the loan lottery and thus needs to borrow again.

We now use the model to derive expressions for (i) the probability of borrowing, (ii) the average loan size and (iii) the failure rate of business.[2]

1. Probability of borrowing

The probability of borrowing in the group not offered business training nor assigned to be lottery winners is $\Pr_{\text{No BT, no LW}} = \theta(1 - F(\underline{x}^e))$ because only individuals with loans that mature and that have business knowledge $x \geq \underline{x}^e$ will use a technology that requires capital. Similarly, $\Pr_{\text{BT, no LW}} = \theta[\lambda(1-F'(\underline{x}^H))+(1-\lambda)(1-F'(\underline{x}^L))]$, where $F'(x)$ is the cumulative distribution of business knowledge x for individuals that receive training. By assumption, $F(x) > F'(x)$, for all x. In addition, $\Pr_{\text{No BT, LW}} = 1 - F(\underline{x}^e)$ since all lottery winners with enough business knowledge to warrant a technology that requires capital will borrow. A similar expression obtains for $\Pr_{\text{BT, LW}}$.

It is easy to show that $\Pr_{\text{No BT, LW}} > \Pr_{\text{No BT, no LW}}$ if $(1-\theta)(1-F(\underline{x}^e)) > 0$, which holds if $\theta < 1$ and $\underline{x}^e > 0$. In words, the probability of borrowing will be higher among individuals assigned to be lottery winners if there are borrowers whose loans do not mature during the lottery period and if there are individuals that given their business knowledge prefer to use the technology that does not require capital (technology S). Similarly, $\Pr_{\text{BT, LW}} > \Pr_{\text{BT, no LW}}$ because $(1-\theta))[\lambda(1-F'(\underline{x}^H))+(1-\lambda)(1-F'(\underline{x}^L))] > 0$, so long as $\theta < 1$ and $\underline{x}^H > 0$, $\underline{x}^L > 0$.

[2]Repayment of the loan is also of interest but by assumption it is assumed that client have access to illiquid wealth to cover the repayment, regardless of whether the business has failed. This assumption is grounded in the data, since according to Table 8 column 8, the default among controls is only 2 percent.

However, the comparison among the group that was offered business training and the one that did not is less clear: $\text{Pr}_{\text{BT, no LW}} > \text{Pr}_{\text{No BT, no LW}}$ if $F(\underline{x}^e) > \lambda F'(\underline{x}^H)) + (1-\lambda)F'(\underline{x}^L)$. A similar expression obtains when comparing $\text{Pr}_{\text{BT, LW}}$ and $\text{Pr}_{\text{No BT, LW}}$.

In sum, individuals assigned to be lottery winners have a higher probability of borrowing and there is no clear prediction for individuals offered business training relative to those that were not.

2. Average loan size

The average loan size in the group not offered business training nor assigned to be lottery winners is

$$k_{\text{No BT, no LW}} = \int_{\underline{x}^e}^{\infty} k_L^e(x) dF(x),$$

where

$$k_L^e(x) = \text{argmax}_k p_L^e(x) y_L(k,l) - Rk + (1-l)w$$

and $p_L^e(x)$ is given in equation (2) for $j = L$. Similarly, we have that

$$\begin{aligned} k_{\text{BT, no LW}} &= \lambda \int_{\underline{x}^H}^{\infty} k_L^H(x) dF'(x) + (1-\lambda) \int_{\underline{x}^L}^{\infty} k_L^L(x) dF'(x) \\ k_{\text{No BT, LW}} &= \theta \int_{\underline{x}^e}^{\bar{x}^e} k_L^e(x) dF(x) + \int_{\bar{x}^e}^{\infty} k_H^e(x) dF(x), \end{aligned}$$

and a similar expression for $k_{\text{BT, LW}}$.

It is easy to show that $k_{\text{No BT, LW}} > k_{\text{No BT, no LW}}$ because

$$\theta \int_{\underline{x}^e}^{\bar{x}^e} k_L^e(x) dF(x) + \int_{\bar{x}^e}^{\infty} (k_H^e(x) - k_L^e(x)) dF(x) > 0.$$

Similarly, $k_{\text{BT, LW}} > k_{\text{BT, no LW}}$. It is unclear however if $k_{\text{BT, no LW}} > k_{\text{No BT, no LW}}$.

Thus, not surprisingly, average loan size is larger with among individuals assigned to be lottery winners.

3. Business survival

Business survival in the different treatment arms is found by averaging the probability of success across the distribution of business knowledge. Denoting B the probability of business survival we have

$$B_{\text{No BT, no LW}} = \lambda \left[\int_0^{\underline{x}^H} p_S^H(x) dF(x) + \int_{\underline{x}^H}^{\infty} p_L^H(x) dF(x) \right] + (1-\lambda) \left[\int_0^{\underline{x}^L} p_S^L(x) dF(x) + \int_{\underline{x}^L}^{\infty} p_L^L(x) dF(x) \right]$$

The expression for business survival $B_{\text{BT, no LW}}$ is analogous, replacing $F(x)$ for $F'(x)$. The expression for $B_{\text{No BT, LW}}$ is as follows:

$$\begin{aligned} B_{\text{No BT, no LW}} &= \lambda\left[\int_0^{\underline{x}^H} p_S^H(x)dF(x) + \int_{\underline{x}^H}^{\bar{x}^H} p_L^H(x)dF(x) + \int_{\bar{x}^H}^{\infty} p_H^H(x)dF(x)\right] + \\ &\quad (1-\lambda)\left[\int_0^{\underline{x}^L} p_S^L(x)dF(x) + \int_{\underline{x}^L}^{\bar{x}^L} p_L^L(x)dF(x) + \int_{\bar{x}^L}^{\infty} p_H^L(x)dF(x)\right]. \end{aligned}$$

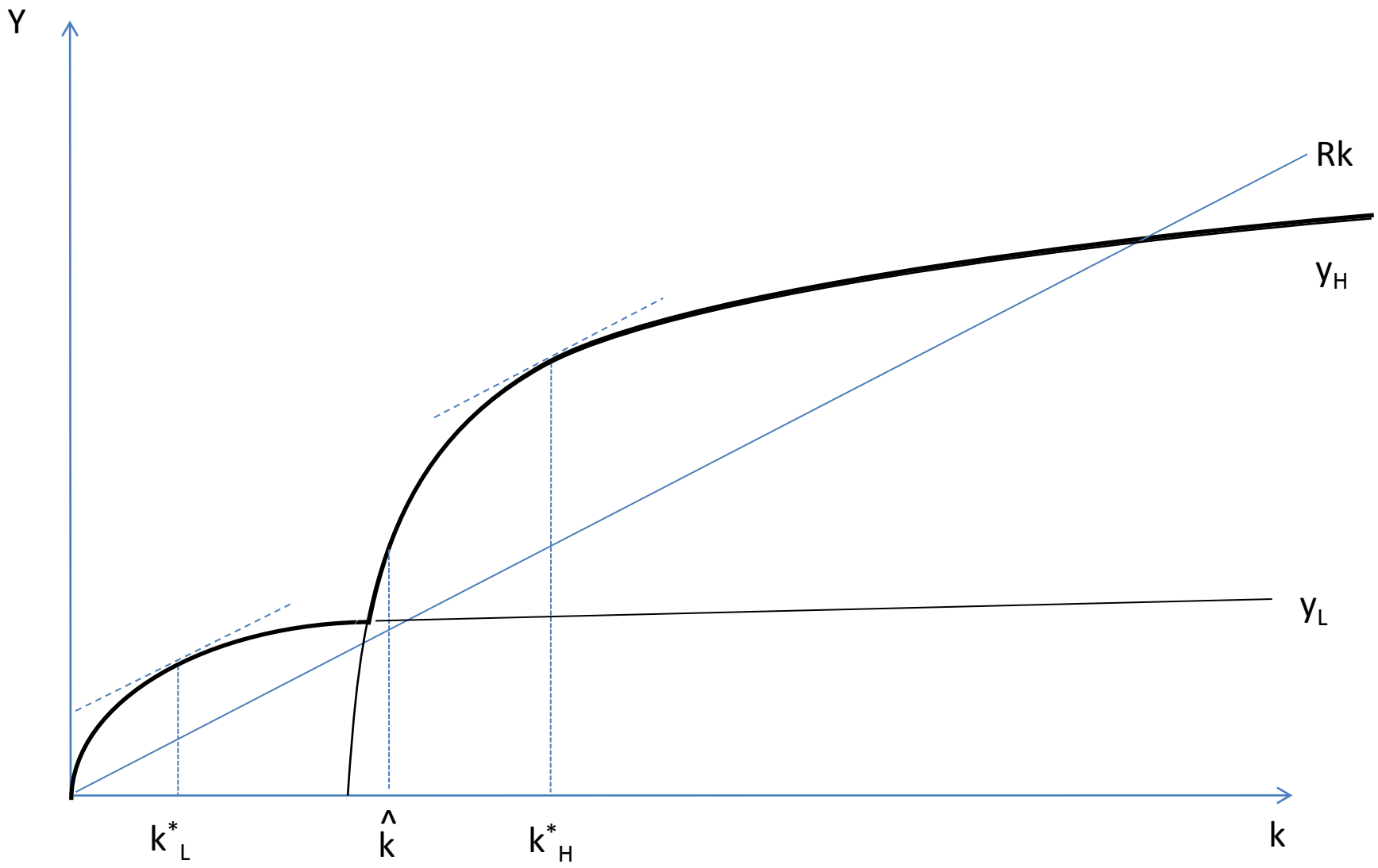
As before, the expression for business survival $B_{\text{BT, LW}}$ is analogous to the one above, replacing $F(x)$ for $F'(x)$.

It is easy to see that $B_{\text{BT, no LW}} > B_{\text{No BT, no LW}}$ because the training increases business knowledge and as a result $F'(x)$ first-order stochastically dominates $F(x)$. The same argument suggests that $B_{\text{BT, LW}} > B_{\text{No BT, LW}}$. Finally, we compare business survival among lottery winners and lottery losers. We find that $B_{\text{No BT, no LW}} > B_{\text{No BT, LW}}$ if and only if

$$\lambda \int_{\underline{x}^H}^{\infty} [p_L^H(x) - p_H^H(x)]dF(x) + (1-\lambda)\int_{\underline{x}^L}^{\infty} [p_L^L(x) - p_H^L(x)]dF(x).$$

If technology H is riskier in the sense that $p_L^a(x) > p_H^a(x)$ then business failure can be higher among lottery winners.

Figure 1. Dual Production Technology



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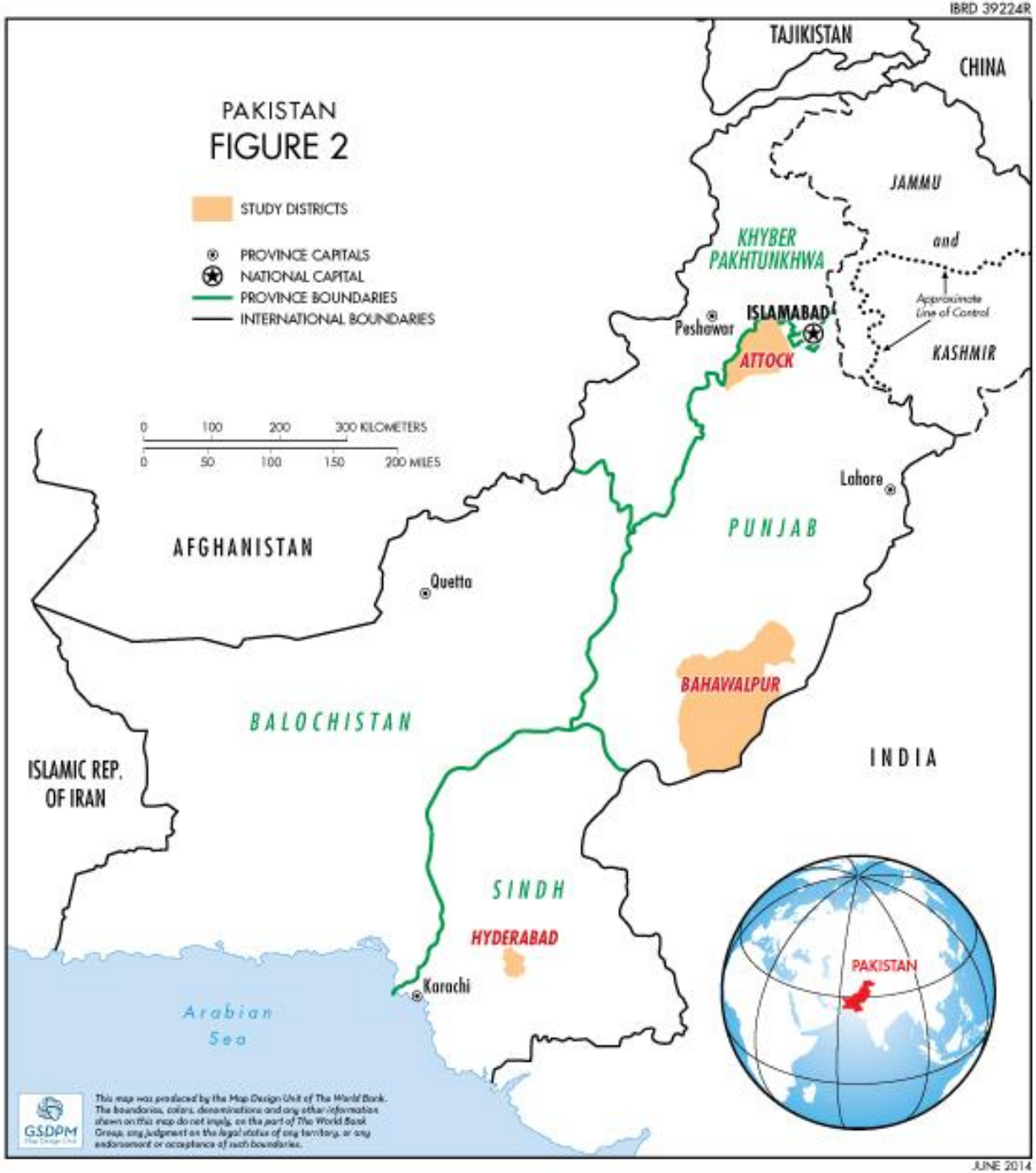

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Figure 3. Timeline

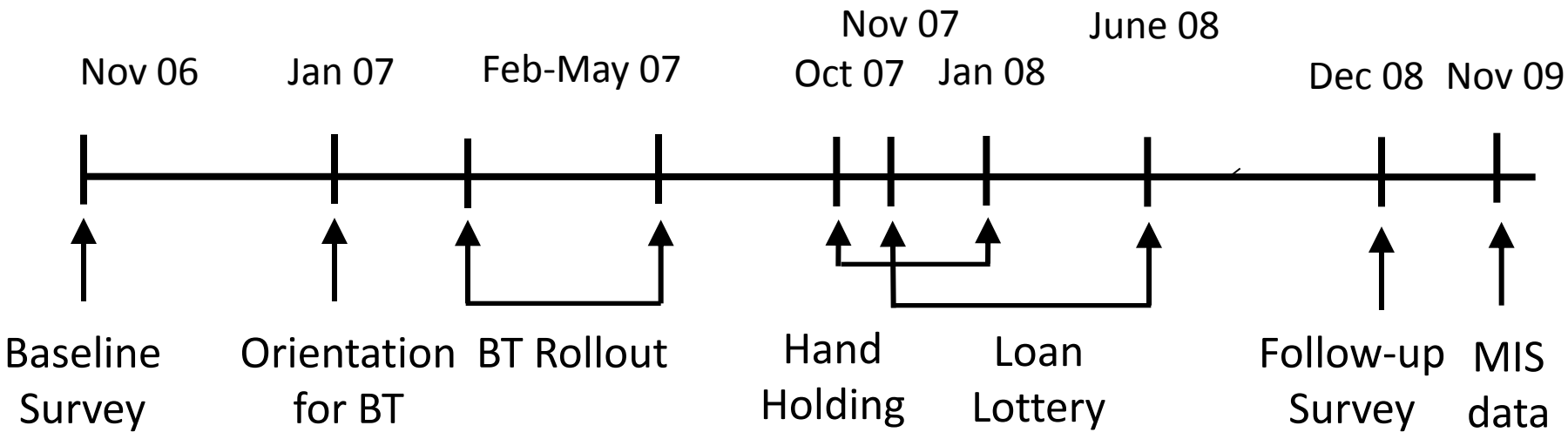

Table 1. Summary Statistics

	N. Obs	Mean	Std. Dev.	10th Pct.	Median	90th Pct.	Mean		P-val of T-test
			All members				Male	Female	(7)=(8)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Member									
Age	4161	37.6	12.0	23.0	35.0	55.0	37.8	37.3	0.14
Years of Education	4161	3.92	4.49	0.00	2.00	10.0	5.24	2.51	0.00
Male (1=yes)	4161	0.48	0.50	0.00	0.00	1.00	-	-	-
Married (1=yes)	4161	0.89	0.31	0.00	1.00	1.00	0.84	0.94	0.00
Digit Span Recall	4161	3.22	2.27	0.00	4.00	6.00	3.81	2.60	0.00
Stress index	4161	0.00	1.43	-1.76	0.04	1.94	0.16	-0.17	0.00
Business Knowledge index	4161	0.00	1.03	-1.38	0.05	1.49	-0.14	0.15	0.00
Female Mobility index	2017	0.00	1.34	-1.10	-1.10	2.64	-	-	-
No Purdah index	2017	0.00	1.70	-2.82	0.86	1.58	-	-	-
Risk Tolerance (0-10)	4161	3.53	3.00	0.00	4.00	8.00	3.76	3.29	0.00
Months as CO member	4161	25.2	23.4	5.00	19.0	52.0	27.4	22.9	0.00
Interested in Training (1=Yes)	4161	0.58	0.49	0.00	1.00	1.00	0.65	0.50	0.00
Holds office in CO (1=Yes)	4161	0.21	0.41	0.00	0.00	1.00	0.22	0.20	0.10
Business at baseline (1=Yes)	4161	0.61	0.49	0.00	1.00	1.00	0.62	0.60	0.20
Eligibility for Loan Lottery (1=Yes)	4161	0.55	0.50	0.00	1.00	1.00	0.58	0.52	0.00
Household									
Household Size	4161	7.52	3.42	4.00	7.00	12.0	7.88	7.14	0.00
Fraction of CO Members of same Zaat (caste)	4161	0.34	0.34	0.00	0.21	0.94	0.44	0.24	0.00
Ever in Business (1=Yes)	4161	0.61	0.49	0.00	1.00	1.00	0.62	0.60	0.38
Household member has held hereditary or political office (1=Yes)	4161	0.12	0.33	0.00	0.00	1.00	0.15	0.09	0.00
Land (acres)	4161	3.91	17.13	0.00	0.13	8.88	5.51	2.22	0.00
Distance to CO meeting place	4161	7.95	7.12	2.50	10.0	23.0	7.42	8.51	0.00
Credit Constraints (1=Yes)	4161	0.49	0.50	0.00	0.00	1.00	0.49	0.50	0.00
Log Household Expenditures	4161	8.27	0.62	7.31	8.01	9.10	8.28	8.26	0.26
Decision-making power (0-8)	4161	2.56	3.08	0.00	0.00	1.00	3.31	1.76	0.00
Member has a Bank Account (1=Yes)	4161	0.10	0.30	0.00	0.00	1.00	0.14	0.07	0.00
Self-employment (1=Yes)	4161	0.27	0.44	0.00	0.00	1.00	0.32	0.21	0.00
Business									
Agribusiness, Dairy, Livestock (1=Yes)	2532	0.36	0.48	0.00	0.00	1.00	0.50	0.20	0.00
Retail and Food Services (shopkeeping) (1=Yes)	2532	0.19	0.39	0.00	0.00	1.00	0.23	0.15	0.00
Handicraft, Tailoring, Vocational Trade (1=Yes)	2532	0.31	0.46	0.00	0.00	1.00	0.09	0.56	0.00
Other (1=Yes)	2532	0.14	0.34	0.00	0.00	1.00	0.18	0.09	0.00
Business has fixed location (1=Yes)	2532	0.94	0.24	1.00	1.00	1.00	0.90	0.97	0.00
Operates all months (1=Yes)	2532	0.80	0.40	0.00	1.00	1.00	0.81	0.78	0.08
Purchase credit (1=Yes)	2532	0.70	0.46	0.00	1.00	1.00	0.67	0.72	0.02
Records sales (1=Yes)	2532	0.17	0.37	0.00	0.00	1.00	0.22	0.11	0.00
Records Money taken from business (1=Yes)	2149	0.17	0.37	0.00	0.00	1.00	0.22	0.11	0.00
Number of Workers	2532	2.43	1.98	1.00	2.00	4.00	2.51	2.34	0.03
Paid Workers (1=Yes)	2532	0.10	0.29	0.00	0.00	0.00	0.14	0.05	0.00
Log Good Month Sales	2500	8.76	1.31	7.09	8.70	10.6	9.34	8.13	0.00
Log Average Month Sales	2493	8.28	1.26	6.68	8.29	9.95	8.83	7.68	0.00
Log Bad Month Sales	2510	7.75	1.32	6.21	7.60	9.51	8.32	7.13	0.00

Note: Data come from baseline survey of November 2006. See Appendix B for definition of variables. Column 1 reports the number of observations. Index of female mobility and Index of Purdah have 2,017 observations because only females answered these questions. Similarly, there are 2,532 businesses in the sample. Column 9 reports the p-value of the t-test of the difference between columns 7 and 8.

Table 2. Randomization Check

		Means		P-val of t-test		Means		P-val of t-test
	N. Obs	BT	No BT	(2)=(3)	N. Obs	Winner	Loser	(6)=(7)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Member								
Age	4161	37.3	37.9	0.48	2283	38.2	37.8	0.45
Years of Education	4161	3.93	3.90	0.71	2283	4.05	3.96	0.50
Male (1=yes)	4161	0.49	0.54	-	2283	0.54	0.55	-
Married (1=yes)	4161	0.89	0.89	0.49	2283	0.93	0.90	0.04
Digit Span Recall	4161	3.16	3.29	0.56	2283	3.31	3.26	0.46
Stress index	4161	-0.06	0.07	0.41	2283	-0.07	0.03	0.08
Business Knowledge index	4161	0.04	-0.05	0.85	2283	-0.04	0.03	0.07
Female Mobility index	2017	0.02	-0.03	0.44	1044	0.04	0.03	0.89
No Purdah index	2017	-0.09	0.12	0.38	1044	-0.06	0.07	0.21
Risk Tolerance	4161	3.45	3.63	0.86	2283	3.56	3.56	0.92
Months as CO member	4161	23.9	26.7	0.48	2283	26.6	25.7	0.24
Interested in Training	4161	0.63	0.52	0.23	2283	0.58	0.58	0.69
Holds office in CO	4161	0.22	0.19	0.01	2283	0.21	0.22	0.77
Business at Baseline (1=Yes)	4161	0.62	0.59	-	2283	0.66	0.66	-
Eligibility	4161	0.55	0.55	-	2283	-	-	-
Household								
Household Size	4161	7.62	7.41	0.32	2283	7.44	7.47	0.82
Fraction of CO Members of same Zaat (caste)	4161	0.36	0.31	0.70	2283	0.33	0.32	0.38
Ever in Business (1=Yes)	4161	0.62	0.60	0.55	2283	0.62	0.64	0.55
Household member has held hereditary or political office (1=Yes)	4161	0.11	0.13	0.42	2283	0.12	0.15	0.07
Land (acres)	4161	4.01	3.79	0.32	2283	3.01	3.87	0.21
Distance to CO meeting place	4161	7.90	8.00	0.20	2283	8.16	8.14	0.93
Credit Constraints (1=Yes)	4157	0.52	0.46	0.02	2282	0.53	0.50	0.14
Log of Household Expenditures	4161	8.27	8.27	0.86	2283	8.23	8.26	0.17
Decision-making power (0-8)	4161	2.61	2.51	0.28	2283	2.77	2.58	0.10
Member has a bank account	4161	0.10	0.10	0.65	2283	0.10	0.11	0.66
Self-employment (1=Yes)	4161	0.25	0.29	0.82	2283	0.30	0.28	0.18
Business								
Sector								
Agribusiness, Dairy, Livestock (1=Yes)	2532	0.36	0.35	0.71	1507	0.38	0.39	0.54
Retail and Food Services (shopkeeping) (1=Yes)	2532	0.19	0.19	1.00	1507	0.23	0.19	0.04
Handicraft, Tailoring, Vocational Trade (1=Yes)	2532	0.31	0.31	0.87	1507	0.25	0.28	0.10
Other (1=Yes)	2532	0.13	0.14	0.64	1507	0.15	0.14	0.82
Business Operation								
Business has fixed location (1=Yes)	2532	0.94	0.93	0.77	1507	0.93	0.94	0.35
Operates all months (1=Yes)	2532	0.79	0.80	0.59	1507	0.80	0.81	0.67
Business Practices								
Purchase on credit allowed (1=Yes)	2532	0.70	0.70	0.91	1507	0.68	0.67	0.50
Records sales (1=Yes)	2532	0.18	0.16	0.25	1507	0.17	0.18	0.52
Records Money taken from business (1=Yes)	2149	0.18	0.16	0.26	1282	0.18	0.18	0.96
Employment and sales								
Number of Workers	2532	2.50	2.35	0.12	1507	2.50	2.46	0.69
Paid Workers (1=Yes)	2532	0.10	0.09	0.43	1507	0.09	0.10	0.52
Log Good Month Sales	2500	8.76	8.77	0.90	1490	8.83	8.87	0.45
Log Average Month Sales	2493	8.27	8.30	0.74	1484	8.34	8.38	0.46
Log Bad Month Sales	2510	7.72	7.78	0.51	1494	7.79	7.85	0.31

Note: Data come from baseline survey of November 2006. See Appendix B for definition of variables. Columns 4 and 8 report the p-value of the t-test of the difference between columns 2 and 3 and columns 6 and 7, respectively.

Table 3. Business Outcomes

	Business Knowledge (1)	New Business CO member involved (1=Yes) (2)	New Business CO member not involved (1=Yes) (3)	Main Business Failed (1=Yes) (4)	Aggregate Business Practices (5)	Aggregate Business Operations (6)	Aggregate Sales and Profits (7)
Panel A: Intent to Treat Effect							
Business Training (1=Yes)	0.066**	-0.006	-0.001	-0.034	0.114**	0.037	-0.035
	(0.031)	(0.008)	(0.012)	(0.028)	(0.054)	(0.026)	(0.055)
Lottery Winner (1=Yes)	-0.011	-0.012	-0.007	-0.002	0.087	0.077**	0.064
	(0.040)	(0.013)	(0.019)	(0.036)	(0.072)	(0.033)	(0.073)
BT and LW	0.105***	-0.004	0.010	-0.014	0.146**	0.041	-0.051
	(0.038)	(0.013)	(0.018)	(0.037)	(0.069)	(0.033)	(0.067)
R-Squared	0.08	0.01	0.01	0.03	0.06	0.09	0.34
P-value of t - test of ...							
BT = BT and LW	0.27	0.88	0.51	0.55	0.58	0.89	0.79
LW = BT and LW	0.01	0.53	0.42	0.77	0.43	0.35	0.16
BT = LW	0.06	0.59	0.77	0.37	0.70	0.24	0.20
Panel B: Intent to Treat Effects with Gender Interactions							
Business Training (1=Yes)	0.070	-0.011	-0.012	-0.061*	0.110	0.057	0.018
	(0.043)	(0.013)	(0.016)	(0.037)	(0.074)	(0.035)	(0.073)
BT x Female	-0.008	0.013	0.023	0.060	0.003	-0.059	-0.144
	(0.063)	(0.017)	(0.025)	(0.055)	(0.104)	(0.051)	(0.104)
Lottery Winner (1=Yes)	0.008	-0.019	-0.015	-0.004	0.057	0.086*	0.030
	(0.049)	(0.018)	(0.024)	(0.045)	(0.092)	(0.044)	(0.091)
LW x Female	-0.044	0.016	0.017	0.000	0.087	-0.03	0.065
	(0.078)	(0.023)	(0.035)	(0.068)	(0.133)	(0.066)	(0.139)
BT and LW	0.101**	-0.016	-0.017	-0.047	0.229**	0.072*	-0.037
	(0.050)	(0.016)	(0.020)	(0.046)	(0.090)	(0.042)	(0.085)
BT and LW x Female	0.010	0.028	0.062*	0.077	-0.203*	-0.078	-0.028
	(0.073)	(0.024)	(0.036)	(0.069)	(0.122)	(0.067)	(0.128)
R-Squared	-0.02	0.05	0.10	0.03	0.06	0.09	0.34
P-value of t - test of ...							
BT = BT and LW	0.51	0.74	0.77	0.75	0.13	0.66	0.44
LW = BT and LW	0.08	0.86	0.92	0.40	0.09	0.78	0.52
BT = LW	0.22	0.63	0.90	0.20	0.55	0.52	0.90
BT + BT x Female = 0	0.18	0.88	0.56	0.98	0.13	0.96	0.11
LW + LW x Female = 0	0.58	0.85	0.94	0.94	0.17	0.28	0.38
BT and LW + BT and LW x Female = 0	0.05	0.53	0.14	0.58	0.77	0.91	0.52
Mean of dependent variable among controls	-0.03	0.05	0.10	0.40	-0.07	-0.02	0.07
N. Observations	3494	3494	3494	2137	1312	1310	1181

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners.The dependent variables are aggregates of standardized z-scores. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table 4. Bound Analysis for Male Business Owners

	Lower Bound (1)	Unadjusted Treatment Effect (2)	Upper Bound (3)
Business Practices			
Allows purchases on credit (1=Yes)	-0.106**	-0.012	0.107**
	(0.045)	(0.044)	(0.044)
Recorded sales last month (1=Yes)	-0.084*	0.058	0.161***
	(0.046)	(0.046)	(0.046)
Records money taken for household needs (1=Yes)	-0.109***	0.055	0.126***
	(0.038)	(0.041)	(0.044)
Record anything (1=Yes)[1]	-0.038**	0.034*	0.054***
	(0.018)	(0.019)	(0.020)
Aggregate Business Practices	-0.166**	0.098	0.317***
	(0.071)	(0.075)	(0.073)
Business Operation			
Business has fixed location (1=Yes)	0.045	0.062**	0.134***
	(0.029)	(0.027)	(0.021)
Operates all months of the year (1=Yes)	-0.052	0.001	0.179***
	(0.042)	(0.040)	(0.038)
Index of Business Appearance[1]	-0.208	0.319	1.076***
	(0.222)	(0.210)	(0.166)
Investment in Marketing (1=Yes)[1]	-0.088***	-0.018	0.003
	(0.018)	(0.023)	(0.024)
Business is open to the public (1=yes)[1]	-0.187***	-0.107**	0.020
	(0.052)	(0.049)	(0.048)
Has secured buyer (1=Yes)[1]	-0.119***	0.106***	0.163***
	(0.035)	(0.040)	(0.044)
Index of business assets[1]	-0.389***	0.005	0.368***
	(0.110)	(0.130)	(0.133)
Aggregate Business Operations	-0.051	0.056	0.169***
	(0.034)	(0.035)	(0.033)
Employment, Sales and Profits			
Number of Workers	-0.400***	0.111	0.372**
	(0.113)	(0.136)	(0.144)
Log Sales in a Good Month	-0.238**	0.129	0.465***
	(0.092)	(0.102)	(0.093)
Log Sales Average Month	-0.276***	0.055	0.397***
	(0.097)	(0.103)	(0.091)
Log Sales in a Bad Month	-0.258**	0.070	0.408***
	(0.108)	(0.117)	(0.104)
Log Sales November 2008[1]	-0.519***	0.061	0.592***
	(0.162)	(0.151)	(0.132)
Log Profit[1]	-0.350***	0.026	0.459***
	(0.108)	(0.122)	(0.118)
Aggregate Sales and profits	-0.124*	0.025	0.259***
	(0.067)	(0.074)	(0.069)

Note:[1] Variable collected only during follow-up. Aggreggate variables for each family of outcomes are averages of the standardized z-score of each variable in the family. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline and gender). Standard errors reported in parentheses are clustered at the CO level. The following symbols *,** and *** denote significance at the 10, 5 and 1 percent level, respectively. Bounds are computed based on Lee (2002).

Table 5. Individual and Household Outcomes

	Expenditures and Assets (1)	CO Cohesion (2)	Outlook on Life (3)	Decision-Making (4)
Panel A: Intent to Treat Effect				
Business Training (1=Yes)	0.079***	0.090***	0.100***	0.096
	(0.024)	(0.027)	(0.030)	(0.094)
Lottery Winner (1=Yes)	0.043	0.048	0.095***	-0.024
	(0.030)	(0.033)	(0.036)	(0.133)
BT and LW	0.061*	0.082**	0.141***	-0.031
	(0.032)	(0.038)	(0.041)	(0.136)
R-Squared	0.33	0.02	0.08	0.03
P-value of t - test of ...				
BT = BT and LW	0.55	0.82	0.26	0.32
LW = BT and LW	0.61	0.44	0.28	0.97
BT = LW	0.27	0.27	0.89	0.38
Panel B: Intent to Treat Effects with Gender Interactions				
Business Training (1=Yes)	0.109***	0.096**	0.045	0.146
	(0.032)	(0.038)	(0.042)	(0.144)
BT x Female	-0.067	-0.016	0.112*	-0.100
	(0.047)	(0.051)	(0.059)	(0.191)
Lottery Winner (1=Yes)	0.075*	0.054	0.070	0.053
	(0.039)	(0.041)	(0.047)	(0.191)
LW x Female	-0.073	-0.014	0.049	-0.172
	(0.055)	(0.063)	(0.068)	(0.241)
BT and LW	0.143***	0.131**	0.136**	-0.080
	(0.043)	(0.056)	(0.053)	(0.190)
BT and LW x Female	-0.184***	-0.111*	0.007	0.116
	(0.057)	(0.066)	(0.074)	(0.243)
R-Squared	0.33	0.02	0.08	0.03
P-value of t - test of ...				
BT = BT and LW	0.37	0.50	0.06	0.20
LW = BT and LW	0.17	0.22	0.24	0.55
BT = LW	0.43	0.4	0.62	0.64
BT + BT x Female = 0	0.22	0.03	0.00	0.71
LW + LW x Female = 0	0.96	0.44	0.02	0.46
BT and LW = BT and LW x Female = 0	0.32	0.62	0.01	0.83
Mean of dependent variable among controls	0.05	-0.06	0.02	-0.10
N. Observations	3494	3494	3494	3494

Note: The reported mean of the dependent variable is computed using CO members not offered business trainingnor assigned to be lottery winners.The dependent variables are aggregates of standardized z-scores. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline and gender). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table 6. Time Allocation

Tobit

	CO member			Spouse of CO member		
	Business	Paid Work	Agriculture	Business	Paid Work	Agriculture
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Intent to Treat Effect						
Business Training (1=Yes)	1.578	-0.451	0.616	-0.659	-0.374	-1.45
	(1.042)	(2.048)	(1.325)	(0.609)	(2.051)	(1.415)
Lottery Winner (1=Yes)	-0.022	-2.867	-0.264	-0.709	0.011	1.579
	(1.386)	(2.621)	(1.470)	(0.835)	(3.065)	(1.655)
BT and LW	1.248	2.864	-1.033	0.822	-1.613	-4.552**
	(1.304)	(2.733)	(1.621)	(0.855)	(2.895)	(1.867)
R- square	0.07	0.04	0.04	0.03	0.01	0.03
P-value of t - test of ...						
BT = BT and LW	0.78	0.19	0.24	0.06	0.65	0.06
LW = BT and LW	0.39	0.06	0.66	0.11	0.63	0.00
BT = LW	0.25	0.40	0.58	0.95	0.90	0.09
Panel B: Intent to Treat Effects with Gender Interactions						
Business Training (1=Yes)	2.034	0.513	1.349	0.116	3.671	-0.927
	(1.372)	(2.477)	(1.548)	(0.932)	(3.009)	(1.688)
BT x Female	-1.085	-2.346	-2.252	-1.546	-7.282*	-1.655
	(2.109)	(4.279)	(2.693)	(1.189)	(4.005)	(2.878)
Lottery Winner (1=Yes)	-0.520	-3.428	2.198	-0.995	-0.72	2.464
	(1.634)	(2.993)	(1.695)	(1.150)	(4.681)	(1.862)
LW x Female	1.275	2.218	-7.281**	0.766	1.770	-2.626
	(2.695)	(5.248)	(3.034)	(1.508)	(5.924)	(3.405)
BT and LW	2.142	0.577	2.976	0.637	-2.956	-1.581
	(1.591)	(3.237)	(1.863)	(1.192)	(4.301)	(2.071)
BT and LW x Female	-2.184	6.810	-11.755***	0.462	2.532	-9.142**
	(2.511)	(5.115)	(3.541)	(1.536)	(5.272)	(4.051)
R-square	0.07	0.04	0.04	0.03	0.01	0.03
P-value of t - test of ...						
BT = BT and LW	0.94	0.98	0.32	0.63	0.10	0.72
LW = BT and LW	0.15	0.27	0.70	0.25	0.68	0.09
BT = LW	0.14	0.25	0.65	0.38	0.34	0.11
BT + BT x Female = 0	0.55	0.60	0.69	0.06	0.18	0.28
LW + LW x Female = 0	0.74	0.79	0.05	0.83	0.79	0.96
BT and LW + BT and LW x Female = 0	0.98	0.09	0.00	0.32	0.91	0.00
Mean of dependent variable among controls with positive hours	1.73	1.74	0.95	0.16	1.88	0.75
Percentage of observations among controls with 0 hours	54.6%	77.4%	56.0%	29.4%	78.4%	63.8%
N. Observations	3494	3494	3494	3494	3494	3494

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners. Only the mean for postive log hours is reported. The dependent variables in columns 1-3 are log of hours spent by the CO member in various activities the day prior to the survey. The dependent variable in columns 4-6 are log of hours spent by the spouse of CO member in various activities the day prior to the survey. All regressions are estimated using Tobit and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table 7. Heterogeneous effects by proxy for ability

	Labor supply				Loan Uptake	
	Business		Paid Work			
Proxy for Ability:	Prob. of Default	Growth in Expenditures	Prob. of Default	Growth in Expenditures	Prob. of Default	Growth in Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)
	Tobit	Tobit	Tobit	Tobit	OLS	OLS
Panel A: Intent to Treat Effects						
Business Training (1=Yes)	2.624**	-1.473	-2.624	-1.374	0.010	-0.001
	(1.278)	(0.899)	(2.560)	(1.902)	(0.029)	(0.021)
BT x Proxy	-9.056	0.142	30.842*	-2.155	-0.081	-0.002
	(7.146)	(0.857)	(16.135)	(1.920)	(0.159)	(0.018)
Proxy	2.714	-0.456	-86.541***	4.171**	-0.073	0.014
	(8.067)	(0.779)	(18.106)	(1.785)	(0.153)	(0.015)
R-Squared	0.07	0.07	0.05	0.04	0.24	0.24
Panel B: Intent to Treat Effects with Gender Interactions						
Business Training (1=Yes)	4.530***	-2.896**	-1.153	-1.107	0.062*	-0.029
	(1.570)	(1.294)	(2.906)	(2.282)	(0.037)	(0.031)
BT x Proxy	-18.835**	1.804	27.109	-3.046	-0.460**	0.040*
	(8.918)	(1.125)	(19.236)	(2.417)	(0.213)	(0.024)
BT x Female	-4.511*	-1.444	-2.762	-2.782	-0.139**	-0.023
	(2.657)	(2.045)	(5.531)	(4.395)	(0.057)	(0.044)
Proxy x Female	-16.526	2.614	47.002	-10.137***	-1.066***	0.051*
	(12.196)	(1.667)	(28.940)	(3.555)	(0.239)	(0.029)
BT x Proxy x Female	23.197	-4.167**	-0.082	5.234	0.987***	-0.095**
	(14.489)	(1.982)	(33.224)	(4.449)	(0.302)	(0.040)
Proxy	9.08	-1.42	-99.395***	6.620***	0.359**	-0.008
	(8.442)	(0.979)	(19.504)	(2.168)	(0.181)	(0.018)
R-Squared	0.07	0.07	0.05	0.05	0.25	0.24
P-value of t - test of ...						
Decision-making BT= BT x Female	0.02	0.15	0.83	0.51	0.02	0.44
BT x Ability = BTx Ability x Female	0.05	0.03	0.46	0.17	0.00	0.02
Mean of dependent variable among controls with positive hours	1.73	1.73	1.74	1.74	0.48	0.48
Percentage of observations among controls with 0 hours	54.78%	54.78%	77.42%	77.42%	-	-
N. Observations	3494	3494	3494	3494	4161	4161

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners. However, for column 1-4, the mean of positive business and paid work hours is reported. The dependent variable in columns 1-4 is the log of the number of hours. In column 5-6 is a dummy that takes value 1 if individual applied for a loan. In odd-numbered columns the proxy for ability is the probability of default while in even-numbered columns the proxy is the normalized change in log expenditures.See Appendix B for more details on the definition of variables. Column 1-4 is estimated using Tobit and 5-6 is using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are bootstrapped with 20,000 samples. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table 8. Repayment Outcomes

	Before Loan Lottery				During and After Loan Lottery			
			Amount due as % of principal				Amount due as % of principal	
	Took Loan	Loan Amount (Logs)	At 20 days	At Maturity	Took Loan	Loan Amount (Logs)	At 20 days	At Maturity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Intent to Treat Effects								
Business Training (1=Yes)	0.014	-0.023	-0.011	-0.004	0.012	0.015	-0.004	-0.007
	(0.012)	(0.043)	(0.020)	(0.003)	(0.020)	(0.030)	(0.022)	(0.010)
Lottery Winner (1=Yes)					-0.002	0.067***	-0.02	-0.011
					(0.025)	(0.025)	(0.015)	(0.009)
BT and LW					-0.006	0.077**	-0.010	-0.004
					(0.030)	(0.039)	(0.021)	(0.010)
R-Squared	0.02	0.38	0.10	0.02	0.19	0.16	0.05	0.01
P-value of t - test of ...								
BT = BT and LW					0.45	0.03	0.55	0.56
LW = BT and LW					0.91	0.83	0.59	0.25
BT = LW					0.61	0.14	0.37	0.55
Panel B: Intent to Treat Effects with Gender Interactions								
Business Training (1=Yes)	0.008	0.015	0.014	-0.001	0.044*	0.024	-0.001	-0.008
	(0.017)	(0.083)	(0.043)	(0.001)	(0.026)	(0.041)	(0.034)	(0.015)
BT x Female	0.013	-0.07	-0.045	-0.005	-0.066*	-0.025	-0.008	0.001
	(0.023)	(0.087)	(0.046)	(0.004)	(0.038)	(0.056)	(0.035)	(0.016)
Lottery Winner (1=Yes)					0.058*	0.090***	-0.036	-0.018
					(0.034)	(0.029)	(0.023)	(0.013)
LW x Female					-0.129***	-0.071	0.054**	0.023
					(0.050)	(0.058)	(0.027)	(0.015)
BT and LW					0.034	0.091*	-0.014	-0.007
					(0.042)	(0.052)	(0.032)	(0.015)
BT and LW x Female					-0.086	-0.044	0.012	0.009
					(0.057)	(0.075)	(0.035)	(0.016)
R-Squared	0.02	0.38	0.11	0.02	0.19	0.16	0.05	0.02
P-value of t - test of ...								
BT = BT and LW					0.76	0.04	0.42	0.95
LW = BT and LW					0.65	0.98	0.39	0.18
BT = LW					0.73	0.14	0.20	0.23
BT + BT x Female = 0	0.47	0.10	0.01	0.21	0.44	0.94	0.16	0.00
LW + LW x Female = 0					0.05	0.73	0.05	0.26
BT and LW + BT and LW x Female = 0					0.20	0.39	0.85	0.72
Mean of dependent variable among controls	0.06	9.70	0.03	0.01	0.28	9.80	0.07	0.02
N. Observations	4161	542	542	542	4161	1815	1815	1815

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners. The dependent variables come from administrative records of the lender. See Appendix B for a definition of the variables. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table 9. Children Schooling Outcomes

OLS

Sample:	All Children 9-15 years		Boys 9-15		Girls 9-15	
	Absent last school day (1=Yes)	Work for Income (1=Yes)	Absent last school day (1=Yes)	Work for Income (1=Yes)	Absent last school day (1=Yes)	Work for Income (1=Yes)
	(2)	(3)	(5)	(6)	(8)	(9)
Panel A: Intent to Treat Effect						
Business Training (1=Yes)	-0.003	0.025	0.009	0.013	-0.015	0.041*
	(0.025)	(0.024)	(0.028)	(0.027)	(0.030)	(0.025)
Lottery Winner (1=Yes)	0.073*	0.010	0.077*	0.010	0.065	0.015
	(0.038)	(0.033)	(0.041)	(0.038)	(0.050)	(0.034)
BT and LW	-0.024	0.029	-0.039	0.027	-0.002	0.039
	(0.034)	(0.033)	(0.039)	(0.038)	(0.044)	(0.036)
R-Squared	0.04	0.06	0.04	0.06	0.05	0.07
P-value of t - test of ...						
BT = BT and LW	0.52	0.88	0.22	0.71	0.74	0.96
LW = BT and LW	0.02	0.60	0.01	0.69	0.20	0.55
BT = LW	0.05	0.67	0.11	0.94	0.11	0.47
Panel B: Intent to Treat Effects with Gender Interactions						
Business Training (1=Yes)	-0.027	-0.02	-0.022	-0.023	-0.035	-0.014
	(0.034)	(0.030)	(0.038)	(0.035)	(0.040)	(0.032)
BT x Female	0.051	0.096**	0.066	0.079	0.037	0.116**
	(0.049)	(0.046)	(0.056)	(0.052)	(0.059)	(0.049)
Lottery Winner (1=Yes)	0.084*	-0.027	0.088*	-0.027	0.069	-0.028
	(0.047)	(0.041)	(0.051)	(0.047)	(0.065)	(0.044)
LW x Female	-0.027	0.085	-0.037	0.091	-0.006	0.094
	(0.071)	(0.060)	(0.076)	(0.070)	(0.092)	(0.064)
BT and LW	-0.040	-0.015	-0.057	-0.013	-0.014	-0.012
	(0.044)	(0.041)	(0.048)	(0.045)	(0.059)	(0.046)
BT and LW x Female	0.035	0.100	0.042	0.092	0.024	0.114*
	(0.062)	(0.065)	(0.072)	(0.074)	(0.081)	(0.069)
R-Squared	0.04	0.06	0.04	0.06	0.05	0.07
P-value of t - test of ...						
BT = BT and LW	0.77	0.88	0.47	0.81	0.71	0.95
LW = BT and LW	0.02	0.78	0.01	0.79	0.26	0.75
BT = LW	0.02	0.87	0.05	0.94	0.11	0.76
BT + BT x Female = 0	0.52	0.03	0.29	0.16	0.95	0.01
LW + LW x Female = 0	0.33	0.22	0.39	0.26	0.38	0.18
BT and LW + BT and LW x Female = 0	0.93	0.10	0.79	0.20	0.86	0.06
Mean of dependent variable among controls	0.35	0.21	0.35	0.23	0.34	0.19
N. Observations	5387	8572	3026	4524	2361	4048

Note: The reported mean of the dependent variable is computed using the children of CO members not offered business training nor assigned to be lottery winners. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A1. Interest and Uptake of Business Training

	Interest in BT			Uptake of BT		
	All	Male	Female	All	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Interest in BT				0.228***	0.316***	0.153***
				(0.031)	(0.044)	(0.039)
Member has Business (1=Yes)	0.065***	0.083***	0.049*	0.036	0.057	0.013
	(0.020)	(0.027)	(0.029)	(0.026)	(0.040)	(0.036)
Ever in Business (1=Yes)	0.024	-0.006	0.057**	-0.026	-0.051	-0.006
	(0.016)	(0.023)	(0.023)	(0.022)	(0.032)	(0.032)
Self-Employment (1=Yes)	-0.069***	-0.064**	-0.043	0.014	0.043	-0.051
	(0.019)	(0.025)	(0.028)	(0.026)	(0.031)	(0.045)
Age	-0.001	-0.003***	0.001	0.001	0.002*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Years of Education	0.014***	0.017***	0.008**	0.005	0.002	0.005
	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)	(0.005)
Risk Tolerance	0.004	0.001	0.005	0.002	0.000	0.004
	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Digit Span Recall	0.008**	-0.008	0.021***	0.013**	0.031***	0.002
	(0.004)	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)
Business Knowledge[1]	0.004	0.013	-0.004	-0.002	-0.019	0.007
	(0.007)	(0.010)	(0.010)	(0.010)	(0.013)	(0.014)
Decision-making power (0-8)	-0.002	0.002	-0.004	0.000	-0.001	0.000
	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)
Female (1=yes)	-0.048			0.115***		
	(0.030)			(0.034)		
Index of Female Mobility			0.043***			0.011
			(0.009)			(0.011)
Index of No Purdah			-0.015**			0.008
			(0.007)			(0.010)
Index of Trust	-0.007	0.004	-0.020**	-0.004	-0.024**	0.005
	(0.006)	(0.008)	(0.009)	(0.008)	(0.011)	(0.012)
Index of Stress	-0.010**	0.003	-0.019***	0.000	0.004	-0.005
	(0.005)	(0.008)	(0.007)	(0.007)	(0.011)	(0.010)
Log HH Expenditure	0.020	0.015	0.029	-0.033*	-0.039*	-0.024
	(0.014)	(0.017)	(0.021)	(0.018)	(0.022)	(0.028)
Credit Constraints (1=Yes)	0.006	0.015	0.002	-0.035*	-0.012	-0.057*
	(0.016)	(0.023)	(0.023)	(0.021)	(0.029)	(0.032)
Household member has held hereditary or political office (1=Yes)	0.006	0.010	-0.028	0.109***	0.093**	0.133**
	(0.025)	(0.032)	(0.044)	(0.034)	(0.043)	(0.054)
Months as CO member	0.000	-0.001*	0.002**	0.002***	0.003***	0.001
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Fraction of CO members of same Zaat (caste)	0.284***	0.237***	0.344***	0.136***	0.100*	0.161*
	(0.038)	(0.041)	(0.071)	(0.050)	(0.051)	(0.083)
Holds office in CO (1=Yes)	0.072***	0.116***	0.033	0.117***	0.095***	0.115***
	(0.019)	(0.026)	(0.029)	(0.023)	(0.032)	(0.038)
Land	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)
Distance to meeting place	-0.002	-0.003*	0.000	0.000	0.006**	-0.004*
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Member has Business (1=Yes)	0.050**	0.043	0.037	-0.014	-0.016	0.013
	(0.023)	(0.028)	(0.042)	(0.035)	(0.043)	(0.059)
Eligibility for Loan Lottery	0.009	-0.010	0.006	0.134***	0.195***	0.094**
	(0.022)	(0.030)	(0.031)	(0.027)	(0.036)	(0.039)
Mean of Dependent Variable	0.58	0.65	0.50	0.50	0.50	0.50
N. Observations	4161	2144	2017	2256	1114	1142
R-Squared	0.10	0.10	0.11	0.12	0.20	0.09

Note: In columns (1)-(3), the dependent variable takes value 1 if the member was interested in a hypothetical business training elicited during baseline. In columns (4)-(6) the dependent variable takes value 1 if the member participated in business training if offered in the CO. Columns (1) and (4) include all CO members, columns (2) and (5) male members only and columns (3) and (6) female members only. [1]Only the index of Knowledge of Competition is included in the Business Knowledge index as the other variables were only collected at follow-up. See Appendix B for definition of variables. All regressions are estimated using OLS methods and include branch fixed effects. Standard errors are clustered at the CO level.The following symbols *,** and *** denote significance at the 10, 5 and 1 percent level, respectively.

Table A2. Attrition in Follow Up Survey

	OLS
Panel A: Intent to Treat Effects	
Business Training (1=Yes)	-0.022
	(0.019)
Lottery Winner (1=Yes)	-0.019
	(0.019)
BT and LW	-0.008
	(0.021)
R-Squared	0.03
P-value of t - test of ...	
BT = BT and LW	0.45
LW = BT and LW	0.54
BT = LW	0.96
Panel B: Intent to Treat Effects with Gender Interactions	
Business Training (1=Yes)	-0.003
	(0.028)
BT x Female	-0.039
	(0.039)
Lottery Winner (1=Yes)	-0.044*
	(0.024)
LW x Female	0.052
	(0.036)
BT and LW	-0.021
	(0.027)
BT and LW x Female	0.028
	(0.040)
R-Squared	0.03
P-value of t - test of ...	
BT = BT and LW	0.48
LW = BT and LW	0.37
BT = LW	0.11
BT + BT x Female = 0	0.11
LW + LW x Female = 0	0.79
BT and LW + BT and LW x Female = 0	0.81
Mean of dependent variable	0.18
N. Observations	4,161

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor chosen as winners of the lottery. The dependent variable takes value 1 if observation is missing at follow-up. Regressions include stratification variables as covariates (business ownership at baseline, gender, eligibility of larger loan and branch dummies). Standard errors are clustered at the CO level. The following symbols *,** and *** denote significance at the 10, 5 and 1 percent level, respectively.

Table A3. Determinants of Business Failure

	All	Male	Female
	(1)	(2)	(3)
Interest in training	-0.081**	-0.083*	-0.098*
	(0.033)	(0.044)	(0.053)
Ever in business	-0.032	0.008	-0.059
	(0.035)	(0.046)	(0.054)
Self-Employment (1=Yes)	0.024	0.052	-0.009
	(0.035)	(0.041)	(0.061)
Age	-0.001	-0.002	0.000
	(0.002)	(0.002)	(0.003)
Education	0.004	0.006	0.003
	(0.005)	(0.006)	(0.007)
Risk Tolerance	-0.001	-0.007	0.005
	(0.006)	(0.008)	(0.009)
Digit Span Recall	-0.010	-0.028**	0.013
	(0.009)	(0.012)	(0.015)
Knowledge of Competition index	0.008	-0.004	0.023
	(0.016)	(0.021)	(0.023)
Decision-making power (0-8)	-0.002	-0.009	0.013
	(0.006)	(0.007)	(0.010)
Female (1=Yes)	0.094**		
	(0.042)		
Female Mobility index			-0.002
			(0.020)
No Purdah index			0.029*
			(0.015)
Trust index	0.010	0.017	0.013
	(0.012)	(0.015)	(0.022)
Stress index	-0.003	0.008	-0.012
	(0.013)	(0.019)	(0.020)
Log HH Expenditure	0.010	-0.002	0.044
	(0.032)	(0.043)	(0.051)
Credit Constraints (1=Yes)	0.056*	0.058	0.049
	(0.032)	(0.043)	(0.050)
Household member has held hereditary or political office (1=Yes)	0.000	0.058	-0.123
	(0.049)	(0.056)	(0.088)
Months in CO	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)
Fraction of CO members same zaat (caste)	0.073	0.027	0.225*
	(0.057)	(0.068)	(0.124)
Holds office in CO (1=Yes)	-0.023	-0.047	0.013
	(0.041)	(0.058)	(0.065)
Land	-0.004*	-0.006***	-0.001
	(0.002)	(0.002)	(0.005)
Distance	0.001	0.001	0.001
	(0.002)	(0.003)	(0.004)
Member has Business (1=Yes)	-0.001	-0.009	0.011
	(0.053)	(0.060)	(0.110)
Eligibility for Loan Lottery	-0.026	-0.025	-0.032
	(0.033)	(0.044)	(0.052)
Mean of Dependent Variable	0.39	0.34	0.46
N. Observations	949	529	420
R-Squared	0.03	0.05	0.05

Notes: Dependent variable takes value 1 if the main business at baseline had failed at follow-up. Sample includes all baseline businesses in COs that were not offered Business training. 1Only the index of Knowledge of Competition is included in the Business Knowledge index as the other variables were only collected at follow-up. See Appendix B for definition of variables. All regressions include branch fixed effects. Standard errors are clustered at the CO level.The following symbols *,** and *** denote significance at the 10, 5 and 1 percent level, respectively. See Appendix B for definition of variables.

Table A4. Business Outcomes (Individual Items)

	N. Obs	Mean	BT	LW	BT and LW	P-value of t-test (2)=(4)	P-value of t-test (3)=(4)
		(1)	(2)	(3)	(4)	(5)	(6)
Business Knowledge							
Knowledge of Competition index	3494	-0.06	0.098**	0.073	0.225***	0.02	0.02
			(0.045)	(0.059)	(0.057)		
Knowledge of bookkeeping index[1]	3494	0.02	0.060	-0.064	0.022	0.59	0.29
			(0.061)	(0.076)	(0.077)		
Knowledge of business concepts index[1]	3494	-0.04	0.059	-0.06	0.082	0.69	0.03
			(0.048)	(0.064)	(0.062)		
Aggregate of Business Knowledge	3494	-0.03	0.066**	-0.011	0.105***	0.27	0.01
			(0.031)	(0.040)	(0.038)		
Business Practices							
Allows purchases on credit (1=Yes)	1333	0.58	0.006	0.028	0.033	0.51	0.92
			(0.034)	(0.048)	(0.047)		
Recorded sales last month (1=Yes)	1333	0.29	0.059*	0.051	0.048	0.78	0.95
			(0.034)	(0.044)	(0.042)		
Records money taken for household needs (1=Yes)	1333	0.17	0.077***	0.03	0.098**	0.57	0.11
			(0.028)	(0.040)	(0.039)		
Record anything (1=Yes)[1]	1333	0.34	0.066*	0.054	0.090**	0.52	0.45
			(0.035)	(0.047)	(0.042)		
Aggregate Business Practices	1333	-0.07	0.114**	0.087	0.146**	0.58	0.43
			(0.054)	(0.072)	(0.069)		
Business Operation							
Business has fixed location (1=Yes)	1333	0.90	0.043**	-0.009	0.029	0.44	0.19
			(0.021)	(0.024)	(0.023)		
Operates all months of the year (1=Yes)	1333	0.68	0.042	0.084*	0.068	0.42	0.72
			(0.031)	(0.045)	(0.042)		
Business Appearance index[1]	1333	0.1	0.145	0.012	0.193	0.71	0.33
			(0.139)	(0.180)	(0.144)		
Investment in Marketing (1=Yes)[1]	1333	0.08	-0.032*	0.004	-0.024	0.69	0.32
			(0.019)	(0.027)	(0.025)		
Business is open to the public (1=yes)[1]	1333	0.66	-0.075**	0.023	-0.082*	0.84	0.04
			(0.037)	(0.041)	(0.045)		
Has secured buyer (1=Yes)[1]	1333	0.19	0.083***	0.073*	0.041	0.26	0.46
			(0.031)	(0.041)	(0.039)		
Business assets index[1]	1331	-0.18	0.026	0.178*	0.087	0.46	0.47
			(0.089)	(0.107)	(0.105)		
Aggregate Business Operations	1331	-0.02	0.037	0.077**	0.041	0.89	0.35
			(0.026)	(0.033)	(0.033)		
Sales and Profits							
Log Sales in a Good Month	1316	9.75	0.020	0.187*	-0.039	0.47	0.06
			(0.081)	(0.105)	(0.097)		
Log Sales Average Month	1312	9.24	-0.029	0.01	-0.073	0.60	0.48
			(0.082)	(0.105)	(0.098)		
Log Sales in a Bad Month	1281	8.56	-0.048	0.02	-0.099	0.59	0.35
			(0.091)	(0.116)	(0.112)		
Log Sales November 2008[1]	1333	9.28	-0.002	0.038	-0.318**	0.03	0.06
			(0.116)	(0.156)	(0.146)		
Log Profit[1]	1261	8.15	-0.084	0.067	-0.121	0.71	0.14
			(0.089)	(0.115)	(0.112)		
Aggregate Sales and profits	1197	0.07	-0.035	0.064	-0.051	0.79	0.16
			(0.055)	(0.073)	(0.067)		

Note:[1] Variable collected only during follow-up. Column 1 reports the mean of CO members not offered business training nor assigned to be lottery winners. Aggreggate variables for each family of outcomes are averages of the standardized z-score of each variable in the family. See Appendix B for a definition of the aggregates. Each row in the table is from a regression of the form in Equation (1) in text. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A5 Individual and Household Outcomes (Individual Items)

	N. Obs	Mean	BT	LW	BT and LW	P-value of t-test (2)=(4)	P-value of t-test (3)=(4)
		(1)	(2)	(3)	(4)	(5)	(6)
Household Expenditures and Assets							
Log of Monthly Expenditures	3494	8.28	0.056***	0.018	0.045*	0.64	0.36
			(0.021)	(0.025)	(0.026)		
Log of Savings	3494	9.42	0.140	0.184	0.327*	0.31	0.50
			(0.153)	(0.190)	(0.188)		
Housing index	3494	0.06	0.194***	0.065	0.158**	0.53	0.19
			(0.048)	(0.059)	(0.067)		
Log of Livestock value	3494	7.15	-0.165	0.137	-0.612**	0.04	0.00
			(0.194)	(0.207)	(0.252)		
Aggregate of Income and Assets	3494	0.05	0.079***	0.043	0.061*	0.55	0.61
			(0.024)	(0.030)	(0.032)		
CO Cohesion							
Can rely more on group members (1=Yes)	3494	0.17	0.027**	0.022	0.012	0.45	0.65
			(0.013)	(0.019)	(0.019)		
More collective action in group (1=Yes)	3494	0.10	0.029**	0.004	0.052***	0.18	0.01
			(0.012)	(0.015)	(0.018)		
Lends to CO members (1=Yes)	3494	0.02	0.019**	-0.001	0.008	0.27	0.47
			(0.008)	(0.011)	(0.012)		
Borrows from CO members (1=Yes)	3494	0.02	0.010	0.018*	0.007	0.75	0.38
			(0.007)	(0.010)	(0.010)		
Aggregate of CO Cohesion	3494	-0.06	0.090***	0.048	0.082**	0.82	0.44
			(0.027)	(0.033)	(0.038)		
General Outlook on Life							
Trust index	3494	0.00	0.060	0.071	0.101	0.55	0.70
			(0.051)	(0.070)	(0.069)		
Stress index	3494	0.09	0.173**	0.124	0.197**	0.77	0.45
			(0.067)	(0.084)	(0.090)		
Satisfaction with life	3494	5.47	0.191***	0.189**	0.289***	0.22	0.32
			(0.065)	(0.091)	(0.088)		
Aggregate of Outlook on Life	3494	0.02	0.100***	0.095***	0.141***	0.26	0.28
			(0.030)	(0.036)	(0.041)		

Note:[1] Variable collected only during follow-up. Column 1 reports the mean of CO members not offered business training nor assigned to be lottery winners. Aggreggate variables for each family of outcomes are averages of standardized z-scores of each variable in the family. See Appendix B for a definition of the aggregates. Each row in the table is from a regression of the form in Equation (1) in text. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline, gender and branch dummies). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A6. Individual and Household Outcomes with Self-Employment interactions

	Business Knowledge (1)	Income and Assets (2)	CO Cohesion (3)	Outlook on Life (4)	Decision-Making (5)
Self-Employment (1=Yes)	-0.031	-0.015	-0.052	-0.048	-0.045
	(0.042)	(0.038)	(0.032)	(0.042)	(0.149)
Business Training (1=Yes)	0.047	0.043	0.067**	0.081**	0.077
	(0.037)	(0.027)	(0.030)	(0.034)	(0.110)
BT x Self-Employment	0.035	0.130***	0.078	0.068	0.074
	(0.058)	(0.049)	(0.050)	(0.056)	(0.209)
Lottery Winner (1=Yes)	0.023	0.048	0.071*	0.076*	0.088
	(0.043)	(0.034)	(0.038)	(0.042)	(0.151)
LW x Self-Employment	-0.102	-0.014	-0.066	0.062	-0.351
	(0.078)	(0.060)	(0.055)	(0.077)	(0.258)
BT and LW	0.048	0.016	0.052	0.125***	0.024
	(0.045)	(0.036)	(0.042)	(0.048)	(0.158)
BT and LW x Self-Employment	0.048	0.147**	0.101	0.052	-0.182
	(0.072)	(0.060)	(0.064)	(0.072)	(0.270)
R-Squared	0.08	0.33	0.02	0.08	0.03
P-value of t - test of ...					
BT = BT and LW	0.98	0.44	0.68	0.32	0.73
LW = BT and LW	0.62	0.43	0.70	0.34	0.72
BT = LW	0.60	0.88	0.94	0.91	0.94
BT + BT x Self-Employment = 0	0.09	0.00	0.00	0.00	0.40
LW + LW x Self Employment = 0	0.24	0.51	0.92	0.04	0.25
BT and LW + BT and LW x Self Employment = 0	0.12	0.00	0.01	0.00	0.49
Mean of dependent variable among controls	-0.02	0.05	-0.06	0.02	-0.10
N. Observations	3494	3494	3494	3494	3494

Note: Self-employment is defined as a dummy that takes value 1 if all of household income come from self-employment activities. The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners.The dependent variables are aggregates of standardized z-scores. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline and gender) and the Self-employment dummy. Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A7. Individual and Household Outcomes with gender interactions

	Business Knowledge (1)	Income and Assets (2)	CO Cohesion (3)	Outlook on Life (4)	Decision-Making (5)
Business Training (1=Yes)	0.088	0.099*	0.178***	0.130*	0.337
	(0.071)	(0.055)	(0.066)	(0.070)	(0.249)
BT x Female	-0.006	-0.063	-0.028	0.097	-0.221
	(0.061)	(0.049)	(0.055)	(0.059)	(0.202)
Lottery Winner (1=Yes)	-0.070	0.001	0.040	0.071	-0.004
	(0.094)	(0.062)	(0.081)	(0.096)	(0.400)
LW x Female	0.015	-0.042	-0.006	0.025	-0.144
	(0.075)	(0.055)	(0.064)	(0.073)	(0.276)
BT and LW	-0.050	0.103	0.206**	0.110	-0.328
	(0.090)	(0.075)	(0.098)	(0.095)	(0.323)
BT and LW x Female	0.134*	-0.171***	-0.123*	0.004	0.235
	(0.073)	(0.060)	(0.073)	(0.074)	(0.256)
R-Squared	0.09	0.35	0.02	0.11	0.03
P-value of t - test of ...					
BT = BT and LW	0.13	0.96	0.79	0.84	0.04
LW = BT and LW	0.85	0.21	0.14	0.72	0.48
BT = LW	0.09	0.13	0.13	0.53	0.41
BT + BT x Female = 0	0.17	0.46	0.00	0.00	0.56
LW + LW x Female = 0	0.52	0.50	0.65	0.24	0.65
BT and LW + BT and LW x Female = 0	0.23	0.27	0.19	0.17	0.73
Mean of dependent variable among controls	-0.02	0.05	-0.06	0.02	-0.10
N. Observations	3494	3494	3494	3494	3494

Note: The reported mean of the dependent variable is computed using CO members not offered business training nor assigned to be lottery winners.The dependent variables are aggregates of standardized z-scores. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline and gender), risk aversion, education, landholdings, digit span recall and all interactions of these with treatment dummies. Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A8. Impact of Handholding

	Business Knowledge (1)	Income and Assets (2)	CO Cohesion (3)	Outlook on Life (4)	Decision-Making (5)
Panel A: Intent to Treat Effect					
Handholding (1=Yes)	-0.043	-0.019	-0.022	0.000	-0.194
	(0.050)	(0.044)	(0.051)	(0.048)	(0.172)
Lottery Winner (1=Yes)	-0.035	-0.007	-0.017	0.075	-0.221
	(0.054)	(0.049)	(0.069)	(0.065)	(0.227)
HH and LW	0.015	-0.076	-0.017	0.048	-0.137
	(0.068)	(0.059)	(0.060)	(0.069)	(0.231)
P-value of t - test of ...					
BT = BT and LW	0.33	0.29	0.92	0.39	0.81
LW = BT and LW	0.47	0.22	0.99	0.72	0.74
BT = LW	0.89	0.8	0.95	0.23	0.91
Panel B: Intent to Treat Effects with Gender Interactions					
Handholding (1=Yes)	-0.083	-0.023	-0.044	0.012	-0.177
	(0.070)	(0.053)	(0.071)	(0.070)	(0.288)
HH x Female	0.075	0.013	0.048	-0.018	-0.051
	(0.099)	(0.082)	(0.097)	(0.095)	(0.355)
Lottery Winner (1=Yes)	-0.069	0.055	0.075	0.165**	-0.267
	(0.067)	(0.052)	(0.102)	(0.080)	(0.330)
LW x Female	0.064	-0.134	-0.204*	-0.193	0.100
	(0.105)	(0.089)	(0.114)	(0.118)	(0.417)
HH and LW	-0.057	-0.056	-0.048	0.073	-0.359
	(0.096)	(0.074)	(0.082)	(0.088)	(0.320)
HH and LW x Female	0.158	-0.047	0.072	-0.051	0.530
	(0.122)	(0.102)	(0.104)	(0.128)	(0.445)
P-value of t - test of ...					
HH = HH and LW	0.75	0.65	0.95	0.36	0.57
LW = HH and LW	0.89	0.12	0.28	0.30	0.80
HH = LW	0.84	0.17	0.28	0.05	0.79
HH + HH x Female = 0	0.90	0.88	0.95	0.92	0.26
LW + LW x Female = 0	0.96	0.31	0.06	0.77	0.56
HH and LW + HH and LW x Female = 0	0.22	0.21	0.75	0.84	0.60
Mean of dependent variable among controls	0.06	-0.07	0.08	-0.01	0.01
N. Observations	1140	1140	1140	1140	1140

Note: The reported mean of the dependent variable is computed using CO members not offered the hand holding treatment nor assigned to be lottery winners.The dependent variables are aggregates of standardized z-scores. See Appendix B for a definition of the aggregates. All regressions are estimated using OLS methods and include as covariates the stratification variables (eligibility for loan lottery, business ownership at baseline and gender). Standard errors reported in parentheses are clustered at the CO level. The following symbols *, * * and ** * denote significance at the 10 , 5, and 1 percent level, respectively.

Table A9. Proxies for ability among controls

	Default at Maturity (1)	Changes in Expenditures (2)
Female (1=yes)	0.041	0.008
	(0.036)	(0.056)
Member has Business (1=Yes)	-0.008	-0.086**
	(0.030)	(0.037)
Eligibility	-0.005	-0.001
	(0.037)	(0.041)
Age	0.002	-0.003**
	(0.002)	(0.002)
HH members business history (1=Yes)	0.007	-0.013
	(0.035)	(0.040)
HH size	0.001	-0.007
	(0.006)	(0.008)
Number of Children under 9	0.007	-0.015
	(0.011)	(0.012)
Land	0.003	0.001
	(0.003)	(0.002)
Member has a Bank Account (1=Yes)	0.083	-0.162***
	(0.062)	(0.062)
Fraction of CO Members of same Zaat (caste)	-0.014	-0.079
	(0.080)	(0.072)
Months as CO member	0.016	0.072
	(0.058)	(0.071)
Holds office in CO (1=Yes)	-0.068	-0.110**
	(0.044)	(0.052)
Literacy (1=Yes)	0.045	-0.056
	(0.032)	(0.039)
Business knowledge index	0.001	-0.013
	(0.012)	(0.017)
Risk Tolerance	0.004	0.006
	(0.004)	(0.007)
Stress index	0.004	-0.015
	(0.011)	(0.014)
Mean of dependent variable among controls	0.10	0.60
N. obs	394	1148
R-Sq.	0.09	0.06

Note: The dependent variable in column 1 takes value 1 if the member took at least a loan during the period, and defaulted at maturity on at least one of those loans. In column 2 it is the change from baseline to followup in log household expenditures. Standard errors are clustered at the CO level. Branch fixed effects are included. The following symbols *,** and *** denote significance at the 10, 5 and 1 percent level, respectively. Months as CO member is divided by 100