

Teaching Entrepreneurship:

Impact of Business Training on Microfinance Clients and Institutions*

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Abstract

Can one teach basic entrepreneurship skills, or are they fixed personal characteristics? Most academic and development policy discussions about microentrepreneurs focus on their access to credit, and assume their human capital to be fixed. The self-employed poor rarely have any formal training in business skills. However, a growing number of microfinance organizations are attempting to build the human capital of micro-entrepreneurs in order to improve the livelihood of their clients and help further their mission of poverty alleviation. Using a randomized control trial, we measure the marginal impact of adding business training to a Peruvian group lending program for female microentrepreneurs. Treatment groups received thirty to sixty minute entrepreneurship training sessions during their normal weekly or monthly banking meeting over a period of one to two years. Control groups remained as they were before, meeting at the same frequency but solely for making loan and savings payments. We find that the treatment led to improved business knowledge, practices and revenues. The program also improved repayment and client retention rates for the microfinance institution. Larger effects found for those that expressed less interest in training in a baseline survey. This has important implications for implementing similar market-based interventions with a goal of recovering costs.

Keywords: entrepreneurship, microfinance, business training, business skills, adult education
JEL Codes: C93, D12, D13, D21, I21, J24, O12

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“I firmly believe that all human beings have an innate skill. I call it the survival skill. The fact that the poor are alive is clear proof of their ability. They do not need us to teach them how to survive; they already know. So rather than waste our time teaching them new skills, we try to make maximum use of their existing skills. Giving the poor access to credit allows them to immediately put into practice the skills they already know...” Muhammad Yunus, *Banker to the Poor* (1999, page 140).

I. Introduction

Can one teach basic entrepreneurship skills? If so, should they be taught, or are the “innate skills” sufficient to generate maximum profits given capital and labor constraints, as the above quote from Muhammad Yunus suggests? Although much of policy for the informal sector has focused on access to credit and savings, an important debate remains as to whether entrepreneurial skills can and should be taught.

Many of our models of entrepreneurial activity in developing countries treat human capital as fixed, and focus instead on financial constraints and information asymmetries in credit and equity markets (Banerjee and Newman 1993; Paulson and Townsend 2004). Similarly, much of the microfinance industry focuses on the infusion of *financial* capital into micro-enterprises, not *human* capital, as if the entrepreneurs either already have the necessary human capital. Some development practitioners, however, actively pursue strategies to teach adults (typically women) entrepreneurial skills. These programs are strikingly heterogeneous, and little is known about their impact on economic outcomes for the poor.

This is less true for formal education. For example, Duflo (2000) analyzes the returns to education for primary school children in Indonesia. Similarly, in the United States, job training programs are common and have been studied profusely, with typically promising results. In developing countries, however, the informal markets dominate the economic scene with over 500 million micro-entrepreneurs, yet rarely do the self-employed receive any formal training or

education in how to run a business. The few such programs that exist have not been reliably evaluated, and thus these questions remain unanswered. Are these skills innate, or learned entirely informally through interaction with peers and family? Or should we teach them? We need clean measures of the effectiveness of initiatives to improve the entrepreneurial skills of self-employed individuals in developing countries. We have strong reasons to expect significant selection biases with respect to the type of individuals that seek out such training, and thus a randomized controlled trial is critical for measuring the efficacy of such interventions.

In this study we implemented a randomized controlled trial to assess the marginal impact of incorporating entrepreneurial training into a microcredit program. The study was conducted with the Foundation for International Community Assistance in Peru (FINCA), a microfinance institution (MFI) that implements “village banks” for poor, female microentrepreneurs in Lima and Ayacucho. We randomly assigned pre-existing lending groups to either treatment or control. Treatment groups then received the training as part of their mandatory weekly meetings. Control groups remained as they were before, a credit and savings only group. We conducted a baseline survey before the intervention and a follow-up survey between one and two years later.

The entrepreneurial training materials, and the training of the credit officers, were organized by Freedom from Hunger (FFH), a US-based non-profit organization, and Atinchik, a Peruvian firm. Similar entrepreneurship training has been used around the world by other organizations, such as the International Labor Organization around the world, Promujer in Latin America and BRAC in Bangladesh. FFH is considered a leader in the “credit with education” integrated model of microfinance and is directly responsible for work in 18 countries and over 30 financial institutions. Its influence in credit-linked training programs is evident from the

adoption of its approach by other organizations without direct intervention from FFH and its prominent role at industry events such as the Microcredit Summit (Dunford 2002). However, little is known about the marginal impact of these non-financial services.¹

The issue is not simply whether or not such education is beneficial or not. Much debate also exists in the policy community regarding the optimal method of introducing such interventions. The “business development services” (BDS) approach typically calls for market-based solutions, in which services are rendered for a fee equal to or higher than marginal costs. If, however, the services provided are of unclear value to the more inexperienced entrepreneurs, this approach may create an adverse selection effect: those for whom impact may be highest will be least likely to pay the fee and join the program.

We find strong benefits for both the client and the MFI. The client shows improved business processes and knowledge and increased sales. We find suggestive evidence of such adverse selection in that most (but not all) of the beneficial impacts were more intense on the individuals who expressed the least interest in business training during the baseline survey. The microfinance institution benefits from increased client retention and repayment. Section II presents the nature of the intervention and basic hypothesis. Section III explains the experimental design and Section IV details the data collected and empirical strategy. Section V presents the results, and Section VI concludes.

¹ One notable exception is an analysis of the non-credit services offered by the microfinance institutions in Bangladesh. This study used a structural approach to estimate the impact of credit services and assumed the residual impact to be due to the non-credit aspect of the program (McKernan 2002). Prior evaluations of Freedom from Hunger have measured the impact of the entire package of credit with education versus no services, not the marginal value of the education to the credit program. A comparison has been done on Project HOPE’s credit program with health education versus the credit program alone (Smith 2002).

II. The intervention and its expected effects

The goal of the business training intervention is two-fold: to improve business outcomes and overall welfare for clients and to improve institutional outcomes for the microfinance institution. Stronger businesses may demand more services, and clients may be less likely to default if they are satisfied (either due to higher cash flow or a stronger feeling of reciprocity). But the two goals do not necessarily reinforce each other: stronger businesses may “graduate” to larger formal sector banks, thus the business training could lead to lower client retention for the MFI.

The Intervention

FINCA is a small, non-profit, but financially sustainable, microfinance institution that has been operating in Peru since 1993, and was associated with FINCA International, a large US-based, non-profit organization responsible for creating and replicating the village banking methodology around the world. FINCA’s mission is to improve the socio-economic situation of the poor and empower women through the promotion of the village-banking methodology. By providing them with working capital to increase inventory and invest in their businesses, FINCA expects to increase the earned income of its clients, primarily poor women with no collateral. In addition to providing credit, FINCA teaches its clients to save by requiring weekly or monthly savings deposits that correspond to the size of the loan the client has taken out and by encouraging additional voluntary savings for which they receive market interest rates. FINCA further aims to empower clients by giving them the opportunity to run their banks through their rotating participation on the village-bank board.

FINCA has operations in three particularly poor districts of Lima, and in two Andean provinces, Ayacucho and Huancavelica. As of June 2003, FINCA sponsored 273 village banks

with a total of 6,429 clients, 96 percent of which were women. FINCA members, particularly those in Ayacucho, are relatively young and have little formal education. FINCA clients each hold, on average, \$233 in savings whereas the average loan is \$203, with a recovery rate of 99 percent. FINCA charges sufficient interest to be self-sustainable. Its sustainability indicator (total income / total expenses) was 113.8 percent in 2003; 107.6 percent in 2004; and 128.4 percent in 2005.

The business training materials were developed through a collaborative effort between FINCA, Atinchik,² and Freedom from Hunger (FFH), and had been used in the past in other projects.³ The program included general business skills and strategy training, not client-specific problem-solving. Although the pedagogy did include discussion with the clients (not just lecture) and various short exercises, the program was not focused on providing specific, individualized advice. The content of the training was similar in both locations, but was organized and presented differently to cater to the differences in educational levels and learning processes.⁴ In Lima, clients received handouts and did homework, whereas in Ayacucho, teaching relied more heavily on visual aids and was sometimes in Quechua (a local indigenous language). The training materials in Lima were organized in two modules. The first module

² Atinchik, a nine-year old firm, specializes in the generation of training materials in business management for micro-entrepreneurs. Atinchik had used similar training previously in a project for the World Bank in Peru.

³ Since 1995, FFH has provided technical assistance to eighteen MFIs in Asia, Africa and Latin America, with its program *Credit with Education*, a combination of microcredit and educational services. Working with independent local partners, FFH provides training in microfinance products, MFI capacity building, and adult education in health and business development. Its business education curriculum was developed through market assessments using individual surveys, focus groups with key informants, pilot-testing, and the feedback of clients and staff. The materials used in Peru were slightly modified from materials used extensively FFH's affiliate in Bolivia, CRECER.

⁴ Among FINCA's Lima clients, the literacy rate is 98 percent, the majority has a secondary education and 40 percent have some post-secondary schooling as well. On the other hand, in the Ayacucho region, almost 70 percent of the FINCA clients did not finish secondary school and approximately 15 percent are illiterate.

introduced attendees to what a business is, how a business works, and the marketplace. Clients were taught to identify their customers, competitors, and the position of the business in the marketplace and then learned about product, promotional strategies and commercial planning. The second module explained how to separate business and home finances by establishing the differences between income, costs, and profit, teaching how to calculate production costs, and product pricing. See Appendix A for more details on the content of the business training.

Training began in October, 2002 in Lima and in March, 2003 in Ayacucho and was planned to last 22 weekly sessions in total. Each bank timed the beginning of the training with the beginning of new loan cycles, so not all banks began training at the same time. Ayacucho's meetings are weekly, whereas in Lima some groups meet weekly and others meet bi-weekly.

The Intended Effects

The goal of the program is to teach entrepreneurial skills. However, if the entrepreneurial "spirit" is more about personality than skills, teaching an individual to engage in activities similar to a successful entrepreneur may not actually lead to improved business outcomes. The training aims to improve basic business practices such as how to treat clients, how to use profits, where to sell, the use of special discounts, credit sales, and the goods and services produced. These improvements should lead to more sales, more workers, and could eventually provide incentives to join the formal sector.

We also examine the impact on two sets of household outcomes: household decision-making and child labor. The link to household decision-making is straightforward and one of the oft-cited motivations of such training: improved business success could empower female microentrepreneurs with respect to their husbands/partners in business and family decisions by giving them more control of their finances. The link to child labor is ambiguous, however.

Since many children work in family enterprises, this is an important outcome to observe. The training may lead to changes in the business which either increase or decrease the marginal product of labor, hence increase or decrease child labor through a substitution effect. If the training increases business income, then we expect increased wealth to lead to a decrease in child labor and an increase in schooling.⁵ Furthermore, an indirect effect may occur in which the training inspires the mother to value education more and thus invest more in schooling of her children.

In addition to impact on the clients' businesses and households, the training could impact important outcomes for the institution. If clients' businesses improve, they are more able to repay their loans. The training also may engender goodwill and sentiments of reciprocity, also leading to higher repayment rates. Loan sizes and savings volumes are more ambiguous: if clients learn how to manage their cash flows better, they perhaps will need less debt. On the other hand, the business training may lead them to expand their business, and thus also demand more financial capital.

Although much of the academic literature focuses on repayment rates for microfinance, many institutions (who typically have near perfect repayment) are more concerned with client retention (Copestake 2002). The expected effects here are ambiguous. If clients like the training, they may be more likely to remain in the program in order to receive the training, whereas obviously if they do not like the training (perhaps due to the additional 30-60 minutes per week required for the village bank meetings), they may be more likely to leave. The net

⁵ The connection between increased income and the reduction of child labor and the increments in schooling can be reviewed in Basu and Van (1998), Baland and Robinson (2000), and Edmonds (2005; 2006), among others.

effect is critical for the microfinance institution, since maintaining a stable client base is important for the sustainability of the organization.

III. The experimental design and the monitoring of the intervention

We evaluate the effectiveness of integrating business training with microfinance services using a randomized controlled trial in which pre-existing lending groups of on average twenty women were assigned randomly to control and treatment groups. In Ayacucho, of the 140 village banks (3,265 clients), 55 were assigned to a mandatory treatment group (clients had to stay through the training at their weekly bank meeting⁶), 34 were assigned to a voluntary treatment group (clients were allowed to leave after their loan payment was made, before the training began), and 51 were assigned to a control group which received no additional services beyond the credit and savings program. In Lima, of 99 FINCA-sponsored banks (1,326 clients), 49 were assigned to mandatory treatment and 50 were assigned to control (there was no “voluntary” treatment group in Lima). The randomization was stratified by credit officer; hence each credit officer has the same proportion of treatment and control groups.

We monitored the attendance at the weekly meetings and the training sessions. On average, training sessions in mandatory training banks had an 88% attendance rate while attendance in voluntary banks was 76%.⁷ The training did not occur at each meeting (nor does it typically under most implementations of “credit with education” in other MFI’s). First, some treatment banks put the trainings on hold if they were having problems such as high default and drop out rates. In these cases, they would often enter a restructuring phase that involved

⁶ Fines were applied for absence or tardiness, and could result in expulsion from the bank.

⁷ Attendance in voluntary banks gradually slowed from an average of 80% at the beginning to 70% in the last two cycles observed.

reinforcement of the traditional FINCA training about good repayment practices and discipline. The training session was also skipped at the first and last meeting of each cycle, and when the meeting included a group activity such as the celebration of a birthday or regional and religious holidays. In these cases, the session would be postponed until the following meeting. There were other cases in which the clients and credit officers decided that they needed more time to grasp fully the information offered in one session. In some cases, it became a normal practice for banks to agree to spend an extra meeting reviewing the material of the previous training session.⁸

These practices not only delayed the completion of the training materials, but also caused heterogeneity in treatment intensity across groups. In Lima, for example, the average bank advanced 3.5 sessions per loan cycle over the 12-meeting cycles. However, it was common for banks to complete five training sessions in the first loan cycle, and slow to an average of 2.6 training sessions per cycle over time. As a result, after at least 24 months since the launch of the training, only half the banks had reached the 17th session out of a total of 22 programmed sessions. The empirical analysis will compare the village banks assigned to treatment to those assigned to control, irrespective of how well they adhered to the training program, and irrespective of how well clients attended the training. This is important not only to avoid a selection bias on the intensity of treatment, but also because the delays experienced here are normal for credit with education interventions.⁹ Had the training been adhered to more strictly, we would be estimating the impact of a treatment that is stronger than is normally implemented.

⁸ In the case of Lima, such revisions often implied using the sessions to work in groups, with the support from the credit officer, on the assigned homework.

⁹ This stylized fact reported to us by Freedom from Hunger staff.

IV. Data and estimation methods

This evaluation uses three key data sources: FINCA financial-transaction data, a baseline survey before the randomization results were announced, and a follow-up survey up to two years later.

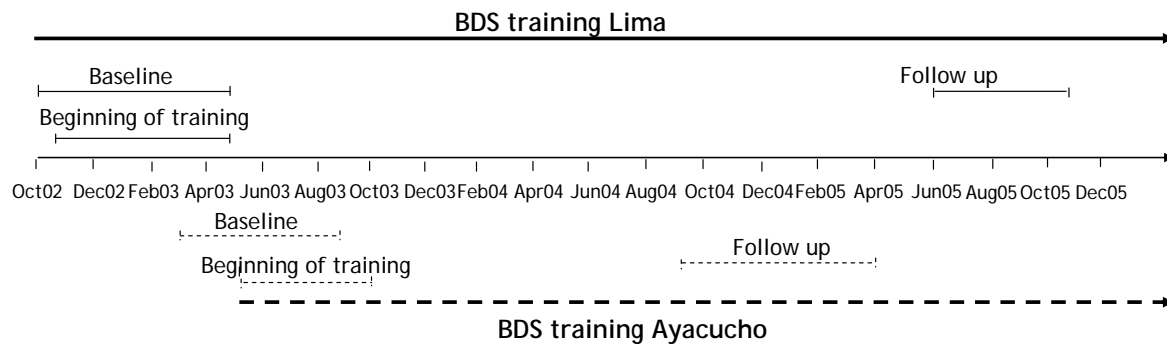
Financial-transaction data are from FINCA's database, which contains the reports of all the transactions made by each bank client at every scheduled meeting since 1999. It includes information on the loan cycles, broken down by loan payment, interest, mandatory and voluntary savings, fines for tardiness, and contributions to cover default of other members. The database also includes some socio-economic characteristics of the clients, such as age, education, and business main economic activity, registered when the client first joined a FINCA-sponsored village bank.

The baseline and follow-up surveys included a variety of questions on the socio-demographic characteristics and other general information about the client's household and business. Outcomes can be divided into four categories: (1) institutional outcomes, (2) business processes, knowledge and savings practices (i.e., testing whether the specific practices taught in the training were adopted), (3) business outcomes, (4) household outcomes, including empowerment in decision-making and child labor (the Lima follow-up survey included questions related to the time children between six and fifteen years old dedicate to domestic work and school activities). The full list of outcome variables and their definitions are included in Appendix Table 1.

In treatment banks, the baseline survey was given within a few weeks prior to the bank beginning the training. Figure 1 below shows the timeline of these components of the study for Ayacucho and Lima. Most baseline surveys were completed at the FINCA office at the time of

their weekly meeting, although due to time constraints some of them had to be completed at their home or place of business. In Ayacucho, we completed baseline 3265 surveys, while in Lima, we completed 1326 baseline surveys.

Figure 1: Timeline of the intervention and data collection



Seventy-six percent of the clients in the baseline survey were reached and surveyed for the follow-up survey. For the 62% of the clients interviewed in the baseline who were no longer members of a FINCA-sponsored village bank when the follow-up surveys began, we located them using addresses collected in the baseline survey or, in some cases, asking neighbors or FINCA members. However, some clients had moved far away, were impossible to locate, or refused to be interviewed. In total, we interviewed 83% of the clients who were still borrowing from FINCA, and 72% of those who had dropped from the program. As Appendix Table 2 shows, there was not a survey response bias in Ayacucho but in Lima control group individuals were slightly more likely to complete the survey. Also, among those who dropped out, the response rate is slightly higher for the control group than the treatment group.

In order to show that the random assignment produced observably similar treatment and control groups, Appendix Table 3 reports key demographic characteristics and financial-

transaction history from before BDS training began. At the time of the randomization, data were available on prior repayment rates, the average loan size and the average savings size. The remaining variables were unobserved at the time of the randomization, but also are similar across treatment and control groups, as expected.

To estimate the impact of the business training program, we use the first-difference (FD) or the double-difference (DD) estimators, depending on whether we observe the outcome of interest only in the follow-up, or in both the baseline and follow-up survey. The FD estimator is obtained by comparing the levels of the outcomes variables between the treatment and control groups. In turn, the DD estimator is obtained from comparing changes over time in a particular outcome variable between treatment and control groups. Due to the randomization, both estimators provide an unbiased estimate of the impact of the intention to treat with business training program on a particular outcome variable.

Econometrically, the FD estimator is obtained by estimating the following linear regression:

$$Y_{ij} = \alpha + \beta D_j^T + \varepsilon_{ij} \tag{1}$$

where Y_{ij} denotes an outcome variable for client i in bank j after the treatment, D_j^T is a dummy variable that takes the value one if the client belonged to a treatment bank, and ε_{ij} denotes the error term which is assumed to be independent across banks but not necessarily within them. Thus, β measures the difference between the treatment and control groups in the outcome Y after the treatment, and is an unbiased estimate of the average impact of being assigned to a treatment group on the outcome variable Y . In the tables of results section, we also report estimates of β that result from a regression that adds to eq. (1) a set of covariates such as the

clients' age and education, the number of loans received from FINCA, business type and size, and branch location.¹⁰

We also test whether the training generates heterogeneous treatment effects along characteristics such as prior interest in training, schooling, and business size as measured by total revenues. We use the following model:

$$Y_{ij} = \alpha + \delta X_{i0} + \beta_1 D_j^T + \beta_2 D_j^T X_{i0} + \varepsilon_{ij}, \quad (2)$$

where X_0 is a binary variable that denotes the characteristic of interest prior to the intervention.

In this case, β_1 is the FD estimator for those individuals that have characteristic $X = 0$ and $(\beta_1 + \beta_2)$ measures the impact for those individuals that have characteristic $X = 1$.

If the outcome variable is binary, we estimate a probit model and report the marginal effect of D_i^C for the impact of business training on outcome Y . In the model with interactions, the marginal effect for those with $X = 0$ is obtained by estimating $[\hat{\Pr}(Y = 1 / D = 1, X = 0) - \hat{\Pr}(Y = 1 / D = 0, X = 0)]$. For those clients for whom $X = 1$, the marginal effect of treatment on those clients with $X = 1$ is obtained with the following expression: $[\hat{\Pr}(Y = 1 / D = 1, X = 1) - \hat{\Pr}(Y = 1 / D = 0, X = 1)]$.

The double difference estimator comes from the following expression:

$$Y_{ijt} = \alpha + \beta_1 Post_t + \beta_2 D_{jt}^T + \beta_3 Post_t D_{jt}^T + \varepsilon_{ijt} \quad (3)$$

where $Post_t$ is a binary variable equal to one if the observation corresponds to the post-treatment time period. Then, β_3 is the double difference estimator of the program's impact on

¹⁰ Since treatment was assigned randomly, we would expect the insertion of these covariates to reduce the variance of the estimated effect without introducing bias.

outcome Y . As before, to measure whether treatment is heterogeneous across various characteristics, the following model is estimated:

$$Y_{ijt} = \alpha + \delta X_{i0} + \beta_1 D_j + \gamma_1 D_j X_{i0} + \beta_2 D_j + \gamma_2 D_j X_{i0} + \beta_3 Post_t D_j^T + \beta_4 Post_t D_j^T X_{i0} + \varepsilon_{ijt} \quad (4)$$

where X_{i0} is a binary variable that denotes the characteristic of interest at the time of the baseline. In this case, β_3 is the double difference estimator for those individuals that do not have characteristic X and $(\beta_3 + \beta_4)$ measures the impact for those individuals that do have it.

V. Results

We divide the analysis into four categories of outcome variables: (1) institutional outcomes, (2) business processes and knowledge, (3) business outcomes, and (4) household outcomes including empowerment in decision-making and child labor.

Institutional results

We found important effects of training on institutional outcomes such as repayment and client retention. Repayment among treatment groups is three percentage points higher than among control groups (Table 1). That is, clients among treatment groups were more likely to maintain a clean repayment record in the cycles between the baseline and follow-up surveys.¹¹ We also found that treatment group clients were four to five percentage points less likely to dropout. However, when not counting returnees as dropouts, this effect is slightly smaller and no longer statistically significant. We infer from this that clients place high value on the training they receive, causing them to avoid at a minimum temporary exits, and perhaps permanent ones as well. Still, treatment clients are more likely to cite the length of weekly

¹¹ A client is said to have had a clean repayment record if their payments over the cycle plus their savings were always enough to cover the amount borrowed plus interest.

meetings as a factor in dropping out of the program (Appendix Table 4). So while in net the business training is good for client retention, the program can expect to lose some clients due to lengthier meetings. Making the training voluntary would reduce in principle this tension, but we find the improvement in dropout rates is slightly higher for the mandatory treatment than the voluntary treatment groups.¹²

Another explanation for the increase in client retention for treatment groups is the improvement of clients' business outcomes, leading to higher repayment capability. The increase in client retention could be driven by the reduction in default rather than client satisfaction if the training causes some clients who might have defaulted to increase their ability to make loan payments. This would require an increase in business income to provide the funds to make extra payments, and as we shall see below, such impacts were indeed detected. Although not reported in the tables, we also examined whether the treatment led to more dropout with default compared to dropout without default. We found that the treatment effect is larger in reducing dropout without default, but when disaggregated neither is significant statistically.

We also find that the improvement in repayment rates and client retention are strongest for clients with larger businesses (as measured by sales) and for those who expressed the *least* interest in business training in the baseline survey.¹³ The latter has strong implications for the appropriate method for introducing business training to a program or market, since the impact is highest on those who indicate the lowest demand for the service (i.e., charging a fee for the business training initially may yield the exact wrong set of clients in order to maximize impact).

¹² This regression result is not in the tables but is available upon request.

¹³ Moreover, when looking at those less interested in training, we also find a significant effect of business training on permanent dropouts.

We find no change in loan size or cumulative savings. The improved default and client retention rates have strong implications for the profitability of the institution, as discussed in more detail in the conclusion.

Business skills and practices

In the follow-up survey we asked clients questions about key elements of the training, such as business knowledge, marketing strategies, use of profits, and record-keeping (see Appendix Table 1 for the full list of survey questions and variable definitions). Table 2 shows the results on these outcome measures. Training participants demonstrated greater business knowledge, answering more questions correctly (10 percentage points, which is 0.07 standard deviations). The greater knowledge translated into better business practices, though only in limited areas. The training increased the likelihood that individuals reinvested profits in their business by four percentage points (0.08 standard deviations), maintained sales records for their business by between three percentage points (0.07 standard deviations), and maintained withdrawal records from their business by seven percentage points (0.17 standard deviations). Lastly, individuals were asked to name changes or innovations they have made to their businesses over the prior year, and those in the treatment group were five percentage points more likely to report having done so.¹⁴

Table 2b shows that no consistent pattern exists for stronger (or weaker) impacts for any sub-samples. For instance, impacts on business formality and on the execution of changes for the business were observed mostly on the clients who expressed low interest in training in the

¹⁴ Microentrepreneurs in the Ayacucho treatment groups reported higher execution rates in overall treatment of the client, the use of special discounts and seasonal adjustments in the products offered to their clientele.

baseline survey. This result is consistent with those in Table 1b, reinforcing the notion that the benefits of the program concentrated in those that did not foresee them at the start.¹⁵ On the other hand, several results (reinvesting profits in their business, improvements in business knowledge, and maintaining sales records) show stronger impacts on those with *higher* expressions of interest. Hence we consider these results mixed with regard to heterogeneous treatment effects for those with differing levels of prior interest in training.

Business results

Table 3 presents the results on business outcomes such as sales and employment. Sales in the month prior to the surveys were 16% higher. When looking at the variation in sales, we find the largest effect for sales in a bad month, which is 28% higher among treatment groups compared to control groups. We infer from this latter result that the training has helped clients identify strategies to reduce the fluctuations in their sales. For instance, they could have diversified the goods and services they offer or have identified clients with a different seasonality in their purchases. The improved cash flow also may have reduced their seasonal demand for credit helping to explain the lack of impact of the training on loan size in Table 1.

For retail business, no change in profit margin was observed on the most common product sold. Due to time and reliability constraints, we only asked about profit margin for the main product. However, unless the profit margin shrunk on other products despite not decreasing on the main product, the increased overall revenue implies an increase in profits. For service

¹⁵ For the execution of changes in business practices, effects are stronger in Ayacucho, where FINCA clients are poorer, have less formal education and expressed less interest in the training in the baseline survey. These results are available from the authors upon request.

businesses, since no change in labor was observed, the increased revenue should translate roughly to increased profits.

Household outcomes

Table 4 reports the results on household outcomes. We divide the household outcomes into two categories, empowerment in household decision-making and child labor. We detect no impact on household decision-making such as how to use the FINCA loan and savings, whether to take money or products from the business, or family size decisions. Participants are also no more likely to keep track of household bills or separate their money from that of their husband or partner. One explanation for the lack of empowerment effects may be that we are working with women that already run a business, keep savings and manage loans so that they are already empowered enough for the business training to have an effect on the indicators analyzed here (it does suggest that modules focusing on these issues may not be optimal to include). Also, as indicated in section II, FINCA clients routinely receive empowering messages during their bank meetings.

On child labor, although the overall effect is not significant for both male and female children, we do find a positive treatment effect on the number of hours *female* children dedicate on average to school and schoolwork. We do not see a corresponding shift downward in hours spent working in the enterprise or housework, which indicates that the female children spent less time in leisure. This also implies that the training had its effect not through changing the marginal product of labor in the enterprise, nor through an income effect, but instead perhaps through increasing the mother's preference for education for their daughters. We also find, in Table 4c, that for more educated mothers, the training reduces the number of hours the children

spend working in the enterprise. However, the corresponding increase in education is positive but not statistically significant.

VI. Conclusion

We raised a fundamental question regarding informal economies in developing countries: can successful entrepreneurship skills be taught, and if so will business outcomes improve? In our setting, the answers are yes and yes. Training led to better business practices and increased revenues and profits. Clients report engaging in some of the exact activities being taught in the program: separating money between business and household, reinvesting profits in the business, maintaining records of sales and expenses, and thinking proactively about new markets and opportunities for profits. The implementation of these strategies seemed to have helped clients increase business income, mainly by smoothing fluctuations between good and bad periods.

Much tension exists in the development finance community regarding whether lenders should specialize on financial services only, or should integrate non-financial services into their programs (MkNelly, Watetip, Lassen and Dunford 1996).¹⁶ The idea that specialization is good is certainly not new, but in this setting it is unknown whether the economies of scope outweigh the risks of having credit officers simultaneously become “teachers.”¹⁷ Aside from losing focus on the lending and savings activities, providing detailed business advice may lead to higher default if the borrower then perceives the lender as partially responsible for any business changes that do not succeed (i.e., does a lender giving business advice effectively convert the

¹⁶ In a third alternative, the “parallel” approach, non-financial services are provided to the same individuals by another organization (or other employees of the same organization) in coordination with the financial service provider.

¹⁷ The issue is even starker in other “education” add-on components such as health and nutrition training, which are often part of the “credit with education” approach. Such modules were not part of this initiative.

debt into equity?). Thus, examining the effects on the institution, not just the client, is important.

We find positive impacts on repayment rates and client retention for FINCA, the lending organization. Freedom from Hunger has found that the marginal cost to organizations is 6%-9% of total costs (vor der Bruegge, Dickey and Dunford 1999). The marginal revenue will come from the increased client retention and repayment rates (no change in loan sizes was observed). The fixed cost of managing a village bank is high, but the variable operating cost of each individual client is quite low. The financial cost of capital is also low, roughly one fifth of the interest revenue. Thus, the improved client retention rate (sixteen percent improvement in client retention) generates significantly more increased net revenue (revenue net of cost of capital) than the marginal cost of providing the training. The benefit from the improved client repayment is more difficult to estimate, since the true benefit to FINCA comes through lower enforcement costs (the eventual default is virtually nonexistent). In all, this is a profitable undertaking for FINCA.

Another important result is that we find the stronger effects for those clients who expressed less interest in the training in the baseline survey. Not only are they the ones more likely to improve retention and repayment but also they were more likely to report having implemented changes to improve their businesses. This result implies that demand-driven “market” solutions may not be as simple as charging for the marginal cost of the services. It is possible that after a free trial, clients with low-prior demand would appreciate the value and demand the services. Or, eventually, word of mouth may lead to higher demand by the less informed. Alternatively, programs could make the training a necessary component of some of other desired commodity (such as credit). The experimental setup and outcomes measured here

do not allow us to examine the exact prescription from this finding, nor was the finding particularly strong and consistent across all outcomes.

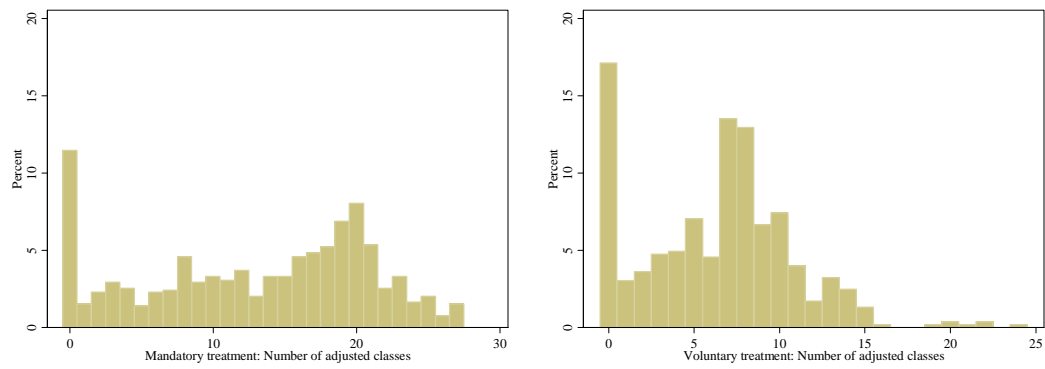
Although this paper has broader implications to models of growth that incorporate the ability to increase adult human capital and to models of financial and small enterprise markets for the poor, this is at a basic level an exercise in program evaluation. We suggest, however, that it is a necessary exercise both for policymakers and academics. Given the plethora of these projects, and given the importance of human capital to our thinking about growth and development, it is imperative that we know whether these efforts can have a positive effect on the poor. Many disagree on this basic point, as discussed earlier. In fact, the very origins of the microfinance movement, led by Muhammad Yunus of the Grameen Bank, are based on the presumption that credit constraints alone, not skills, are the obstacle to the entrepreneurial poor. Of course our finding says nothing about whether credit constraints are an obstacle or not. We instead find evidence that microfinance institutions can improve client outcomes cost effectively by providing entrepreneurial training along with the credit.

Having found an encouraging positive answer in our setting, further experimentation is now needed to verify the replicability in different contexts. It also would be important to evaluate the ongoing sustainability of the improvements for the client and the lending institution. For instance, will the selection of clients differ if the training is incorporated and well publicized, and if so how will that affect the impact of the intervention? Lastly, an open debate exists regarding alternative delivery processes, such as whether credit officers rather than training specialists should be delivering the education, as well as the relative merits of different training modules and pedagogies.

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Graph 1. Distribution of the individual attendance in Ayacucho, by kind of treatment ^{a/}



^{a/} Individual attendance is calculated as the number of classes that the client was exposed to during her tenure in the treatment bank, adjusted by percentage of classes attended.

Graph 2. Distribution of the individual attendance in Lima ^{a/}

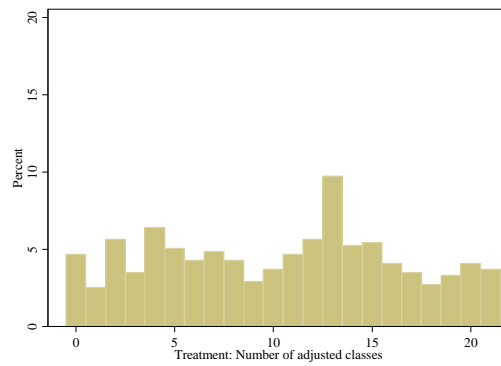


Table 1. Impact of training on institutional outcomes

OLS, Probit				
Dependent variable ^{a/}	Mean & S.D. of dependent variable	N° of clients	Treatment impact without covariates	Treatment impact with covariates ^{b/}
<i>Double difference estimate reported</i>				
Loan size	212.19 (207.73)	3170	2.35 (13.692)	8.75 (12.911)
Cumulative savings	304.45 (411.31)	3170	-11.53 (15.839)	-4.37 (16.027)
<i>First difference estimate reported (no baseline data available)</i>				
Repayment	0.80 (0.40)	3170	0.03 (0.022)	0.03* (0.020)
Dropout				
Permanent or Temporary Dropout	0.61 (0.49)	3170	-0.04 (0.026)	-0.05* (0.026)
Permanent Dropout	0.45 (0.50)	3170	-0.02 (0.025)	-0.03 (0.026)
Fines	0.03 (3.20)	2785	0.10 (0.130)	0.12 (0.133)
Solidarity discounts	0.44 (5.71)	2785	-0.22 (0.435)	-0.19 (0.403)

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (repayment, client retention, and all dropout variables).

^{a/} Dependent variables are defined as follows. Loan size: Amount borrowed from FINCA's external account at beginning of loan cycle (US\$). Cumulative savings: Balance at end of loan cycle (US\$). Repayment: Binary variable equal to one if, since the beginning of training, the client made all her payments on time or had sufficient savings to cover missed payments. Fines: Amount discounted from the savings account for not attending or being late to any of the meeting, and/or not making the weekly installment (US\$). Smaller sample size because only available in FINCA database since June 2004. Solidarity discounts: Discounts from savings account that occur when there is an individual default in the external account not covered by defaulter's individual savings (US\$). Smaller sample size because only available in FINCA database since June 2004. Permanent or Temporary Dropout: Binary variable equal to one if client had left a FINCA village bank ever after the beginning of the training. Permanent Dropout: Binary variable equal to one if client had left a FINCA village bank by December 2005.

^{b/} The covariates include location (Ayacucho or Lima), business activity, business size, age, schooling and number of FINCA loans received by the client.

Table 1b. Impact of training on institutional outcomes, by sub-group

OLS, Probit

Dependent variable	Mean & S.D. of dependent variable	Ex-ante Attitude Towards Training		Education		Business Size	
		Low interest	High interest	Below high school	Above high school	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Double difference estimate reported</i>							
Loan size	212.19 (207.73)	13.79 (15.137)	-9.48 (18.410)	8.48 (13.990)	-24.71 (28.568)	-7.96 (14.119)	13.21 (18.605)
Cumulative savings	304.45 (411.31)	-4.46 (21.404)	-18.58 (24.593)	-9.65 (16.038)	-22.24 (47.374)	-25.03 (18.666)	0.82 (24.382)
<i>First difference estimate reported (no baseline data available)</i>							
Repayment	0.80 (0.40)	0.05** (0.025)	0.01 (0.026)	0.04* (0.023)	0.01 (0.039)	0.02 (0.027)	0.04* (0.026)
Dropout							
Permanent or Temporary	0.61 (0.49)	-0.06** (0.030)	-0.01 (0.033)	-0.03 (0.029)	-0.07 (0.048)	-0.01 (0.032)	-0.06** (0.033)
Permanent	0.45 (0.50)	-0.04 (0.028)	-0.01 (0.033)	-0.02 (0.027)	-0.06 (0.048)	-0.01 (0.032)	-0.04 (0.032)
Fines	0.03 (3.20)	0.23 (0.146)	-0.05 (0.196)	0.11 (0.131)	0.13 (0.394)	-0.07 (0.153)	0.25 (0.193)
Solidarity discounts	0.44 (5.71)	-0.36 (0.576)	-0.06 (0.312)	-0.29 (0.524)	0.13 (0.276)	0.26 (0.206)	-0.62 (0.844)
N° of clients		1668	1502	2579	591	1483	1687

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (repayment, client retention, and all dropout variables). See Table 1 notes for all details regarding specific outcome measures.

Table 2. Impact of training on business practices

OLS, Probit				
Dependent variable ^{a/}	Mean & S.D. of dependent variable	N° of clients	Treatment impact without covariates	Treatment impact with covariates ^{b/}
<i>Double difference estimate reported</i>				
Tax formality	0.15 (0.36)	2981	0.01 (0.012)	0.01 (0.012)
Paid fixed salary to self	0.04 (0.20)	2815	-0.02 (0.019)	-0.02 (0.019)
Keeping records of:				
Sales	0.29 (0.45)	2903	0.03* (0.020)	0.04* (0.022)
Withdrawals (Lima only)	0.11 (0.31)	677	0.06 (0.042)	0.06 (0.043)
Number of sales locations	1.07 (0.32)	3424	0.01 (0.026)	0.01 (0.026)
Level of diversification				
Number of income sources (Ayacucho only)	2.33 (0.53)	2394	-0.02 (0.038)	-0.02 (0.038)
Allows sales on credit	0.59 (0.49)	3424	-0.002 (0.015)	-0.002 (0.015)
<i>First difference estimate reported (no baseline data available)</i>				
Keeping records of payments to workers	0.23 (0.57)	2992	0.005 (0.015)	0.004 (0.013)
Business knowledge index	3.32 (1.40)	3427	0.10* (0.060)	0.08 (0.055)
Started new business	0.14 (0.35)	3427	-0.02 (0.012)	-0.02 (0.012)
Level of diversification				
Importance of main product	2.31 (0.70)	2221	0.01 (0.034)	0.01 (0.035)
Profit used for business growth	0.67 (0.47)	3427	0.04** (0.020)	0.04** (0.019)
Thinking of keeping business safe when taking money from it	0.26 (0.44)	3427	-0.002 (0.016)	-0.0002 (0.015)
Proportion of clients who faced problems with business (Lima only)	0.65 (0.48)	1033	0.02 (0.034)	0.02 (0.034)
Proportion of clients who:				
Planned innovations in their businesses	0.65 (0.48)	3427	0.02 (0.019)	0.03 (0.018)
Executed innovations in their businesses	0.39 (0.49)	3427	0.05** (0.020)	0.05** (0.019)

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (tax formality, profit used for business growth, thinking of keeping business safe when taking money from it fixed salary, keeping records, started new business, allowing sales on credit and proportion of clients who faced

problems/planned innovations/executed innovations).

^{a/} Dependent variables are defined as follows. Tax Formality: Binary variable equal to one if client has a tax ID number. Profit used for business growth: Binary variable equal to one if client reported re-investing profits for the growth or continuity of the business. Thinking of keeping business safe when taking money from it: Binary variable equal to one if client considers the needs of the business when taking money from the business for family use. Paid fixed salary to self: Binary variable equal to one if client pays herself a fixed salary. Missing observations due to refusal to answer or inability to provide clear answer. Keeping records: Binary variable equal to one if client records sales/withdrawals/payments to workers in a registry or notebook. Business knowledge index: Number of right answers given by the client when asked about what should be done to increase business sales and to plan for a new business. Started new business: Binary variable equal to one if client reports that she began a new business in the last year (Ayacucho) or the last two years (Lima). Number of sales locations: Number of locations where the client sells her main business's products. Number of income sources: Number of income sources the client reports (personal/family businesses, other jobs or working activities, etc). Level of diversification (importance of the main product): Discrete variable indicating if the sales of the most profitable product represent 1) all; 2) more than half; or 3) less than half of business sales. Allows sales on credit: Binary variable equal to one if client makes sales on credit. Proportion of clients who faced problems with business: Binary variable equal to one if client reports that her business faced a specific problem in the last year (Ayacucho) or the last two years (Lima). Proportion of clients who planned/ executed innovations in their businesses: Binary variable equal to one if client had an idea for /implemented a change or innovation to improve the business (Ayacucho) or to solve the problems faced (Lima).

^{b/} The covariates include location (Ayacucho or Lima), business activity, business size, age, schooling and number of FINCA loans received by the client.

Table 2b. Impact of training on business practices, by sub-group

Dependent variable ^{a/}	OLS, Probit						
	Mean & S.D. of dependent variable	Ex-ante Attitude Towards Training		Education		Business Size	
		Low interest	High interest	Below high school	Above high school	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Double difference estimate reported</i>							
Tax formality	0.15 (0.36)	0.03** (0.018)	-0.01 (0.017)	0.01 (0.012)	0.02 (0.032)	0.01 (0.013)	0.01 (0.021)
Fixed salary	0.04 (0.20)	-0.02 (0.018)	-0.02 (0.024)	-0.02 (0.022)	-0.03 * (0.015)	-0.01 (0.022)	-0.03 (0.019)
Keeping records of:							
Sales	0.29 (0.45)	0.01 (0.024)	0.06** (0.031)	0.04* (0.022)	0.05 (0.050)	0.04 (0.027)	0.03 (0.033)
Withdrawals (Lima only)	0.11 (0.31)	0.04 (0.066)	0.09 (0.056)	0.06 (0.048)	0.13 (0.120)	0.15** (0.072)	0.01 (0.045)
Number of sales locations	1.07 (0.32)	-0.01 (0.027)	0.03 (0.039)	0.004 (0.027)	0.02 (0.054)	-0.01 (0.037)	0.03 (0.028)
Level of diversification							
Number of income sources	2.33 (0.53)	-0.02 (0.044)	-0.01 (0.066)	-0.03 (0.041)	0.002 (0.090)	0.01 (0.050)	-0.06 (0.057)
Allows sales on credit	0.59 (0.49)	0.02 (0.017)	-0.02 (0.021)	0.002 (0.016)	-0.02 (0.027)	-0.01 (0.019)	0.01 (0.020)
N° of clients		1606	1375	2345	636	1521	1460
<i>First difference estimate reported</i>							
Keeping records of payments to workers	0.23 (0.57)	0.02 (0.019)	-0.01 (0.022)	0.01 (0.014)	-0.02 (0.039)	-0.001 (0.016)	0.01 (0.024)
Business knowledge index	3.32 (1.40)	0.02 (0.071)	0.20*** (0.074)	0.11* (0.061)	-0.002 (0.110)	0.02 (0.074)	0.20*** (0.076)
Started new business	0.14 (0.35)	-0.02 (0.016)	-0.02 (0.018)	-0.02* (0.013)	0.01 (0.028)	-0.03* (0.016)	0.001 (0.018)
Level of diversification							
Importance of main product	2.31 (0.70)	0.03 (0.047)	-0.02 (0.047)	0.01 (0.037)	0.005 (0.062)	0.01 (0.045)	0.0002 (0.045)
Profit used for business growth	0.67 (0.47)	0.02 (0.027)	0.06*** (0.024)	0.04* (0.022)	0.02 (0.035)	0.03 (0.027)	0.06** (0.025)

Table 2b. Impact of training on business practices, by sub-group (*Continued*)

Dependent variable ^{a/}	OLS, Probit						
	Mean & S.D. of dependent variable	Ex-ante Attitude Towards Training		Education		Business Size	
		Low interest	High interest	Below high school	Above high school	Below median	Above median
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Thinking of keeping business safe when taking money from it	0.26 (0.44)	-0.02 (0.023)	0.02 (0.022)	0.001 (0.017)	-0.003 (0.032)	-0.003 (0.020)	- 0.0002 (0.022)
Proportion of clients who faced problems with business (only for Lima)	0.65 (0.48)	0.07 (0.051)	-0.01 (0.043)	0.06 (0.038)	-0.14** (0.061)	0.04 (0.045)	-0.01 (0.049)
Proportion of clients who:							
Planned business Innovations	0.65 (0.48)	0.03 (0.025)	0.02 (0.026)	0.02 (0.023)	0.02 (0.036)	-0.0005 (0.027)	0.05** (0.022)
Executed business innovations	0.39 (0.49)	0.06*** (0.023)	0.03 (0.028)	0.06** (0.023)	0.02 (0.036)	0.03 (0.025)	0.07** (0.027)
N° of clients		1604	1388	2356	636	1526	1466

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (tax formality, profit used for business growth, thinking of keeping business safe when taking money from it fixed salary, keeping records, started new business, allowing sales on credit and proportion of clients who faced problems/planned innovations/executed innovations). For linear specifications, we report $\beta_1 + \beta_2 X$ from eq. (2) for FD estimates, and $\beta_2 + \beta_4 X$ from eq. (4) for DD estimates.

a/ All dependent variables are defined identically to those in the previous table. See notes under Table 2 for variable definitions.

Table 3. Impact of training on business results

OLS						
Dependent variable ^{a/}	Mean & S.D. of dependent variable	N° of clients	Treatment impact without covariates		Treatment impact with covariates ^{b/}	
<i>Double difference estimate reported</i>						
Sales						
Last month (log)	6.60 (1.56)	2806	0.16 (0.078)	**	0.16 (0.078)	**
Good month	7.92 (1.26)	2806	0.00 (0.051)		0.00 (0.051)	
Normal month	7.16 (1.19)	2806	0.10 (0.052)	*	0.10 (0.052)	*
Bad month	5.92 (2.25)	2806	0.27 (0.099)	***	0.27 (0.100)	***
Difference good-bad month	2.01 (2.02)	2806	-0.26 (0.103)	**	-0.26 (0.103)	**
Number of workers						
Total	1.99 (1.46)	2956	0.01 (0.065)		0.01 (0.065)	
Paid workers, not family members	0.26 (1.04)	2954	-0.04 (0.046)		-0.04 (0.046)	
<i>First difference estimate reported</i>						
Weekly profit from main product	11.87 (46.34)	1759	1.84 (2.275)		1.71 (2.139)	

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses.

^{a/} Dependent variables are defined as follows. Last week sales: Logarithm of main business's sales in the month preceding each survey. Good/ Normal/ Bad sales: Logarithm of main business's sales in a good/normal/bad month. Difference good-bad week: Difference in monthly sales between good and bad month. Weekly profit from main product: Difference between the weekly revenue and cost of the most profitable product in the main business (soles). Number of total workers: Number of workers in the main business. Number of paid workers: Number of workers in the main business that are not household members.

^{b/} The covariates include location (Ayacucho or Lima), business activity, business size, age, schooling and number of FINCA loans received by the client.

Table 3b. Impact of training on business results, by sub-group OLS

Dependent variable ^{a/}	Mean & S.D. of dependent variable	Ex-ante Attitude Towards Training		Education		Business Size	
		Low interest	High interest	Below high school	Above high school	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Double difference estimate reported</i>							
Sales							
Last month (log)	6.60 (1.56)	0.16 (0.099)	0.15 (0.110)	0.13 (0.088)	0.28* (0.151)	0.22** (0.111)	0.10 (0.078)
Good month	7.92 (1.26)	-0.01 (0.07)	0.00 (0.07)	-0.03 (0.06)	0.07 (0.11)	-0.02 (0.08)	0.03 (0.06)
Normal month	7.16 (1.19)	0.08 (0.07)	0.13* (0.07)	0.10* (0.05)	0.13 (0.11)	0.12 (0.08)	0.10 (0.06)
Bad month	5.92 (2.25)	0.27** (0.13)	0.30** (0.13)	0.26** (0.11)	0.35** (0.18)	0.36** (0.14)	0.21* (0.12)
Difference good-bad month	2.01 (2.02)	-0.26** (0.13)	-0.30** (0.12)	-0.28** (0.11)	-0.28 (0.17)	-0.37*** (0.14)	-0.18 (0.13)
Number of workers							
Total	1.99 (1.46)	0.02 (0.086)	-0.05 (0.092)	0.01 (0.071)	-0.07 (0.151)	0.08 (0.078)	-0.10 (0.104)
Paid workers, not family members	0.26 (1.04)	-0.05 (0.059)	-0.05 (0.066)	-0.07 (0.043)	0.00 (0.131)	-0.03 (0.055)	-0.07 (0.075)
N° of clients		1528	1278	2220	586	1421	1385
<i>First difference estimate reported</i>							
Weekly profit from main product	11.87 (46.34)	1.56 (2.06)	2.04 (3.90)	0.63 (2.38)	5.69 (5.88)	0.61 (1.81)	2.89 (4.03)
N° of clients		899	860	1382	377	885	874

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. For linear specifications, we report $\beta_1 + \beta_2 X$ from eq. (2) for FD estimates, and $\beta_2 + \beta_4 X$ from eq. (4) for DD estimates.

^{a/} All dependent variables are defined identically to the previous table. See notes under Table 3 for variable definitions.

Table 4. Impact of training on household outcomes

Dependent variable ^{a/}	OLS, Probit			
	Mean & S.D. of dependent variable	N° of clients	Treatment impact without covariates	Treatment impact with covariates ^{c/}
<i>Child Labor (Lima only) ^{b/}</i>				
Working children	0.31 (0.46)	1043	-0.02 (0.035)	-0.01 (0.035)
Daily hours dedicated to				
House work	1.02 (0.85)	1043	0.01 (0.059)	0.004 (0.059)
Child labor	0.59 (1.10)	1043	-0.05 (0.079)	-0.05 (0.080)
Schooling	7.35 (1.48)	1040	0.10 (0.108)	0.09 (0.108)
Children with perfect attendance	0.97 (0.18)	1025	0.01 (0.013)	0.01 (0.012)
<i>Double difference estimate reported</i>				
<i>Client's decision power on</i>				
Loans/savings from FINCA for hh/business (index)	0.02 (1.24)	3218	-0.06 (0.065)	-0.06 (0.063)
Number of children	4.07 (0.75)	1736	0.01 (0.050)	0.01 (0.049)
Taking money/products from business	4.77 (0.69)	2741	-0.02 (0.037)	-0.02 (0.037)
Keeping track of household bills	3.49 (1.60)	3351	-0.02 (0.077)	-0.02 (0.075)
<i>First difference estimate reported</i>				
No need to separate money	0.62 (0.49)	3413	-0.01 (0.019)	-0.01 (0.019)

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (no need to separate money, working children and children with perfect attendance).

^{a/} Dependent variables are defined as follows. Client's decision power: Index aggregating the responses to questions on who makes key decisions on household and business finance, the number of children to have, and the amount of money/products taken from the business; a higher number is associated with greater decision making power for the client. Keeping track of household bills: A categorical variable indicating who is in charge of paying household bills; a higher number is associated with more responsibility for the client. No need to separate money: Binary variable equal to one if client thinks that is not necessary to separate her money from that of her husband/partner or other adult in the household to control expenses and savings. Working children: Binary variable equal to one if the child works. Daily hours dedicated: Number of hours the child dedicated to each activity in the week before the survey; schooling includes the time the child spent at school, as well as the time he/she dedicates to do homework or study at the household. Children with perfect attendance: Binary variable equal to one if the child attended school all the days that he/she could have.

^{b/} Sample for the analysis on child labor includes school-aged children (between 6 and 15 years of age).

^{c/} The covariates include location (Ayacucho or Lima), business activity, business size, age, schooling and number of FINCA loans received by the client.

Table 4b. Impact of training on household outcomes, by sub-group

Dependent variable ^{a/}	OLS, Probit						
	Mean & S.D. of dependent variable	Ex-ante Attitude Towards Training		Education		Business Size	
		Low interest	High interest	Below high school	Above high school	Below median	Above median
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<i>Double difference estimate reported</i>							
Client's decision power on							
Loans/savings from FINCA for hh/business	0.02 (1.24)	-0.11 (0.087)	-0.03 (0.094)	-0.08 (0.072)	-0.06 (0.137)	0.02 (0.087)	-0.18* (0.093)
Number of children	4.07 (0.75)	-0.02 (0.065)	0.07 (0.066)	0.04 (0.053)	-0.04 (0.094)	-0.04 (0.065)	0.09 (0.067)
Taking money/products from business	4.77 (0.69)	-0.002 (0.050)	0.001 (0.055)	0.02 (0.041)	-0.07 (0.081)	-0.001 (0.051)	0.0003 (0.053)
Keeping track of household bills	3.49 (1.60)	-0.03 (0.104)	-0.02 (0.112)	0.01 (0.086)	-0.17 (0.163)	0.03 (0.105)	-0.08 (0.111)
N° of clients		1742	1476	2511	707	1699	1519
<i>First difference estimate reported</i>							
No need to separate money	0.62 (0.49)	0.02 (0.026)	-0.05* (0.027)	-0.004 (0.022)	-0.04 (0.037)	0.02 (0.025)	-0.05* (0.029)
N° of clients		1849	1564	2653	760	1815	1598

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (no need to separate money). For linear specifications, we report $\beta_1 + \beta_2 X$ from eq. (2) for FD estimates, and $\beta_2 + \beta_4 X$ from eq. (4) for DD estimates.

^{a/} All dependent variables are defined identically to the previous table. See notes under Table 4 for variable definitions.

Table 4c. Impact of training on child labor, by sub-group

OLS, Probit

Dependent variable ^{a/b/}	Mean & S.D. of dependent variable	Child's gender		Mother's Ex-ante Attitude Towards Training		Mother's Education	
		Female	Male	Low interest	High interest	Below high school	Above high school
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Working children	0.31 (0.46)	-0.07 (0.047)	0.03 (0.044)	-0.01 (0.057)	-0.02 (0.044)	0.01 (0.041)	-0.09 (0.068)
Daily hours dedicated to							
House work	1.02 (0.85)	-0.09 (0.091)	0.08 (0.071)	0.08 (0.096)	-0.03 (0.075)	0.01 (0.069)	-0.02 (0.119)
Child labor	0.59 (1.10)	-0.15 (0.111)	0.03 (0.101)	0.11 (0.131)	-0.14 (0.099)	0.04 (0.093)	-0.32** (0.156)
Schooling	7.35 (1.48)	0.25 * (0.146)	-0.04 (0.135)	-0.06 (0.171)	0.18 (0.138)	0.08 (0.125)	0.12 (0.214)
Children with perfect attendance	0.97 (0.18)	-0.01 (0.012)	0.03 (0.020)	-0.01 (0.016)	0.02 (0.018)	0.01 (0.014)	0.02 (0.033)
N° of children (Lima only)		481	562	351	692	768	275

Each coefficient reported in the table is from a separate regression. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors clustered by village bank in parentheses. Marginal effects reported for probit specifications (working children and children with perfect attendance). For linear specifications, we report $\beta_1 + \beta_2 X$ from eq. (2) for FD estimates, and $\beta_2 + \beta_4 X$ from eq. (4) for DD estimates.

^{a/} All dependent variables are defined identically to the variables in Table 4. See notes under Table 4 for variable definitions.

^{b/} Sample for the analysis on child labor includes school-aged children (between 6 and 15 years of age).

Appendix Table 1: Descriptions of outcome variables

Variable	Description	Time of measurement
<i>1. Institutional outcomes</i>		
Loan size	Amount borrowed from FINCA's external account at beginning of loan cycle (US\$).	Last cycle before and last available after the training
Cumulative savings	Savings balance (voluntary and mandatory) at end of loan cycle.	Last cycle before and last available after the training
Repayment	Binary variable equal to one if, since the beginning of training, the client made all her payments on time or had sufficient savings to cover missed payments	Every cycle since the beginning of training
Fines	Amount discounted from the savings account for not attending or being late to any of the meeting, and/or not making the weekly installment (US\$).	
Solidarity discount	Discounts from savings accounts that occur when there is an individual default in the external account not covered by defaulter's individual savings (US\$).	
Dropout, global	Binary variable equal to one if client had left a FINCA village bank ever after the beginning of the training.	
Dropout, permanent	Binary variable equal to one if client had left a FINCA village bank by December 2005.	
Dropout with default	Binary variable equal to one if client defaulted by the time she left the village bank.	
Dropout without default	Binary variable equal to one if client did not defaulted by the time she left the village bank.	
<i>2. Business results</i>		
Last month's sales (log)	Logarithm of sales from the client's main business in the month preceding each survey.	BL and FU
Good sales	Sales from the client's main business in a good month (S/.).	BL and FU
Normal sales	Sales from the client's main business in a normal month (S/.).	BL and FU
Bad sales	Sales from the client's main business in a bad month (S/.).	BL and FU
Difference good-bad monthly sales	Difference between sales from the client's main business in a good month and in a bad month (S/.)	BL and FU
Weekly surplus from most profitable product	Difference between the weekly revenue and cost of the most profitable product in the main business (S/.)	FU
Number of total workers	Number of workers in the main business.	BL and FU
Paid workers, not family	Number of workers in the main business that are not household members.	BL and FU

<i>3. Business practices</i>		
Tax formality	Binary variable equal to one if the client has a tax ID number.	BL and FU
Profits used for business growth	Binary variable equal to one if the client reported re-investing profits for the growth or continuity of the business.	FU
Thinking of keeping business safe when taking money from it	Binary variable equal to one if client considers the needs of the business when taking money from the business for family use.	FU
Fixed salary for herself	Binary variable equal to one if the client pays herself a fixed salary.	BL and FU
Records sales	Binary variable equal to one if the client records her sales in a registry or notebook.	BL and FU
Records withdrawals	Binary variable equal to one if the client records her cash and in-kind withdrawals in a registry or notebook.	BL and FU
Records wages	Binary variable equal to one if the client records in a registry or notebook the wage payments she makes to workers that are not household members.	FU
Business knowledge	Number of right answers given by the client when asked about what should be done to increase business sales and to plan for a new business.	FU
Starting a new business	Binary variable equal to one if the client reports having begun a new business in the last year (Ayacucho) or the last two years (Lima).	FU
Number of sales locations	Number of locations where the client sells the products of her main business.	BL and FU
Number of income sources	Number of income sources the client reports. Includes all her personal/family businesses as well as other jobs or working activities (only available for Ayacucho).	BL and FU
Importance of main product	Discrete variable that indicates if the sales of the most profitable product represent 1) all business sales; 2) more than half of business sales; or 3) less than half of business sales. The higher the number, the more diversified the business is.	FU
Allows credit sales	Binary variable equal to one if the client makes sales on credit.	FU, but recalling situation 12 months before survey
Faced problems with business	Binary variable equal to one if the client reported that her business faced a specific problem in the last year (Ayacucho) or the last two years (Lima).	FU
Planned change/innovation	Binary variable equal to one if the client had an idea for a change/innovation to improve the business (Ayacucho) or to solve the problems faced (Lima).	FU
Implemented change/innovation	Binary variable equal to one if the client implemented a change/innovation to improve the business (Ayacucho) or to solve the problems faced (Lima).	FU

<i>4. Empowerment outcomes</i>		
Financial decisions	Index aggregating the answers to questions on who makes decisions on savings and credit for the household and the business. For each specific question, a categorical variable is generated and a higher number means more decision making power on the part of the client. Index was constructed using principal component analysis for discrete/categorical data.	BL and FU
Family size decisions	Variable indicating power in making decisions regarding family size. Uses same categories as above.	BL and FU
Keeping track of household bills	Variable that indicates who is in charge of ensuring that the household bills have been paid. Uses same categories as above.	BL and FU
Taking money/product from business	Variable that indicates who decides to take products/money from the business. Uses same categories as above.	BL and FU
Need to separate money	Binary variable equal to one if the client needs to separate her money from that of her husband/partner or other adult in the household to control expenses and savings.	FU
<i>5. Child labor outcomes</i>		
Working children	Binary variable equal to one if the child works.	
Hours dedicated to house work/child labor/schooling	Number of hours the child dedicated to each activity in the week before the survey; schooling includes the time the child spent at school, as well as the time he/she dedicates to do homework or study at the household.	
Children with perfect attendance	Binary variable equal to one if the child attended school all the days that he/she could have.	

Appendix Table 2: Descriptive statistics of outcome variables

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Institutional results</i>					
Loan size	6340	253.22	264.59	50.00	4,500.00
Cumulative savings	6340	299.56	405.41	-1,742.62	5,492.73
Repayment	6340	0.80	0.40	0.00	1.00
Fines	2721	0.02	3.23	-62.00	32.00
Solidarity discounts	2721	0.34	4.07	0.00	142.43
Dropout global	6340	0.61	0.49	0.00	1.00
Dropout permanent	6340	0.45	0.50	0.00	1.00
Global dropout with default	6340	0.16	0.37	0.00	1.00
Global dropout without default	6340	0.42	0.49	0.00	1.00
Permanent dropout with default	6340	0.14	0.35	0.00	1.00
Permanent dropout without default	6340	0.30	0.46	0.00	1.00
<i>Business practices</i>					
Tax formality	6471	0.15	0.35	0.00	1.00
Profit used for business growth	3473	0.67	0.47	0.00	1.00
Thinking of keeping business safe when taking money from it	3473	0.26	0.44	0.00	1.00
Fixed salary	6331	0.09	0.28	0.00	1.00
Keeping records of sales	6381	0.34	0.47	0.00	1.00
Keeping records of withdrawals	1704	0.21	0.40	0.00	1.00
Keeping records of payments to workers	3033	0.23	0.57	0.00	3.00
Business knowledge index	3473	3.32	1.40	0.00	13.00
Started new business	3473	0.14	0.35	0.00	1.00
Number of sales locations	6946	1.05	0.46	0.00	4.00
Number of income sources	4820	1.89	0.79	0.00	5.00
Importance of main product	2255	2.31	0.70	1.00	3.00
Allows sales on credit	6946	0.58	0.49	0.00	1.00
Proportion of clients who faced problems with business	1063	0.65	0.48	0.00	1.00
Proportion of clients who planned innovations in their businesses	3473	0.65	0.48	0.00	1.00
Proportion of clients who executed innovations in their businesses	3473	0.39	0.49	0.00	1.00

Appendix Table 2: Descriptive statistics of outcome variables (Continued)

<i>Business results</i>					
Last month sales (log)	5958	6.86	1.58	0.00	14.47
Good month sales	5877	7.99	1.28	3.04	14.69
Normal month sales	5867	7.22	1.21	2.40	14.47
Bad month sales	5832	6.18	1.99	0.00	13.77
Difference good-bad month sales	5826	1.81	1.70	-1.67	12.95
Weekly surplus from most profitable product	1784	11.87	46.34	0.00	1,000.00
Total number of workers	6447	2.07	1.51	1.00	27.00
Number of paid workers, not family members	6443	0.28	1.07	0.00	22.00
<i>Household outcomes</i>					
Client's decision power on:					
Loans/savings from FINCA for hh/business (index)	6731	-0.04	1.27	-4.66	1.33
Number of children	4588	4.06	0.77	1.00	5.00
Taking money/products from business	6186	4.74	0.71	1.00	5.00
Keeping track of household bills	6865	3.45	1.54	1.00	5.00
No need to separate money	3459	0.62	0.49	0.00	1.00
<i>Child labor</i>					
Working children	1043	0.31	0.46	0.00	1.00
Daily hours dedicated to:					
House work	1043	1.02	0.85	0.00	5.00
Child labor	1043	0.59	1.10	0.00	8.00
Schooling	1040	7.35	1.48	0.00	13.00
Children with perfect attendance	1025	0.97	0.18	0.00	1.00

Appendix Table 3: Ex-ante differences between clients by location and permanence in FINCA

	Treatment	Control	Difference	T-stat	
Response rate (follow-up survey)	75.2	77.9	-2.7	2.060	**
By Location					
Lima	77.2	83.5	-6.2	2.845	***
Ayacucho	74.5	74.8	-0.3	0.170	
By Permanence in FINCA					
Clients	83.2	83.9	-0.6	0.339	
Ex-clients	69.9	74.2	-4.3	2.436	***
Tenure in FINCA (Cycles)					
Lima	5.2	5.2	0.0	0.030	
Ayacucho	6.0	5.8	-0.2	-1.220	
Years of Education					
Lima	9.9	9.7	0.2	0.946	
Ayacucho	8.1	8.1	0.0	0.009	
Age					
Lima	42.6	42.3	0.3	0.529	
Ayacucho	36.3	36.5	-0.2	-0.510	
Loan Size (external account) ^{a/ b/}					
Lima	293	308	15	1.09	
Ayacucho	173	167	-6	-0.85	
Accumulated Savings ^{a/ b/}					
Lima	174.9	185.2	-10.3	-0.703	
Ayacucho	360.4	348.6	11.7	0.577	
Default Rate ^{b/}					
Lima	0.03	0.03	0.00	0.109	
Ayacucho	0.02	0.01	0.00	0.369	
Drop out Rate ^{b/}					
Lima	22.5	23.3	-0.8	-0.37	
Ayacucho	22.8	23.4	-0.6	-0.47	
Last week sales (log)					
Lima	7.4	7.4	0.0	-0.071	
Ayacucho	6.3	6.3	0.0	-0.086	
Number of total workers					
Lima	1.2	1.2	0.0	-0.202	
Ayacucho	0.8	0.8	0.0	0.793	
Number of paid workers					
Lima	0.4	0.3	0.1	0.894	
Ayacucho	0.2	0.2	0.0	0.442	
Ex-ante high interest in training					
Lima	0.6	0.6	0.0	0.446	
Ayacucho	0.4	0.4	0.0	0.797	

Source: FINCA-Peru historical database and baseline client survey.

Averages were calculated for the cycle before the BDS training program was started.

^{a/} In US \$.

^{b/} In the last cycle before the beginning of training.

Appendix Table 4: Post intervention differences for dropout reasons, Ayacucho & Lima

	Total		Treatment		Control		Difference	T-stat	
	# obs	%	# obs	%	# obs	%			
Number of clients	3457		2093	60.54	1364	39.46			
<i>5-I. Reasons related with the policies and procedures of the FINCA program</i>									
Dissatisfied with FINCA's loan terms	227	6.57	131	6.26	94	6.89	-0.633	-0.737	
Dissatisfied with FINCA's saving terms	51	1.48	28	1.34	23	1.69	-0.348	-0.830	
Dissatisfied with the solidarity discounts (only Lima) ^{a/}	47	4.42	20	3.68	27	5.19	-1.509	-1.196	
The meetings were too long or too far (interference with business' schedule and/or personal activities)	404	11.69	256	12.23	145	10.63	1.601	1.437	*
Unequal / bad treatment to bank members	142	4.11	82	3.92	59	4.33	-0.408	-0.592	
Because of the training	0	0.00	0	0.00	0	0.00	0.000	-	
FINCA discovered loans from other institutions (only Ayacucho) ^{b/}	13	0.54	7	0.45	6	0.71	-0.259	-0.825	
Found an institution with better loan terms	18	0.52	11	0.53	7	0.51	0.012	0.049	
<i>5-II. Reasons related with the group loans</i>									
The village bank "graduated" (or was dissolved)	30	0.87	14	0.67	13	0.95	-0.284	-0.928	
Personal conflicts in the bank (with other bank members or with the bank's president)	170	4.92	106	5.06	63	4.62	0.446	0.594	
<i>5-III. Reasons related to the client's business</i>									
No credit needs because of the good situation of the business (sufficient capital in the business or the business operates seasonally)	29	0.84	18	0.86	11	0.81	0.054	0.169	
No credit needs/could not pay the loan because of the bad situation of the business or other reasons	304	8.79	187	8.93	116	8.50	0.430	0.437	
Closed the business / new activity or job	69	2.00	38	1.82	30	2.20	-0.384	-0.794	
<i>5-IV. Personal Reasons</i>									
Expenses resulting from a family crisis (i.e. illness) or family event (i.e. wedding)	312	9.03	193	9.22	118	8.65	0.570	0.573	
Other personal problems	124	3.59	74	3.54	50	3.67	-0.130	-0.201	
Left the region/went on a long trip	215	6.22	140	6.69	75	5.50	1.190	1.417	*
A relative influenced the client	37	1.07	23	1.10	14	1.03	0.073	0.202	
<i>5-V. Reasons due to Environmental Factors</i>									
Environmental / macroeconomic factors	57	1.65	31	1.48	26	1.91	-0.425	-0.959	
<i>5-VI. Other Reasons</i>									
Other / Did not respond	221	6.39	134	6.40	85	6.23	0.171	0.201	

^{a/} There are 1063 observations: (543 received treatment)^{b/} There are 2394 observations: (1550 received treatment)

Appendix A: Business Training Materials

In Lima, the training was administered as a two-part program.¹ Module 1, “Training for Success,” consists of 15 sessions that introduce the topics of business administration and marketing. Classes begin by introducing attendees to what a business is, how a business works, and the marketplace. Women are taught to identify their customers, business competitors, and the position of the business in the marketplace. Later in the module, sessions cover topics on product, price, and promotional strategies and a commercial plan. The module also includes review sessions and a business game that participants play in several sessions.

The second module, “Business and Family: Costs and Finances,” consists of 10 sessions that explain how to separate business and home finances. The classes cover the differences between income, costs, and profit, how to calculate production costs, and product pricing. Other sessions cover maintaining records of business’ operations, business growth, loan repayment, and taxes.

Every session of these two modules included worksheets on the topics taught for the clients to practice and review at the meetings or at home.

In Ayacucho, the training program was grouped into 3 modules with topics less advanced than those taught in Lima.² Sessions were presented in 30 minute classes and did not use worksheets as in Lima. Module 1, “Manage Your Business Money,” begins by defining the differences between money for personal expenses and for the business. Women are taught how to calculate profits and about the use of profits for the household and business. Sessions cover how to handle selling to customers on credit, how to record

¹ Table A1 provides a list of lessons presented in modules 1 and 2 in Lima.

² Table A2 provides a list of lessons presented in modules 1 -3 in Ayacucho.

business expenses, how to prevent losses, and the importance of investing in the business. The module also includes a review session.

Module 2, “Increase Your Sales” begins by providing an overview of five key elements in sales: 1) customers, 2) business product or service, 3) product placement, 4) pricing, and 5) marketing. Many of the following sessions are dedicated to provide women with practical means of applying these concepts. The topics covered include the key elements of good customer relations, how to target sales to different types of customers, and approaches for varying the types and timing of the products that are sold in order to increase sales. Participants are also taught about how to identify locations, price goods, and conduct activities that increase sales and profits.

The third module, “Plan for a Better Business,” teaches members how to incorporate planning into their business. Sessions begin by presenting why planning is beneficial and what traits characterize a successful business. Attendees are instructed on how to solve business problems and how to introduce new products or changes. Later sessions teach the tools needed to prepare a sales plan, calculate business and loan costs, search for new resources, and handle unexpected problems and opportunities.

Appendix A, Table 1. Business Training Sessions Presented in Lima

Module 1: Training for Success		Module 2: The Business and the Family: Costs and Finances	
Session	Title	Session	Title
1	Training for Success	1	The Business and the Family
2	What is a business?	2	Income, Costs, and Profit
3	How does a business work?	3	My Costs of Production and Operating Resources
4	The Market	4	How Do I Calculate the Cost of Production of My Product?
5	Who are my customers?	5	Prices and Price Equilibrium
6	Who are my competitors?	6	How to Make a Good Price Decision
7	Review Session 1	7	The Registers and Controls in My Business
8	Business game: Module 1	8	The Growth of My Business
9	My business' position in the market	9	Will I Be Able to Pay My Loan?
10	Product and Price Commercial Strategy	10	Taxes
11	Marketplace and Promotion Commercial Strategy		
12	My Commercial Plan		
13	Review Session 2		
14	Business Game: Module 2		
15	Business Game: Module 3		

Appendix A, Table 2: Business Training Sessions Presented in Lima

Module 1: Manage Your Business Money		Module 2: Increase Your Sales	
Session	Title	Session	Title
1	Separate Business and Personal Money	1	Know Your Customers
2	Use Business Loans for Your Business	2	Treat Your Customers Well
3	Calculating Profits	3	Sell to Different Kinds of Customers
4	Track, Plan and Invest Your Business Money	4	Improve Your Products and Services
5	Decide How to Use the Profits of the Business to Satisfy the Needs of the Business and Your Personal Needs	5	Sell New and Complementary Products and Services
6	Prevent Business Losses	6	Seize Opportunities to Sell
7	Manage Credit Sales	7	Sell Where Customers Buy the Most
8	Review of the Learning Sessions of “Manage Your Business Money”	8	Set the Right Price
		9	Promote Your Business With Good Selling Practices
		10	Plan for Increased Sales

Module 3: Plan for a Better Business	
Session	Title
1	Use Planning Steps to Grow Your Business
2	Examine How Your Business Is Doing
3	Decide How You Can Improve Your Business
4	Develop and Test New Business Ideas
5	Plan How Much to Make and Sell
6	Plan Business Costs
7	Plan for More Profit
8	Find Resources for Your Business
9	Prepare for Unexpected Events