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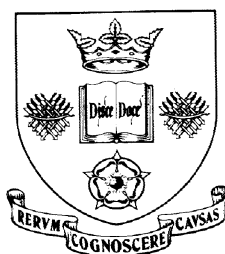
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**Microfinance Non-Financial Services: A Key for Poverty Alleviation?
Lessons from Mexico**

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MICROFINANCE NON-FINANCIAL SERVICES: A KEY FOR POVERTY ALLEVIATION? LESSONS FROM MEXICO

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Abstract

Microfinance non-financial services have been recently reformulated as high quality demand-led programs. In the Mexican context, these are now voluntary, can have a cost for the borrower and are frequently supplied in partnership with specialized public or private agencies. Using primary data from a survey of clients of two credit-plus programs in Chiapas, this paper examines and compares the participation determinants and added impact of the training sessions on monetary poverty outcomes of the borrowers. We focus on two specific programs: Business Development Services and Preventive Health Services. Results suggest that the participation decision mainly depends on borrowers' characteristics. Non-financial services are found to reduce the clients' likelihood of being under the asset poverty line. No significant differences were observed between the impacts of the two non-financial programs.

Keywords: Non-financial services, Credit-plus, Microfinance, Poverty, Oportunidades.

1. Introduction

Microfinance's achievements in poverty reduction have been celebrated worldwide. These schemes have proved to be a successful adaptation to imperfect credit markets. By supplying small loans to low income people with little or no collateral, microfinance institutions (MFIs) have relaxed the constraints on the poor's access to productive capital and, consequently, contributed to break the vicious circle of poverty caused by low income and subsequent low investments.

However, in recent years, a sequence of repayment crises in countries such as Morocco, Bosnia-Herzegovina and India (Andhra Pradesh) has contributed to the increased scrutiny of the sector. The effectiveness of microfinance as a poverty alleviation tool has started to be questioned by many practitioners who have reconsidered the argument that microfinance *per se* needs to be combined with other non-financial actions to effectively improve the livelihoods of clients (Lanao-Flores and Serres, 2009). Indeed, the opening lines of the Microcredit Summit Campaign Report 2011 read: *Microcredit is a tool for unlocking human dreams. But microcredit, by itself, is usually not enough* (Reed, 2011).

But not every MFI has been delivering microcredit by itself. Practitioners with strong pro-poor positioning, mostly operating group lending methodologies, such as ProMujer, FINCA (Foundation for International Community Assistance) or BRAC (Bangladesh Rural Advancement Committee), have been implementing successful integrated programs where credit is linked to education and other non-financial services (NFS) for the past few decades.

Delivered in conjunction with microfinance products, these 'plus' programs are widely heterogeneous. A simplified categorization classifies them in (1) social related services including, among others, health education, maternal and child healthcare, literacy, language training, legal advice and different kinds of personal mentoring and (2) microentrepreneurial development services, involving financial, business and vocational training and technical assistance.

NFS aim to improve the returns to borrowers' investments. The awareness of crucial health and business practices issues is thought to multiply the return on the capital which MFIs provide, thus, contributing to increase the likelihood that the loans effectively reduce poverty. Similarly, credit-plus has been found to diminish the risk of the loan being diverted

from productive to consumption activities due to, for example, external shocks, and to reduce the likelihood of default (Marconi and Mosley, 2006).

After a period of unpopularity of non-financial services among the main stakeholders in the industry (Yunus, 1999), international and local NGOs, such as Freedom from Hunger, as well as governmental social departments have contributed to reformulate the concept and take advantage of the MFIs' economies of scope. Different partnership arrangements involving a variety of actors have given rise to the development and implementation of an increasing number of high-quality demand-led NFS available to microfinance clients.

Empirical evidence of the impact of NFS is limited in development economics research (Armendariz and Morduch, 2005). This is mainly due to the lack of data that would allow for a reliable estimation of the added value of these programs, accounting for endogenous participation and program placement biases. First, this paper explores the demand and supply side characteristics that determine borrower participation in voluntary NFS and, hence, it estimates the marginal impact of two types of credit-plus programs, i.e. preventive health training and business development services, on monetary poverty outcomes of participants. We estimate this relationship from primary data collected in Chiapas, Mexico, from a survey of 434 households.

In this paper, the impact of NFS is estimated following a double differences or 'difference-in-difference' econometric approach. This method removes endogeneity biases related to different permanent characteristics between the participant and non-participant groups as well as between the eligible and would-be-eligible groups. The study additionally contributes to further explain the underlying relationship between human and social capital, which conditions the determinants of participation as well as the impact of NFS. Furthermore, though NFS are thought to be especially relevant in countries where the delivery of public human capital services has failed, no empirical study has yet considered their existence. This is especially relevant in Mexico where the well-known poverty alleviation program *Oportunidades*, previously known as PROGRESA, is being implemented. This co-responsibility program, which combines poverty alleviation and social protection policies, gives grants to poor female household heads on the condition that they provide schooling for their children, make periodic visits to health clinics and attend educational workshops on issues such as health, nutrition or domestic violence. In this study, we identify unexplored synergies between the *Oportunidades* program and the MFIs' non-

financial activities. We find evidence of NFS impact on poverty alleviation for the less poor clients within the sample, i.e. those around the asset poverty line, but no significant differences appear to exist between the impacts of the two programs for any of the outcomes.

The rest of the paper is organized as follows. Section 2 discusses the theoretical and empirical background. Section 3 addresses the methodology. Survey design and data are described in Section 4. Section 5 presents and discusses the empirical findings and Section 6 concludes.

2. Background

Microfinance in Chiapas is a fast-growing industry concentrating more than half of the MFIs with reported activity in Mexico[1]. Chiapas is one of the poorest and more deprived Mexican States and competition in the microfinance scene has become fierce in some municipalities. Similarly, the extreme levels of deprivation and dissident past of this state have jointly motivated the implementation of several public poverty alleviation programs and ensured the presence of numerous national and international development agencies and organizations.

In the early days of microfinance practically all MFIs supplied to their borrowers compulsory training and education programs. However, during the 1990s, the increasing pressure from donors such as USAID to specialize in microfinance activities and concentrate on financial sustainability, contributed to phase out many of these integrated microfinance projects (Goldmark, 2006). Since then, efforts have increasingly focused on cost-effectively overcoming the rigidities and inefficiencies of the first-generation 'credit-plus' models and creating links between the borrowers and the service providers in order to enhance microfinance's impact (Sievers and Vandenberg, 2007). As a consequence, NFS have been substantially improved. Mexican MFIs, in which this process has been stimulated by competition, have succeeded in considerably reducing the main disadvantages of bundled human capital products. On the demand side, attending compulsory time-consuming training sessions reduced the clients' time for productive or commercial activities. Consequently,

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[1] An updated panorama of the microfinance sector in Mexico can be found in the Mexican microfinance network's website: www.prodesarrollo.org and in www.mixmarket.org

NFS are no longer compulsory and, in most cases, are delivered at a subsidized cost for the borrower. On the supply side, an organizational transformation has taken place. The NFS programs are currently jointly designed and/or delivered with public or private partners, avoiding the problems of a lack of specialization and ensuring the quality of both services. Strengthening the effect of microfinance on poverty reduction outcomes continues to be the main objective of these additional training and education components. However, different types of NFS have been devised for that aim.

The academic literature does not present clear evidence that NFS contribute to poverty alleviation objectives. McKernan (2002) is responsible for a pioneer study aiming to gauge the separate impact of non-financial program aspects using cross-sectional data of over one thousand households that received microcredit in Bangladesh. Her aim was to disentangle which part of the positive effects of microfinance was exclusively due to the loan and which to the other procedures used in group lending methodologies. She finds positive non-credit effects in self-employment profits of borrowers. Smith (2002), in his impact analysis of health training on the expenditure levels of Project HOPE's borrowers in Ecuador and Honduras, finds mixed results. Similarly, Karlan and Valdivia (2011) find no significant positive impact of a Peruvian business development program on key outcomes of FINCA borrowers, such as business revenues and profits. However, both of these last studies do find positive added impact of NFS on specific objectives of the training programs such as breastfeeding or business practices, respectively.

Theoretically, the contributions of business development services (BDS) and preventive health services (PHS) to poverty reduction through an increase in household income are differently channelled. BDS aim to teach basic skills to improve business performance. Topics such as defining capital and investment, where to buy and sell, how to set prices, investment, credit sales, etc. are reviewed during the modules. Improvements in these areas should increase business related outcomes such as revenues, profits, etc. The direct relationship of training with labour productivity and household income is immediate (see, for example, Schultz 1988).

PHS intend to raise health-consciousness, improve preventive health practices and increase the utilization of formal healthcare. There is evidence that better health status increases effective labour supply and raises productivity, reducing the incidence of illness and the number of workdays lost. The importance of health and nutrition as determinants of

productivity and earnings in poor countries is well established (Strauss and Thomas, 1995). Additionally, encouraging the participation in formal healthcare and strengthening the liaisons between public and private health programs reduces household health expenditure and exposure to external shocks. This contributes to preventing the use of coping strategies such as selling productive assets which increase households' vulnerability (Mosley, 2001).

Thus, as a consequence of BDS and PHS, household income rises. In turn, this additional income increases investment possibilities in high return physical assets and human capital. It will also prevent credit default, which will improve credit access and strengthen social capital in the credit groups. Consequently, the household will reduce its likelihood of being below the poverty line.

3. Methodology

Selection bias and endogenous program placement are the major constraints to be addressed when aiming to measure the causal impacts that programs such as NFS have on participants. These are the main causes for biased estimates in impact assessments. Selection bias occurs when unobserved characteristics that determine the participation decision in NFS correlate with the outcome of interest. For example, unmeasured female empowerment might be an important determinant of participation in NFS programs. It is not rare that clients' partners or parents forbid participation, as it involves spending time outside the household or being examined by male doctors. These unobservable characteristics will also be correlated with, for instance, an outcome such as business revenues which will increase when the client has no constraints to sell outside the household. Endogeneity bias can also arise from the placement of programs. Placement of social programs is seldom random, depending on both supply and demand side factors. For example, MFIs would most probably tend to supply auxiliary services only to the poorer areas. If better-off areas are used as a control group for impact assessment, endogeneity would bias the impact coefficient.

To obtain unbiased estimates of an intervention, we need to consider a system of equations. While the structural equation accounts for the program impact (equation 1), the reduced form one determines the probability of participation (equation 2).

$$Y_{ij} = X_{ij}\alpha_Y + T_{ij}\delta_Y + \mu_{ij} \qquad (1)$$

$$T_{ij} = X_{ij}\alpha_T + \varepsilon_{ij} \qquad (2)$$

where Y_{ij} is the outcome of interest (income or being below the poverty line); T_{ij} is a binary variable that equals 1 if the individual i in municipality j receives the treatment; X_{ij} is a vector of observed household and municipality characteristics (such as age, education, ethnicity, etc.); $\alpha_T,$ $\alpha_Y,$ δ_Y are the parameters to be estimated, where δ_Y is the parameter that measures the impact of the program; and ε_{ij} and μ_{ij} are the idiosyncratic error terms. Endogeneity occurs when these error terms are correlated.

Karlan and Valdivia (2011) overcame these problems by randomly assigning individuals into treatment and control groups. This balanced the heterogeneity of participants and non-participants' characteristics. However, these types of randomized trials are complicated to replicate when working with MFIs or MFIs' sponsors that have poverty alleviation as their main objective, as these are frequently regarded as unethical. Additionally, social experiments are difficult to control and the integrity of the data, which ensures unbiased estimation, can be easily affected during the course of the experiment by attrition, spill-over effects or non-compliance problems.

Following Pitt and Khandker (1998), quasi-experimental cross-section set-ups like this one have frequently used instrumental variables to rule out selection bias. An example for this in the Mexican context is Niño-Zarazua (2009). Eligibility criteria have been traditionally used as instruments but this is problematic in the case of NFS programs as, in practice, there are many exceptions to these rules.

To assess the average effect of the treatment on the treated, we conducted a special survey that takes advantage of the design and progressive supply of NFS. Following Coleman (1999; 2006), two groups of borrowers were initially identified. The first group was eligible to receive the credit-plus programs and participants and non-participants could be observed in it. The second group was not currently eligible to participate in NFS but was about to be given access and the groups of would-be participants and non-participants had already been formed by the MFIs. The ineligible group was used as a control group, presenting the additional advantage that the selection process could also be observed in it.

This special setup allows us to control for the endogeneity bias that derives from self-selection by including the observable characteristics that determine participation as a proxy for non-observable features. Especially in the case in which non-random program placement bias may be a larger problem, BDS, we eliminate the possible endogeneity by interviewing clients in the areas that are going to be given access to NFS in the near future. The special survey design, presented in the next section, also allowed us to estimate the determinants of participation in non-financial services using a probit model.

The appropriate identification strategy for this approach is double difference or difference-in-difference (DD) estimation. Two groups $g \in [S, Ns]$ experience different outcomes Y if they meet or not specific eligibility criteria $e \in [A, Na]$. Y^{NFS} is the outcome in presence of the non-financial services treatment and Y^{NNFS} is the outcome in the absence of the treatment. Group S is the self-selected group willing to participate in NFS, group Ns is the non self-selected group unwilling to attend NFS, A is the eligible group that can already access the treatment and Na is the group without access, i.e. not yet eligible. Treatment is only observed if $g=S$ and $e=A$, i.e. we can only observe the treatment if borrowers are willing to participate in NFS, $S=1$, and already have eligible status $A=1$. The treatment effect on the treated for a linear and uncensored outcome can be identified as follows:

$$\tau^{DD} = E\left[Y_{S,A}^{NFS}\right] - E\left[Y_{S,A}^{NNFS}\right] = \left(E\left[Y_{S,A}\right] - E\left[Y_{Ns,A}\right]\right) - \left(E\left[Y_{S,Na}\right] - E\left[Y_{Ns,Na}\right]\right) \quad (3)$$

In a functional form, the model is estimated as follows:

$$E\left[Y_{ij}|A, S, X\right] = X_{ij}\alpha + A_{ij}\sigma + S_{ij}\beta + T_{ij}\delta + \varepsilon_{ij} \quad (4)$$

where each outcome Y for the client i in municipality j is regressed on a set of household and municipality characteristics X_{ij}, an indicator of access to participate A_{ij}, a binary variable for self-selection into participant status S_{ij}, and the treatment dummy T_{ij}, which is identified as the interaction term $(A_{ij} \times S_{ij})$. In this set-up the observable and unobservable characteristics that determine interest in participating are captured by S_{ij}. The access dummy A_{ij} captures aggregate factors that would cause changes in Y_{ij} even in the absence of a treatment.

This specification assumes that there are no spill-over effects between participants and non-participants in the eligible group. Hamid et al. (2010) proved that these were a major problem when evaluating the impact of Grameen Bank's micro-insurance program in

Bangladesh. In the present study, qualitative evidence supports this assumption[2]. To maximise the returns to the training, BDS is designed to attract every possible member of a group in which the training is being delivered. Though the decision to attend is ultimately made at an individual level, almost every borrower of a centre in which classes are being delivered actually participates. Different centres rarely have contact with each other so that there is no major exchange of information between participants and non-participants. Additionally, the borrowers are running similar businesses in the same area which prevents them from sharing valuable information with others. In the case of PHS, evidence is strong that the information spill-over is very limited. Participants are not comfortable speaking to others about the health campaigns because sexually transmitted diseases and human papilloma virus are considered social taboos. Consultores de Servicios Varios (CONSERVA), the MFI responsible for supplying PHS, gives the opportunity to take relatives to the training but as health checks are not subsidized for them, they either visit other public or private clinics or decide not to be screened.

While this model controls for non-random program placement by using municipalities in which the program is in the pipeline, it does not necessarily control for the order in which the program is delivered. If this order is randomly assigned with respect to observed and unobserved municipality characteristics, then the estimates obtained considering these characteristics as regressors will be unbiased. On the contrary, if the order is not random and the vector of municipality characteristics is not enough to proxy municipality specific unobservable characteristics, endogeneity can be eliminated using a municipality-level fixed effects technique (FE). However, if municipality unobservable features are not correlated with the regressors, performing FE estimation might be costly in terms of efficiency as the variance of the FE estimator is always larger than that of the non-FE estimator. Additionally, since the sample size is not large, parameter estimates using the FE specification might be imprecisely estimated[3]. The Hausman test statistic has been designed to test if FE estimates significantly differ from the models with municipality characteristics and is described as:

$$H = (\hat{\beta}_{FE} - \hat{\beta}_{VC})'(\hat{\Sigma}_{FE} - \Sigma_{VC})^{-1}(\hat{\beta}_{FE} - \hat{\beta}_{VC}), H \sim X_n^2 \tag{5}$$

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[2] Transcripts are available upon request from the author.
[3] Heckman (1981) argues that unbiased, in the case of uncensored dependent variables, or consistent, for censored dependent variables, estimates can be achieved with more than seven observations per fixed effect unit. In our regressions, the average per unit is 20.

This test was attempted but, as it frequently occurs with survey data, the covariance matrix of the difference of the covariance matrices of the parameter estimates, $\left(\hat{\Sigma}_{FE} - \Sigma_{VC}\right)^{-1}$, was not positive definite and the test was undefined. Following Coleman (1999) and Pitt and Khandker (1998), an alternative test was applied. First, the fixed effects (FE) were estimated. Hence, these were regressed on the non-fixed effects model, including the municipality variable, to establish if the FE and the regressors were correlated. Finally, an F-test or chi-squared test evaluated the joint significance of the independent regressors in this auxiliary model. The results of this test reveal that FE estimators are more efficient for every regression performed in this paper as the null hypothesis of zero correlation between independent variables and municipality fixed effects is rejected in every case. Non-FE equations yield biased or inconsistent estimates due to the existence of unobservable municipality characteristics, i.e. the municipalities have not randomly accessed the NFS programs.

An extended version of model 4 is used to distinguish the added impact of each program after between one and two years of operation. The binary variables for access A_{ij}, self-selection S_{ij}, and treatment T_{ij} are replaced in equation 6 as follows:

$$Y_{ij} = X_{ij}\alpha + A_{1ij}\sigma_B + A_{2ij}\sigma_H + S_{1ij}\beta_B + S_{2ij}\beta_H + T_{1ij}\delta_B + T_{2ij}\delta_H + \varepsilon_{ij} \tag{6}$$

where A_{1ij}, S_{1ij}, and T_{1ij} are access, self-selection and treatment coefficients for the BDS program, and A_{2ij}, S_{2ij}, and T_{2ij} are equivalent for the PHS treatment, respectively. δ_B measures the impact of attending BDS and δ_H of the PHS program. F-tests are performed to determine if there are significant differences in the impact of the two different treatments on the outcome of interest ($\delta_B = \delta_H$).

4. Data and survey design

We conducted a cross-sectional survey of 434 clients of the Mexican MFIs, AlSol and CONSERVA, during 2009. AlSol and CONSERVA were the only two MFIs operating mature non-financial programs in Chiapas at that time. Both celebrated their tenth anniversary in 2009 and their credit programs share multiple characteristics. However, their NFS are differently structured and implemented. AlSol has been providing BDS since May

2008 in a program jointly designed with Freedom from Hunger[4]. BDS participants received between 30 to 45 minutes of biweekly entrepreneurship training during the credit meetings.

CONSERVA has been supplying since 2006 voluntary health education sessions with partially subsidized preventive healthcare services to clients of the financial program who exceed three credit cycles. Mainly designed and operated by GEMA, a local NGO primarily financed by CONSERVA, the services are delivered by staff members and local private clinics and the training materials have been developed by psychology scholars of the Chiapas Autonomous University (UNACH). Eligible participants are informed of the health campaign dates and asked to book their training by paying its full price in advance. They attend a day of activities, including an hour and a half seminar on women's health, public question sessions with staff, cancer screening and colposcopy exam, and an additional detailed private explanation of the results by the NGO staff. In case a treatment is needed, which in our sample happened in more than 50% of the cases, patients are entitled to two more subsidized medical visits, receive financial advice to cope with medication costs and are helped to be redirected to the public social system. The multiple links with *Oportunidades*, have led to cooperative agreements with the local social services governmental departments, which represents an advantage for the clients as well as for the public health services. The key characteristics of the non-financial programs of these MFIs are described in Appendix 1.

Implementation of NFS in these institutions allowed for a special survey design following that of Coleman (1999, 2006). For both programs, a control group of clients that would gain access to the program could be identified. At the time of the survey, BDS had been progressively incorporated in six out of the eight AlSol branches. The two last branches did not have NFS yet but the clients had already been given the chance to decide if they would participate and groups had already been formed. In CONSERVA, the clients interviewed were those in their third credit cycle so that those willing to participate had already paid for their PHS session.

The sampling was stratified by access criteria[5]. For AlSol, branches were stratified according to whether the program was supplied since it started or was not supplied at all.

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[4] Since 1989, this international NGO runs the flagship *Credit with Education* project, implementing it with local partners around the globe.
[5] The weights of participants and non-participants coincide with those of the real distribution so the use of sampling weights is not necessary.

The branches in which the program had been running for less than a year were eliminated from consideration. Yajalon branch was randomly selected and, to ensure that the treatment area was similar to the control, Ocosingo branch, in the adjacent municipality and former capture area of the Yajalon branch, was purposively selected. For CONSERVA, the two branches in the capital city, Tuxtla Gutierrez, were selected. These branches, with activity in municipalities up to six hours away, had split off from an original branch in which the non-financial program had started. The clients in these branches were stratified according to whether they had completed three cycles or more. Then, a random sample of lending groups was selected from the eligibility strata of both institutions. Finally, the clients from these groups were randomly selected.

This primary data was collected through standardized structured questionnaires and complemented with secondary supply side data from the MFIs' databases. Respondents of the survey were the microfinance clients. The overall response rate was 76 percent[6]. The actual enrolment in the training sessions among the borrowers surveyed was 65 percent. The willingness to participate in the non-eligible group was 71 percent.

A table containing descriptive statistics of the variables used in these regressions is presented in Appendix 2.

5. Results

We discuss in this section the determinants of participation in non-financial services and the impact that participation has on household monthly income per capita[7] and on the probability of being below the poverty line.

5.1. Participation

The special survey design allows us to analyze the demand for human capital by microfinance borrowers. Table 1 presents the probit estimations of the participation

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[6] Illness or death of household members was the main reason for non response. To control for absenteeism to the credit meetings, every group was visited a minimum of two times. Additionally, visits to the house or workplace of repeatedly absent clients were scheduled.
[7] Household income is preferred to expenditure as it is the measure that both MFIs had collected on their databases. Similarly, income is used by CONEVAL (2009) to estimate the Mexican poverty lines.

determinants in NFS. In this model, the dependent variable is a binary indicator which equals one if the client has already attended the program or is interested in participating and zero otherwise. Firstly, to test how clients' socio-economic characteristics, as well as business and NFS program features affect the likelihood of participating in NFS, a model including the full sample is estimated. Secondly, we conduct separate regression analyses for each of the NFS programs, BDS and PHS, to observe the differences between the types of training. Finally, to control for the potential endogeneity of some variables that might have been affected by the services, we run identical regressions for the non-eligible groups only. All the models are jointly significant and robust to goodness of fit and model specification post estimation procedures.

Our findings suggest that the participation decision appears to be more attributable to the socio-economic characteristics of the borrowers than to those of their businesses or NFS program features, e.g. distance to training. This implies that taking into account the borrowers' characteristics during the design process is crucial for the success of NFS programs. Equally important is to select the type of voluntary NFS that is going to be implemented according to the characteristics of the target population because, as expected, business and health related NFS attract different types of borrowers. Most of the results are not robust when using only the groups without access to NFS, but this might be a consequence of the limited sample size.

Two specific borrowers' attributes appear to be particularly important as participation determinants in NFS, their effects being robust to the use of the control group regression. First, an interesting result is that those clients who had received or were receiving the *Oportunidades* program at the moment of the interview were significantly more likely to participate in NFS. The *Oportunidades'* workshops are the only other courses in any topic that the interviewees had attended to during the last two years. According to these findings, NFS and *Oportunidades'* training sessions are complementary, which has important implications for policy design. Our findings support the idea that receiving this governmental program will encourage participation in other types of training and education activities (Sosa-Rubí et al., 2009). Second, a higher ratio of female human capital adjusted by the education of all the working members in the household appears to significantly lower the intentions to participate in NFS. This result, contradictory to the literature, suggests that the clients living in households in which female working members have higher levels of education are less likely to participate in NFS. We can argue that this is probably a

consequence of the basic nature of the courses, designed to attract those who need them most, and of the higher opportunity costs of attendance if women in the household have worthy jobs. This seems to be particularly true in the case of BDS, which appears to drive the findings. When the two kinds of NFS are considered separately, only the results for the full sample of BDS (III) are significant at any conventional level, and though female human capital in the household has been found to increase the likelihood of participating in cervical cancer screening in Mexico (Lazcano-Ponce et al., 2002), our results for PHS participation are close to zero and not significant.

As expected, if BDS and PHS are considered separately, the individual and household characteristics associated with willingness to participate vary substantially from one type of service to the other. In the case of BDS, no determinants are robust to both the full sample and control groups. However, those that are significant at any conventional level for one of the groups are mainly individual characteristics of the borrowers such as levels of empowerment, deprivation or house ownership, thus unrelated to the clients' business or program features.

Robust determinants for participation in PHS are being older, more educated and not owning a house. Age and education positively and significantly determine the willingness to undertake PHS training, which is consistent with the literature on the determinants for adult education and access to cervical screening in developing countries (Nene et al., 2007). In comparison with PHS, the mixed and insignificant results obtained for BDS might suggest that completed education of the clients also affects the type of training in which the borrower decides to engage (Blundell et al., 1996), i.e. women with more years of completed education are more likely to opt for health related services. House ownership negatively affects the likelihood of participating in PHS, though this result is positive for BDS it is only significant for the full sample estimation. A plausible explanation for these findings might be that while the BDS course requires continuous attendance, entailing high opportunity costs in terms of time for those that have more unstable sources of income, PHS is an occasional service that does not require constant dedication (Winkler et al., 2008).

For indigenous people the likelihood of participating is positive and significant at 1 per cent for the NFS control group (II). This variable was dropped from the PHS models because, due to the limited presence of indigenous peoples among CONSERVA's clients, it perfectly predicted non-participation in the full sample regressions (V) and willingness to participate

in the case of the control group (VI). These last results probably drive the positive and significant association between being indigenous and participating that can be observed for the control group of NFS (II). Even if subject to data limitations and though the positive results for BDS are not significant, the fact that these findings clearly contradict the existing literature makes them relevant. There are two plausible explanations for this. Indigenous people in Mexico live in rural areas and are the main target of welfare programs, which appear to positively affect the likelihood of participating. More importantly, Skoufias et al. (2009) discusses the importance of social networks, especially in Mexican rural areas, in human capital and economic decisions of indigenous people. Though the debate continues on whether social capital is built or destroyed by microfinance institutions, this might indicate, as in Mosley et al. (2004) that credit groups provide a previously non-existent social network which might positively affect participation in NFS of indigenous people.

Other results indicate that being the household head has a positive and significant effect on participation in BDS, which similarly occurs for NFS, though the findings are not robust when only the control groups are used. This may suggest that the clients are more likely to consider themselves as household heads as a consequence of the training. Similarly, high levels of deprivation are found to be negatively associated with willingness to participate in NFS and, both in BDS and PHS, though these results are only significant for the groups that have already been made eligible to receive the programs. Again, it is possible that this happens as a consequence of receiving the treatment, implying that NFS contribute to reduce the deprivation levels of the borrowers. The deprivation index is based on CONEVAL (2009) and measured as the satisfaction of basic needs in housing quality (materials and overcrowding), basic services (piped water, electricity, sewage and gas oven) and health services (availability of health insurance). It ranges from 0 to 3, where 3 is the maximum level of deprivation.

5.2. Impact

Both types of NFS, health and business, might have added effects on monetary poverty outcomes of the clients. Channeled through higher revenues, profits and better productivity, BDS might increase household income and the probability of being above the poverty line. Similarly, PHS might, through a higher health status, increase labour supply and business productivity while reducing long run health expenditure and exposure to health shocks.

NFS effects on the natural logarithm of monthly net household income per capita[8] are estimated using OLS. The probability of being under the three[9] official Mexican poverty lines will be estimated using a binary logit model where living below the poverty line =1 and living above the poverty line =0. The poverty lines, estimated by CONEVAL (2009) in Mexican Pesos for August 2009[10], assign monetary values to basic food and non-food baskets. The food poverty line is derived by estimating the per capita income levels required to purchase a basic food basket with the minimum nutritional requirements for a healthy living, in urban and rural contexts[11]. The capabilities poverty line includes the costs of healthcare and formal education. Finally, the asset poverty line captures a moderate degree of deprivation by estimating the level of income necessary to purchase the basic food basket plus other non-food items necessary in a social context: healthcare, formal education, clothing, housing and public transport. Table 2 presents the incidence of poverty in the sample by access and willingness to participate. It also presents the poverty gap measure for each of the different poverty lines. The results for the impact estimations are presented in Table 3 and Table 4.

Table 3 presents the results for the impact of NFS, making no distinction between both types of services. The estimates of the fixed effects (FE) and non-fixed effects models are included, though the results of the alternative Hausman-like test indicate that FE regressions are the most efficient estimators in every model[12]. According to these results, participation in NFS slightly decreases the probability of being under the asset poverty line. NFS do not appear to have an impact on income, nor on the alleviation of food or capabilities poverty. However, it is worth noting that the significance levels of a positive effect of NFS on income or a negative impact on the probability of being below the capabilities poverty line

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[8] To obtain the net income, production costs are deducted from the gross household income. Per capita income is adjusted by age following the standard methodology of CONEVAL (2009). The equivalence scale is: 0.70 if aged 0-5; 0.74 if aged 6-12; 0.71 if aged 13-18 and 0.99 if over 18.

[9] The use of different poverty lines constitutes a robustness check for the sensitivity of poverty to changes in the poverty line measure, while capturing the effects at different levels of welfare. This study does not use the standardized poverty lines of the World Bank as they do not present urban and rural differentiations and concerns exist that they might be inappropriate on a country basis.

[10] The food poverty line is 1,043.1 and 774.7. Capabilities poverty line is 1,279.33 and 915.9. The assets poverty line is 2,092.8 and 1,405.8. Figures for each poverty line are for the urban and rural estimations, respectively.

[11] Following the INEGI definition, rural areas comprise settlements with fewer than 2500 residents whilst in urban areas the population must be over 2500.

[12] A number of observations had to be dropped from the logistic fixed effects regressions when no variation could be observed in the poverty status of the borrowers in the same municipality, i.e. all of them were either poor or non poor.

are close to conventional (*p=0.11*). The impact of NFS on monetary poverty outcomes appears to crucially depend on the type of poverty measure that is used.

The covariates in the model are consistent with expectations. The ratio of dependents and deprivation index, both significant across all outcomes, are found to have the strongest association with poverty status. All the regressions were equally estimated without covariates and the observed effects on poverty alleviation were confirmed. The percentage of illiterate inhabitants of the municipality, i.e. the variable that has been chosen to account for municipality characteristics, is significant at the 1% level for all the non-fixed effects models.

The marginal impacts of the two types of NFS are presented in Table 4. The models include the same covariates presented in Table 3 but different access, self-selection and treatment variables are specified for each type of training, BDS and PHS. The covariates are consistent across models, have the expected signs and share the same pattern of significance with the previous estimations.

As for the treatment results of each program, presented in Table 4, though they have the expected signs in every case, only BDS appears to have significant impact on poverty alleviation. Again, the effects of attending BDS are only evident around the asset poverty line. Findings indicate that attending BDS decreases by 3.2 percentage points the likelihood of being below the asset poverty line in the municipality fixed effects estimation. These results are significant at 5 per cent level. Though there is significant evidence at 10 per cent level that participation in the BDS training increases the level of income and reduces the likelihood of being under the capabilities poverty line in the non-FE estimations, significance fades when considering unobservable municipality characteristics. No significant effects of participation in the PHS program could be observed, though the F-test that compares the two impacts indicates that there are no significant differences between the treatment coefficients of BDS and PHS for any model. Even if no significant impact could be observed for PHS, the effects of both programs seem to go in similar directions.

The regressions presented in Table 3 and 4 have considerable explanatory power and appear to be correctly specified as the F, Wald and likelihood ratio tests are all significant at the 1% level. The post-estimation tests, conducted for the non-fixed effects models, show no evidence of misspecification or omitted variable bias in the models.

6. Discussion and Policy Conclusions

High quality demand-led non-financial services have an increasing importance in the global microfinance scene. These renewed credit-plus schemes, progressively perceived by practitioners as a comparative advantage in extremely competitive environments, continue to be primarily supplied for a poverty alleviation purpose. In the Mexican context, the transition to these added-value credit-plus services is evident. AlSol and CONSERVA, two of the three only MFIs currently supplying structured mature NFS and analyzed in this study, have adapted their credit-plus programs to this trend. These are now voluntary, sometimes present a cost for the borrower and their quality is usually ensured with the collaboration of a specialized partner.

Using a cross sectional survey, specifically designed to prevent the endogeneity problems found in impact analysis, this paper analyzes the major determinants of participation in voluntary NFS as well as evaluating the impact of participation on poverty alleviation outcomes. It additionally focuses on the differences between two types of NFS programs, business and preventive health, in an attempt of not only understanding if credit-plus matters in poverty reduction but why.

Our findings show that the participation decision depends more on borrower-related factors. As expected, the individual socio-economic characteristics that are found to determine participation tend to differ between types of NFS, which should be taken into account in the designing process. An interesting contribution to the literature is that the beneficiaries of the *Oportunidades* program are more likely to participate in NFS. This finding reveals unexplored synergies between public and private poverty alleviation programs, suggesting that coordinated actions between MFIs and governmental social departments might contribute to reach the targeted populations more efficiently and cost-effectively.

Results show that the impact of NFS on poverty alleviation depends on the measure that is used. Defining poverty is crucial in any poverty alleviation study, but the choice of poverty outcome is to a certain extent arbitrary. For this reason, several monetary poverty measures have been included in this analysis. Different poverty levels can be observed among poor microfinance clients, each group with its particularities and its specific needs. By considering not only food poverty levels but also capabilities and asset poverty measures,

this study attempts to observe the effects of NFS on the 'absolute' poor and also on the group that, with higher income levels, is extremely vulnerable to dramatic changes in income or consumption, ill health, social inferiority, humiliation, shame and isolation (Hulme and Mosley, 1996).

There is evidence, in this study, of significant poverty alleviation impacts of NFS around the asset poverty line, i.e. for the better-off clients within the sample. This is contrary to our expectations, because in practice NFS frequently target the poorest borrowers of the MFIs as these are thought to take more advantage of this type of interventions. However, our findings are in line with the argument that microfinance borrowers might experience higher impact at higher levels of income (Hulme and Mosley, 1996). NFS constitute a protective strategy designed to provide a safety net and act as an informal mechanism of risk insurance. Aiming to reduce vulnerability, these programs encourage mechanisms that prevent future unexpected events and cushion for them. Thus, it is those borrowers who assume higher risks, i.e. the less poor clients, the ones that will take further advantage of participation in NFS. For example, BDS will most probably not have any effect on the borrowers who are pretending to be operating a business in order to access the microloan. In general terms, the client needs to have made an investment so that NFS can be of any use. Furthermore, it might be the case that, particularly at lower levels of income, the positive impact of NFS on poverty reduction takes longer to materialize. It is highly probable that the effect of NFS is more intense at medium-term.

When programs are considered separately, BDS appear to drive the observed effects on asset poverty reduction as no significant impact can be appreciated for PHS. There are two possible reasons for this. First, as it is probably the case with the clients who are below the food poverty line, the impact that PHS has on poverty outcomes probably takes longer to manifest, which is difficult to observe with this type of cross-sectional survey. In relation with this, the effects of PHS may start by affecting specific outcomes and take longer to translate into poverty alleviation effects. Gaining a further insight on what are the mechanisms through which NFS reduce poverty is relevant for all the stakeholders in the microfinance industry.

Table 1. *Probit Estimation of the Participation Determinants in NFS*

Independent variables	NFS		BDS		PHS	
	(I)Full sample	(II) No access	(III)Full sample	(IV) No access	(V) Full simple	(VI) No access
Age	0.01	0.02	-0.01	0.04	0.04**	0.10***
	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.03)
Age squared	-0.00	-0.00	0.00	-0.00	-0.00**	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education years (log)	0.04	0.23***	-0.00	0.11	0.11**	0.25***
	(0.04)	(0.07)	(0.05)	(0.11)	(0.06)	(0.08)
Rural area	-0.01	0.24***	-0.05	0.23	-0.03	0.09
	(0.06)	(0.08)	(0.08)	(0.16)	(0.13)	(0.06)
Indigenous [a]	0.09	0.26***	0.04	0.11	-	-
	(0.07)	(0.09)	(0.08)	(0.15)		
Cohabit	0.09	0.03	0.06	0.07	0.16	-0.06
	(0.08)	(0.13)	(0.11)	(0.19)	(0.14)	(0.07)
Household head	0.12**	0.11	0.21***	-0.01	0.00	-0.23
	(0.05)	(0.11)	(0.07)	(0.20)	(0.10)	(0.24)
Ratio of dependents	-0.05	0.10	-0.25	-0.19	0.04	0.04
	(0.11)	(0.21)	(0.18)	(0.35)	(0.17)	(0.23)
Empowerment [b]	0.03**	0.03	0.03*	0.04	0.01	-0.00
	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Oportunidades	0.15***	0.21***	0.10	0.22*	0.15**	0.07
	(0.05)	(0.08)	(0.08)	(0.13)	(0.07)	(0.07)
Human capital of working members	-0.01***	-0.00	-0.01***	-0.01*	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Female workers human capital as % of total	-0.58***	-0.70**	-0.99***	0.39	0.03	0.03
	(0.20)	(0.36)	(0.27)	(1.39)	(0.28)	(0.19)
Own house	-0.05	-0.19***	0.18**	0.04	-0.22***	-0.28***
	(0.05)	(0.08)	(0.09)	(0.21)	(0.06)	(0.08)
Own land	-0.04	0.07	-0.04	0.09	0.00	-0.01
	(0.06)	(0.15)	(0.08)	(0.21)	(0.12)	(0.15)
Deprivation index [c]	-0.06**	-0.06	-0.07*	-0.11	-0.06*	-0.06
	(0.03)	(0.05)	(0.04)	(0.09)	(0.04)	(0.05)
Loan size (log)	0.04	-0.06	-0.02	-0.03	0.05	-0.04
	(0.03)	(0.08)	(0.06)	(0.13)	(0.05)	(0.08)
Prior real monthly income (log) [d]	-	-	-	-	0.02	0.05
					(0.05)	(0.08)
Months of business (log)	0.02	0.01	0.03	-0.06	-0.01	-0.01**
	(0.07)	(0.03)	(0.03)	(0.07)	(0.02)	(0.03)
Business experience	-0.05	0.06	-0.06	-0.03	0.04	0.16
	(0.05)	(0.08)	(0.07)	(0.14)	(0.07)	(0.10)
Distance to training (log minutes)	-0.01	-0.00	-0.02	0.03	0.06	0.04
	(0.02)	(0.05)	(0.03)	(0.05)	(0.05)	(0.10)
Cost	0.11	0.38***	-	-	-	-
	(0.10)	(0.15)				
Observations	434	134	218	70	216	64
Wald χ²	53.81***	35.10***	55.01***	29.56**	36.63***	34.11***
Pseudo R²	0.097	0.208	0.193	0.308	0.152	0.394
Prob > χ²	0.273	0.196	0.286	0.110	0.152	0.149

Significant at the: *** 1 per cent level; ** 5 per cent level; * 10 per cent level. Marginal effects are reported here. Robust standard errors are in parentheses.

[a] Only for AlSol

[b] Empowerment indicates the decision making power of the client in the household in the following areas: major consumption expenditure, own health, business, credit and bill payment. Scale ranging from zero to ten, a higher number is associated with more decision making power of the borrower.

[c] Deprivation index, based on Maldonado and Gonzalez Vega (2008), indicates the level of deprivation by aggregating the areas in which the client is deprived: house quality, health services and basic services (CONEVAL, 2009). A higher number is associated with more deprivation.

[d] Only for CONSERVA.

Table 2: *Incidence of Poverty by Group*

Concept	Mean	S.D.	Access		No access	
	Mean	S.D.	Interest	No interest	Interest	No interest
WB poverty ≤US$1.25 a day	2.53	0.16	1.02	7.69	0	2.56
Food poverty *(P_1)*						
Headcount *(P_{10})*	35.71	0.48	38.46	37.75	29.47	33.33
Poverty gap rate *(P_{11})*	11.75	0.20	11.51	14.64	8.55	13.01
Capabilities poverty *(P_2)*						
Headcount *(P_{21})*	45.85	0.50	43.88	51.92	44.21	43.59
Poverty gap rate *(P_{22})*	16.94	0.23	16.75	20.33	13.52	17.21
Assets poverty *(P_3)*						
Headcount *(P_{31})*	69.35	0.46	68.37	75.96	66.31	64.10
Poverty gap rate *(P_{32})*	32.65	0.29	32.25	37.27	29.14	30.87
Observations (number)	434		196	104	95	39

Mean figures are given in percentages. Poverty lines are derived using income per adult equivalent.
Sources: CONEVAL (2009), OECD (2010) and sample survey.

Table 3: *Estimation of NFS Impact on Income per Capita and Food, Capabilities and Asset Poverty Status*

	Dependent variable: Log of (monthly) per capita income		Dependent variable: Food poverty status		Dependent variable: Capabilities poverty status		Dependent variable: Asset poverty status	
	OLS	OLS FE	Logit [mfx]	FE [mfxα=0]	Logit [mfx]	FE [mfxα=0]	Logit [mfx]	FE [mfxα=0]
Education years (log)	0.098** (0.043)	0.088*** (0.024)	-0.039 (0.038)	-0.042 (0.047)	-0.090*** (0.046)	-0.031* (0.047)	-0.077** (0.032)	-0.008** (0.015)
Indigenous	-0.301*** (0.079)	-0.264*** (0.077)	0.175*** (0.068)	0.111 (0.104)	0.161** (0.078)	0.049 (0.084)	0.140** (0.059)	0.022* (0.043)
Cohabit	0.096 (0.080)	0.123* (0.072)	-0.193** (0.077)	-0.234*** (0.088)	-0.215*** (0.081)	-0.121*** (0.157)	-0.099** (0.051)	-0.017* (0.031)
Household head	0.046 (0.067)	0.047 (0.077)	-0.039 (0.060)	-0.062 (0.076)	-0.004 (0.068)	-0.009 (0.030)	-0.058 (0.055)	-0.006 (0.012)
Ratio of dependents	-0.424*** (0.130)	-0.396*** (0.149)	0.288** (0.119)	0.295** (0.193)	0.590*** (0.142)	0.210*** (0.310)	0.266** (0.103)	0.028* (0.053)
Human capital of working members	-0.002 (0.003)	-0.001 (0.004)	0.004 (0.003)	0.003 (0.004)	0.003 (0.003)	0.001 (0.002)	-0.002 (0.002)	-0.000 (0.001)
Female workers human capital as % of total	0.319 (0.260)	0.285 (0.208)	-0.493** (0.211)	-0.508** (0.327)	-0.741*** (0.244)	-0.277** (0.394)	0.179 (0.306)	0.018 (0.044)
Own house	-0.007 (0.069)	0.004 (0.042)	-0.043 (0.068)	-0.067 (0.078)	-0.004 (0.074)	-0.007 (0.029)	-0.025 (0.049)	-0.000 (0.006)
Own land	0.153*** (0.076)	0.139** (0.054)	-0.131** (0.056)	-0.174** (0.127)	-0.180** (0.071)	-0.061** (0.093)	0.006 (0.067)	0.010 (0.022)
Deprivation (index) [a]	-0.121** (0.033)	-0.120*** (0.036)	0.097*** (0.030)	0.091** (0.053)	0.082** (0.034)	0.029** (0.044)	0.064** (0.026)	0.007** (0.013)
Loan size (log)	0.111*** (0.047)	0.109** (0.046)	-0.037 (0.042)	-0.019 (0.043)	-0.077 (0.048)	-0.029 (0.025)	-0.081** (0.035)	-0.009* (0.013)
Oportunidades	-0.135** (0.071)	-0.145 (0.095)	0.247 (0.059)	0.273*** (0.110)	0.184*** (0.065)	0.079*** (0.116)	-0.003 (0.051)	0.001 (0.006)
Rural area	-0.174*** (0.073)	-0.264** (0.124)	-0.092 (0.057)	0.045 (0.114)	-0.114* (0.068)	0.033 (0.074)	-0.116* (0.070)	-0.008 (0.017)
Village illiteracy rate %	-0.016*** (0.003)	-	0.010*** (0.003)	-	0.013*** (0.003)	-	0.009*** (0.002)	-
Access	-0.168 (0.120)	-0.156 (0.094)	0.081 (0.097)	-0.001 (0.147)	0.162 (0.106)	0.047 (0.088)	0.176** (0.088)	0.017* (0.032)
Interest	-0.021 (0.116)	-0.042 (0.069)	0.019 (0.102)	0.045 (0.121)	0.083 (0.111)	0.034 (0.070)	0.091 (0.079)	0.008 (0.018)
Treatment NFS	**0.179 (0.135)**	**0.147 (0.087) p=0.110**	**-0.067 (0.120)**	**-0.046 (0.145)**	**-0.249** (0.123)**	**-0.082 (0.138) p=0.112**	**-0.176* (0.095)**	**-0.018* (0.037)**
Constant	6.900 (0.421)	6.552 (0.403)	-	-	-	-	-	-
Observations	430	429	430	415	430	418	430	404
F statistic	21.97***	145.60***						
R squared	0.430	0.364						
Wald chi2			91.95***		105.07***		98.37***	
Pseudo R²			0.250		0.262		0.254	
LR chi2(16)				49.78***		65.81***		53.39***
RESET: Hosmer-Lemesho chi2(8)	F(3, 409) = 0.66		7.25		4.74		7.07	
Prob > chi2		0.57	0.509		0.785		0.529	

*** Indicates significance at the 1% level; ** Indicates significance at 5% level; * Indicates significance at 10% level. Robust Standard Errors are in parentheses. [a] Defined identically to Table 1

22

Table 4: *Estimation of BDS and PHS Impact on Income per Capita and, Food, Capabilities and Asset Poverty Status*

	Dependent variable: Log of (monthly) per capita income		Dependent variable: Food poverty status		Dependent variable: Capabilities poverty status		Dependent variable: Asset poverty status	
	OLS	OLS FE	Logit [mfx]	FE [mfxα=0]	Logit [mfx]	FE [mfxα=0]	Logit [mfx]	FE [mfxα=0]
Education years (log)	0.105*** (0.043)	0.090*** (0.025)	-0.046 (0.038)	-0.048 (0.047)	-0.094** (0.046)	-0.040*** (0.060)	-0.077** (0.032)	-0.010** (0.019)
Indigenous	-0.268*** (0.085)	-0.249*** (0.082)	0.150** (0.075)	0.110 (0.098)	0.158* (0.087)	0.059 (0.098)	0.108 (0.067)	0.024* (0.049)
Cohabit	0.094 (0.080)	0.123* (0.073)	-0.198** (0.079)	-0.236*** (0.082)	-0.218*** (0.084)	-0.147*** (0.184)	-0.094* (0.051)	-0.020* (0.037)
Household head	0.040 (0.068)	0.040 (0.079)	-0.038 (0.060)	-0.056 (0.077)	-0.001 (0.069)	-0.009 (0.036)	-0.058 (0.055)	-0.007 (0.014)
Ratio of dependents	-0.407*** (0.132)	-0.377*** (0.148)	0.273** (0.121)	0.297** (0.166)	0.586*** (0.144)	0.255*** (0.372)	0.247** (0.103)	0.033** (0.063)
Human capital of working members	-0.002 (0.003)	-0.001 (0.004)	0.004 (0.003)	0.003 (0.004)	0.003 (0.003)	0.001 (0.002)	-0.001 (0.002)	-0.000 (0.001)
Female workers human capital as % of total	0.373 (0.265)	0.328 (0.213)	-0.548** (0.220)	-0.570** (0.317)	-0.780*** (0.255)	-0.365*** (0.519)	0.152 (0.297)	0.019 (0.050)
Own house	-0.019 (0.072)	-0.011 (0.042)	-0.031 (0.067)	-0.058 (0.079)	0.006 (0.075)	-0.003 (0.035)	-0.023 (0.050)	0.001 (0.007)
Own land	0.157** (0.076)	0.144** (0.054)	-0.141** (0.056)	-0.189** (0.120)	-0.188*** (0.072)	-0.077** (0.119)	0.016 (0.064)	0.012 (0.026)
Deprivation (index) [a]	-0.121*** (0.033)	-0.119*** (0.037)	0.095*** (0.032)	0.094*** (0.044)	0.081** (0.035)	0.035** (0.052)	0.064** (0.025)	0.009*** (0.016)
Loan size (log)	0.110** (0.046)	0.109* (0.048)	-0.033 (0.043)	-0.023 (0.048)	-0.077 (0.049)	-0.036** (0.033)	-0.082** (0.034)	-0.011** (0.017)
Oportunidades	-0.122 (0.072)	-0.137 (0.094)	0.236*** (0.060)	0.275*** (0.083)	0.175*** (0.065)	0.094 (0.137)	-0.008 (0.050)	0.001 (0.007)
Rural area	-0.168** (0.073)	-0.266* (0.144)	-0.093 (0.059)	0.042 (0.118)	-0.114* (0.069)	0.041 (0.094)	-0.122* (0.070)	-0.008 (0.018)
Village illiteracy rate %	-0.013*** (0.004)	-	0.008** (0.004)	-	0.012*** (0.004)	-	0.007*** (0.002)	-
Access BDS	-0.292** (0.162)	-0.461** (0.207)	0.162 (0.134)	0.198 (0.395)	0.213 (0.143)	0.190 (0.386)	0.258** (0.101)	0.090 (0.202)
Access PHS	-0.059 (0.135)	-0.124 (0.080)	-0.057 (0.129)	0.008 (0.233)	0.108 (0.137)	0.086 (0.176)	0.097 (0.073)	0.015 (0.034)
Interest BDS	-0.063 (0.140)	-0.045 (0.122)	-0.005 (0.116)	-0.006 (0.150)	0.063 (0.142)	0.018 (0.080)	0.149** (0.081)	0.025 (0.055)
Interest PHS	0.029 (0.145)	-0.062 (0.065)	-0.015 (0.135)	0.135 (0.236)	0.080 (0.140)	0.093 (0.185)	0.030 (0.083)	0.004 (0.018)
Treatment BDS	**0.313* (0.175)**	**0.234 (0.168)**	**-0.086 (0.131)**	**-0.042 (0.181)**	**-0.268* (0.142)**	**-0.086 (0.147)**	**-0.461** (0.217)**	**-0.032** (0.062)**
Treatment PHS	**0.035 (0.172)**	**0.099 (0.082)**	**0.065 (0.181)**	**-0.048 (0.265)**	**-0.178 (0.156)**	**-0.096 (0.177)**	**-0.080 (0.119)**	**-0.009 (0.024)**
Constant	6.827 (0.424)	6.635*** (0.407)						
F-test that $\delta_1 = \delta_2$	F(1,409) = 1.84	F(1, 18) = 0.44	chi2(1) = 0.59	chi2(1) = 0.00	chi2(1) = 0.23	chi2(1) = 0.01	chi2(1) = 2.43	chi2(1) = 1.92
Prob > F	0.175	0.5156						
Prob > chi2			0.442	0.986	0.628	0.905	0.119	0.165
Observations	430	429	430	415	430	418	430	404
F statistic	18.79***	208.76***						
R squared	0.433	0.387						
Wald chi2			94.35***		104.01***		97.95***	
Pseudo R²			0.254		0.262		0.259	
LR chi2				50.68***		66.53***		56.00***
RESET:	F(3, 406) = 0.51							
Hosmer-Lemesho chi2(8)			4.55		9.96		7.60	
Prob > chi2	0.675		0.804		0.268		0.474	

*** Indicates significance at the 1% level; ** Indicates significance at 5% level; and * indicates significance at 10% level. Robust Standard Errors in parentheses. [a] Defined identically to Table 1

Appendix 1: Characteristics of Non-Financial Services

AlSol

Partner: Freedom from Hunger

Description:
Business training organized in modules, each consisting of 8 sessions of 30 minutes, delivered during the credit meetings.

Enrolment Status: Voluntary

Price: Free

Training materials:

Module 1: Manage your Business Money
1. Separate business and personal money
2. Use the business loans for the business
3. Calculate profits
4. Control, plan and invest business money
5. Use the business profit for business and personal needs
6. Prevent business losses
7. Manage credit sales
8. Review session

Module 2: Plan for a Better Business
1. Use the eight planning steps for business development
2. Analyze the business demand
3. Problem identification and solving
4. Techniques to implement new business ideas
5. Plan how much to produce and sell
6. Plan the business costs
7. Plan ways to increase profits
8. Identify new funding sources for the business
9. Prepare for unexpected events

CONSERVA

Partner: GEMA A.C.; Private local clinics; UNACH

Description:
Full day of activities: workshop on women's reproductive health (60-90 minutes), cervical cancer screening and colposcopy exam if needed, private explanation of the results by GEMA staff. Patients are entitled to three subsidized medical visits.

Enrolment Status: Voluntary

Price: 100 MXP (8 USD)

Training materials:

Workshop 1:
1. Introduction on the female reproductive system
2. Sexually transmitted diseases: Concept, symptoms and prevention
3. Cervical cancer: Concept, symptoms and prevention
4. Human papilloma virus (HPV): Concept, symptoms and prevention (health exams)
5. Treatments
6. Question time

Health Exams and Treatments
1. Cancer screening
2. Colposcopy
3. Cold coagulation treatment
4. Laser ablation treatment
5. Loop diathermy treatment

Individual Counseling

Appendix 2: Descriptive Statistics

Variables	Mean	S.D.	Access		No access	
			Interest	No interest	Interest	No interest
Age	38.69	12.74	39.26 (11.76)	38.59 (13.92)	39.05 (13.42)	35.18 (12.41)
Education years (log)	1.37	0.91	1.36 (0.89)	1.45 (0.95)	1.34 (0.88)	1.22 (0.99)
Indigenous	0.34	0.48	0.36 0.48)	0.38 (0.49)	0.30 (0.46)	0.28 (0.45)
Cohabit	0.80	0.40	0.82 0.39)	0.78 (0.42)	0.80 (0.40)	0.79 (0.41)
Household head	0.36	0.48	0.46 (0.50)	0.32 (0.47)	0.27 (0.45)	0.18 (0.39)
Ratio of dependents	0.39	0.24	0.41 (0.23)	0.37 (0.25)	0.37 (0.23)	0.41 (0.25)
Empowerment index [a/]	5.32	2.34	5.59 (2.30)	4.74 (2.49)	5.60 (2.25)	4.87 (2.09)
Oportunidades	0.41	0.49	0.47 (0.50)	0.35 (0.48)	0.39 (0.49)	0.31 (0.47)
Human capital of working members	15.09	11.29	13.80 (9.95)	17.46 (12.21)	14.91 (11.39)	15.72 (14.00)
Female workers human capital as % of total	0.05	0.12	0.05 (0.10)	0.07 (0.16)	0.04 (0.07)	0.05 (0.16)
Own house	0.76	0.42	0.78 (0.41)	0.78 (0.42)	0.68 (0.47)	0.82 (0.39)
Own land	0.20	0.40	0.24 (0.43)	0.29 (0.45)	0.07 (0.26)	0.08 (0.27)
Deprivation index [b/]	1.08	0.95	1.14 (0.98)	1.37 (0.87)	0.70 (0.88)	0.92 (0.87)
Loan size (log)	8.48	0.76	8.56 (0.85)	8.38 (0.77)	8.44 (0.58)	8.49 (0.63)
Prior real monthly income (log)	8.69	0.78	8.91 (0.82)	8.76 (0.77)	8.30 (0.54)	8.32 (0.54)
Months of business (log)	3.42	1.47	3.63 (1.31)	3.36 (1.51)	3.15 (1.66)	3.18 (1.52)
Business experience	0.51	0.50	0.52 (0.50)	0.58 (0.50)	0.47 (0.50)	0.41 (0.50)
Distance to training (log minutes)	2.68	1.41	2.71 (1.51)	2.84 (1.20)	2.58 (1.36)	2.27 (1.42)
Rural area	0.25	0.43	0.24 (0.43)	0.33 (0.47)	0.22 (0.42)	0.13 (0.34)
Municipality illiteracy rate (%)	22.78	13.62	23.77 (14.46)	23.43 (13.75)	20.13 (12.03)	22.60 (12.08)
Observations (number)	434 [216]		196 [100]	104 [52]	95 [49]	39 [15]

Note: Standard deviations in parentheses. Square brackets denote the number of observations for which the natural logarithm of prior real monthly income is available.
[a/] [b/] Defined identically to Table 1.

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