

A Business Case for Financial Education and Microsavings Promotion: Experimental Evidence from a For-Profit Program in Rural Peru*

Chris M. Boyd[†] and Sandro Díez-Amigo[‡]

Preliminary version

Abstract

This paper intends to contribute to the mixed body of evidence on the effectiveness of financial education to promote savings among poor rural populations, and to rigorously test the business case for financial education in rural areas provided by private financial institutions on a for-profit basis. In order to do so we experimentally evaluate a for-profit financial education program, paired with savings account marketing, targeting poor rural women in the Apurímac region of Peru. We find that the program significantly increased the familiarity and trust in formal financial institutions, and that this effect was particularly large for the implementing institution. Moreover, we find that the program significantly increased the probability of saving with the implementing institution. However, we only observe an incipient effect on credit uptake with the implementing institution. Our findings suggest that financial education programs can be a successful marketing tool for the promotion of microsavings among the poor even in remote rural areas, and that their provision by financial institutions on a for-profit basis can be commercially viable if their focus is expanded beyond savings, in order to promote and generate cross-selling of credit products with higher profit margins.

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[†]University of Minnesota. Corresponding author: e-mail: boyd1001@umn.edu; Address: 1994 Buford Ave, St. Paul, MN 55108; Phone: (612) 625 5000.

[‡]World Bank Group. e-mail: sdiezamigo@worldbank.org; Address: 1818 H St NW, Washington D.C. 20433; Phone: (202) 453 1001

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1 Introduction

The ProSavings Program, led by the Multilateral Investment Fund of the Inter-American Development Bank, promotes the development of business strategies to offer liquid and planned savings services tailored to low-income populations in Latin America and the Caribbean. As part of this program in 2015 the Peruvian microfinance institution Financiera Confianza, a subsidiary of the BBVA Microfinance Foundation, started to implement the *Ahorro para Todos* (“Savings for All”) financial education program. This intervention targeted the rural population of the Apurímac region in Southern-Central Peru, with a focus on women over 18 years old, and its four training modules were aimed at generating knowledge and trust in the formal financial system and at promoting financial best practices. Also, during the program trainers promoted an associated savings account offered by Financiera Confianza.

The evidence regarding the ability of government- and non-profit-sponsored financial education programs to promote savings in the formal financial system is mixed. Moreover, financial education programs also benefit formal financial institutions by expanding their pool of clients, allowing them to reach previously underserved rural populations. Therefore, financial education can be thought of not only a public good, but also as an effective marketing mechanism, and successful private or public-private provision models would be a win-win-win for the government, rural populations, and formal financial institutions. However, financial institutions face challenges which may or may not allow them to provide for-profit financial education in a commercially viable manner.

In this context our experimental impact evaluation of the *Ahorro para Todos* program intends to contribute to the mixed body of evidence on the effectiveness of financial education to promote savings among poor rural populations, and to rigorously test the business case for financial education in rural areas provided by private financial institutions on a for-profit basis.

We use an optimal random assignment at the community level to generate comparable control and treatment groups which are statistically indistinguishable on both observable and unobservable characteristics. This allows us to robustly identify and estimate the impact of the program on a range of dependent outcome variables. Also, in July 2016 we carried out an endline survey of a random sample 1801 households across the 89 communities included in the evaluation. Information was gathered on a range of dependent outcome variables, grouped in six categories: (i) financial literacy, (ii) savings, (iii) credit, (iv) income and assets, (v) consumption, and (vi) female empowerment. Finally, we also have access to administrative information provided by Financiera Confianza on transactions and balances between January 2015 and July 2016, with which we complement the self-reported data.

We find that the financial education program significantly increased the familiarity and trust in formal financial institutions in poor rural areas of the Andes, and that this effect was particularly large for Financiera Confianza. Moreover, we also find that the program significantly increased the probability of saving with Financiera Confianza, even if we find no evidence of a significant impact of the program on the probability of saving at home or with other formal financial institutions or cooperatives. However, on the contrary we observe no evidence of an effect of the program on the probability of buying other financial products from Financiera Confianza or from any other financial institution. On the other hand, we estimate that the program significantly reduced poverty.

All the above suggests that financial education programs can be a successful marketing tool for the promotion of microsavings among the poor even in remote rural areas, and that their provision by financial institutions on a for-profit basis can be commercially viable if their focus is expanded beyond savings, in order to promote and generate cross-selling of credit products with higher profit margins. Also, the observed success of *Ahorro para Todos* in reducing poverty levels reaffirms the public good nature of financial education, and suggests a rationale for public sector support of this type of private development programs.

The rest of the paper is organized as follows: Section 2 presents the background for the paper; Section 3 provides a description of the intervention; Section 4 outlines the methodology used in the experimental evaluation; Section 5 presents the main findings; Section 6 concludes.

2 Background

Under the presidencies of Alejandro Toledo (2001-2006), Alan García (2006-2011) and Ollanta Humala (2011-2016) Peru experienced robust economic growth. Poverty levels fell dramatically, from 54.2% in 2002 to 21.8% in 2015¹, and while affected by the 2015 global commodities slump, it continues to be one of the best performing economies in Latin America.

However, there are great economic disparities among Peruvian regions, and particularly across rural and urban areas: half of the rural population in Peru (45.2%) was below the poverty line in 2015, and more than an eighth (13.9%) was considered extremely poor. This gap was exacerbated in the Andean regions, where 49% of the population was below the poverty line, and 16.5% was considered extremely poor [INEI(INEI2016)]. And, as in other contexts, the higher levels of poverty were correlated with lower levels of education, and high rates of financial illiteracy.

Apurímac, an Andean region in Southern-Central Peru with a particularly challenging geography², was the poorest region in the country in 2012, contributing 0.4% of its GDP and growing at an average rate of 4.3% between 2007 and 2014 [INEI(INEI2016)]. These facts made it the target of numerous public and private development initiatives in subsequent years, such as large mining investments, which successfully accelerated regional GDP growth. However, Apurímac struggled to tackle the issue of income inequality across urban and rural areas, motivated in great part by the lack of access to the formal financial system in the latter.

The ProSavings Program, led by the Multilateral Investment Fund of the Inter-American Development Bank, promotes the development of business strategies to offer liquid and planned savings services tailored to low-income populations in Latin America and the Caribbean. As part of this program the Peruvian microfinance institution Financiera Confianza, a subsidiary of the BBVA Microfinance Foundation, implemented the *Ahorro para Todos* (“Savings for All”) financial education program in the Apurímac region³, with a focus on its Abancay, Antabamba, Aymaraes and Grau provinces.

Financial education programs and related initiatives to expand access promise rural populations the op-

¹See [Herrera(2003)],[INEI(INEI2016)].

²Mountains are worshipped as gods in Andean religion, and *Apurímac* means *where the gods speak* in Quechua language.

³After its initial implementation in Apurímac the program was subsequently expanded to the Cusco region with some modifications. However, here we only study the intervention in Apurímac.

portunity to benefit from the formal financial system. However, the evidence regarding the ability of government- and non-profit-sponsored programs in Peru and elsewhere to promote savings in the formal financial system and improving welfare is mixed. For example, [Cole et al.(2009)Cole, Sampson, and Zia] find that a financial education program in Indonesia has modest effects on the demand for bank accounts, which is however successfully stimulated with savings subsidies. However, while in their evaluation of a savings promotion pilot program in Peru [Boyd and Aldana(2015)] only find a small impact on financial literacy, they observe a large significant impact on the probability of saving at a bank (16%). Similarly, [Ashraf et al.(2010)Ashraf, Karlan, and Yin] find that a Philippine commitment savings program combined with financial education focused on the benefits of saving had a large significant impact (81%) on the amount of formal savings 12 months after the intervention, but this effect is no longer observed 32 months after the intervention.

Moreover, financial education programs also benefit formal financial institutions by expanding their pool of clients, allowing them to reach previously underserved rural populations. Therefore, financial education can be thought of not only a public good, but also as an effective marketing mechanism, and successful private or public-private provision models would be a win-win-win for the government, rural populations, and formal financial institutions. However, financial institutions face challenges which may or may not allow them to provide for-profit financial education in a commercially viable manner.

In this context our experimental impact evaluation of the *Ahorro para Todos* program intends to contribute to the mixed body of evidence on the effectiveness of financial education to promote savings among poor rural populations, and to rigorously test the business case for financial education in rural areas provided by private financial institutions on a for-profit basis.

3 Intervention

The *Ahorro para Todos* (“Savings for All”) financial education program implemented by Financiera Confianza from May 2015 to April 2016 targeted the rural population of the Apurímac region in Southern-Central Peru, with a focus on women over 18 years old. This was motivated by the evidence generated by the pilot program carried out in early 2015, which as discussed by [Boyd and Aldana(2015)] suggested that focusing the program on women would improve its effectiveness, making it easier to boost savings and providing a more creditworthy⁴ potential pool of clients for the financial institution.

The treatment of the *Ahorro para Todos* program consisted on two interacting components:

- (i) The first component consisted of four modules focused on general financial education.
- (ii) The second component focused on the promotion of the associated savings account offered by Financiera Confianza, also called *Ahorro para Todos*.

The four modules⁵ of the financial education component intended to generate knowledge and trust in the

⁴Even if the program is focused on savings promotion, creditworthiness remains a key dimension, as it is a stylized industry fact that the taking of deposits is a commercially viable activity only insofar as it leads to the cross-selling of other products with higher profit margins, such as loans.

⁵The four modules were named (1) “Trusting my savings to Financiera Confianza”, (2) “If we know, we win”, (3) “Let’s control

formal financial system, by explaining the advantages and disadvantages of the different types of financial products such as savings accounts, loans and insurance policies, as well as by promoting financial best practices such as the creation of a monthly budget for the household.

An important innovation included in this part of the program consisted on the use of the “edutainment” approach used to impart the four modules, shown to achieve results in other settings⁶. In order to do so, each of the four teaching modules were structured as short stories of (made-up) local women, to which the target population could easily relate. Also, program trainers used custom-designed dolls and portable stages to support their explanations and maintain the concentration of the audience.

Although the challenging logistics of reaching remote rural communities in a context of limited transportation options and budgetary constraints meant that exceptions needed to be made, in general the four financial education modules were delivered at a rate of one per month. Trainers traveled to each community, and each module was taught in a one-hour session over or immediately before/after a meeting organized by one of the pre-established groups⁷. Beneficiaries could decide whether or not to participate in each financial education session, and while a mentioned the program focused on female beneficiaries, those men who asked to participate were allowed to do so.

At the end of each session trainers addressed the questions and doubts of the audience about the contents taught in the corresponding module, and then spent some time promoting the *Ahorro para Todos* savings account⁸.

This account is a simple savings account, which (a) features no administration or transfer fees, (b) offers an unsubsidized but competitive interest rate of 0.75% (3) requires a minimum opening deposit of 20 Peruvian soles, or approximately 6 U.S. dollars, (4) provides a complimentary debit card once the amount saved reaches 50 soles, and (5) provides a life microinsurance policy active if the amount saved is at least 100 soles. Participants in the financial education sessions were explicitly informed that their attendance did not entail any commitment to contract the associated savings account. Also, in order to open an account and make deposits prospective clients needed to visit the Financiera Confianza branch at the regional capital, Abancay.

Although it was originally conceived as a “commitment” savings account with a minimum recurrent deposit, this requirement proved very unpopular among prospective clients during the pilot phase, and was subsequently dropped. However, coinciding with the main holidays Financiera Confianza raffled a (non-perishable) food basket, valued at 120 soles, among clients who had made a deposit during the previous month. This raffle was advertised and used during the promotion of the savings account at the end of each teaching session.

our savings and plan our expenses”, and (4) “I need insurance, and I need credit! Let’s get to know financial services”.

⁶For example, see [La Ferrara et al.(2012)La Ferrara, Chong, and Duryea] for an analysis of the impact of soap operas on fertility in Brazil, or [Valdivia and Chong(2013)] for a proposal on how to use an analogous approach to promote savings among women in rural Peru.

⁷In order to maximize female participation in the program selected groups were generally those with a majority of female attendance. Also, the majority of groups were “pre-established” in the sense that they had already been set up by governmental programs (e.g. Juntos, Health Center meetings) or another institution working in the community.

⁸Trainers were hired by Financiera Confianza as “Savings Promotion Agents”.

4 Evaluation Methodology

4.1 Experimental Design

We use random assignment at the community level that maximizes the balance of observable characteristics prior to the intervention. This allows us to robustly identify and estimate the impact of the program on a range of dependent variables, as described more in detail in Section 4.3 below.

During the pilot phase of the program a field test was conducted by Financiera Confianza in order to calculate the average travel time from the regional capital of Abancay, where its nearest branch is located, to each of the prospective intervention communities. Based on the results of this exercise Financiera Confianza decided to limit the intervention to communities at a distance of under six hours of Abancay, since reaching communities further away was deemed ex-ante commercially unviable. Similarly, Financiera Confianza determined that *Ahorro para Todos* would only be implemented in communities located at least one hour and half away from Abancay, in order to guarantee that the program maintained its focus on providing financial education and access to formal financial services for the rural population. Moreover, some remote communities within the six hour radius were grouped together and treated as one, in order to better accommodate the logistical constraints arising from the limited transportation options and challenging geography, and to minimize the potential for contamination of the control group whenever two communities were very close to each other.

Also, communities with fewer than 15 beneficiaries of the JUNTOS conditional cash transfer program were also excluded to ensure that the program focused on communities with a high percentage of poor households. Similarly, additional communities were excluded because it was determined that they had no contact with the regional capital, or because they were deemed potentially dangerous for program trainers to visit. Finally, Financiera Confianza also agreed to exclude the districts where communities had received or were scheduled to receive any financial education treatment provided by the government or by Proyecto Capital as part of its parallel activities in the region ⁹.

After the above described pre-selection process was completed there were 89 eligible communities or groups of communities left across 22 districts in the Abancay, Antabamba, Aymaraes and Grau provinces of the Apurímac region.

In order to maximize the balance between treatment and control groups we carried out 3,000 random assignments, and chose the randomization which maximized the balance across all available variables ¹⁰. Due to budgetary restrictions, a relevant baseline survey could not be carried out, thus we used information from the Peruvian Social Programs Targeting Office (SISFOH) in order to carry out this analysis¹¹.

⁹In particular, we excluded districts which had participated in the governmental Haku Wiñay program, and those which were scheduled to participate in another financial inclusion program to be piloted by Proyecto Capital.

¹⁰In particular, we tested for differences in means across 22 balance variables in each randomization, and selected the randomization with the highest minimum p-value.

¹¹We used 19 SISFOH variables at the household level, collected in 2013 from all households in the evaluation districts and compared their means at the community level to carry out the balance maximization: (i) percentage of men in the household, (ii) percentage of pregnant women in the household, (iii) head of household age, (iv) average age of household members, (v) gender of household head, (vi) beneficiary status in ESSALUD health insurance program, (vii) beneficiary status in SIS health insurance program, (viii) percentage of household members without health insurance, (ix) participation in the *Vaso de Leche* program, (x) beneficiary status in the school breakfast/lunch program, (xi) beneficiary status in JUNTOS conditional cash transfer program, (xii) beneficiary status in social programs, (xiii) beneficiary status in *Pension 65* program, (xiv) percentage of household members with Spanish as native tongue, (xv) percentage of household members with Quechua as a native tongue, (xvi)

This exercise yielded a balanced ex-ante random assignment of 44 communities in the control group and 45 communities in the treatment group .

After the completion of the evaluation Financiera Confianza offered the Ahorro para Todos program also in communities assigned to the control group.¹²

4.2 Data Collection

In July 2016 we carried out an endline survey of a random sample of 1801 rural households across the 89 communities included in the evaluation, which had been randomly assigned to the control and treatment group prior to the start of the intervention¹³. Information was gathered on a range of dependent outcome variables, grouped in six categories: (i) financial literacy, (ii) savings, (iii) credit, (iv) income and assets, (v) consumption, and (vi) female empowerment.

In the absence of a population census the random sampling strategy for the endline survey was as follows: (a) for each community we calculated the female population above 18 years old according to the information available from the Peruvian Social Programs Targeting Office (SISFOH); (b) for communities with less than 90 females over 18 years old we assigned a maximum target number of 30 surveys to be collected, allowing for a maximum of two replacements; (c) for communities with more than 90 females over 18 years old we assigned a minimum target number of 30 surveys to be collected, and then randomly added observations to each community until reaching the target of 1800 observations split evenly between treatment and control.

In addition, on arrival to each community the surveyors followed a field protocol to ensure the random selection of households to be interviewed: (1) first, they looked for the community president, informed her/him about the study and requested permission to do it; (2) then, with the help of the community president they mapped the community, noting the main buildings or geographical characteristics, and divided the community into four quadrants; (3) next, surveyors divided each quadrant in blocks of 3-4 houses and administered the survey to a randomly selected household in each block, leaving the other 2-3 as replacements; and (4) finally, surveyors applied this protocol until the target number of observations for the community was reached, randomly choosing replacements within each block as necessary.

We supervised the field operations in several communities and verified GPS geodata for each household in order to validate the randomness of the sampling. The results of this validation were positive, however

percentage of household members with a national identity document, (xvii) percentage of household members who know how to read and write, (xviii) household involved in agriculture, and (xix) household involved in the service sector. In addition, we also looked at 3 additional community level variables for balance: (xx) distance to regional capital, (xxi) number of beneficiaries of JUNTOS conditional cash transfer program, and (xxii) percentage of JUNTOS recipients receiving the transfer in a bank account.

¹²As of January 2017 Financiera Confianza had started to implement the *Ahorro para Todos* program in some of the control communities located nearer to the regional capital, expanding it to include activities to promote group credit products.

¹³Note that the 89 communities included four intermediate cities, two in the control group and two in the treatment group. Financiera Confianza invited people from the urban areas of these cities to training meetings, but none attended the meetings, although a few opened the promoted savings account. Thus, we excluded urban areas from the endline survey to keep the focus on rural population, but this does not seem to affect the balance between treatment and control groups . Also, note that a few rural communities close to each other were regrouped since Financiera Confianza decided to do one bigger meeting for all of them. As a result of these two changes, we have 84 communities (clusters in the following regressions) instead of the designed 89, but the targeting was done as originally planned: in all of the 89 communities assigned to the treatment, people were invited to the financial education training meetings, and none in the communities originally assigned to control was invited to the meetings.

in some small communities the target number of observations could not be reached, due to migration or reluctance to take the survey. In these instances the remaining observations were randomly reassigned to other communities, resulting in the final endline survey tally of 907 observations in the control group and 894 observations in the treatment group.

Also, we check the ex-post balance between treatment and control at endline by looking at characteristics considered to be orthogonal to the intervention, and therefore unlikely to have changed in a systematically different manner in both groups before and after the program was implemented: (i) distance to regional capital; (ii) frequency of travel to provincial capital by respondent; (iii) number of household members; (iv) gender of respondent; (v) age of respondent; (vi) maximum educational level of household; and (vii) beneficiary status of JUNTOS conditional cash transfer program.¹⁴

As detailed in the appendix, the balance at endline is good, with no significant differences in balance variables between treatment and control at the 1% or 5% level¹⁵.

Finally, we also have access to administrative information provided by Financiera Confianza on transactions and balances between January 2015 and July 2016, with which we complement the self-reported data obtained in the endline survey.

4.3 Model Specifications

Using the econometric models described below we estimate the effect of the program on a range of dependent outcome variables, which are grouped in six categories: (i) financial literacy, (ii) savings, (iii) credit, (iv) income and assets, (v) consumption, and (vi) female empowerment¹⁶.

All reported standard errors are clustered at the community level since this was our randomization unit .

Intent-to-Treat (ITT)

Let $Z_i \in \{0, 1\}$ denote the random assignment of household i to a control or treatment area in a causal model á la Rubin¹⁷. Then if Y_i is the dependent outcome variable, the intent-to-treat (ITT) estimate of the effect of the program can be represented as:

$$\delta_{ITT} = E(Y_i | Z_i = 1) - E(Y_i | Z_i = 0)$$

This reduced form estimate captures the relative average effect of the program among all those households in communities randomly assigned to the treatment group compared to households in communities randomly

¹⁴Due to SISFOH anonimization of individual households, we could not check ex-post balance in the 22 variables used to maximize balance at the community level. However, using the Endline survey data, we checked that balance remains among all the variables used for maximizing balance that were supposed to be time-invariant and orthogonal to the intervention.

¹⁵The only significant difference detected was only so at the 10% level: sampled treatment households live on average 9 minutes further away from the regional capital than sampled control households (2 hours and 57 minutes versus 2 hours and 48 minutes).

¹⁶For simplification purposes only a subset of most relevant variables are presented in each category.

¹⁷See [Imbens and Rubin(2010)].

assigned to the control group, and can be calculated using an ordinary least squares (OLS) regression model:

$$y_i = \alpha_0 + \delta_{ITT}Z_i + e_i \quad (1)$$

where i indexes households, y_i is the relevant outcome variable, and Z_i is a dummy variable which takes a value of 1 if the household belongs to a community assigned to the treatment group which was offered to participate in the program and 0 otherwise.

We subsequently augment this simple difference in means OLS regression model to include additional covariates:

$$y_i = \alpha'_0 + \delta'_{ITT}Z_i + \sum_{h=1}^6 \alpha'_h x_{hi} + e'_i \quad (2)$$

where x_{1i} is the distance from the household's community to the regional capital in average hours of travel¹⁸, x_{2i} is the number of household members, x_{3i} is a dummy variable which takes a value of 1 if the household head is a female, x_{4i} is the maximum educational level among all members of the household in years of education, x_{5i} is the age of the respondent in years, x_{6i} is a dummy variable which takes a value of 1 if the household is a beneficiary of the JUNTOS conditional cash transfer program, and the rest of the notation is as above.

Finally, we again augment the OLS regression model to include fixed effects by district:

$$y_i = \alpha''_0 + \delta''_{ITT}Z_i + \sum_{h=1}^6 \alpha''_h x_{hi} + d_j + e''_i \quad (3)$$

where j indexes districts, d_j are district fixed effects, and the rest of the notation is as above.

No additional assumptions beyond random assignment are necessary for the validity of the ITT estimate of the impact of the program.

Treatment-on-the-Treated (TOT)

Take-up of the program was imperfect in the treatment communities in which it was offered, as some households chose not to participate in it. Similarly, some households from control communities which were not offered the program did participate in it by attending meetings held in treatment communities. Therefore, we also estimate treatment-on-the-treated (TOT) effects of the program.

TOT estimates address imperfect assignment by scaling up the ITT to reflect how the random assignment influenced participation rates in treatment and control communities. As proposed by [Angrist et al. (1996) Angrist, Imbens, and P

¹⁸The city of Abancay is the capital of both the Abancay province and the Apurímac region. Also, as mentioned a field test was conducted by Financiera Confianza in the pilot phase of the program to calculate the average travel time from each community to Abancay.

this is achieved by correcting actual treatment status $T_i \in \{0, 1\}$, an endogenous variable in the context of imperfect compliance, by using the original random assignment status Z_i as an instrumental variable (IV). The validity of this approach rests on two assumptions:

(i) $(Y_i, T_i) \perp Z_i$

(ii) $T_i | Z_i = 1 \geq T_i | Z_i = 0 \quad \forall i$

The first exclusion restriction requires that the dependent outcome variable Y_i and actual treatment T_i are jointly independent from assigned treatment Z_i , so that the fact that households in treatment communities were assigned to participate in the program only affected the outcome indirectly by increasing their probability to actually participate in it. The second monotonicity assumption requires that being assigned to participate in the program makes it more likely that household in treatment communities actually participate in it.

Because in the context of our experimental design we randomly assigned communities to control and treatment groups and participation in the program was significantly higher in the latter¹⁹, both assumptions seem reasonable. IV Wald estimator will consistently estimate the TOT effect. However, as discussed by [Imbens and Angrist(1994)] this estimated effect will differ from the ITT in that it is a local average treatment effect (LATE), so that it only captures the effect of the program on those households which actually participated in it because they were randomly assigned to do so, but would not have participated in it otherwise. This is, the TOT estimate captures the effect of the program on the *compliers*, a subset of the actually treated for which $(D | Z = 1) = 1$ and $(D | Z = 0) = 0$.

The TOT effect is therefore given by the IV Wald estimate

$$\delta_{TOT} = \frac{E(Y_i | Z_i = 1) - E(Y_i | Z_i = 0)}{E(T_i | Z_i = 1) - E(T_i | Z_i = 0)}$$

which we calculate using a two stage least squares (2SLS) regression model:

$$y_i = \beta_0 + \delta_{TOT} \hat{T}_i + u_i \tag{4}$$

$$T_i = \gamma_0 + \gamma_1 Z_i + v_i \tag{5}$$

where T_i is a dummy variable which takes a value of 1 if the household actually participated in the program²⁰ and 0 otherwise, and the rest of the notation is as above.

As before, we subsequently augment this simple difference in means 2SLS regression model to include additional covariates:

¹⁹As mentioned before, at endline the take-up in treatment group was estimated at 57.7%, and the contamination in the control group was estimated at 5.1%.

²⁰Participation in the program is defined as having attended one or more financial education session.

$$y_i = \beta'_0 + \delta'_{TOT} \hat{T}_i + \sum_{h=1}^6 \beta'_h x_{hi} + u'_i \quad (6)$$

$$T_i = \gamma'_0 + \gamma'_1 Z_i + \sum_{h=1}^6 \gamma'_h x_{hi} + v'_i \quad (7)$$

where the notation is as above.

Finally, we again augment the 2SLS regression model to include fixed effects by district:

$$y_{ij} = \beta''_0 + \delta''_{TOT} \hat{T}_i + \sum_{h=1}^6 \beta''_h x_{hi} + d_j + u''_i \quad (8)$$

$$T_{ij} = \gamma''_0 + \gamma''_1 Z_i + \sum_{h=1}^6 \gamma''_h x_{hi} + d_j + v''_i \quad (9)$$

where the notation is as above.

5 Results

According to endline survey data we estimate take-up of the program in treatment areas at 57.7%. Conversely, 5.1% of surveyed control households participated in the program despite the fact that it was not offered in their communities.²¹ Therefore, we have a first stage with which to calculate the TOT impact of the program, which given the take-up and contamination rates is generally approximately double the observed ITT effect.

Both sets of results are presented in Tables 2 to 8. Below we divide the results into direct and indirect impacts since we assume that the financial education program first impacts financial literacy and savings—direct effect—, and then through savings other variables—assets, female empowerment—can be impacted by the financial education program.

5.1 Direct Impact

Financial Literacy

As presented in Table 2 we observe a mild but significant effect of the program on financial knowledge variables like the familiarity with formal financial institutions, and identifying lending and borrowing as roles of formal financial institutions. However, we observe impacts of the program on practical knowledge and trust in financial institutions. Specifically, we observe significant impacts of the program on the likelihood of

²¹Participation in the program is defined as having attended one or more teaching sessions.

saving in a formal financial institution (~ 7.5 pp ITT, ~ 15.1 pp ToT) and the awareness about the deposit guarantee they offer and the additional governmental supervision to which they are subject (~ 8.5 pp ITT, ~ 17.1 pp ToT). Moreover, these results on awareness and trust are magnified when looking at familiarity with and trust in Financiera Confianza in particular. We estimate a large and significant positive impact (~ 4.6 pp ITT, ~ 9.2 pp ToT) of the program on the probability of being familiar with Financiera Confianza, raising familiarity with the institution from a control average of 2.1%. Similarly, we find a very large and significant positive impact (~ 21.1 pp ITT, ~ 42.2 pp ToT) of the program on the probability of claiming to trust Financiera Confianza, raising trust in the institution from a control average of 5.4% .

However, we only find very mild or no evidence of program impact on other dimensions in this category, including some which received substantial attention during the teaching sessions (e.g. interest in other financial products like insurance, or the correct use of a budget in the household). This suggests the financial education program was successful in transmitting the target population the “rules of thumb” that allowed them to save in the formal system, but it was less successful in transmitting more complex concepts such as financial roles of formal financial institutions, or insurance. Moreover, this reflects the priorities in the design and implementation of the program, which were promoting savings and generating trust in the formal financial system and the implementing microfinance institution.

Savings

As presented in Table 3, we find a significant positive impact of the program on the probability of saving with Financiera Confianza. The observed effect is moderate ($\sim 0.31\sigma$ ITT, $\sim 0.61\sigma$ TOT) when looking at self-reported savings with Financiera Confianza, raising the probability of having saved with the institution since January 2015 by ~ 2.3 pp ITT, ~ 4.5 pp ToT, from a control average of 0.6%. However, when looking at the administrative information provided by Financiera Confianza (in Table 4) we find that the program actually had a considerably larger positive effect ($\sim 1.30\sigma$ ITT, $\sim 2.60\sigma$ TOT), raising the probability of having saved with the institution since January 2015 by ~ 4.3 pp ITT, ~ 8.6 pp ToT, from the control average of 0.1%.²²

Moreover, we find mild to no evidence of a significant impact of the program on the probability of saving at home or with other formal financial institutions or cooperatives, suggesting that the observed positive effect of the program is limited to increasing the probability of saving with Financiera Confianza.²³ Although not significant, the point estimates for savings amounts in Table 3 suggest savings were moved from cooperatives (negative point estimates) to homes and the formal financial system.²⁴

²²The observed underreporting of savings with Financiera Confianza at the endline survey could be simply due to recall bias. However, it could also be due to respondents being afraid to report any savings in a non-governmental financial institution (e.g. while enforcement of the rule is unclear, since December 2015 beneficiaries of the JUNTOS program could lose their conditional cash transfer if they save in an account other than the one provided by the program at Banco de la Nación, or if they obtain credit from a formal financial institution).

²³Since we do not have administrative information from other institutions, it is possible that the probability of savings with them is underreported, as it is the case with Financiera Confianza.

²⁴Note that the dispersion of these continuous variables is considerably larger than those of the binary probability of saving variables, so that the statistical power to detect effects of the same size is greatly reduced. For example, while only significant with 90% confidence, the observed impact on the maximum amount saved with Financiera Confianza since January 2015 is about 20 soles, corresponding with the minimum deposit required to open a savings account at the institution. Transactional information provided by Financiera Confianza suggests that the average number of deposits was similar to that of withdrawals, with a total of PEN 6,245,725 deposited and PEN 5,817,236 withdrawn as of February 2017, for a net increase in deposits of PEN 428,489.

Credit

As presented in Table 5, we find little evidence of an effect of the program on having a credit with *Financiera Confianza* (less than 1pp increase, significant only at the 10% level), measured with administrative data. At the same time, we observe a small but positive impact—only for our preferred specification—on obtaining a credit with a formal financial institution and a cooperative through the use of saving, measured with self-reported data. This suggests there is room for *Financiera Confianza* to offer competitive credit products to the target population, where cooperatives are present and have had the monopoly of the rural microfinance market. Table 5 also shows that other credit-related variables (e.g., considering themselves creditworthy) were not significantly affected by the financial education intervention.²⁵

5.2 Indirect Impact

Income and Assets

As presented in Table 6, we do not find consistent significant impacts of the program on agricultural activities. However, the negative point estimates, some of them significant for our preferred specification, suggest an incipient departure from livestock activities due to the intervention. For instance, the likelihood of performing veterinary procedures decreased by ~ 9.3 pp ITT, ~ 18.6 pp ToT, for our preferred specification. Moreover, the total number of income-generating activities or the involvement on new activities aside agriculture and livestock do not seem to have been affected by the program.

Household assets as well as agriculture-related assets were not consistently and significantly affected by the program, but the negative point estimates raise concerns about whether investments on assets were made from savings, or whether savings were increased due to a decrease in assets.

We also measured the impact of the program on the probability of being poor, as measured by the JUNTOS conditional cash transfer program poverty score, and find no significant effects although the related point estimates were always negative.²⁶ This suggests the financial education program, in any case, was not harmful to the target population.

Consumption

As presented in Table 7, we find no significant evidence of an effect of the program on many different measures of food consumption. The program did not improve any good consumption habits, neither it changed any

²⁵Note that there are more strict requirements to qualify for a credit product than to open a savings account, and that while the *Ahorro para Todos* savings account was actively promoted during program activities, that was not the case for credit products such as loans. However, in October 2016 *Financiera Confianza* linked the *Ahorro para Todos* savings account with its *Palabra de Mujer* program offering credit to groups of women, resulting in 19 groups created and PEN 51,350 worth of credit extended to 140 customers as of February 2017. This anecdotal evidence suggests that with additional refinements the program may indeed have the potential to generate cross-selling opportunities beyond savings.

²⁶This score was created as a targeting instrument by the JUNTOS conditional cash transfer program using National Survey data from 2001 and 2004. It estimates the probability that a rural household is poor based on its characteristics: (i) percentage of illiterate adult females in the household, (ii) percentage of children under 18 (legal age) attending school, (iii) type of fuel used for cooking, (iv) appliances in the household, (v) services the household has access to, and (vi) dwelling type.

temptation goods consumption. This suggests that, at least, the program positive effects on savings did not come from reducing food consumption.

Female Empowerment

As presented in Table 8, we find some evidence of a positive impact of the program on female community participation. In particular, we find a modest effect (~ 19.5 pp ITT, ~ 38.9 pp ToT) on the number of groups or organizations to which women belong. This result probably comes directly from the fact that the financial education was delivered to groups of women. As the very least, this result suggests the provision of financial education in groups made women believe they belong to a new group of peers. However, we find no evidence of a significant impact of the program on a variety of measures of female empowerment at the household (e.g., women decides freely how to spend her income) nor at the community level (e.g., the number of positions that women hold in the groups to which they belong).

Overall, it is possible that the lack of indirect impacts of the program is due to the little time that passed between the end of the intervention and the survey data collection (nearly three months). We recognize that important social transformation processes, like female empowerment, require more than a few months and more than one program to occur.

It is worth mentioning that spillovers cannot be estimated with our design. If spillovers are present, they would be reducing the magnitude of our impacts, not inflating them. From the follow-up of training sessions, we know that people treated by the Program actually received the training, since trainers registered all participants every session, and that knowledge was hardly transmitted outside the sessions or to people outside the training groups. Thus, we think spillovers may not be biasing our results importantly.

5.3 Heterogeneous effects

Heterogeneous effects regressions show that knowledge and trust in Financiera Confianza do not change with transaction costs. However, the positive impact on savings with Financiera Confianza (administrative data) decreases with the distance from the capital Abancay—where the main branch is located—for our preferred specifications (with control variables and district fixed effects).

5.4 Robustness Checks

Our results are robust to Bonferroni adjustment. Moreover, alternative measures of the self-reported savings in Table 3 do not change the main results on savings.

6 Conclusion

We find that *Ahorro para Todos*, a for-profit financial education program, successfully increased the familiarity and trust in formal financial institutions in poor rural areas of the Andes. This effect was particularly large for Financiera Confianza, the Peruvian microfinance institution which implemented the program in the Apurímac region of Peru from May 2015 to April 2016: we estimate that it increased familiarity with Financiera Confianza by approximately 9.2 percentage points with respect to a control average of 1.2%, and that it increased trust in the institution by approximately 42 percentage points with respect to a control average of 5.4% for the target population that effectively received at least one module of the financial education and savings promotion program.

Moreover, we find that the financial education program increased the probability of saving with Financiera Confianza by 8.6 percentage points from the control average of 0.06%, for those effectively treated. Although not significant, self-reported data about savings at home and other institutions suggest the target population might have been moving their savings from (informal) cooperatives to home and formal financial institutions.²⁷ This very large effect, particularly in the context of a very competitive microfinance market, suggests that *Ahorro para Todos* was a very effective marketing tool for Financiera Confianza which did not generate “free-riding” from other financial institutions.²⁸

Moreover, we observe very incipient evidence of an effect of the program on the probability of buying other financial products from Financiera Confianza (or from any other financial institution), but at the same time the possibility of expansion with these products in rural areas, still captured by cooperatives. Given that it is a stylized industry fact that the taking of deposits is a profitable business only insofar as it leads to the cross-selling of other products with higher profit margins (e.g. loans), this suggests that in order to be commercially viable the financial education program should expand its focus beyond savings. It is possible that we do not find a large effect on having a credit with Financiera Confianza due to the brief amount of time elapsed between the intervention and the endline survey. Note that we are not able to follow up later with administrative data since Financiera Confianza intervened in the control communities right after the endline survey. However, Financiera Confianza decided to do the expansion linking the *Ahorro para Todos* Program to their group credit for women program (Palabra de Mujer) in order to enhance the cross-selling of savings and credit products.

Regarding the indirect effects of the program, we find no significant evidence of the program inducing changes in assets acquisition, either for the household or for income-generating activities. Moreover, we find no evidence that the program significantly reduced poverty, nor that it caused changes in food consumption. Similar to the findings of [Boyd and Aldana(2015)] we observe that program did not have any effects on female empowerment at the household level or at the community level—as it is usually expected from programs targeting women—, except for the positive impact on female community participation, suggesting that additional efforts are necessary on this front. The overall lack of indirect effects confirms that the

²⁷ Cooperatives have been one of the most important providers of credit and savings in the rural areas of Apurimac. However, as they are currently unregulated in Peru, they have defaulted and left with people’s savings. This created an initial mistrust in the Program, which was addressed differentiating cooperatives from formal financial institutions. However, people in the control group, or people receiving only a few sessions might still be saving at them.

²⁸ Note that the impacts on total savings or savings at other institutions were not significant, but had large variances. As well, it is possible that the “free-riding” appears later, since the impacts on savings may vanish over time, as it was found by [Ashraf et al.(2010) Ashraf, Karlan, and Yin] for a Philippine commitment savings account.

financial education intervention achieved its goal of increasing savings among rural people in the formal financial system, specially in the implementing insitution, without harmful side effects.

Similarly, we find that *Ahorro para Todos* had no impact on some dimensions of financial education which were featured prominently in the program, such as the use of a budget in the household. This suggests that despite the observed positive impacts on several fronts, additional efforts are necessary to maximize the efficiency of the program, for example by complementing the “edutainment” approach with other methodologies with potential to improve learning of best practices such as “rules of thumb” proposed by [Drexler et al.(2014)Drexler, Fischer, and Schoar].²⁹

Moreover, when comparing survey and administrative data we find that savings levels are significantly underreported. While this could simply be due to recall bias, it could also be due to respondents being afraid to report any savings in a non-governmental financial institution for fear of losing their beneficiary status in social programs. In any case, irrespective of the underlying reason this underreporting has important implications for the interpretation and validity of any results based on self-reported savings data from poor populations in Peru.

In conclusion, all the above suggests that financial education programs can be a succesful marketing tool for the promotion of microsavings among the poor even in remote rural areas, and that their provision by financial institutions on a for-profit basis can be commercially viable if their focus is expanded beyond savings, in order to promote and generate cross-selling of credit products with higher profit margins. However, this requires the formal financial institutions to design financial products suitable to the rural population demand and being competitive in an enviroment dominated by the informal cooperatives.

²⁹Although budget notebooks were designed as part of the program, they were not implemented due to logistic issues. They were supposed to reinforce the lessons learnt on the budgeting module, so as to make doing budgets a habit. If we consider budgeting as a financial ability, it is not surprising that the sole fact of having training sessions did not effectively promote the practice of budgeting.

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TABLE 1
Balance Between Control and Treatment Groups

	T0 - T1 (1)	T0 - T1 (2)	T0 - T1 (3)
i. Male members in the household (%)	-0.000177 (0.00524)	0.00924 (0.00818)	0.0104 (0.00822)
ii. Pregnant women in the household (%)	0.000146 (0.00225)	0.00103 (0.00364)	0.00112 (0.00365)
iii. Age of the household head	0.379 (0.328)	-1.083 (1.001)	-1.203 (1.016)
iv. Age of the household members (mean)	0.888* (0.416)	-1.448 (1.350)	-1.664 (1.363)
v. Female household head (=1)	0.00560 (0.00822)	-0.0229 (0.0162)	-0.0291 (0.0159)
vi. Household members with Essalud Health Insurance (%)	-0.0209*** (0.00564)	-0.00917 (0.0136)	-0.0117 (0.0114)
vii. Household members with SIS Health Insurance (%)	0.0111 (0.00738)	0.0144 (0.0209)	0.0204 (0.0186)
viii. Household members without Health Insurance (%)	0.00752 (0.00518)	-0.00265 (0.0115)	-0.00555 (0.0112)
ix. Household members receiving Vaso de Leche Program (%)	0.00645 (0.00360)	-0.00964 (0.0130)	-0.0106 (0.0134)
x. Household members receiving School Meals Program (%)	0.00362 (0.00272)	-0.0122 (0.0171)	-0.0120 (0.0179)
xi. Household members receiving Juntos CCT Program (%)	0.00242 (0.00270)	0.00758 (0.00762)	0.00782 (0.00746)
xii. Household members receiving Pension 65 Program (%)	-0.00857 (0.00529)	-0.0383* (0.0165)	-0.0409* (0.0170)
Observations	10899	89	84

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

TABLE 1 (Continued)
Balance Between Control and Treatment Groups

	T0 - T1 (1)	T0 - T1 (2)	T0 - T1 (3)
xiii. Household members not receiving any Social Program (%)	-0.0114 (0.00658)	0.0420 (0.0270)	0.0439 (0.0270)
xiv. Household members with Spanish as first tongue (%)	0.0192** (0.00671)	0.00635 (0.0287)	0.0118 (0.0270)
xv. Household members with Quechua as first tongue (%)	-0.0144* (0.00639)	-0.00694 (0.0276)	-0.0126 (0.0261)
xvi. Household members with a National Identity Document (%)	0.000764 (0.00177)	-0.00719 (0.00417)	-0.00824* (0.00413)
xvii. Household members who know how to read (%)	-0.0219*** (0.00650)	-0.00277 (0.0203)	-0.00413 (0.0202)
xviii. Household members in agricultural activities (%)	0.0282*** (0.00516)	0.0180 (0.0219)	0.0208 (0.0214)
xix. Household members in services activities (%)	-0.0122*** (0.00283)	-0.000667 (0.00518)	-0.000893 (0.00452)
xx. Number of Juntos CCT recipients in the community	-56.04*** (2.689)	5.238 (14.02)	0.608 (13.21)
xxi. Distance from the community to the regional capital	0.0294 (0.0183)	-0.0108 (0.189)	-0.0542 (0.192)
xxii. Juntos CCT recipients in the community receiving the transfer at a BN (%)	0.0605*** (0.00941)	0.155 (0.0948)	0.156 (0.0943)
Observations	10899	89	84

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: Column (1) reports the balance between control and treatment communities (T0 - T1) for the randomization that maximized balanced prior to the intervention, using household level data from SISFOH for variables i to xix. Variables xx to xxii were calculated at the community level using the Juntos Roll of Users. Column (2) reports the balance between control and treatment communities using averages of each variable at the community level, for the 89 communities assigned to treatment or control prior to the intervention. Column (3) reports the balance between control and treatment communities using averages of each variable at the community level, where communities are regrouped according to the actual intervention (training sessions), and they comprise the balance of variables at the community level used in the regressions. Standard errors reported in parentheses. Source: SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 2
Estimated Impact of the Program on Financial Literacy

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Would save in a financial institution (1 = Yes)	0.0465 (0.0367)	0.0642* (0.0355)	0.0754** (0.0319)	0.0883 (0.0689)	0.1234* (0.0684)	0.1512** (0.0652)	0.2745 (0.4465)	1,801
b. With how many formal financial institutions is familiar	0.1238 (0.1009)	0.1440 (0.0873)	0.1301* (0.0724)	0.2352 (0.1916)	0.2767* (0.1666)	0.2609* (0.1455)	1.0540 (0.8208)	1,801
c. Is familiar with Financiera Confianza (1 = Yes)	0.0561*** (0.0204)	0.0530*** (0.0134)	0.0459*** (0.0145)	0.1066*** (0.0383)	0.1019*** (0.0257)	0.0920*** (0.0274)	0.0121 (0.1095)	1,801
d. Identifies lending and taking deposits as roles of formal financial institutions (1 = Yes)	0.0110 (0.0576)	-0.0157 (0.0475)	-0.0234 (0.0414)	0.0209 (0.1086)	-0.0303 (0.0902)	-0.0469 (0.0817)	0.3727 (0.4838)	1,801
e. Knows formal financial institutions are supervised by the government (1 = Yes)	0.0702 (0.0456)	0.0654** (0.0324)	0.0851*** (0.0317)	0.1334 (0.0849)	0.1257** (0.0607)	0.1707*** (0.0613)	0.2150 (0.4110)	1,801
f. Trusts Financiera Confianza (1 = Yes)	0.1853*** (0.0539)	0.1805*** (0.0357)	0.2107*** (0.0364)	0.3521*** (0.0985)	0.3470*** (0.0711)	0.4224*** (0.0732)	0.0540 (0.2262)	1,801
g. Knows deposits at formal financial institutions are guaranteed in case of bankruptcy (1 = Yes)	0.0595 (0.0501)	0.0748* (0.0400)	0.0712** (0.0309)	0.1131 (0.0952)	0.1439* (0.0766)	0.1428** (0.0610)	0.1720 (0.3776)	1,801
h. If in doubt asks personnel of formal financial institutions for information about savings (1 = Yes)	0.0174 (0.0516)	-0.0104 (0.0437)	-0.0156 (0.0433)	0.0331 (0.0971)	-0.0201 (0.0827)	-0.0312 (0.0849)	0.5072 (0.5002)	1,801
i. Has requested information about financial products from any formal financial institution (1 = Yes)	0.0388 (0.0262)	0.0315 (0.0240)	0.0623** (0.0262)	0.0738 (0.0506)	0.0605 (0.0464)	0.1250** (0.0556)	0.1323 (0.3390)	1,801
j. If s/he could, s/he would buy insurance for peace of mind (1 = Yes)	0.0271 (0.0344)	-0.0085 (0.0321)	-0.0330 (0.0357)	0.0515 (0.0649)	-0.0163 (0.0611)	-0.0662 (0.0717)	0.7089 (0.4545)	1,801
k. Makes a budget (1 = Yes)	0.0319 (0.0321)	0.0325 (0.0253)	0.0485*** (0.0174)	0.0605 (0.0600)	0.0625 (0.0485)	0.0972*** (0.0352)	0.1136 (0.3175)	1,801
l. Makes a budget correctly (1 = Yes)	0.0173 (0.0228)	0.0210 (0.0213)	0.0031 (0.0204)	0.0329 (0.0426)	0.0403 (0.0403)	0.0061 (0.0401)	0.1125 (0.3161)	1,801

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences financial literacy in between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. Source: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 3
Estimated Impact of the program on Savings (Survey Data)

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Currently saves (1 = Yes)	0.0247 (0.0728)	0.0138 (0.0619)	0.0224 (0.0239)	0.0469 (0.1375)	0.0266 (0.1172)	0.0448 (0.0468)	0.5458 (0.4982)	1,801
b. Since the start of 2015 has saved for a specific goal (1 = Yes)	0.0481 (0.0311)	0.0353 (0.0280)	0.0498* (0.0252)	0.0914 (0.0586)	0.0679 (0.0537)	0.0999* (0.0516)	0.2304 (0.4213)	1,801
c. Maximum amount saved at home since the start of 2015	55.2839 (155.4974)	258.0345* (153.3229)	414.2771** (171.6810)	105.0322 (297.4982)	496.2744* (290.0803)	830.9603*** (322.2584)	974.3497 (1706.9820)	1,799
d. Since January 2015 has saved with Financiera Confianza (1 = Yes)	0.0202** (0.0083)	0.0216*** (0.0071)	0.0227*** (0.0062)	0.0384** (0.0160)	0.0415*** (0.0138)	0.0454*** (0.0124)	0.0055 (0.0741)	1,801
e. Maximum amount saved with Financiera Confianza since January 2015	0.1637 (11.6241)	1.8201 (8.7136)	2.8232 (7.8425)	0.3109 (21.9438)	3.4986 (16.5452)	5.6603 (15.5474)	14.3330 (288.3187)	1,801
f.1. Log of amount saved with FC at the time of the survey	0.1021** (0.0450)	0.1020*** (0.0362)	0.1148*** (0.0349)	0.1939** (0.0865)	0.1960*** (0.0706)	0.2302*** (0.0712)	0.0279 (0.4887)	1,801
f.2. Has more than S/.5 saved with FC at the time of the survey	0.0191*** (0.0071)	0.0192*** (0.0061)	0.0208*** (0.0063)	0.0362*** (0.0137)	0.0370*** (0.0118)	0.0417*** (0.0125)	0.0033 (0.0574)	1,801
f.3. Has more than S/.20 saved with FC at the time of the survey	0.0179*** (0.0067)	0.0180*** (0.0056)	0.0184*** (0.0058)	0.0341*** (0.0128)	0.0346*** (0.0109)	0.0369*** (0.0114)	0.0033 (0.0574)	1,801
f.4. Has more than S/.50 saved with FC at the time of the survey	0.0146** (0.0068)	0.0137*** (0.0052)	0.0133*** (0.0048)	0.0277** (0.0130)	0.0264*** (0.0101)	0.0267*** (0.0099)	0.0033 (0.0574)	1,801
g. Since January 2015 has saved with other formal financial institutions (1 = Yes)	0.0026 (0.0096)	0.0032 (0.0080)	0.0026 (0.0078)	0.0050 (0.0182)	0.0062 (0.0152)	0.0052 (0.0153)	0.0276 (0.1638)	1,801
h. Maximum amount saved with other formal financial institutions since January 2015	24.9029 (73.1114)	41.1822 (68.3405)	116.1714* (68.0420)	47.3021 (138.4003)	79.1608 (130.0807)	232.9163* (134.7247)	107.9383 (1267.1090)	1,801
i. Since January 2015 has saved with a financial cooperative (1 = Yes)	-0.0087 (0.0199)	-0.0144 (0.0199)	0.0030 (0.0185)	-0.0166 (0.0376)	-0.0276 (0.0376)	0.0060 (0.0363)	0.0926 (0.2900)	1,801
j. Maximum amount saved with a cooperative since January 2015	-236.5203 (197.4446)	-110.6739 (143.4206)	-78.6550 (172.6071)	-449.2615 (370.6642)	-212.7384 (271.7945)	-157.6983 (340.2100)	540.7596 (4270.6440)	1,801
k. Total savings (at home, formal and informal financial institutions)	-258.2770 (196.4722)	-94.3887 (129.2516)	55.1691 (141.8753)	-490.6921 (364.6578)	-181.5365 (244.7848)	110.6585 (277.4861)	786.3492 (3394.8480)	1,799

*p < 0.1; **p < 0.05; ***p < 0.01;

TABLE 4

Estimated Impact of the program on Savings at Financiera Confianza (Administrative Data)

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Since January 2015 has saved with Financiera Confianza (1 = Yes)	0.0559*** (0.0144)	0.0506*** (0.0108)	0.0430*** (0.0111)	0.1063*** (0.0276)	0.0973*** (0.0216)	0.0862*** (0.0212)	0.0011 (0.0332)	1,801
b. Maximum amount saved with Financiera Confianza since January 2015	25.0117** (11.4250)	16.5533** (7.3553)	3.5256 (7.2220)	47.5088** (21.6686)	31.8189** (14.3251)	7.0686 (14.1728)	0.1263 (3.8029)	1,801
c. Average amount saved with Financiera Confianza (April 2014-July 2016)	14.3142** (6.5446)	9.8587** (4.0100)	3.3991 (4.1354)	27.1893** (12.4675)	18.9505** (7.8484)	6.8150 (8.0913)	0.0248 (0.7483)	1,801
d. Log of average amount saved with Financiera Confianza (April 2014-July 2016)	0.2555*** (0.0721)	0.2282*** (0.0506)	0.1750*** (0.0514)	0.4853*** (0.1383)	0.4386*** (0.1015)	0.3509*** (0.0988)	0.0042 (0.1265)	1,801
e. Has had more than S/.5 saved with FC (=1) on average	0.0548*** (0.0145)	0.0504*** (0.0109)	0.0430*** (0.0111)	0.1041*** (0.0278)	0.0970*** (0.0218)	0.0863*** (0.0212)	0.0011 (0.0332)	1,801
f. Has had more than S/.20 saved with FC (=1) on average	0.0448*** (0.0135)	0.0416*** (0.0099)	0.0299*** (0.0101)	0.0850*** (0.0258)	0.0800*** (0.0197)	0.0600*** (0.0195)	0.0011 (0.0332)	1,801
g. Has had more than S/.50 saved with FC (=1) on average	0.0257*** (0.0084)	0.0221*** (0.0054)	0.0131** (0.0053)	0.0489*** (0.0161)	0.0425*** (0.0107)	0.0263** (0.0104)	0.0000 (0.0000)	1,801

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences financial literacy in between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. Source: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 5

Estimated Impact of the program on Credit

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Considers her/himself creditworthy (1 = Yes)	-0.0253 (0.0459)	0.0210 (0.0358)	0.0179 (0.0360)	-0.0480 (0.0865)	0.0404 (0.0683)	0.0358 (0.0708)	0.5564 (0.497)	1,801
b. Since January 2015 has made payments towards one or more loans (1 = Yes)	0.0026 (0.0329)	0.0220 (0.0321)	0.0367 (0.0347)	0.0049 (0.0621)	0.0424 (0.0614)	0.0735 (0.0691)	0.1788 (0.3833)	1,801
c. Number of loans since January 2015 in any financial institution	0.0016 (0.0360)	0.0218 (0.0354)	0.0414 (0.0399)	0.0031 (0.0680)	0.0419 (0.0677)	0.0830 (0.0792)	0.1882 (0.4145)	1,801
d. Has a loan with Financiera Confianza (1 = Yes) (Administrative Data)	0.0034* (0.0018)	0.0026* (0.0013)	0.0026 (0.0016)	0.0064* (0.0034)	0.0049* (0.0025)	0.0052* (0.0031)	0.0017 (0.0408)	1,801
e. Believes that saving in a formal financial institution makes it easier to obtain a loan (1 = Yes)	0.0012 (0.0048)	0.0047 (0.0056)	0.0014 (0.0054)	0.0023 (0.0091)	0.0091 (0.0107)	0.0027 (0.0106)	0.0083 (0.0909)	1,801
f. In the past has obtained a loan using savings in a formal financial institution as collateral (1 = Yes)	-0.0008 (0.0096)	0.0125 (0.0097)	0.0266** (0.0110)	-0.0015 (0.0181)	0.0241 (0.0187)	0.0533** (0.0229)	0.0284 (0.1661)	1,798
g. In the past has obtained a loan using savings in a financial cooperative as collateral (1 = Yes)	0.0139 (0.0164)	0.0194 (0.0167)	0.0322** (0.0152)	0.0263 (0.0311)	0.0373 (0.0323)	0.0647** (0.0319)	0.0501 (0.2182)	1,797

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences financial literacy in between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. *Source*: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 6
Estimated Impact of the program on Assets and Income

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Number of activities generating income for the household	0.2033 (0.1674)	0.0125 (0.1077)	-0.0912 (0.0691)	0.3861 (0.3078)	0.0240 (0.2041)	-0.1829 (0.1371)	3.4659 (1.1363)	1,801
b. Percentage of income originating from agriculture, livestock or forestry self-employment activities	-0.0554** (0.0272)	0.0003 (0.0181)	-0.0029 (0.0165)	-0.1052** (0.0509)	0.0005 (0.0343)	-0.0058 (0.0323)	0.5618 (0.2537)	1,801
c. Land owned (m2)	-359.8116 (877.6812)	669.3206 (736.8703)	167.8076 (742.9399)	-684.8967 (1,657.0636)	1,287.8292 (1,411.1321)	335.7451 (1,456.4211)	5176.1320 (10996.31)	1,786
d. Number of market crops	-0.0856 (0.1315)	0.0585 (0.0681)	0.0210 (0.0871)	-0.1625 (0.2448)	0.1124 (0.1298)	0.0422 (0.1710)	0.7796 (1.1566)	1,797
e. Used fertilizer in the last agricultural season (1 = Yes)	-0.0840 (0.0717)	-0.0043 (0.0305)	0.0452 (0.0278)	-0.1597 (0.1326)	-0.0084 (0.0578)	0.0908 (0.0557)	0.2651 (0.4415)	1,799
f. Added one or more types of livestock since January 2015 (1 = Yes)	-0.0221 (0.0404)	-0.0020 (0.0323)	-0.0319 (0.0427)	-0.0419 (0.0764)	-0.0039 (0.0611)	-0.0640 (0.0836)	0.6263 (0.4839)	1,801
g. Performed veterinary procedures since January 2015 (1 = Yes)	0.0296 (0.0646)	-0.0722 (0.0458)	-0.0928** (0.0363)	0.0562 (0.1213)	-0.1388 (0.0878)	-0.1861*** (0.0710)	0.5119 (0.5000)	1,801
h. Constructed new agricultural, livestock or forestry infrastructure since January 2015 (1 = Yes)	-0.0859* (0.0474)	-0.0528 (0.0421)	-0.0550 (0.0336)	-0.1631* (0.0891)	-0.1014 (0.0795)	-0.1103* (0.0653)	0.3587 (0.4797)	1,801
i. Bought one or more electrical appliances since January 2015	-0.0541 (0.0380)	-0.0484** (0.0207)	-0.0281 (0.0245)	-0.1028 (0.0710)	-0.0931** (0.0378)	-0.0563 (0.0478)	0.4814 (0.4998)	1,801
j. Number of income-generating businesses not related to agriculture, livestock or forestry since January 2015	0.0036 (0.0357)	-0.0336 (0.0285)	-0.0398* (0.0230)	0.0068 (0.0674)	-0.0646 (0.0542)	-0.0798* (0.0453)	0.2488 (0.4717)	1,801
k. JUNTOS conditional cash transfer program poverty score (0-1)	-0.0248 (0.0211)	-0.0082 (0.0160)	-0.0057 (0.0132)	-0.0472 (0.0409)	-0.0158 (0.0305)	-0.0115 (0.0261)	0.5947 (0.1805)	1,801

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences financial literacy in between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. Source: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 7
Estimated Impact of the Program on Consumption

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. Household eats meat in a good month (1 = Yes)	0.0126 (0.0225)	0.0044 (0.0146)	0.0126 (0.0135)	0.0239 (0.0425)	0.0084 (0.0276)	0.0253 (0.0265)	0.9489 (0.2202)	1,801
b. Household eats meat in a bad month (1 = Yes)	0.0256 (0.0540)	0.0216 (0.0416)	0.0517 (0.0342)	0.0486 (0.1021)	0.0415 (0.0789)	0.1037 (0.0676)	0.6941 (0.4609)	1,801
c. Household eats fruit in a good month (1 = Yes)	-0.0030 (0.0205)	-0.0255 (0.0240)	-0.0251 (0.0202)	-0.0057 (0.0387)	-0.0490 (0.0451)	-0.0503 (0.0390)	0.9478 (0.2225)	1,801
d. Household eats fruit in a bad month (1 = Yes)	0.0124 (0.0454)	-0.0450 (0.0392)	-0.0657* (0.0391)	0.0236 (0.0855)	-0.0864 (0.0741)	-0.1317* (0.0771)	0.7074 (0.4551)	1,801
e. Household eats out in a good month (1 = Yes)	0.0402 (0.0583)	0.0460 (0.0404)	0.0161 (0.0336)	0.0763 (0.1109)	0.0884 (0.0762)	0.0323 (0.0666)	0.7046 (0.4563)	1,801
f. Household eats out in a bad month (1 = Yes)	0.0264 (0.0689)	0.0201 (0.0471)	-0.0231 (0.0399)	0.0501 (0.1304)	0.0386 (0.0889)	-0.0463 (0.0785)	0.4431 (0.4969)	1,801
g. Household drinks soda in a good month (1 = Yes)	0.0095 (0.0540)	-0.0150 (0.0358)	0.0080 (0.0343)	0.0180 (0.1022)	-0.0288 (0.0681)	0.0160 (0.0675)	0.5802 (0.4937)	1,801
h. Household drinks soda in a bad month (1 = Yes)	-0.0305 (0.0496)	-0.0505 (0.0355)	-0.0413 (0.0301)	-0.0580 (0.0928)	-0.0972 (0.0692)	-0.0829 (0.0605)	0.2693 (0.4437)	1,801
i. Household drinks alcohol in a good month (1 = Yes)	0.0289 (0.0405)	0.0163 (0.0367)	0.0048 (0.0278)	0.0550 (0.0761)	0.0314 (0.0698)	0.0096 (0.0546)	0.2349 (0.4240)	1,801
j. Household drinks alcohol in a bad month (1 = Yes)	0.0146 (0.0173)	0.0201 (0.0188)	0.0239 (0.0210)	0.0277 (0.0328)	0.0386 (0.0359)	0.0480 (0.0414)	0.0866 (0.2814)	1,801

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences financial literacy in between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. Source: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.

TABLE 8
Estimated Impact of the Program on Female Empowerment

	Intent-to-Treat (ITT)			Treatment-on-the-Treated (TOT)			Control Mean	N
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)		
a. The woman decides freely how to spend her income (1 = Yes)	0.0435 (0.0357)	0.0265 (0.0330)	0.0411* (0.0238)	0.0818 (0.0665)	0.0505 (0.0619)	0.0815* (0.0476)	0.3787 (0.4852)	1,748
b. On a scale of 1 to 4, how well does the woman feel with her activities, relationships, etc.	-0.0210 (0.0390)	0.0013 (0.0336)	-0.0139 (0.0334)	-0.0397 (0.0733)	0.0025 (0.0634)	-0.0277 (0.0652)	1.5609 (0.3870)	1,785
c. Number of groups or organizations to which the woman belongs	0.2892* (0.1484)	0.1198 (0.0746)	0.1950*** (0.0632)	0.5471** (0.2663)	0.2293* (0.1385)	0.3890*** (0.1257)	1.9367 (1.2789)	1,785
d. Number of positions the woman has held in the groups to which she belongs	0.0143 (0.0924)	-0.0061 (0.0747)	-0.0031 (0.0701)	0.0258 (0.1651)	-0.0110 (0.1327)	-0.0058 (0.1299)	0.5428 (0.8785)	1,518
e. Interpersonal relationships and self-esteem index (0-1)	0.0082 (0.0239)	-0.0023 (0.0195)	-0.0007 (0.0193)	0.0145 (0.0418)	-0.0041 (0.0338)	-0.0013 (0.0346)	0.6970 (0.1976)	1,239
f. Gender roles in the household index (0-1)	0.0176 (0.0174)	0.0015 (0.0106)	-0.0025 (0.0082)	0.0301 (0.0294)	0.0026 (0.0186)	-0.0047 (0.0146)	0.2370 (0.1441)	1,378
g. Gender roles outside the household index (0-1)	0.0088 (0.0201)	-0.0122 (0.0146)	-0.0258 (0.0161)	0.0159 (0.0362)	-0.0225 (0.0266)	-0.0500 (0.0306)	0.6835 (0.1801)	1,510
h. Community participation index (0-1)	0.0259 (0.0255)	-0.0064 (0.0169)	-0.0115 (0.0171)	0.0466 (0.0450)	-0.0115 (0.0300)	-0.0217 (0.0315)	0.6889 (0.2119)	1,502

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$;

Notes: This table reports differences in financial literacy between the randomly assigned treatment and control groups at endline. Each cell in columns (1.x) and (2.x) reports results for a single regression of the independent variable in the corresponding row, with clustered standard errors at the community level in parentheses below each estimate. Columns (1.x) present OLS Intent-to-Treat (ITT) estimates. Columns (2.x) present 2SLS Treatment-on-the-Treated (TOT) estimates, with actual treatment as the endogenous variable and random assignment as the instrument. Columns (x.0) present the difference in means between treatment and control without additional covariates. Columns (x.1) present the difference in means with additional covariates: (i) distance to regional capital; (ii) number of household members; (iii) gender of household head; (iv) age of respondent; (v) maximum educational level of household; and (vi) beneficiary status of JUNTOS conditional cash transfer program, besides all balance variables in Table 1. Columns (x.2) present the difference in means with additional covariates and district fixed effects. Column (3) reports the mean value of each independent variable at endline, with standard deviations in parentheses. Column (4) reports the number of observations in each regression. Source: Endline survey of 1801 households carried out in July 2016, SISFOH 2013 and Juntos Roll of Users by September 2014.