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Financial Inclusion and Female Empowerment: Evidence from Honduras[+]

Ayako Matsuda,[a] Keitaro Aoyagi,[b] Takako Mochizuki,[c] and Miki Uematsu[d]

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Abstract

This study analyzes the impact of a financial inclusion program conducted by the Honduran government and the Japan International Cooperation Agency. From approximately 2,000 women who were the recipients of conditional cash transfers, half were randomly chosen for training and semi-personalized coaching sessions on financial education and livelihood improvement with a wide variation of asset transfers. The empirical analysis finds positive short-run effects, including increased financial knowledge and management skills as well as income. Importantly, we also find that the interventions contributed to female empowerment by changing the intra-household bargaining structure.

JEL Classification: D14, G21, J16, O12, O16
Key words: Randomized control trial, impact evaluation, conditional cash transfer, financial education, financial literacy, female empowerment.

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a: Corresponding author. Associate Professor, Ritsumeikan University; Email: amr17101@fc.ritsumei.ac.jp. b: Metrics Work Consultants Inc.. c: Kaihatsu Management Consulting, Inc. d: Japan International Cooperation Agency. Uematsu was affiliated with Kaihatsu Management Consulting, Inc. when the surveys were collected.

1. Introduction

Financial inclusion is an important issue for policymakers, NGOs, and researchers. It is a broad concept and refers to the access of individuals and businesses to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit, and insurance—delivered in a responsible and sustainable way (World Bank)[1]. With increasing priority of this issue, the Sustainable Development Goals adopted by the United Nations and 193 countries in 2015 include strengthening the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all (Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all).[2] In order to expand financial inclusion, better awareness and knowledge of financial products and services are crucial.

However, knowledge of, and access to, the formal financial sector is limited for households and micro-enterprises in developing countries. There are few opportunities for receiving financial education. From the supply side, the formal financial sector does not have adequate incentive to provide products and services to the poor, which leads to insufficient availability of local financial institutions. This study considers both the supply and demand sides to improve the current situation.

Financial inclusion is at the core of the graduation approach proposed by the Consultative Group to Assist the Poor (CGAP). The graduation approach is multifaceted, beginning with consumption assistance (food and/or cash assistance) and followed by better access to financial services, technical skills training, and seed-capital grants.[3] This also includes a series of interventions on employment opportunities, and consumption. Upon the completion of such interventions, long-term progress is expected as a result of "graduating" out of poverty: increased income, asset building, and social protection. This approach has inspired policymakers worldwide and more than 60 such programs are in progress.

Our study sites are in Honduras, where the penetration of financial services is low. In 2015, only 31.5% of the population had accounts at a bank or any type of financial institution, which is lower than the average of

[1] World Bank http://www.worldbank.org/en/topic/financialinclusion/overview#2
[2] United Nations http://www.un.org/sustainabledevelopment/economic-growth/
[3] Hashemi and de Montesquiou (2016).

Latin America and the Caribbean countries (39%).[4] On average, there are only 2 financial branches and 25 ATMs per 100,000 people.[5] As access to formal banking is seriously limited, households and micro-enterprises keep money under their mattress, and stock livestock, grains and other means of saving, despite facing the risk of damages, thefts, and violence.

Complementing but beyond the literature, this study provides evidence on the impact of financial education on female empowerment. In accordance with the consumption assistance component of the graduation approach, we select approximately 2,000 sample households that are the beneficiaries of conditional cash transfers (CCTs). CCTs have been provided to women from poor households with infants or children, conditional on regular attendance at school or regular medical check-ups.

Through the empirical analysis, we find that our interventions significantly increased financial knowledge, regular bookkeeping, savings goal setting, and bank account opening. The average account balance significantly increased. Additionally, we find that the treated households increased income from their micro-enterprises. Our findings confirm the results in the existing literature that financial education has a major impact on improving household financial management and livelihood, at least in the short run.

Importantly, our study sites are known for "*machismo*," or men's domination over women. This tradition is especially persistent in rural areas.[6] Women are often excluded from important decision-making; in the worst case, they cannot even go out without permission. A concurrent goal of our study is to contribute to female empowerment and gender equality by promoting education, training, and social development. From our econometric analysis, we find evidence that the interventions reduce the extent to which a husband exclusively decides household expenditure. This suggests an improvement in intra-household bargaining in favor of women.

The rest of the paper is organized as follows. Section 2 discusses the related literature on financial and inclusion and the graduation approach. Section 3 describes the background of the survey sites. Section 4 discusses the details of the randomized intervention, and the characteristics of the sample. Section 5 presents

[4] Including mobile accounts (Global Findex Database; Demirguc-Kunt and Klapper, 2012).
[5] Inter-American Development Bank (2014). As an example of the corresponding situation in neighboring countries, there are 11(17) financial branches and 35 (22) ATMs per 100,000 people in El Salvador (Paraguay).
[6] Humphries et al. (2012) discuss that the traditional slash-and-burn agriculture (*milpa*) drove the division of labor: men worked on physically demanding tasks away from home, while women were confined to the home.

the empirical strategy. Section 6 shows the results and section 7 presents the discussion. Finally, Section 8 presents the concluding remarks.

2. Literature

There is growing evidence on the impacts of a wide range of financial inclusion programs. Miller et al. (2015) present a meta-analysis of the literature on financial education interventions by covering 199 papers. They find that these interventions have generally positive impacts on increasing savings and record keeping, but not on reducing loan defaults. Kaiser et al. (2017) provide another meta-analysis of 126 impact evaluation studies and find that financial education significantly impacts financial behavior, although the effects vary depending on the income levels. Steinert et al. (2018) also present a meta-analysis on interventions to promote savings in Sub-Saharan Africa. They find that previous studies show positive impacts on total savings, pro-saving attitudes, financial literacy, and investments.

In the literature related to female empowerment in developing countries using randomized control trials (RCT) Ashraf et al. (2010) find that commitment savings owned by women lead to increased female decision-making power and a shift toward the purchase of female-oriented durable goods in households. Dupas and Robinson (2013) show that access to commitment savings enabled female market vendors to increase total savings, investments in their business, and food expenditures, compared to a male-treated sample. Bandiera et al. (2017) find that the provision of livestock and skills training promoted poor women to engage in livestock farming and increased their income, with this effect prevalent even seven years following such interventions. In Honduras, Humphries et al. (2012) find by their observational study that a participatory agricultural program changed gender roles, increased freedom for female participants to engage in income-generating activities, and increased their involvement in household decision making.

Banerjee et al. (2015) is most closely related to the present study. The authors summarize programs based on the graduation approach in six countries, including Honduras. They find that the interventions improve a variety of outcomes such as consumption, asset holding, and food security, which persist one to three years after the interventions in all countries excepting Honduras. One potential reason for this failure in Honduras may be

that most of the small assets (in this case, chickens) provided through asset transfer died due to illness. At the endline, treated households lost most of their productive assets, leading to an overall benefit/cost ratio of -198%. They do not find significant impacts either on financial inclusion or women's decision-making indices. In contrast, we find evidence of positive impacts on financial inclusion, income, and female empowerment, at least in the short run. We also discuss the benefit/cost ratio in the discussion section.

3. Background

In the 1990s, the Honduran government started a CCT program called "*Bono Vida Mejor* (Subsidy for Better Life)"[7] aimed at poverty reduction. Lump-sum subsidies were given to women of poor families with preschool/school-age children conditional on regular school attendances and to pregnant women conditional on regular health-center visits.[8] Similar to the CCT programs in other countries, providing monetary benefits to mothers and female heads of households is intended to improve the status of women (Parker and Todd, 2017). The payment is disbursed every three to four months by cash or direct remittances to bank accounts. The payment is about 100 USD at a time, and the maximum is 500 USD per year depending on the characteristics of the household, such as number and age of the child(ren).[9] In case the mother is absent, the child's father or other legal guardians are the beneficiaries.

Nonetheless, a low level of financial literacy has hindered effective financial inclusion. To increase the effectiveness of CCT programs, comprehensive programs that rely on more active participation by social workers and others may be needed (Fiszbein et al. 2009). Indeed, complementary programs on financial education have been provided in other Latin American countries (Garcia et al., 2013). In February 2015, the

[7] The Family Allowances Program (*Programa de Asignación Familiar*, PRAF) started in the early 1990s. This was later absorbed into *Bono diez mil*, a program implemented by the Ministry of Development and Social Inclusion (*Secretaría de Desarrollo e Inclusión Social*, SEDIS) in 2010. In 2014, the program was renamed to *Bono Vida Mejor*. For details, see Galiani and McEwan (2013) and IDB (2014a).

[8] Beneficiaries' children must maintain a school attendance rate of no less than 80%. Those who are under six years must visit health centers every one to three months for regular checkups, and so must pregnant and postnatal women.

[9] Until 2015, households with at least one school-age child received a lump-sum of 10,000 Lempiras as indicated by the name "*Bono diez mil* (*dies mil* = 10,000)." In 2016, the government changed the amount of subsidy, which is now calculated according to the number of the children. For example, a household with one eligible child receives about 5,000 Lempiras. Around 1,000 Lempiras are given per additional child with a maximum of 10,000 Lempiras. The actual amounts also depend on the location (urban/rural) and age of children.

Honduran government started the "Project on Life Improvement and Livelihood Enhancement of Conditional Cash Transfer Beneficiaries through Financial Inclusion," called the ACTIVO project,[10] with technical assistance from the Japan International Cooperation Agency (JICA). This is a multifaceted comprehensive program based on the graduation approach that aspires to improve the life and livelihood of the poor. To prepare for expansion at the national level, the ACTIVO project was implemented as the initial milestone. The interventions were carried out by local municipalities for long-term sustainability and adaptation to the characteristics of each locality.

The interventions include the following: i) training sessions on household bookkeeping, financial education, and improvement of livelihood; ii) semi-personalized coaching sessions by local officials and community leaders; and iii) a wide variety of asset transfers. Classroom-based training sessions were composed of six modules (Table 1). Modules 1–4 cover bookkeeping and financial education (Appendix Figure 1), and modules 5 and 6 included topics related to livelihood improvement and vocational training. McKenzie and Woodruff (2014) and Brooks et al. (2018) discuss that market-specific localized information would be much more helpful than principles commonly taught in formal business classes. Likewise, in our intervention, the specific topics covered in the vocational training were chosen based on requests from the participants during prior sessions so that they would be closely related to the start and expansion of their business in the local context. Most of the participants favorably evaluated the quality of training session and teaching materials (Table 2). Semi-personalized coaching sessions were held after each training module as follow-up sessions. The community leaders either visited individual households or provided group/individualized sessions to monitor the progress of the participants as well as to encourage them to apply their learning to practice (Appendix Figure 2).

Table 3 shows the number of households that participated in the training and coaching sessions. Although no show-up fee was paid, the participation rates were much higher than those reported in the existing studies. The potential reasons for this could be that i) the households were invited to training sessions by extension workers who were usually well-known to them, ii) they knew that snacks and drinks would be provided for free,

[10] ACTIVO stands for "*Ahorro* (Savings), *Cuenta Financiera* (Financial Accounts), *Trabajo* (Employment), *Ingreso* (Income), *para la Vida Optimizada* (for Improved Livelihood)."

iii) some of the households might have wrongly believed that the disbursement of the CCT was contingent upon participation in the sessions, while this was not the case.[11]

For asset transfers, central/local governments and other public sectors such as *mancomunidad* (territorial associations of municipalities) transferred productive assets to the treated households after the completion of module 6 (vocational training). The choice of assets ranges from vegetable seeds, fertilizers, small livestock such as chickens, small-scale irrigation, baking ovens, seed capital for business, and so on, which are closely related to what the participants learned during the vocational training.[12]

Evaluations held at the end of the coaching sessions reveal that 40.2% of the treated respondents answer that topics related to management of economic and financial resources within households was helpful. These sessions also seem to contribute to the active use of financial accounts and the understanding of credit, loans, and insurance. Additionally, 20.3% of the respondents answered that the module on livelihood improvement was useful. The respondents also answered that they had applied the micro-enterprise and livestock-farming techniques learned during the sessions.

It is noticeable that 7.8% of the respondents responded the topic on economic and/or social dignity of women was helpful. As already discussed, in Honduras, the traditional gender pattern is highly prevalent, compared with the situation in neighboring countries,[13] and population is more heavily concentrated in the rural sector, any positive impact on gender-related outcomes would be especially important for rural households.

4. Data

The baseline survey was collected for around 2,000 households during June–July 2015, about 10 months prior to the intervention. Five municipalities are involved: Las Vegas, Quimistan, San Rafael, Tegucigalpa (the capital), and Villa de San Francisco (Figure 1). The survey includes information on household members, the

[11] In one of the municipalities (Las Vegas), the participation rate in training sessions is 100% while that in coaching sessions is 37.3%. This is potentially because that some coaching leaders are replaced and the sessions were held during the busy coffee-production season.

[12] For example, plant seeds and/or small-scale irrigation were given after the vocational training on agriculture.

[13] The United Nations Development Programme reports that the Gender Inequality Index of Honduras is 0.46 in 2016 while that of Latina America and the Caribbean is 0.39.

socio-economic characteristics of the respondents/households, income, consumption, details of the decision-making processes, and several arithmetic questions that involve calculations such as addition, subtraction, and yearly interest rates.

From April 2016 to May 2017, the local teams provided interventions to randomly selected 1,003 households that were the beneficiaries of the CCT program.[14] Half of the 2,000 households live in urban areas, with the rest living in rural areas. to capacity constraints of the local governments and security concerns, our sampling strategy was as follows: in urban areas, beneficiaries were stratified at the municipality level and individuals were randomly assigned either to treatment or control groups. All the CCT beneficiaries in the central area were selected as potential sample, except in Tegucigalpa, where certain areas were excluded for security reasons. In rural areas, the unit of randomization was clustered at the village level. There are 38 village clusters in total, with each group comprising 19 clusters. Figures 2 and 3 illustrate the randomization strategies for each area.

Our endline survey was conducted one month after all the 13-months interventions were completed. In addition to the questions asked at the baseline survey, we asked whether the training/coaching sessions improved the relationship between the participants and their spouses. Additionally, we asked questions about household financial decisions to understand the structure of spousal or familial control.

Table 4 shows the absence of differential attrition: the treatment dummy is not correlated with attrition. The overall attrition rates are 12% in urban areas and 7% in rural areas. Some of the explanatory variables correlated with attrition (Column 2) are controlled in regressions to alleviate potential bias. In order to verify the validity of the randomization, Table 5 compares the mean values of variables measured at the baseline. None

[14] The Secretary of development and social inclusion (SEDIS) manages the list of CCT beneficiaries. At the time of the selection, the list as of March 2015 was used to count the number of beneficiaries in the pre-selected municipalities. These lists are managed at the school level in urban areas, and at the village level in rural areas. The number of project beneficiaries and the target municipalities were selected by JICA and the Government of Honduras. JICA pre-selected the municipalities based on certain characteristics, such as: predominantly urban (Tegucigalpa), presence of potential implementation partners (Quimistán), cashless CCT initiative underway, mobile banking target area (Villa de San Francisco), and potential coordination with other JICA project (San Rafael). In March 2015, JICA and the Government of Honduras agreed to further select the eligible CCT beneficiaries in the target municipalities, as well as the operational approach. The location of financial institutions (such as Banrural Bank and other commercial bank branches, MFI office), the operation of other public or donor programs, security status, and existing social networks were among the important aspects considered.

of the differences between the treatment and comparison groups prior to implementation is statistically significant from zero. The randomization appears to be successful.

Table 6 presents the summary statistics. 47% of the respondents are urban residents. Almost all (96%) are female. Of them, one-third are household heads, and 27% are single mothers. On average, respondents are 41.6 years old with 3.7 years of schooling. As expected, 98% received CCT in the last 12 months.[15]

At the baseline, only 5% gave a correct answer to the question on yearly interest rate (Panel B, Math dummy)[16] while 62% of them had some basic knowledge about financial institutions and financial accounts in general. The average annual income is 57,884 Lempira (2,526 USD).[17] Income from employment, micro-enterprise, agriculture, livestock farming, and CCT account for 61.2%, 15.9%, 4.1%, 1.0%, and 9.3% of the annual income, respectively. A substantial share of household income comprises income from CCT. Only 7% of the respondents have saving goals and engage in bookkeeping, while 39% have at least one bank account. It is noticeable that contingent upon having a bank account, the average outstanding balance at the baseline is 1,743 Lempira (76 USD), which is only 3% in terms of their annual income.

5. Empirical Analysis

We evaluate the causal impact of the ACTIVO project by estimating the intention-to-treat (ITT) effects using Analysis of Covariance (ANCOVA) regression following McKenzie (2012). In particular, we compare treatment households with control households, irrespective of whether the treated households participated. The estimation model is

[15] Only 45% of them received it at the endline. This is mostly because the disbursement of the CCT was delayed due to logistical problems of the municipalities. In some cases, the recipients could not reach the places of disbursement on specific payment dates.

[16] The question is "Suppose you deposit 100 Lempira now and that the annual interest rate is 4%. Then what would the outstanding balance be at the end of one year?" The correct answer was not provided to respondents as we asked the same question at the endline.

[17] 1 USD＝22.91 Honduran Lempira (OANDA, retrieved on June 5, 2017). In 2016, the annual inflation rate was 3.7% and the deposit interest rate was 8.6% (World Bank).

$$Y_{ic} = \alpha + \beta_1 T_i + \beta_2 X_i + \rho_c + \epsilon_i$$

where outcome is Y_i (measured at the individual level in urban areas and averaged at the village level in rural areas, T_i is a dummy variable denoting assignment to the treatment group, X_i contains the baseline ANCOVA characteristics including interaction terms, and ρ_c is the municipality fixed effect. The parameter of interest (ITT effect) is β_1. We use robust standard errors for the urban sample and cluster standard errors for rural sample following our randomization strategy. As there are 19 clusters in the rural sample, we report randomization inference (RI)-based p-values following Heß (2017).

6. Results

Table 7 reports the estimation results for urban, and rural samples. The estimated coefficients for only the treatment dummy are shown in the table, but we include ANCOVA variables, urban dummy, single-mother dummy, age, literacy dummy, years of schooling, CCT dummy, and municipality dummies.[18] For a reference, Column (1) report the control means for each outcome. In Row 1, the dependent variable is an aggregated score of financial knowledge, including dummies for correct answer to the math question, knowledge about banks, accounts, mobile money, and loan application procedure (5 points in total). We see that the treated respondents have significantly better financial knowledge by 0.34 points for the urban sample (Column 2), and 0.83 points for the rural sample (Column 4). The results are robust when controlling different set of variables.

The intervention also significantly induces the treated households to set saving goals by 15% for the urban sample and 44% for the rural sample. The estimate is especially large for the rural sample; this is intuitive given that the control mean of this variable is 0.077 (Column3). In Row 3, the outcome is a dummy for having one bank account. In urban areas, this estimate is not significant probably because half of urban households already have at least one account at the baseline (Column 1). In contrast, this estimate is significant and large in rural areas (17.4% in Column 4). We also find that the interventions induce them to have multiple accounts in rural

[18] Full results are available on request.

areas (Row 4). Having bank accounts is important because the Honduran government expands the CCT payments through direct remittances.

Row 5 shows that 26.3% and 43.1% of the treated households are more likely to start/continue bookkeeping in urban and rural areas, respectively (Columns 2 and 4). The estimates are large compared with the control means, especially for the rural sample, in which only 2.8% of the control group engages in bookkeeping. A female member of a household (typically de jure/de facto wife) usually tracks the records (at the baseline, 81% answered that wives track the records when they do, while 4.9% answered that couples jointly track records). Developing a bookkeeping habit would lead to better financial management and female empowerment.[19] Further results on gender-related outcomes are shown below.

We also find that treated households have a larger account balance in urban areas. Row 6 reports that the ITT effect for the urban sample is 753.6 Lempira (Column 2). Compared with the control means, the intervention seems to induce over a two-fold increase in the account balance. Dupas et al. (2018) find that treated households increase bank savings but reduces savings elsewhere, especially at home. We don't have information on home savings of our sample due to security concerns. Nonetheless, bank savings are much more secured than home savings when violence and thefts are serious issues.

In line with Miller et al. (2015), Kaiser et al. (2017), and Steinert et al. (2018), we find that the interventions have significant impact in increasing the bank balance and on pro-saving attitudes. Generally, the estimated coefficients are larger for rural areas. This may be because the initial knowledge and penetration of banking in rural areas were much lower than in urban areas, potentially reflecting insufficient access to banks and other financial institutions, as the control means show.

We also measured the impacts on annual income, with the results shown in Table 8. We find no significant change in total income (Row 1). This result is not surprising, given that the endline survey was conducted one month after all interventions were completed. Even with an increase in investment, subsequent income might not have materialized at that point. Especially for urban households, our interventions do not seem to have

[19] According to our endline survey, many of the urban households keep track of their income/expenditure every day or every week, while rural households do it less frequently. This is intuitive given that the rural households go out for shopping much less often than urban households do.

significant impact in their income at al.

In contrast, there are significantly large positive changes in income (5438.9 Lempira) from micro-enterprises for rural households (Row 2). The results are broadly consistent with Brooks et al. (2018). As micro-enterprises are important income-generating activities for women in rural areas, the training and coaching sessions seem to help them very much. Given that 22.7% of the total income in rural areas consists of average annual income from micro-enterprises, the interventions may have brought major changes to livelihood in the short run.[20]

Other results report insignificant impacts of income from agriculture and employment (Rows 3-5). Our result suggest that our interventions did not seem to influence their earnings from employment. Additionally, agricultural income is not significantly increased due to the interventions. This may be intuitive considering that, traditionally, men mostly engage in agriculture. Nonetheless, treated households significantly increase in the number of income sources in rural areas (Row 6, Column 4). This result suggests that treated households may change their income portfolio by, for example, starting a new business.

We do not find significant impact on monthly expenditures neither in urban nor rural areas (Row 7). However, Table 9 shows suggestive evidence of improved financial management: 19% of the treated women answer that bookkeeping is helpful in sorting out essential/nonessential expenditure while only 3% of those in the control group agree. Moreover, 21% of the treated group think that bookkeeping is helpful in reducing nonessential expenditure. The difference between the control and treatment groups is significant at 1%. Treated households now seem to recognize nonessential consumption of, for example, sugary drinks and may reduce expenditure in the long run.

We also examine whether the interventions contribute to female empowerment. The results are presented in Table 10.[21] Row 1 shows that husbands in treated rural households are less likely to be exclusive decision makers in their households. Additionally, Row 2 finds that aggregated measure of female empowerment is

[20] One might be skeptical in interpreting the results, because estimated positive impacts can merely be brought by asset transfers for micro-enterprises and livestock farming, not potentially by an improvement in their business. However, we did not observe people simply selling the assets for immediate income.

[21] We exclude single-mother households. For gender-related outcomes, baseline ANCOVA variables are nonexistent except for the dummy for husband being an exclusive decision maker.

positive and significant in urban areas. In line with Ashraf et al. (2010) and Humphries et al. (2012), improvement in financial management and increased freedom to engage in income-generating activities possibly lead to female decision making-power. The results are robust to different specifications.[22]

7. Discussion

Overall, we find that the interventions have positive short-term effects in improving household financial management, diversifying income-generating activities, and facilitating female empowerment. The results of the analysis were found to be robust, especially with respect to the financial knowledge and management skills. We attempted other specifications, other definitions of empirical variables, and other combinations of explanatory variables. The underlying mechanism may be the sequential structure of the program, which helps treated beneficiaries convert acquired knowledge into action, and further, into livelihood improvement.

A limitation of our study is that we cannot separate the impacts of each component of the program. This is because access to session attendance records is not available due to privacy concerns. However, consistent with other studies on the graduation approach, we consider that the comprehensive and multifaceted package of financial education, training/coaching sessions, and asset transfers would lead to better budgeting, management, investments, and livelihood. Importantly, the impacts may differ between households with different income-levels. Also, the intervention may have benefited respondents with relatively poor educational background much more than others. Future research will investigate heterogenous impacts of various outcomes and how the positive effects persists in the medium to long run.

The total cost for the implementation of the current program is about 58,700 USD, which includes 36,700 USD for class-room training sessions and 22,000 USD for in-kind asset transfers. The costs for the bookkeeping and financial education trainings were covered by the municipalities and financial institutions as part of their jobs. Altogether, our back-of-envelop calculation estimates that for every dollar spent, the program yields a benefit of 2.9 dollars as income from self-employed businesses in rural areas. Likewise, in urban areas, it

[22] Full results are available on request.

produces an additional 1.7 dollar increase in asset value for every additional dollar spent. The on-going scale-ups are implemented by updating the pre-existing trainings and asset transfer programs by local governments. Consequently, the current program is quite cost-effective, considering, for example, Banerjee et al. (2015), who report the benefit/cost ratio of their program in Honduras to be -198%.

Banerjee et al. (2015) discuss that transferring (often) the same productive asset to many households in a small village may generate a negative externality on other asset owners, if, for example, the transfers result in a fall in the price of products related to that asset. Conversely, the benefits that accrue to the treatment households may be shared with others, as has been found by Angelucci et al. (2009). It would be important for future research to analyze the general equilibrium effects for the scale-up.

8. Conclusion

In this study, we investigated the effectiveness of financial inclusion program in Honduras. We find positive impacts on the series of interventions on household financial management and income-generating activities. By restricting the participants only to the beneficiaries of the conditional cash transfers, who are mostly women, the intervention increased bargaining power within household. This is very important evidence against about the change in traditional gender roles.

Better budgeting and planning help households manage cash flow and consumption, as well as asset building. Additionally, increased financial knowledge would benefit financial institutions as they may be able to easily attract more clients.

International development projects have recently focused on evidence-based practices. This paper also contributes to them by providing evidence on “graduating” out of poverty through financial inclusion and female empowerment.

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Table 1: Components of the training sessions

Module	Purpose	Periods
1. Saving	• Understanding the benefits and usefulness of savings accounts. • Identifying basic methods of saving. • Establishing savings goals linked to improvements in livelihood and economic activities.	April 2016
2. Household financial management	• Understanding annual cash flow patterns. • Learning household bookkeeping methods.	May 2016
3. Planning of income improvement activities	• Making plans for livelihood improvement. • Understanding the financial situations.	June 2016
4. Financial services	• Acquiring knowledge of financial products to use them appropriately. • Understanding rights and obligations of the financial service users. (It is recommended that officials of financial institutions provide this module as instructors.)	July 2016
5. Management of micro-enterprise	• Understanding the importance of business plan for micro-enterprise. • Learning to use financial products for micro-enterprises.	Sep 2016 – May 2017
6. Vocational training	• Vocational training relevant to local contexts.	Sep 2016- May 2017

Table 2: Post-trainings evaluation

	Quality of the training session		Quality of the teaching materials	
	Urban	Rural	Urban	Rural
Excellent	51.5%	34.0%	46.8%	29.8%
Good	43.8%	58.8%	48.2%	60.0%
Moderate	3.8%	6.0%	2.9%	7.9%
Bad	0.3%	0.5%	1.2%	1.7%
Obs	340	403	340	403

Table 3: Session participations

		Training sessions		Coaching sessions	
	Obs	Participated in at least one session	Avg # of session participated*	Had at least one session	Avg # of session participated*
Las Vegas	153	153	6.48	57	4.12
Quimistan	257	255	5.31	240	2.58
San Rafael	202	201	5.13	183	4
Tegucigalpa	261	245	3.58	192	3.61
Villa de San Francisco	130	129	4.98	128	7.12
Total	1,003	983	4.96	800	3.96

* Conditional on participation

Table 4: Difference in attrition

	(1)	(2)
Treatment dummy	0.010	-0.00006
	(0.013)	(0.011)
Urban dummy		0.048***
		(0.015)
Literacy dummy		-0.296***
		(0.012)
Received CCT in 2017		-0.117***
		(0.011)
Tegucigalpa		0.005
		(0.019)
Quimistan		-0.055***
		(0.019)
San Rafael		-0.028
		(0.021)
Las Vegas		-0.035
		(0.022)
Constant	0.085***	0.346***
	(0.009)	(0.022)
Obs	2048	2048

Note: The dependent variable is an attrition dummy. The baseline variable for the municipality dummy is Villa de San Francisco. Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Balance in controls and treatments

Variables measured at the baseline	Control	Treatment	Difference
Urban	0.46	0.49	-0.02
	(0.02)	(0.02)	(0.02)
Female	0.96	0.97	-0.01
	(0.01)	(0.01)	(0.01)
Head	0.32	0.33	-0.01
	(0.02)	(0.02)	(0.02)
Single mother	0.98	0.98	-0.01
	(0.004)	(0.004)	(0.01)
Age	41.54	41.69	-0.14
	(0.37)	(0.37)	(0.52)
Years of schooling	3.67	3.63	0.04
	(0.08)	(0.08)	(0.11)
Math dummy	0.05	0.04	0.01
	(0.01)	(0.01)	(0.01)
Total income (Lempira)	56,684	59,119	-2435
	(1486.3)	(1713.6)	(2265.8)
Received CCT	0.98	0.98	-0.01
	(0.005)	(0.004)	(0.01)
Knowledge about bank or any financial institution	0.62	0.62	-0.001
	(0.02)	(0.02)	(0.02)
Knowledge about financial accounts	0.63	0.62	0.01
	(0.02)	(0.02)	(0.02)
Knowledge about loan qualifications	0.48	0.47	0.01
	(0.02)	(0.02)	(0.02)
Knowledge about tigo mobile money	0.41	0.41	-0.003
	(0.02)	(0.02)	(0.02)
Have saving goal	0.07	0.08	-0.01
	(0.01)	(0.01)	(0.01)
Record keeping	0.07	0.07	-0.001
	(0.01)	(0.01)	(0.01)
Have one account at bank or any financial institution	0.42	0.37	0.06
	(0.02)	(0.02)	(0.02)
Have multiple accounts at bank or any financial institution	0.10	0.12	-0.02
	(0.01)	(0.01)	(0.01)
Account balance (Lempira)	517.90	936.21	-418.31
	(81.93)	(261.04)	(271.76)
(De jure/de facto) husband is the primary decision maker about how to use the income earned	0.23	0.22	0.02
	(0.01)	(0.01)	(0.02)

Note: Numbers of observation of the treatment group is 920 and that of the control group is 905. Standard errors are listed in parentheses below the means. The third column reports the differences in means and their standard errors. None of the differences between the treatment and comparison groups at the baseline are statistically significant from zero.

Table 6: Summary statistics

	Obs	Mean	S.D.	Min	Max
Panel A: Household characteristics					
Treatment	1,825	0.50	0.50	0	1
Urban	1,825	0.47	0.50	0	1
Female	1,825	0.96	0.18	0	1
Head	1,826	0.33	0.47	0	1
Single mother	1,826	0.27	0.44	0	1
Age	1,825	41.58	11.18	1	91
Years of schooling	1,809	3.65	2.35	0	9
Received CCT in 2015	1,826	0.98	0.14	0	1
Participated in any training session*	905	0.82	0.38	0	1
Participated in all training sessions*	905	0.37	0.48	0	1
Panel B: Baseline characteristics					
Aggregated measure of financial knowledge**	1,820	2.43	1.44	0	5
Math dummy	1,819	0.05	0.21	0	1
Knowledge about bank or any financial institution	1,826	0.62	0.49	0	1
Knowledge about financial accounts	1,826	0.62	0.48	0	1
Knowledge about loan qualifications	1,824	0.47	0.50	0	1
Knowledge about tigo mobile money	1,820	0.41	0.49	0	1
Annual income (Lempira)	1,826	57,884	48,386	2,479	636,933
Annual income from employment (Lempira)	1,826	35,396	38,044	0	408,000
Annual income from micro-enterprise (Lempira)	1,826	9,181	27,789	0	576,000
Annual income from agriculture (Lempira)	1,826	2,372	18,619	0	600,000
Annual income from livestock farming (Lempira)	1,826	599.1	2,217	0	33,200
Annual income from CCT (Lempira)	1,826	5,396	6,082	0	83,333
Have a saving goal	1,826	0.07	0.26	0	1
Recordkeeping	1,826	0.07	0.25	0	1
Have one account at a bank or any financial institution	1,805	0.39	0.49	0	1
Have multiple accounts at bank or any financial institutions	1,805	0.11	0.31	0	1
Account balance (Lempira)***	1,071	1,743	9,820	0	190,898

* Conditional on being treated. ** The maximum of the financial score is 5. Components of the score are: math correct answer, knowledge about bank dummy, knowledge about account dummy, knowledge about loan qualifications, knowledge about tigo mobile money. *** Conditional on having any account.

Table 7: ITT estimation results (1)

		Urban				Rural			
Outcomes		**(1) Control group**		**(2) ITT**		**(3) Control group**		**(4) ITT**	
(1)	Aggregated measure of financial knowledge (5 points in total)	Mean	2.706	Coef	0.340***	Mean	1.636	Coef	0.831***
		(S.D)	(1.263)	[p-value]	[0.000]	(S.D)	(1.385)	[RI p-value]	[0.004]
(2)	Has set a saving goal dummy	Mean	0.258	Coef	0.150***	Mean	0.077	Coef	0.444***
		(S.D)	(0.438)	[p-value]	[0.000]	(S.D)	(0.266)	[RI p-value]	[0.000]
(3)	Have one account dummy	Mean	0.525	Coef	0.0219	Mean	0.192	Coef	0.174***
		(S.D)	(0.500)	[p-value]	[0.478]	(S.D)	(0.395)	[RI p-value]	[0.076]
(4)	Have multiple accounts	Mean	0.155	Coef	0.0109	Mean	0.016	Coef	0.0428***
		(S.D)	(0.363)	[p-value]	[0.649]	(S.D)	(0.126)	[RI p-value]	[0.014]
(5)	Bookkeeping dummy	Mean	0.059	Coef	0.263***	Mean	0.028	Coef	0.431***
		(S.D)	(0.236)	[p-value]	[0.000]	(S.D)	(0.166)	[RI p-value]	[0.000]
(6)	Account balance (Lempira)	Mean	354.9	Coef	753.6*	Mean	642.5	Coef	207.7
		(S.D)	(1030.1)	[p-value]	[0.065]	(S.D)	(4870.3)	[RI p-value]	[0.470]
	Obs	425		855		495		611	

Note: The aggregated measure of financial knowledge is the sum of dummies for mathematical ability, knowledge on bank in general, bank accounts, bank qualifications, and mobile money. Control variables include age, literacy dummy, years of schooling, dummies for urban area, single mother, literacy, being a recipient of CCT, and cities. We use robust standard errors for the urban sample and cluster standard errors for rural sample following our randomization strategy. Randomization inference (RI)-based p-values are reported in brackets for rural sample.

Table 8: ITT estimation results (2)

		Urban				Rural			
Outcomes		**(1) Control Mean**		**(2) ITT**		**(3) Control Mean**		**(4) ITT**	
(1)	Total annual income (Lempira)	Control Mean	89398.3	Coef	2959.6	Control Mean	56491.3	Coef	5461.2
		(S.D)	(60610.4)	[p-value]	[0.536]	(S.D)	(62147.2)	[RI p-value]	[0.330]
(2)	Annual income from micro-enterprise (Lempira)	Control Mean	28034.8	Coef	-26.24	Control Mean	8608.2	Coef	5438.9***
		(S.D)	(44839.5)	[p-value]	[0.995]	(S.D)	(18308.1)	[RI p-value]	[0.014]
(3)	Annual income from livestock farming (Lempira)	Control Mean	109.0	Coef	63.92	Control Mean	226.9	Coef	246.9
		(S.D)	(1064.8)	[p-value]	[0.453]	(S.D)	(824.1)	[RI p-value]	[0.342]
(4)	Annual income from agriculture (Lempira)	Control Mean	381.5	Coef	329.7	Control Mean	7386.7	Coef	3358.0
		(S.D)	(3714.9)	[p-value]	[0.211]	(S.D)	(46274.4)	[RI p-value]	[0.106]
(5)	Annual income from employment (Lempira)	Control Mean	50619.5	Coef	2315.7	Control Mean	32481.0	Coef	-2637.0
		(S.D)	(52589.8)	[p-value]	[0.490]	(S.D)	(33807.0)	[RI p-value]	[0.572]
(6)	Increase in the number of income sources (dummy)	Control Mean	0.087	Coef	0.003	Control Mean	0.073	Coef	0.057**
		(S.D)	(0.282)	[p-value]	[0.860]	(S.D)	(0.260)	[RI p-value]	[0.060]
(7)	Monthly expenditure (Lempira)	Control Mean	4873.6	Coef	-92.08	Control Mean	2688.8	Coef	149.8
		(S.D)	(3856.5)	[p-value]	[0.666]	(S.D)	(1787.8)	[RI p-value]	[0.630]
	Obs	425		855		495		613	

Note: Control variables include age, literacy dummy, years of schooling, dummies for urban area, single mother, literacy, being a recipient of CCT, and cities. We use robust standard errors for the urban sample and cluster standard errors for rural sample following our randomization strategy. Randomization inference (RI)-based p-values are reported in brackets for rural sample.

Table 9: Bookkeeping

How is the bookkeeping helpful to your household (answer all)?	**All**	**Control**	**Treatment**	**Difference**
To sort out essential/nonessential expenditure	0.11	0.03	0.19	***
	(0.31)	(0.16)	(0.39)	
To reduce nonessential expenditure	0.11	0.02	0.21	***
	(0.32)	(0.15)	(0.40)	
To increase essential expenditure	0.04	0.01	0.07	***
	(0.19)	(0.08)	(0.25)	
To be motivated to increase household income	0.04	0.00	0.08	***
	(0.20)	(0.06)	(0.27)	
To set up a saving goal and try to achieve it	0.03	0.00	0.06	***
	(0.17)	(0.05)	(0.23)	
To predict future expenditure	0.02	0.00	0.04	***
	(0.15)	(0.05)	(0.20)	
To improve budgeting and planning	0.03	0.01	0.06	***
	(0.18)	(0.07)	(0.24)	
To have some vision as an owner of micro-enterprise	0.02	0.00	0.04	***
	(0.14)	(0.03)	(0.20)	
Number of observations	1826	920	905	

Note: Standard deviations are listed in parentheses below the means. The forth column reports the significance in differences between the control and treatment groups.

Table 10: ITT estimation results (3)

		Urban				Rural			
Outcomes		**(1) Control Mean**		**(2) ITT**		**(3) Control Mean**		**(4) ITT**	
(1)	Dummy for husband being an exclusive decision maker	Control Mean	0.288	Coef	-0.0605	Control Mean	0.305	Coef	-0.0965**
		(S.D)	(0.454)	[p-value]	[0.108]	(S.D)	(0.461)	[RI p-value]	[0.034]
(2)	Aggregated measure of female empowerment (4 points in total)	Control Mean	3.091	Coef	0.163*	Control Mean	2.999	Coef	0.133
		(S.D)	(1.0889)	[p-value]	[0.069]	(S.D)	(1.167)	[RI p-value]	[0.284]
	Obs	264		539		407		509	

Note: Estimations exclude single mother-households. The aggregated measure of female empowerment is the sum of the dummies for being involved in educational decision of children, being involved in the decision of CCT usage, being involved in decision of applying for a loan, being involved in decision of asking borrowing to neighbour, relatives and friends. Control variables include age, literacy dummy, years of schooling, dummies for urban area, single mother, literacy, being a recipient of CCT, and cities. We use robust standard errors for the urban sample and cluster standard errors for rural sample following our randomization strategy. Randomization inference (RI)-based p-values are reported in brackets for rural sample.

Figure 1 Survey sites

http://www.ezilon.com/maps/north-america/honduras-maps.html

Figure 2 Randomization in urban areas

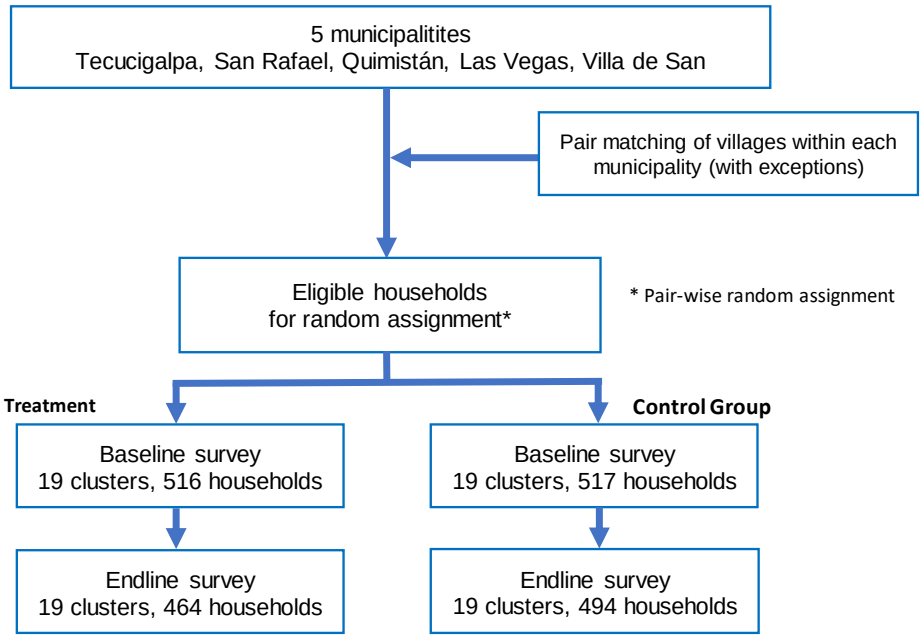
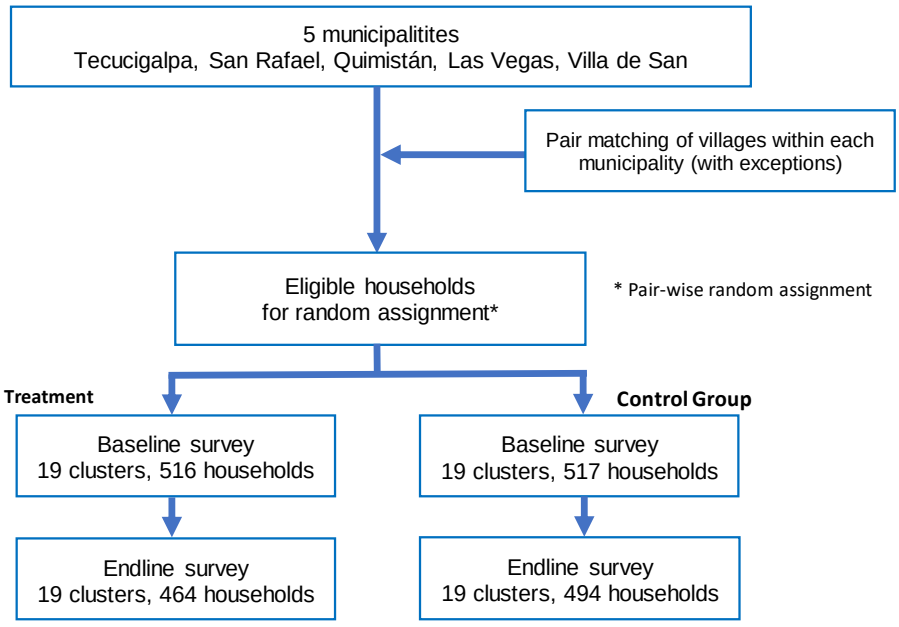


Figure 3 Randomization in rural areas



Appendix

Figure 1

Financial education lecture by an official of financial institution.

Figure 2

Personalized coaching session by a community leader.