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THE EFFECTIVENESS OF SHORT-TERM FINANCIAL EDUCATION WORKSHOPS IN RURAL AREAS: THE CASE OF ARMENIA

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Abstract

Empirical evidence on the effectiveness of financial education classroom workshops and their role in economic and social development is lacking. We randomly selected 50 villages across Armenia to conduct two-day financial education workshops. By analysing the performance of the participants using multinomial logistic and marginal regressions, we estimated the impact of the workshops on financial literacy. The results of the randomized control trial suggest that the short-term impact of financial education workshops on financial literacy and trust in the financial system is significant and positive. Finally, we found that classroom workshops had a positive impact on financial resilience and saving, which provides compelling evidence of the link between financial education workshops and economic development.

Keywords: financial education, financial literacy, measuring impact



Introduction

The Rural Financial Education Project (RFEP) is part of the National Strategy for Financial Education (NSFE) designed by the Central Bank of Armenia (CBA) and other stakeholders. Launched in December 2016, the RFEP aims to assess and improve financial literacy in rural Armenia. The CBA conducted two 2 to 3-hour financial education workshops in 50 randomly selected villages and measured the outcomes of the workshops against the survey responses of the control group.

Three surveys were conducted immediately after the workshops to assess their impact: a pre-workshop survey, control survey and post-workshop survey. The data we collected allows us to measure the efficacy of classroom workshops in improving financial literacy in the short term. For a longer term assessment, we will conduct follow-up surveys of both the control and treatment groups.

The results provide compelling evidence of the effectiveness of classroom workshops in the short term and their potential to contribute to economic development by improving the sustainability of livelihoods and strengthening economic growth through savings. Based on these results, and drawing on Sayinzoga et al. (2016), the study also aims to assess the potential of RFEP workshops to embed financial education in development efforts.

Literature Review

The concept of financial education has been receiving increasing attention over the last decade.¹ While there seems to be agreement on the usefulness of financial education in general, the literature is empirically inconclusive on the efficacy of classroom workshops or training in bringing about financial literacy and the impact on economic and social development. Indeed, most of the literature finds a positive association between financial education and literacy, but there is little focus on proving the effectiveness of the workshop method itself.² The role of financial education is also empirically uncertain in terms of how, and the degree to which, development outcomes may be achieved.³

Consequently, several authors, including Jamison et. al (2014) and Sayinzoga et al. (2016), have designed field experiments to conduct financial education workshops and compare the results of a treated sample with a control group. Most of these experiments have proven the effectiveness of classroom workshops in raising financial literacy levels. Similarly, they present significant evidence of the effect of the workshops on financial behavior, such as savings. Jamison et al. (2014) have found 15-hour financial education workshops are successful in improving financial literacy in several ways. They have established a causal link between workshops and total net savings and income, indicating a potentially positive effect on economic development.

Likewise, Sayinzoga et al. (2016) use OLS regression and difference-in-differences analysis to estimate the effect of a financial education workshop on financial literacy and financial behavior that contributes to development, including savings, borrowing and repayment, as well as efforts to initiate new income-generating activities. They have found that weekly financial education training has a significant and positive effect on financial literacy levels. Using instrumental variables estimation with a training dummy to control for reverse causality in the effect of financial literacy on financial behavior, they have confirmed a positive relationship between the two variables. Thus, there seems to be some empirical evidence of the efficacy and suitability of financial education workshops in enhancing both financial literacy and development outcomes.

Armenia has overall low literacy levels, suggesting an inadequate level of financial resilience.⁴ Several variables are of particular concern, including high levels of borrowing to make ends meet and comparably low self-reported savings levels combined with high levels of credit use.⁵ Low levels of formal saving in Armenia are consistent with a regional pattern of low levels of trust in financial institutions.⁶ Gaps in financial literacy levels in Armenia are being addressed by multiple actors, including the OECD, World Bank, Alliance for Financial Inclusion, Armenian Ministry of Education and the Central Bank of Armenia. However, most of the projects designed to close the financial literacy gap, such as the National Strategy for Financial Education and the RFEP, are not yet underway.⁷ Therefore, while steps are being taken to improve financial literacy, evidence of the effectiveness of these efforts is still lacking.

1 Hastings et al., 2013

2 Lusardi and Mitchell, 2007; 2013; Hastings et al., 2013

3 Sayinzoga et al., 2016; Yoshino and Morgan, 2016

4 Russia Financial Literacy and Education Trust Fund, 2013

5 Ibid.

6 Russia Financial Literacy and Education Trust Fund, 2013; Demirguc-Kunt et al., 2015

7 Russia Financial Literacy and Education Trust Fund, 2013; Demirguc-Kunt et al. 2015; Alliance for Financial Inclusion, 2015; 2017; OECD, 2016.

Methodology and Data Description

Table 1 outlines the 11 categories of survey questions asked before and after the workshops (all questions are included in Appendix 1). We divided the sample into three groups based on their survey responses and assessed the overall effectiveness of the RFEP classroom workshops, and the method in general, across different literacy levels. Respondents answering 0-4 questions correctly were classified as Low performers, those with 5-7 correct answers as Medium performers and those with more than 7 correct responses as High performers, with the prefix 'Pre' and 'Post' added to denote when the survey was administered. Table 2 shows the results of the grouped comparison.

To determine the effectiveness of the RFEP workshops, we analysed the performance of the participants based on the number of questions they answered correctly. This showed the average change in the performances of the pre-workshop and post-workshop groups. We evaluated the potential of the workshops to contribute to development by asking specific development-related questions. The performance of the control group is assumed to be constant due to the short time period between the pre- and post-workshop surveys.

Finally, to evaluate the effectiveness of the RFEP workshops across different education levels, income and age ranges, we conducted a multinomial logistic and marginal regression using the data reported in the pre-workshop survey. For the sake of clarity, participants were grouped based on their performance in the post-workshop survey, as shown in Table 2. The regression coefficients of the logistic model indicate the likelihood of a Medium or High performance compared to scoring Low, as the low-performing group was selected as the base.

The sample size was 923 for the pre-workshop survey, 727 for the post-workshop survey and 928 for the control survey. However, some participants from the first day of the workshop did not show up for the second day, and new participants joined on the second day of the workshop. We therefore used the combined data of the 462 participants who participated in both surveys and attended both days of the workshop. To match the sample sizes of the control and workshop groups, we randomly selected 462 participants from the 928 respondents in the control group. The proportion of correct answers to each of the closed questions based on the merged sample data is presented in Table 1.

Table 1. Proportion of Correct Answers

Questions:	Pre-Workshop Survey: Proportion of Correct Answers	Control Survey: Proportion of Correct Answers	Post-Workshop Survey: Proportion of Correct Answers
Inflation	15%	21%	50%
Inflation calculation	55%	53%	99%
Simple interest calculation	32%	36%	75%
Compound interest calculation	48%	48%	64%
Knowledge of deposit insurance level	25%	22%	71%
Debt preference	36%	45%	59%
Saving preference	26%	26%	63%
Knowledge of effective interest rate	39%	46%	77%
Exchange rate risk	51%	54%	83%
Fraud	60%	57%	78%
Financial mediator	35%	36%	47%
Average:	39%	40%	70%

Results

Overall, the data in Table 1 suggests the financial education workshops had a positive effect on financial literacy levels. We observed an increase in the average proportion of respondents giving correct answers in the post-workshop survey compared to both the control and pre-workshop surveys.

Results

Table 2 groups participants before and after the workshop in absolute numbers. For example, the intersection of the first row and first column shows that 45 participants scored Low both before and after the workshop. Table 2 shows that, overall, the workshop was effective in enhancing the financial literacy of the sample population. Indeed, the number of those performing Low before the workshop dropped from 243 respondents to 59, while the number of those performing High increased from 36 to 263. However, the workshop did not seem to have enhanced the financial literacy of about one-quarter of participants: 115 survey respondents either dropped or stayed at the same level of performance after the workshop.

Table 2. Grouped Performance Levels

	Post-Low	Post-Medium	Post-High	Total
Pre-Low	45	74	124	243
Pre-Medium	13	49	111	173
Pre-High	1	7	28	36
Total	59	130	263	452

Furthermore, by calculating the change in the average number of correctly answered questions, we observed that, on average, an individual answered three more questions correctly after the workshop. Table 3 shows the results of the multinomial logistic model. The coefficients show that if, for instance, the age of a person increased by one unit, the log odds of being in the Medium group relative to the Low group decreased by three percent when all other variables were constant. Thus, age has a negative impact on the likelihood of being in the Medium or High financially literate group compared to those with a Low level of financial literacy. In contrast, we observed that education and personal income have a positive impact on the likelihood of scoring a High level of financial literacy.

Table 3. Multinomial Logistic Regression Results

Grouped Literacy Performance in the Post-Workshop Survey	Coefficient
LOW:	(base outcome)
MEDIUM	
Education	.386211(0.105)
Age	-0.0293505*
Personal Income (0000)	0.0564482
_cons	0.1192229
MEDIUM	
Education	0.417557*
Age	-0.0282334*
Personal Income (0000)	0.1048311 **
_cons	0.3188303
Means and Standard Errors are estimated by linear regression. Inference: *** p<0.01; ** p<0.05; * p<0.1	

Table 4 shows the marginal effects of multinomial regression which, although low, imply the RFEP workshops had an unequal impact across the selected groups. This result is consistent with most of the literature on financial education, which suggests the need for targeted financial education.⁸ The indicator dy/dx illustrates the marginal effect of our variables on the likelihood of being in the various groups. For instance, the coefficient -0.032 means that if we increase education by one unit, the probability of being in the Low group will decrease by three percentage points. This result confirms a conclusion found in the literature: age has a negative effect on the level of post-workshop financial literacy in Armenia.⁹ Given that the magnitude of the effect of socio-economic variables on performance is weak, it suggests that the variation in the effectiveness of the RFEP workshops across different groups may not be too pronounced, and the classroom workshop method is relatively effective across age, income and education levels.

Table 4. Reported Marginal Effects from Multinomial Marginal Regression

	Variable	dy/dx	x
LOW:	Education	-0.0322098*	5.53736
	Age	0.0022633*	44.7644
	Personal Income (0000)	-0.0070173**	5.5576
MEDIUM	Education	0.0043796	5.53736
	Age	-0.0009818	44.7644
	Personal Income (0000)	-0.0074831	5.55763
HIGH	Education	0.0278302	5.53736
	Age	-0.0012815	44.7644
	Personal Income (0000)	0.0145004***	5.55763

Means and Standard Errors are estimated by linear regression. Inference: *** p<0.01;
** p<0.05; * p<0.1

Financial Resilience and Development Potential

We also examined the effect of financial education workshops in Armenia on financial resilience, as financial literacy and vulnerability tend to be negatively associated in times of financial crisis¹⁰ Russia Financial Literacy and Education Trust Fund, 2013 and 47 percent of the population in Armenia reportedly borrow to make ends meet.¹¹ While there are indeed high levels of economic fragility in Armenia that may be exacerbated in times of financial crisis, they may not be due to a lack of financial literacy, and enhancing it should contribute to better financial decision-making. Furthermore, the framework of livelihoods developed by Johnson (1992) and Knutsson (2006) allows us to link the efficacy of classroom workshops to their potential effect on economic development. According to Chambers and Conway, “a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living,” and is sustainable if it can, among others, “cope with and recover from stress and shocks”.¹² Thus, as livelihoods become more sustainable and financially resilient, financial education workshops may contribute to sustainable development.

We created a composite index of financial resilience that included questions dealing with issues of fraud, the risk associated with exchange rate fluctuation in foreign currency loans and knowledge of the role of the financial mediator. Based on these

¹⁰ Bucher-Koenen and Ziegelmeier, 2011, in Lusardi and Mitchell, 2013

¹¹ Russia Financial Literacy and Education Trust Fund, 2013

¹² Chambers and Conway, 1991, p. 6 in Knutsson, 2006

measures of financial resilience, we found that the RFEP workshops increased the sample population's knowledge of financial resilience by 20.4 percent. As Table 1 shows, improvements in average response rates across all three categories of the Financial Resilience Index suggest a link between financial resilience and development. First, financial education workshops may reduce the likelihood of falling into a debt cycle (because of an inability to choose a safer product) by improving resistance to fraud. In this case, a higher proportion of the population would be likely to ignore a potentially fraudulent advertisement after a workshop – a sign of greater financial resilience. Second, financial education workshops might improve financial knowledge associated with greater financial resilience, especially a better understanding of the role of the financial mediator, which provides assistance in disputes with financial institutions. Finally, greater awareness of the risk associated with holding a loan in a foreign currency implies that financial education workshops could enhance financial resilience if this new knowledge is acted upon in the long term.

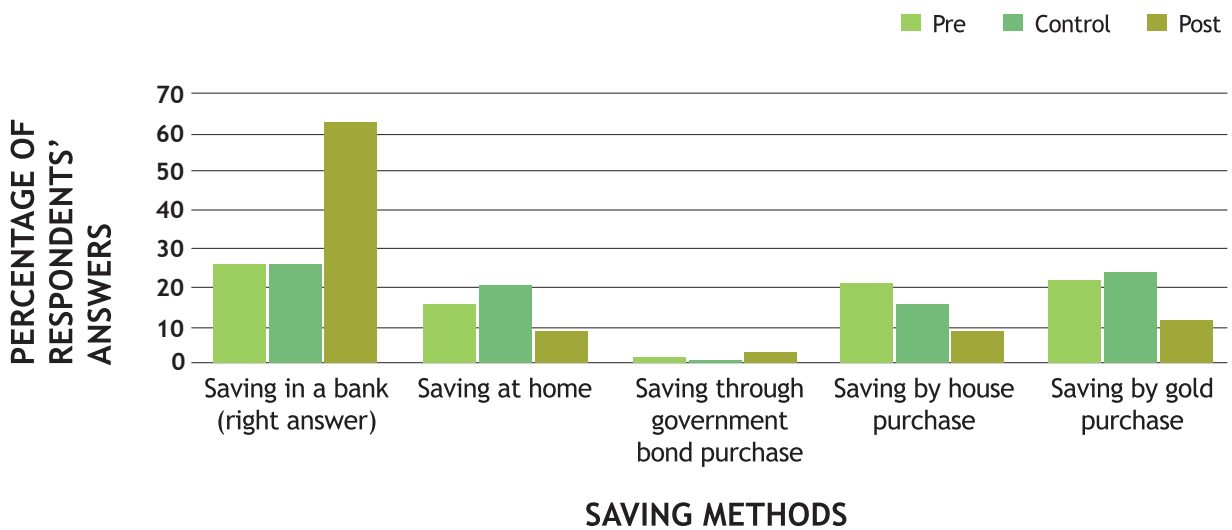
Trust and Behavior

Trust in the financial system increased by 0.825 points on average on a scale from 1 to 5 after the workshops. According to the World Bank Global Findex survey, 30 percent of respondents identify trust as the main reason they do not have a bank account.¹³ Pommeroy (2011) and Pond (2011) suggest that low trust in financial services is a key obstacle to financial inclusion. Therefore, the observed increase in trust is likely to have a positive effect on financial inclusion.

Effects on Savings and Development Potential

RFEP workshops improve attitudes about formal savings. Figure 1 shows that the percentage of people who prefer to save in banks doubled in the post-workshop survey compared to the pre-workshop and control group surveys. There is no clear pattern with respect to saving with government bonds, but fewer people prefer to save in gold. Similarly, we observe a lower preference for saving by purchasing a house. Sayinzoga et al. (2016) and Jamison et al. (2014) underline the connection between education, financial inclusion and development. Therefore, the increase in formal savings as a result of RFEP workshops has a positive effect on economic development.

Figure 1. Changes in Saving Preferences



Conclusion

RFEP classroom workshops enhance financial literacy levels in the short term. The improvements occur along several dimensions, including short-term financial resilience, trust in the financial system and formal savings. This suggests the potential for financial education workshops to contribute to development is considerable. However, a follow-up survey is needed to assess the longer term effectiveness.

Results in a Nutshell

RFEP classroom workshops enhance financial literacy levels in the short term. The improvements occur in several areas, including short-term financial resilience, trust in the financial system and formal savings. This suggests the potential for financial education to contribute to development is considerable.

Some highlights from the findings on financial education classroom workshops:

- On average, the correct response rate increased from 39 percent to 70 percent.
- The number of people with low performance decreased by 75 percent.
- The number of participants with high performance increased by six times.
- After the workshop, people tended to answer three more questions (out of 11) correctly, on average.
- Financial education workshops are effective across age ranges and income and education levels, which means that classroom composition does not diminish the effectiveness of workshops significantly.
- Financial resilience – the ability to cope under financial distress – increased by 20 percent after the workshop.
- Trust in the financial system increased by 16 percent after the workshop.
- After the workshop, participants increased their preference for saving in banks by 38 percent, on average.

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Appendix 1. Control survey questionnaire

Control Survey 14

1 - Of the financial services listed below, which one do you use?

- 1) Bank account
- 2) Bank account and credit card
- 3) Loan
- 4) Deposit
- 5) Money transfer
- 6) I am a guarantor
- 7) Other
- 8) None

2 - Please indicate which one is true for you:

- 1) I have savings
- 2) I have loans
- 3) I have both savings and loans
- 4) None
- 5) Hard to answer

3 - Which one is the most preferable way to save?

- 1) Save at home
- 2) Deposit at banks
- 3) Buy gold
- 4) Buy a house
- 5) Buy government bonds
- 6) Other

4 - How do we calculate inflation in your opinion?

- 1) From the change in exchange rate
- 2) From the price changes of flour, sugar, oil and other important goods
- 3) From the price changes of goods and services which are popularly used
- 4) Hard to answer

5 - You have 1,000,000 AMD in income and the inflation rate is 5%. How much should you earn next year so your level of living would not change?

- 1) More than 1,000,000
- 2) Exactly 1,000,000
- 3) Less than 1,000,000
- 4) Hard to answer

6 - Imagine you have 100,000 AMD in savings in the bank for 1 year with a 5% interest rate. If there is no income tax, how much will you get after 1 year?

- 1) More than 105,000 AMD
- 2) Exactly 105,000 AMD
- 3) Less than 105,000 AMD
- 4) Hard to answer

7 - Imagine you have 100,000 deposit in the bank for 5 years and a 5% interest rate. If you add the interest to the initial saving every month, how much will you get after 5 years (compound)?

- 1) Exactly 125,000
- 2) Less than 125,000
- 3) More than 125,000
- 4) Hard to answer

8 - Imagine you have 8,000,000 in deposits in a bank, how much of this money is guaranteed by the guarantor organization of Armenia?

- 1) 6,000,000
- 2) 4,000,000
- 3) 8,000,000
- 4) Hard to answer

9 - Which one is the best option for taking out loans?

- 1) Banks
- 2) Credit institutions
- 3) Friends, relatives...
- 4) Markets (like shops, i.e. 'pay later?')
- 5) Other

10 - What is the name of the rate that includes all the costs of taking out a loan?

- 1) Nominal interest rate
- 2) Effective interest rate
- 3) Refinancing rate
- 4) Hard to answer

11 - Imagine you have a dollar loan and the exchange rate changes from 500 to 450. What would happen to your monthly payment?

- 1) Increase
- 2) Decrease
- 3) Stay the same
- 4) Hard to answer

12 - Imagine you saw an advertisement that offers a deposit which doubles your money in 3 months. What would you do?

- 1) Use the opportunity and recommend it to friends
- 2) Ignore it, because it can be financial fraud
- 3) Test it by depositing a small amount
- 4) Hard to answer

13 - Imagine you win a lottery of 50,000. In the second round you have a chance of winning 100,000 or losing the initial 50,000. Which option would you choose?

- 1) Stop playing and take the 50,000
- 2) Continue playing, getting 100,000 or 0
- 3) Would not play in the first place
- 4) Hard to answer

14 - Which option is most preferable to get information about financial services?

- 1) TV, radio, magazines
- 2) Websites of financial institutions
- 3) Branches of financial institutions
- 4) Friends, relatives, neighbours
- 5) Village authority
- 6) Other

15 - After having a problem with financial services, which organization would you contact first?

- 1) Financial institution
- 2) CBA
- 3) Financial mediator
- 4) Court
- 5) Other

16 - From 1-5, how much do you trust the financial system of Armenia?

17 - Gender

Male

Female

18 - Your age

19 - Education

- 1) No education
- 2) Primary
- 3) 8 years
- 4) 10 years
- 5) Profession
- 6) Higher

20 - Do you have financial education?

Yes

No

21 - Marital status

- 1) Married
- 2) Single
- 3) Widowed
- 4) Divorced

22 - Number of family members

23 - Are there people in the family who are working abroad?

- 1) Yes
- 2) No

24 - Your occupation

- 1) Employed
- 2) Farmer
- 3) Seasonal worker
- 4) Unemployed
- 5) Student
- 6) Retired
- 7) Housewife
- 8) Unable to work

25 - How much is your family income (monthly)?

- 1) Less than 50,000
- 2) 55,000-180,000
- 3) 181,000-250,000
- 4) 251,000-400,000
- 5) More than 400,000
- 6) Hard to answer

26 - Your income is what percentage of your entire family income?

- 1) 1%-25%
- 2) 26%-50%
- 3) 51%-75%
- 4) 76%-99%
- 5) 100%
- 6) I don't have personal income
- 7) Hard to answer

27 - Would you like to participate in financial education classes?

- 1) Yes
- 2) No

Post-survey additional question: How much would you recommend this course to your friends? Put down a score of 1-10.

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