

Financial Literacy among Farmers: Empirical Evidence from Punjab

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Abstract

Including individuals in the mainstream financial system does not serve much benefit until they are financially literate. In fact, despite financial inclusion, financially illiterate people are most likely to commit many mistakes on financial front. Financial literacy therefore, is rapidly being recognised as a core skill in an increasingly complex financial environment and the governments around the world are putting all efforts to improve financial literacy amongst their citizens. Since providing financial education effectively requires evidence on the current levels of financial knowledge, this paper provides an evidence on the current financial literacy among farmers in the state of Punjab, which on one side helps feeding whole of the country, but on the other side has one of the highest debt levels among its farmers. We find that the farmers generally were financially literate as 37 per cent farmers had sound financial literacy and 47 percent had fair financial literacy. In addition, farmers had greater literacy in terms of interest, compounding, or inflation but were comparatively weaker on the front of time value of money and basic financial principles. A strong positive association was also seen between level of financial literacy and educational qualifications, annual income, and land holding size of the farmers. The findings of this study can serve as a benchmark for any training programme in provision of financial knowledge and skills to the farmers and a basis for policy formulation.

Keywords:

Financial literacy, Farmers, Punjab.

Introduction

Financial markets in India have experienced radical changes since the 1990s. Stock- and bond markets have been liberalized and the pension system as well as the insurance sector have opened up (Eeckhout & Munshi, 2010). In order to encourage the development of financial markets the Indian Government has initiated various programmes (for details see Shah *et al.*, 2008). Such government programs may be justified by the well-documented strong relation between financial development and economic growth (for example, see Demigruc-Kunt *et al.*, 2008).

More recently, the debate has expanded to include the notion of “financial exclusion” as a barrier to economic development and the need to build inclusive financial system (see Beck *et al.*, 2008). Empirical evidence using household data suggests that providing basic financial services such as savings, payments, and credit can bring about a significant positive change in poor peoples' lives (see Dupas & Robinson, 2012). Therefore, financial

inclusion is increasingly at the core of the international development agenda for policy makers and development institutions at the global level. In India too, the Government and RBI have been actively working on the financial inclusion agenda for past few years and encouraging several banks and financial service companies to increase their presence and operations in rural areas.

But are individuals well-equipped to make financial decisions? Do they possess adequate financial literacy and knowledge? Will including them in the mainstream banking serve the purpose intended? There has been little research on this topic and the few existing studies (most of which are restricted to developed economies) indicate that financial illiteracy is widespread and individuals do not possess the knowledge of even the most basic economic principles (see Lusardi & Mitchell, 2006). The existing studies also show that individuals who are not financially literate tend to borrow at higher interest rates (Moore, 2003; Gartner & Todd, 2005; Stango & Zinman, 2007; Lusardi & Tufano, 2009), fail to refinance mortgages when it would be optimal to do so (Agarwal *et al.*, 2009), acquire fewer assets, tend not to plan for retirement (Lusardi & Mitchell, 2007a), and are less likely to invest in tax-favored assets (Lusardi & Mitchell, 2008; Lusardi & Tufano, 2009). They also have tendency of not participating in formal financial system and are more likely to depend on family friends for financial advice (Rooij *et al.*, 2007). At the same time, there are concerns that households are not saving enough, are accumulating excessive debt, and are not taking advantage of financial innovations (Lusardi & Mitchell, 2007a).

This brings forth a very important question – Can financial inclusion ever succeed without financial literacy? If people are not aware about basic financial planning and lack the skills to save and invest, can they mitigate economic hardship and shocks that may come their way? Will this lack not impact the long-term objective of the Government to bring every citizen of the country into mainstream financial system? Here, Lusardi (2008) clearly points out that “saving decisions are not only derived from maximizing utility under a lifetime budget constraint but also under the limitations imposed by financial literacy, lack of information, and crude sources of financial advice”.

The strategy of the central Government and the RBI to include every citizen of the country in the formal banking fold needs to rest on two pillars. While improving penetration is one, the other key component is making India financially literate. The principal reason for improving financial literacy is the impact it has on financial inclusion and stability. Higher degree of awareness and understanding about savings, banking, credit and other financial products is the first step towards creating demand and increasing adoption. This gains paramount importance when only 5 per cent villages in India have brick-and-mortar branches (Nayak, 2012) and only 54.4 per cent households in rural areas are availing of banking services (see Census of India, 2011). Financial literacy therefore, must be the centerpiece of financial inclusion.

In the absence of adequate financial literacy, it would be impractical to expect individuals or households to weigh the risks and make responsible choices in an ever more sophisticated financial market. This is true even in countries where consumers generally are familiar with financial instruments such as credit cards, mortgage loans and perhaps private saving to “top up” social

security plans (OECD, 2009). It is all the more difficult in emerging economies like India where rapid economic and financial development has provided access to a large number of simple and complex financial instruments; but at the same time, a significant proportion of population has only a limited experience with formal financial system. In rural areas this difficulty goes a few notches higher.

Lack of adequate financial literacy leads to long-term problems also, which can seriously impinge upon economic well-being of individuals. For example, Indians, on an average, do not have more than three months savings, in case they face emergency. Because of increased consumption expenditure, the overall domestic savings rate too has dropped over last couple of years (Nayak, 2012). Further, there has been a greater tendency to take credit, especially for consumption purposes. Dependence on informal and opaque sources of credit has always been a problem for Indian hinterland.

Financial literacy therefore, is rapidly being recognised as a core skill, essential for consumers operating in an increasingly complex financial environment. At the same time, there is growing concern, across a wide range of countries, about the levels of financial capabilities of consumers. It is therefore no surprise that governments around the world are interested in finding effective approaches to improve the level of financial literacy amongst their population (Atkinson & Messy, 2012).

A large number of initiatives are therefore being developed to address this issue; and countries are increasingly rolling out national strategies on financial literacy. In India, the Reserve Bank of India, has been aggressively working to increase the financial knowledge of the general population. The goal is similar to that set out by the OECD: ...to help consumers “develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being” (OECD, 2005). Reserve Bank of India has also introduced Financial Literacy and Counseling Centers (FLCC) to provide consumers with the tools to make better credit choices (Reserve Bank of India, 2008). However, an RBI study shows little awareness among people about these centres. The education material at these centres also goes little beyond the individual bank's publicity material (Nayak, 2012).

This implies that providing financial education effectively requires evidence on the current levels of financial knowledge, areas where financial capability is low and an identification of the extent to which these should be addressed by financial education. The measurement of financial literacy levels is therefore widely recognised as a priority for countries seeking to deliver financial education in an efficient manner and evaluate its impact at a national level. Such a measurement exercise should allow policy makers to identify need areas in relation to different aspects of financial literacy and provide information about which groups of people need the maximum support (see Atkinson & Messy, 2012). The results of the financial literacy survey would also provide a baseline, which could be used as benchmarks for financial education initiatives and evaluation of impact of such initiatives.

Though a number of studies relating to financial literacy have been conducted (see Huston, 2010 for an impressive review in this

regard), majority of them are confined to US context or other developed economies. Only a few studies, with a focus on developing economies like India, have been reported. To the best of our knowledge, no farmer specific study has been conducted/ reported, especially in North India. We take a step in this direction and provide an evidence on the financial literacy levels of farmers in the state of Punjab, which on one side helps feeding whole of the country, but on the other side has one of the highest debt levels among its farmers.

Research Methodology

The study focused farmers of Punjab state. Since the number of farmers in the state was practically infinite for the study in hand, scope of the study was limited to the farmers who were member of *Punjab Kisan Club* at Punjab Agricultural University (PAU), Ludhiana. This selection was based on the fact that these farmers come from all parts of the state (each block and *tehsil* of the state is represented), are literate, and tend to keep in regular touch with latest recommendations of the PAU.

The Sample

The sampling universe consisted of all the members of the *Punjab Kisan Club* at PAU, Ludhiana. The number of such farmers is quite large and they are spread over the whole state; it was not feasible to reach every one of them. We therefore, relied on the monthly meetings of the *Club* which are held at PAU campus in Ludhiana. From April to June, 2012, member farmers were contacted during the monthly meetings. Respective farmers were selected on the basis of their co-operation and willingness to respond. In all, 300 farmers were selected and requisite information was collected from them personally with the help of a non-disguised, pre-tested structured questionnaire.

The Questionnaire

As mentioned earlier, a number of studies covering financial literacy among households (for example, Cole *et al.*, 2009), individuals (for instance, Lusardi, 2008), youngsters (for example, Lusardi *et al.*, 2009), old age people (for example, Finke *et al.*, 2012), women (for instance, Almenberg & Dreber, 2012) etc. have been conducted and different measures of financial literacy have been employed by them (for details, see Hung *et al.*, 2009).

Among these, the measures developed by Rooij *et al.* (2007) has been the most popular and most frequently used (though in modified forms) in different studies across different countries (for example, Lusardi & Mitchell, 2007b; Almenberg & Dreber, 2012). This measure consists of two modules; the first one measures basic financial literacy with questions about interest rates, compounding, inflation effects, time value of money etc. The second module captures advanced financial knowledge with focus on topics such as stocks and bonds, working of stock markets, relationship between interest rates and bond prices etc. We decided to work only with the basic financial literacy as it was felt that the farmers may not be able to understand / answer many statements related to financial markets. The original questionnaire was modified to adapt to Indian conditions.

In all, there were ten statements - four related to category of interest and compounding, and two each for inflation, time value of money, and basic financial principles. Each statement had four response categories: the correct answer, do not know, and two

wrong answers. In order to check for any association between demographic profile and financial literacy, information related to demographics of respondents such as age, income, family size, education, size of land holding etc. was also collected.

The questionnaire was first pre-tested with 20 farmers who visited PAU for their routine problems, queries etc. at the Farmers Service Centre in PAU, Ludhiana. Respondents were encouraged to pinpoint anything that they did not understand so that appropriate modifications in the language could be carried out. Details of the questionnaire used in the final survey are provided in Annexure 1.

Data Analysis

In order to analyse the data, various response categories for financial literacy statements were assigned scores as follows:

Correct answer	-	3
Do not know	-	2
Wrong answer	-	1

We deliberately gave higher weight to 'do not know' because it has been observed that individuals generally believe that they are far more financially literate than is really the case (OECD, 2009); they are more likely to commit financial mistakes. Therefore, admitting that I do not know something is definitely less dangerous than not knowing something but still claiming the opposite.

With this scoring scheme, individuals could have scores ranging from a maximum of 30 (all correct answers) to a minimum of 10 (all wrong answers). Individuals with score 25 and above (approximately 83 per cent or more) were considered to have sound financial literacy; those with scores ranging from 20 to 24 (approximately 67 per cent to 83 percent) were considered to have fair financial literacy; those with scores below 20 (approximately 67 percent) were considered to have poor financial literacy. Also, for each category of statements, that is interest and compounding, inflation, time value of money, and basic financial principles, the same scoring scheme was applied. Pearson's Chi-square test was applied to check for any association between financial literacy and demographic characteristics of respondent farmers. All the analysis was carried out using MS Excel and SPSS 17.

Analysis

Table 1 presents the demographic/ economic profile of the respondent farmers. Information regarding residential location, age, marital status, family size, annual income, land holding and educational qualification presented. Out of 300 farmers, 243 (81 per cent) had their houses in rural areas while 57 (19 per cent) had their residences located in urban areas. 204 (68 percent) farmers were from age group of 20-35 years, 81 (27 per cent) farmers belonged to age group of 36-50 years, and 15 farmers (5 per cent) were more than 50 years old. 222 (74 per cent) were married while 78 (26 per cent) were yet to get married. 132 (44 per cent) farmers had a family size of up to 5 members while 168 (56 per cent) farmers had family sizes of more than 5 members. There were wide variations in the annual income of the farmers. 33 (11 per cent) farmers had an annual income of up to Rs 1,60,000/-. 66 farmers (22 per cent) had annual income ranging from Rs 1,60,001/- to Rs 3,00,000/-. income of 69 (23 per cent) farmers fell in the range of Rs 3,00,001 to Rs 5,00,000/-. and the rest 102 (34 per cent) farmers' income was more than Rs 5,00,000/-. In terms of land holding size,

201 (67 per cent) farmers had holdings up to 25 acres, 81 (27 per cent) farmers had holdings of 25-50 acres, and the rest 18 (6 per cent) had holdings of more than 50 acres. Out of 300 farmers, 138

(46 per cent) were educated up to matriculation, 132 (44 per cent) were educated up to higher secondary level, and 30 were graduates.

Table 1: Demographic / economic profile of respondents

Socio economic category	Type	Number of respondents	Percentage
Residential location	Rural	243	81
	Urban	57	19
	Total	300	100
Age (years)	20-35	204	68
	36-50	81	27
	Above 50	15	5
	Total	300	100
Marital status	Unmarried	78	26
	Married	222	74
	Total	300	100
Family size	Up to 5	132	44
	More than 5	168	56
	Total	300	100
Annual income as reported by respondents (Rs)	Up to 160000	33	11
	160001-300000	66	32
	300001-500000	69	23
	Above 500000	102	34
	Total	300	100
Land holding (acres)	Up to 25	201	67
	25-50	81	27
	More than 50	18	6
	Total	300	100
Education qualification	Up to Matriculation	138	46
	Higher Secondary	132	44
	Graduation	30	10
	Total	300	100

Table 2 shows the level of financial literacy among the surveyed farmers with respect to the different categories of statements and the overall financial literacy. At an overall level, 111 farmers (37%) farmers enjoyed sound financial literacy, 141 farmers (47%) had fair financial literacy, and 48 farmers (16%) had poor financial literacy. On breaking up into different categories of statements, it was seen that farmers were considerably literate in terms of interest and compounding, and inflation as more than 50 per cent of the farmers had sound literacy with respect to these two factors while only 2 per cent had poor literacy. However, the financial literacy levels fell in terms of time value of money (only

40 per cent had sound literacy and 8 per cent had poor financial literacy) and it further fell for basic financial principles as only 29 per cent farmers had sound knowledge about the same and 8 per cent had poor knowledge.

Overall, it can be seen that the participating farmers were generally financially literate (only 16 per cent had poor financial literacy). The details show that when it comes to interest, compounding, or inflation, farmers tended to have greater literacy. However, for time value of money and basic financial principles, there was a greater tendency towards mediocrity as larger number of farmers had fair levels of financial literacy.

Table 2: Financial literacy among farmers

Statement category	Number of respondents having		
	Sound financial literacy	Fair financial literacy	Poor financial literacy
Interest and compounding	210 (70%)	84 (28%)	6 (2%)
Inflation	156 (52%)	138 (46%)	6 (2%)
Time value of money	120 (40%)	156 (52%)	24 (8%)
Basic financial principles	87 (29%)	189 (63%)	24 (8%)
Overall financial literacy	111 (37%)	141 (47%)	48 (16%)

As discussed earlier, an effort was made to check for any association between the level of financial literacy and the demographic variable of the surveyed farmers. Table 3 presents the

results of Chi-square test for independence of level of financial literacy and different categories of demographic variables.

Table 3: Association between financial literacy and demographic variables

Demographic/ economic variable	Category	Financial literacy			Pearson's chi-square
		Sound	Fair	Poor	
Residential location	Rural	90	117	36	0.494 (p<0.781)
	Urban	21	24	12	
Age (years)	20-35	72	87	45	5.954 (p<0.203)
	36-50	33	45	3	
	More than 50	6	9	--	
Marital status	Married	81	108	33	0.414 (p<0.813)
	Single	30	33	15	
Family size	Up to 5	51	57	24	0.534 (p<0.766)
	More than 5	60	84	24	
Education qualifications	Up to Matriculation	12	69	30	29.514 (p<0.0001)
	10+2	63	66	18	
	Graduate and above	36	6	--	
Annual income (Rs)	0-160000	--	3	30	54.427 (p<0.0001)
	160001-300000	30	54	12	
	300001-500000	33	33	3	
	More than 500000	48	51	3	
Land holding (acres)	3-25	60	90	45	7.793 (p<0.05)
	25-50	33	45	6	
	More than 50	12	9	--	
Investment in savings instruments	Yes	87	114	15	15.752 (p<0.0001)

It can be seen that there did not exist any association between level of financial literacy and the residential location, age, family size, or marital status of the farmers. However, there did exist an association between the educational qualification and financial literacy ($p < 0.0001$). Farmers with higher educational qualifications tended to have higher levels of financial literacy (for example, none of the 'graduate and above' had poor financial literacy). Similarly, a strong association existed between annual income and financial literacy ($p < 0.0001$). Farmers with higher annual income had higher levels of financial literacy and farmers with lower annual income had lower level of financial literacy. An association was also seen between size of land holdings of the farmer and the level of financial literacy ($p < 0.05$). As expected, farmers with larger land holdings had higher financial literacy and farmers with smaller land holdings had lower financial literacy (for example, none of those with '50 acres or more' had poor financial literacy while 45 farmers with land holding size of '3-25 acres' had poor financial literacy). Finally, an association was also seen investment in saving instruments and level of financial literacy ($p < 0.0001$). As expected, those who did have investments in savings instruments tended to have higher level of financial literacy as compared to those who did not make any investments in savings instruments.

Conclusion

The notion of "financial exclusion" has been seen as a barrier to economic development and the need to build inclusive financial system has received increased attention in recent times. In fact, financial inclusion has occupied the core place in the international development agenda for policy makers and development institutions at the global level. In India too, the Government and RBI too have been active in this direction for past few years and encouraging banks and other financial institutions to increase their presence and operations in unserved areas.

We however, argue that simply including the individuals in the mainstream financial system will not serve the intended purpose unless they are financially literate. There has been little research on this topic and the few existing studies (most of which are restricted to developed economies) indicate that financial illiteracy is widespread and individuals do not possess the knowledge of even the most basic economic principles. In fact, those who are not financially literate tend to make a number of grave mistakes on the front of financial decision making. Financial literacy therefore, is rapidly being recognised as a core skill, essential for consumers operating in an increasingly complex financial environment. It is therefore no surprise that governments around the world are interested in finding effective approaches to improve the level of financial literacy amongst their population (Atkinson and Messy, 2012).

Since providing financial education effectively requires evidence on the current levels of financial knowledge, measurement of financial literacy levels is widely recognised as a priority.

In the absence of any farmers specific study in this regard, especially from North India, this study was taken up to provide an evidence on the financial literacy levels of farmers in the state of Punjab, which on one side helps feeding whole of the country, but on the other side has one of the highest debt levels among its farmers.

Using an adapted form of the measures developed by Rooij, Lusardi, and Alessie (2007), a survey of 300 farmers spread all over the state of Punjab showed that farmers generally were financially literate as 37 per cent farmers had sound financial literacy and 47 percent had fair financial literacy. When it comes to interest, compounding, or inflation, farmers tended to have greater literacy. However, for time value of money and basic financial principles, there was a greater tendency towards mediocrity as larger number of farmers had fair levels of financial literacy. Analysis further shows that the level of financial literacy is not associated to with age, family size, or marital status if the farmer. However, a strong positive association was seen between level of financial literacy and educational qualifications, annual income, and land holding size of the farmers.

To the best of our knowledge, this is a first study of its kind in the state of Punjab. The findings can serve as a benchmark for any training programme in provision of financial knowledge and skills to the farmers and a basis for policy formulation in this regard.

References

- Agarwal, S., Driscoll, J., Gabaix, X., & Laibson, D. 2009. The age of reason: Financial decisions over the life-cycle with implications for regulation. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=973790
- Almenberg, J., & Dreber, A. (2012). Gender, stock market participation and financial literacy. Retrieved from <http://ssrn.com/abstract=1880909>.
- Atkinson, A., & Messy, F. 2012. Measuring financial literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study. *OECD Working Papers on Finance, Insurance and Private Pensions*, OECD Publishing.
- Beck, T., Demirguc-Kunt, A., & Peria, M.P.M. 2008. Reaching out: Access to and use of banking services across countries. *Journal of Financial Economics*, 85, 234- 266.
- Cole, S., Sampson, T., & Zia, B. 2009. Prices or Knowledge? What drives demand for financial services in emerging markets? Retrieved from <http://www.hbs.edu/faculty/Publication%20Files/09-117.pdf>
- Demirguc-Kunt, A., Beck, T. & Honohan, P. 2008. *Finance for All? World Bank Policy Research Report*, The World Bank, Washington, DC.
- Dupas, P., & Robinson, J. 2012. Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. Retrieved from <http://www.econ.ucla.edu/pdupas/SavingsConstraints.pdf>.
- Eeckhout, J., & Munshi, K. 2010. Matching in informal institutions. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3766900>.
- Finke, M.S., Howe, J., & Huston, S.J. 2012. Old age and the decline in financial literacy. Retrieved from

- <http://ssrn.com/abstract=1948627>.
- Gartner, K., & Todd, R.M. 2005. Effectiveness of online 'Early Intervention' financial education for credit cardholders. Retrieved from www.chicagofed.net/digital_assets/others/events/2005/promises_and_pitfalls/paper_intervention.pdf
- Hung, A. A., Parker, A. M., & Yoong, J. K. 2009. Defining and measuring financial literacy. Retrieved from <http://ssrn.com/abstract=1498674>.
- Huston, S.J. 2010. Measuring financial literacy. *Journal of Consumer Affairs*, 44, 2, 296-316.
- Lusardi, A. 2008. Household saving behavior: The role of financial literacy, information, and financial education programs. Retrieved from <http://www.nber.org/papers/w13824>.
- Lusardi, A., & Mitchell, O. 2006. Financial literacy and planning: Implications for retirement wellbeing. Retrieved from <http://upenn.edu/prc/PRC/WP/PRC%20WP%202006-1.pdf>.
- Lusardi, A., & Mitchell, O. 2007a. Financial literacy and retirement planning: New evidence from the Rand American Life Panel. Retrieved from www.mrrc.isr.umich.edu/publications/publications/download.cfm?pid=509.
- Lusardi, A., & Mitchell, O. 2007b. Financial literacy around the world. Retrieved from <http://ssrn.com/abstract=1810551>.
- Lusardi, A., & Mitchell, O. 2008. Planning and financial literacy: How do women fare? *American Economic Review: Papers and Proceedings*, 98, 2, 413-417.
- Lusardi, A., & Tufano, P. 2009. Debt Literacy, Financial Experiences, and Overindebtedness. Retrieved from <http://ideas.repec.org/p/nbr/nberwo/14808.html>
- Lusardi, A., Mitchell, O., & Curto, V. (2009). Financial literacy among the young: Evidence and implications for consumer policy. *Pension Research Council Working Paper No. 2009-09*, The Pension Research Council, Philadelphia.
- Moore, D. 2003. Survey of financial literacy in Washington State: Knowledge, behavior, attitudes and experiences. *Technical report 03-39*, Social and Economic Sciences Research Center, Washington State University.
- Nayak, U. 2012. Financial inclusion can make little headway without efforts to further financial literacy. *Business Line*, 19, 229, 8.
- OECD. 2005. Recommendation of the council on principles and good practices for financial education and awareness. Retrieved from <http://webnet.oecd.org/oecdacts/Instruments/ShowInstrumentView.aspx?InstrumentID=77&Lang=en&Book=False>.
- OECD. 2009. Financial literacy and consumer protection: Overlooked aspects of the crisis. Retrieved from <http://www.oecd.org/finance/financial-markets/43138294.pdf>
- Reserve Bank of India. 2008. Financial literacy and credit counseling centres. Retrieved from <http://rbi.org.in/scripts/PublicationDraftReports.aspx?ID=526>.
- Rooij, M., Lusardi, A., & Alessie, R. 2007. Financial literacy and stock market participation. Retrieved from <http://www.nber.org/papers/w13565.pdf>
- Shah, A. 2008. India's financial markets: An insider's guide to how the markets work. *Working paper*, Elsevier and Lit Stuart Center For Financial Markets Press.
- Stango, V., & Zinman, J. 2007. Fuzzy math, disclosure regulation and credit market outcomes. Retrieved from http://www.dartmouth.edu/~jzinman/Papers/Stango&Zinman_Bias&CreditDisclosure_nov07.pdf