

Revisiting Level of Financial Literacy-An Empirical Approach

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Abstract

This study aims to examine the financial literacy among the individuals of NCR in India. The data has been collected through structured questionnaire and thereby literacy scores has been assessed over financial literacy scores. The variation caused due to individual demographics has also been observed over financial literacy scores. Logistic regression has been applied to analyze the impact of demographics over financial literacy scores of respondents. The study paves path for future researches in the concerned area and also provides policy insights to regulatory bodies.

Keywords- Financial Literacy, Logistic regression, Chi square, NCR

Introduction

Indian economy is progressing exponentially after liberalization, privatization and globalization as well as other financial reforms has been implemented in the country. This has also marked the expansion of financial products for organizations and individuals (Naidu, 2017). According to a report by RBI on National Strategy on Financial Education (2020-2025)¹ financial wellbeing is an outcome of demonstrated financial literacy observed among the individuals and is gaining popularity due to its increasing importance in our daily lives. “Financial Literacy is a combination of financial awareness, knowledge, skills, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (OECD, 2012)”. Financial wellbeing is the result of financial inclusion and education, which further enhances financial literacy among the individuals (Bruggen et al., 2017).

Financial behaviour of an entity can be estimated by assessing the level of financial literacy. It makes financial planning easy and helps in taking informed decisions. According to OECD (The Organisation for Economic Cooperation and Development), financial literacy improves understanding of financial products and services through distinct modes having single motive i.e. to make people aware about risks and returns of

financial tools and building confidence in them for financial instruments. These modes can be clearing concepts, through information, instruction, giving financial advice etc. (OECD 2005). At the same time, financial literacy is more important as it help people manage their own finances. A large body of literature reveals lack of sound financial knowledge (financial Literacy) which leads to low stock participation (Van Rooj, Lusardi and Alessi. 2007, pp. 1-46), non-diversification of portfolio (Guiso and Jappelli, 2008, pp.1-36) and in turn low returns.

According to World Bank's Findex Report (2018) there is a 16% increase in the percentage of adults having bank accounts in 2017 as compared to 2011. "India has also made extraordinary progress in reducing the country's gender gap in account ownership, from nearly 20% in 2014 to 6% in 2017 (World Bank Group, 2018)". This is attenuated to the efforts put by the financial regulators in the country. Further, to expand the horizon of potential commercial and economic benefits for individuals, financial literacy will play an imperative role and thereby ensures that individual use applicable formal financial services to ensure their financial well-being. Therefore, financial firms, government bodies and other organizations are giving attention to financial literacy. Policy makers are concerned about consumer lacking in working knowledge of financial terminology, concepts and information. This deficiency can adversely affect their financial decisions (Braunstein and Welch, 2002). This drives the necessity of conducting a research on examining the financial literacy and assessing the impacts of individual demographics on level of financial literacy. The rest of the study moves ahead with the description of Literature Review in section 2 followed by research methodology and data analysis in section 3 and 4 and it concludes in section 5.

Review of Literature

Financial Literacy level are checked and re verified at a large number of time. Many authors proved that the level of financial literacy is quite low. Depending on large number of researches, it was found that there are certain indicators which indicate the level of financial literacy. Atkinson and Messy (2012) revealed in their study based on the minor from around 14 countries that there are three indicators

which stimulates the approach towards financial literacy: financial knowledge, financial behaviour and financial attitudes. Another study by US Bankruptcy Abuse Prevention and Consumer Protection Act Report (2011), studied 20,000 students from 868 schools of Brazil revealed that when an emphasis was given on the three components of financial Literacy namely attitude, knowledge and behaviour, both current attitudes and forward-looking decision making has been improved significantly with an intention to save and have financial autonomy among students of age between 15-17. In the coming sub-sections, the reviewed literature will help in exploring Financial Literacy levels through various stances from the studies from various corners of the world.

Financial Literacy level

Yildirim et al (2017) studied financial literacy level among 304 employees of iron, steel and dwelling companies of Turkey. While using Financial Literacy Index developed by Von Rooji, they revealed that only 8.9% of participants were able to answer all questions related to Financial Literacy. The study also revealed that education and monthly income were the most important determinants of financial literacy. Vijaykumar and Naidu (2016) conducted a study in the rural areas of Ramnagar and Bangalore district in India and emphasized that that proper training and education of financial instruments encourages better money management. Ratna Achuta Paluri (2016), analysed factors influencing financial attitudes of Indian women based on attitude with 9 variables: anxiety, interest in financial issues, intuitive decisions, precautionary savings, free spending, materialistic and fatalistic attitude, propensity to plan for long and short term financial goals and found that financial decision are not very attractive to them. Lusardi (2019) discussed many tools of evaluating the financial literacy level among the varied population of developed countries like USA, Japan, Germany, Netherlands, etc. and summarized that the level of financial literacy is very low in the world and even high national income cannot indicate the financially literate population. Madan and Gupta (2016) conducted a study on 213 salaried females from Delhi/NCR region. After applying t-test, ANNOVA and Multi-regression model, it was revealed that

the financial behavior, knowledge and attitude of working females towards their financial matters affect their financial literacy level. Some other researchers suggest that insufficient financial literacy will have a positive influence on the financial behavior of someone (Dwiastani, 2015)

Financial Literacy and Demographic Factors

According to Pratisha (2015), if an assessment is done for women only, there is a strong connect between women financial strengthening and financial incorporation and financial literacy. It leads to overall empowerment and strengthening. This result is also supported by Akshita (2016) and Zulfiqar (2015). Neglecting the gender bias, internationally, people are more endowed by level of knowledge, economy, taxation, business and labor law (Loutfi and Murr, 2018).

Mbarire and Ali (2014) conducted a study of 500 employees of Kenya Ports Authority and found that the financial literacy level was very low among those employees and observed the impact of various demographic factors on financial literacy levels. The results were tested on measures of central tendency. Some of the studies tackle financial knowledge as a tool to differentiate between low income and high income individuals and many others took it as a tool to differentiate between demographics (Aprea et al. (2016), Lusardi et al. (2010), Cameron et al. (2013), Eniola and Entibang (2017)). Financial Literacy and socio-demographic factors is been loudly discussed. One of the pool of researchers are in support of direct impact between socio-economic factors and financial literacy (Lusardi, Mitchell, (2011)) while others gave due importance to other factors like human capital, financial decisions, investment opportunities and financial stress (Japelli, Padula, 2011; Calvet, Campbell and Sodhini, 2007; O'Neill et al., 2006).

Shobha and Suman (2017) advocated in their review paper that psychological factors have a greater impact on financial decisions in comparison to other demographic factors. According to Hornyak (2018), while testing all components of financial literacy, it was found that there is significant difference in the treatment of all components due to various socio-demographic factors like gender, family back ground and education. People from poor

background and not having access to financial knowledge are the most impacting ones (Kavita & Suman, 2019).

The aforementioned papers indicate the importance of financial literacy in the extant literature and thereby give motivation to the present research to revisit the financial literacy among the individuals residing in the largest agglomeration.

Research Methodology

A research design is a framework or blueprint for conducting the research project. It details the procedures necessary for obtaining the information needed to structure or solve the problems. A good research design ensures that the research is conducted effectively and efficiently. The study adopts for descriptive research design and presents the extant state of financial literacy among individuals in NCR. This selective choice of area is primarily because NCR is India's largest and the world's fourth largest agglomeration.ⁱⁱ It is home to foremost businesses in IT and ITES, automotive clusters, and other manufacturing and service sectors. The National Capital Region (NCR) is an urban area that includes New Delhi and its surrounding areas. Apart from Delhi, It also covers cities such as Gurgaon, Faridabad Noida, Ghaziabad, Alwar and Bhiwadi. The research follows purposive sampling. Questionnaire through web link was circulated on social media platforms such as linkedin facebook and Instagram to participants who lived in NCR. The sample consists of 288 individuals residing in NCR region.

Table 1 shows demographics of population used for the purpose of study. The sample chosen for this study constitutes 31.3% of males and 68.8% of females. Respondents of the population comprise of various age categories. 56.3% of the respondents are from the age group of 15-25 years, 25% of the respondents fall in the age group of 25-35 years, 9.4% of the age group of 35-45 years comprises of 9.4% respondents, 6.3% of the respondents fall in the age group of 45-55 years and only 3.1% of the respondents are above the age of 55 years.

Graduates, post graduates, doctorate degrees and people with professional degrees are chosen for the study. Graduates constitute 9.4% of the total respondents and 71.9% respondents are post graduates.

Table 1-Sample Profiling

Demographics		Frequency	Percentage
Gender	Male	90	31.3
	Female	198	68.8
Age	18 - 25 years old	168	56.3
	25 - 35 years old	72	25
	35 - 45 years old	27	9.4
	45 - 55 years old	18	6.3
	Above 55 years	9	3.1
Education	Graduate	27	9.4
	Post Graduate	207	71.9
	Doctorate	18	6.3
	Professional Degree	36	12.5
Occupation	Student	153	53.1
	Business	9	3.1
	Employed (Service)	126	43.8
Experience	No Experience	144	50
	1 - 5 years	72	25
	5 - 10 years	36	12.5
	Above 10 years	36	12.5

Also, 6.3% respondents hold doctorate degrees and 12.5% respondents are professional degree holders. More than half of the respondents i.e. 53.1% are students and remaining 43.8% respondents are employed in the service sector. Only 3.1% respondents are running business. Half of the respondents i.e. 50% are without any sort of experience, 25% of the total respondents fall in the category of 1-5 years of experience, 12.5% of the respondents fall in the category of 5-10 years of experience, 9.4% of the respondents fall in the category of 10-20 years of experience, no respondents in category of 20-30 years' experience and only 3.1% respondents in the above 30 years' experience category.

Primary data was collected from the respondents using non-disguised structured questionnaire. The questionnaire incorporated all necessary information comprising behavioural questions, attitudinal rating questions as well as knowledge testing questions. The questionnaire is divided into two sections. Section 1 covers demographic variables like gender, age, education, occupation and experience. Section 2 measures financial literacy by identifying financial knowledge, behaviour and attitude.

For analysing the data and testing the hypothesis, one-way ANOVA, Chi-square test, Kruskal Wallis test, cluster and logistic regression model are used. The analysis has been carried out with the help of IBM SPSS Statistics software and Microsoft Excel.

Objectives of the Study

The present study makes an attempt to measure the financial literacy level. The specific objectives are:

To determine the level of financial literacy among participants

To establish relationship between financial literacy and socio-demographic factors.

Data Analysis & Interpretations

A financially literate person will have an acquaintance about key financial concepts and the skill to apply these concepts in financial situations. The research instrument consists of a range of questions associated with concepts such as simple and compound interest, risk and return, and inflation. It includes 18 questions designed to test knowledge (Table 2). The questions can only provide

meaningful information about the level of financial literacy and proficiency of individuals and populations. Combination of easy and difficult problems help in differentiating between high and low achievers. The analysis of responses to each question shows that the spread of difficulty in the core questionnaire is appropriate. Sufficient number of questions are asked to provide a good overview of a person's financial knowledge. They indicate

general willingness to absorb financial information and an ability to apply knowledge to particular problem. Nevertheless, it is impossible to capture every aspect of financial knowledge that may be of use to a consumer. A high score therefore indicates that someone has a high level of financial knowledge or financial Literacy, but does not necessarily suggest that they are financial experts.

Table 2-Statements Assessing Financial Literacy

Division	Questions as in core questionnaire
Calculation of Interest plus Principal	Suppose you put INR 1000 into a savings account with a guaranteed simple interest rate of 10% per year. How much would there be at the end of first year?
Compound Interest	Suppose you put INR 1000 into a savings account with a guaranteed compound interest rate of 10% per year. How much would there be at the end of five years?
Inflation	Imagine that the interest rate on your savings account is 6 percent a year and inflation is 8 percent a year. After one year, would the money in your account have more purchasing power than it does today, exactly the same or less than today? If you currently have an income of INR 60,000 a year, and inflation is 6%, how much income will you need in 5 years' time to be able to have the same living standard?
Risk and Return	If someone offers you the chance to make a lot of money there is also a chance that you will lose a lot of money.
Diversification	It is less likely that you will lose all of your money if you save it in more than one place.
Interest on loan	What affects the amount of interest that you would pay on a loan?
General Financial Knowledge	All other questions in the questionnaire attached in the annexure refer to general financial knowledge.

Source: https://www.oecd.org/daf/fin/financial_education/TrustFund2013_OECD_INFE_Fin_Lit_and_Incl_SurveyResults_by_Country_and_Gender.pdf

The results show that most people can use mental arithmetic to calculate interest. However, there are noteworthy variations in the proportion of respondents who gave an incorrect answer. Few respondents gave a logical answer to the follow-up question designed to identify those who understand how inflation impact the value of money. Fewer than half (48%) believed that the money would buy less in one year's time. The concept of paying interest on a

loan appears to be widely understood; indeed 75% of respondents gave a correct response. The question requires the simplest possible arithmetic, but records an open-ended response to minimise guesses. People found it harder to calculate compound interest than to undertake a simple interest calculation. Nearly 84% of respondents gave a correct response to the first saving related question requiring them to calculate 10% interest and add it to the

principal but only 50% of the respondents could calculate compound interest correctly. 78% of the respondents were most likely to understand the basic concept of risk and return, while half of them appeared to have grasped the relationship as described. Most respondents knew that high inflation means the cost of living is increasing, indicating awareness of simple economic terms. It appears that most people know the definition of inflation but less about its impact on their spending power, but considerably more people understood the time value of money than recognising its definition. The various diversification questions used in the study proved to be challenging. Up to

37% of respondents claimed don't know as answer, and no more than 56% per cent of respondents gave a correct response.

Analysis of the responses to each question by respondents indicates that the combination of knowledge questions adequately identified high and low achievers in all. It also shows that relatively few people refused to answer the questions. We have therefore created a financial knowledge score using all 18 questions. The process of counting correct answers began by assigning a value to the responses to each question (Table 3). We have given a value of 1 to a correct response and 0 in all other cases.

Table 3-Financial Literacy Score

Division	Discussion	Value
Calculation of Interest plus Principal	This is open response and a correct answer is therefore a good indicator of applied numeracy	1 for correct response 0 in all other cases
Compound Interest	This is a multiple response question and very context specific	1 for correct response 0 in all other cases
Inflation	These are multiple response questions based on basic definition of inflation	1 for correct response 0 in all other cases
Risk and Return	This is a true/false question so it is relatively easy to guess	1 for correct response 0 in all other cases
Diversification	This is a true/false question so it is relatively easy to guess	1 for correct response 0 in all other cases
Interest on loan	This is open response and a correct answer is therefore a good indicator of understanding	1 for correct response 0 in all other cases
General Financial Knowledge	These are multiple response questions in context of financial knowledge	1 for correct response 0 in all other cases

Source: https://www.oecd.org/daf/fin/financialeducation/TrustFund2013_OECD_INFE_Fin_Lit_and_Incl_SurveyResults_by_Country_and_Gender.pdf

Financial Literacy Score is calculated by adding the sum of responses to the financial knowledge questions. The sum is then calculated into percentages. Finally, 0 in literacy score indicates less than 40% score and 1 indicates more than

40% of score in the table 4. The table 4 below shows the difference in financial literacy score across demographics of respondents. The demographics are gender, age, education, occupation and experience.

Table 4-Financial Literacy Score

		0	1	Total	Chi Square
Gender	Male	18	72	90	0.000***
	Female	45	153	198	
	Total	63	225	288	

		0	1	Total	Chi Square
Age	15 - 25 years old	54	108	162	0.000***
	25 - 35 years old	0	72	72	
	35 - 45 years old	0	27	27	
	45 - 55 years old	0	18	18	
	Above 55 years	9	0	9	
	Total	63	225	288	
Education	Graduate	0	18	18	0.177
	Post Graduate	54	153	207	
	Doctorate	0	18	18	
	Professional Degree	9	27	36	
	Total	63	225	288	
Occupation	Student	54	99	153	0.003***
	Business	0	9	9	
	Employed (Service)	9	117	126	
	Total	63	225	288	
Experience	No Experience	45	99	144	0.000***
	1 - 5 years	27	63	90	
	5 - 10 years	0	36	36	
	Above 10 years	27	27	54	
	Total	21	75	288	

Variations by Demographics

Where *** indicates 99% confidence level

Chi-Square Test is run on Gender and Financial Literacy Score. The outcome is that gender is in significance to Financial Literacy Score. Kruskal Wallis Test is run taking age, education, occupation and experience as grouping

variable independently with Financial Literacy Score. The outcome is that Education is not significant to the Financial Literacy Score but age, occupation and experience comes out to be significant to the Financial Literacy Score.

Table 5- Logistics Regression Model

		Predicted Financial Literacy score		Percentage Correct
		0	1	
Observed Financial Literacy score	0	18	45	28.6
	1	18	207	92.0
Overall Percentage				78.1

Table 6- Variables in Logistics Regression

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Age	0.582	1.031	.318	1	0.573	1.789
Gender	-1.047	0.710	2.174	1	0.140	0.351
Education	0.110	0.709	0.024	1	0.876	1.117
Occupation	3.190	1.047	9.274	1	0.002***	24.280
Experience	-1.994	0.793	6.329	1	0.012***	0.136
Constant	0.521	2.206	.056	1	0.813	1.684

Where B=Beta , SE=Standard Error, *** significance at 99% confidence level

The results of logistic regression are depicted in the above table which shows that there is 78% overall financial literacy in NCR region (see table 5). The logistic regression applied over demographic variables indicates that financial literacy has been significantly affected by the occupation and experience of respondents. The negative coefficient indicates that less working experience results in lower financial literacy levels. In occupation, students have been taken as reference level, so it reveals that employed respondents have higher financial literacy scores as compared to students.

Conclusion

Financial Literacy had always been a strong pillar in the uplift-ment of an economy. Many big countries are not able to flourish because of the financial illiteracy of its population which refrains the proper flow of money in the economy. Many surveys were conducted by different regulators from all over the world to analyse the changing impact of financial literacy on the various demographics and with the combination of different factors. In this study, it has been documented that demographics affect the financial literacy and therefore, while considering any policy decision, demographics of that region should be considered. This study brought a constructive support towards the validation of demographic factors on the financial literacy level of individuals. It was found that with the passage of time, financial literacy is increasing specially in metropolitan cities like Delhi/NCR and the younger generation is getting more financial literate. Females are also taking their decision independently. This change is also bringing change in the financial attitude of people towards the decisions related to money matter. To sum up, the results of the study is showing a positive trace towards the changing trends of financial literacy in comparison to yester years in metropolitan cities and looking at the measures taken by Government and private entities, the same can be observed in the rural and sub-urban areas in years to come. The findings highlight that most people have very basic financial knowledge, but understanding of other, everyday financial concepts such as compound interest and diversification is lacking amongst sizeable proportions of the population.

There are some constraints as possible with any research. The study sample was restricted to NCR region and relatively smaller sample size limits its scope and results should be used with a cautious approach. However, this study open up the various future avenues for the budding researches in this area. The financial literacy can be examined further w.r.t. financial attitude and behaviour. Researchers can also study the personality traits and their impact on literacy levels. This can also be combined with the larger aim of the government w.r.t. financial inclusion among its citizens Establishment of relationship between knowledge and specific behaviours.

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