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INTERLINKAGES BETWEEN FINANCIAL LITERACY AND FINANCIAL BEHAVIOR - AN INDIAN PERSPECTIVE

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Short Profile

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ABSTRACT:
In recent years, the Indian government, particularly the Reserve Bank of India, has been aggressively working to increase levels of financial knowledge of the domestic population at large. This goal is similar to the one set out by Organization for Economic Co-operation and Development (OECD) to help consumers "develop skills and confidence to become aware of financial risks and opportunities, to make informed choices, to know where to go for help and to take effective actions to improve their overall financial well-being." In light of these efforts, this paper deals with the issue of drawing out a relationship between two important fundamental constructs - Financial Literacy and Financial Behavior. Both these constructs are studied in conjunction with demographic characteristics to identify reasons for differences in levels of financial knowledge and kinds of financial behavior of the respondents. The study finds that financial literacy varies across levels of education and income whereas financial behavior varies across age, marital status, number of children that an individual has, occupation, work experience and levels of income. Another construct, 'self-assessment of financial knowledge' varies across different levels of income. Finally, the study establishes a positive significant relationship between financial behavior (dependent variable) and financial literacy (independent variable).

KEYWORDS
Financial Literacy, Financial Behavior

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1.INTRODUCTION :

"Just as it was not possible to live in an industrialized society without print literacy - the ability to read and write, so it is not possible to live in today's world without being financially literate… Financial literacy is an essential tool for anyone who wants to be able to succeed in today's society, make sound financial decisions, and—ultimately—be a good citizen." – Annamaria Lusardi (2011)

Globally, a new wave has stormed the field of behavioral finance to make the consumers financially literate in order to develop prudent financial behavior and improve the efficacy of the financial markets. This impetus of increased financial literacy has been prompted by increased complexity of financial products, huge information asymmetry among the consumers and the sellers and increasing responsibility on the part of individuals for their financial security. It is an implicitly accepted notion that well informed and financially educated consumers are able to make prudent financial household decisions in terms of cash management, wealth management, savings, retirement planning etc. and in turn foster overall economic development by ensuring economic security and well-being.

The reason for low demand of financial products in emerging markets has largely been attributed to two major factors. Firstly, the lack of cognitive ability to understand daily household financial decisions and products and secondly, formal financial services are relatively expensive and hence entail lower value to the poor in emerging economies. Mere inconsistency in behavior of the consumers is the prerogative of behavioral finance which attempts to blend the psychological characteristics and economic insight into household financial management by offering a framework to study financial behavior.

The growing gap between financial responsibility attributed to young individuals and their demonstrated ability to manage finances remains a significant obstacle to financial market efficiency and to full participation of young people in the current financial environment. The policy tools for improving consumer financial outcomes include financial education and financial inclusion but also encompass a wide variety of regulatory approaches. The sense of public urgency over the level of financial literacy in the population is, we believe, a reaction to a changing economic climate in which individuals now shoulder greater personal financial responsibility in the face of increasingly competitive and complicated market of financial products.

Financial development is widely recognized as an important determinant of economic growth (Levine, 2005). This belief has motivated substantial research on the determinants and constraints affecting the supply of banking and financial intermediation services, with substantial attention focusing on the role of institutions. The role of financial literacy has garnered increasing attention in developed and developing world. In January 2008, the United States government set up a President's Advisory Council on Financial Literacy, charged with promoting programs that improve financial education at all levels of the economy and help to increase access to financial services . Similarly, in India, the Reserve Bank of India launched an initiative in 2007 to establish Financial Literacy and Credit Counseling Centers throughout the country which offer free financial education and counseling to urban and rural populations .

2.MOTIVATION AND CONTEXT

The growing importance of financial literacy worldwide as a tool to improve the financial behavior and, in return, strengthen the efficiency of financial markets was the major impetus for us to take up this area of research and try to decipher the nuances in their relationship. Financially literate behavior is crowned with many benefits not only to the consumers but also to the economic system at large. For consumers, these include increased saving and retirement planning, more realistic assessments of financial knowledge, increased bargaining power, financial efficiency, lifetime utility and financial wellbeing, active debt management, participation in financial markets, investing and choosing the right financial products, awareness of consumer rights and regulatory protection from exploitation.

To the economy, benefits include greater competition, innovation and quality products and market discipline, financial inclusion, larger understanding of government financial policies, better price discovery for assets, well regulated and transparent financial sector and self-funding of retirement.The sheer prominence of Financial Literacy in the dynamic and volatile markets today highlights the relevance of its measurement and the need for financial education.

Keeping in mind the above factors, the study is being conducted to measure financial literacy levels and identify the factors that might affect financial literacy of respondents. Further, it is analyzed in the study whether people with different financial literacy levels actually behave and take different decisions with regard to management of their finances differently.

The general belief is that India has a large population that does not have the rudimentary skills to make basic financial decisions. Over 40 percent of the adult population has no bank account; a number which grows to over 60 percent in rural areas (Thorat, 2007). Such socioeconomic characteristics, combined with increasing complexity in financial markets, could lead to welfare reducing financial decisions.

3.REVIEW OF LITERATURE

The need for better informed and financially literate consumers has been prompted by the proliferation of complex financial products in the market, the growing number of people reaching retirement, the shift towards personal responsibility to fund retirement, and the advent of electronic and internet banking. Financial products are now increasingly difficult to assess for people unfamiliar with basic financial and economic concepts, and thus the performance of financial products is almost impossible to predict in an informed way. Education is therefore needed for financially literate, knowledgeable and informed consumers.

Much of this attention is motivated by a compelling body of evidence, based on household surveys in developed countries, that demonstrates a strong association between financial literacy and household well-being. Households with low levels of financial literacy tend not to plan for retirement (Lusardi and Mitchell, 2007a), borrow at higher interest rates (Lusardi and Tufano, 2008; Stango and Zinman, 2006), acquire fewer assets (Lusardi and Mitchell, 2007b), and participate less in the formal financial system relative to their more financially-literate counterparts (Alessie, Lusardi and van Rooij, 2007; Hogarth and O Donnell, 1999). In response to this evidence, financial literacy programs have been advanced as a low-cost intervention with the potential to improve household financial decision

making and ultimately increase savings and welfare.

The substantive contribution of this paper is to measure the level and predictors of financial literacy, and its relationship to demand for financial services. In the developed world, the most convincing evidence on the role of financial education using a randomized evaluation comes from Duo and Saez (2003), who conducted an experiment at a United States university wherein they sent letters (at random) to staff, encouraging them to attend an employee benefit fair. The authors found that enrollment in retirement plans increased significantly in the departments in which letters were received .

In order to assess the financial literacy of the consumers, the most widely acceptable standards, which are popularly called "Big Three" by Lusardi and Mitchell, are designed to test knowledge on compounding, rate of return and risk diversification. Since they are parsimoniously used and widely replicated, we have used them in addition to other concepts of time value of money, inflation, awareness about financial products, stock market and numeracy.

Cole and Shastry (2009), finds close relationships between cognitive ability and financial behavior in the United States. Christelis et al (2007) describe the relationship between cognitive ability and portfolio choice in European households, ending that higher cognitive ability households are more likely to invest directly in stocks.

Subsequent research has found that financial literacy is positively correlated with planning for retirement, savings and wealth accumulation (Ameriks et al. 2003, Lusardi 2004, Lusardi& Mitchell 2006; 2007, Stango & Zinman 2008, Hung et al. 2009, VanRooij et al. 2012). Financial literacy is predictive of investment behaviors including stock market participation (Van Rooij, et al. 2011, Kimball & Shumway 2006, Christelis et al. 2006), choosing a low fee investment portfolio (Choi et al. 2011, Hastings 2012), and better diversification and more frequent stock trading (Graham et al. 2009). Finally, low financial literacy is associated with negative credit behaviors such as debt accumulation (Stango & Zinman 2008, Lusardi & Tufano 2009), high-cost borrowing (Lusardi & Tufano 2009), poor mortgage choice (Moore 2003), and mortgage delinquency and home foreclosure (Gerardi et al. 2010). Other related research documents a relationship between either numeracy or more general cognitive abilities and financial outcomes. Although these concepts are distinct from financial literacy, they tend to be positively correlated: individuals with higher general cognitive abilities or greater facility with numbers and numerical calculations tend to have higher levels of financial literacy (Banks & Oldfield 2007, Gerardi et al. 2010). Numeracy and more general cognitive ability predict stockholding (Banks & Oldfield 2007, Christelis et al. 2010), wealth accumulation (Banks & Oldfield 2007), and portfolio allocation (Grinblatt et al. 2009). Although this evidence might indicate that financial education can be used as an effective mechanism to improve financial outcomes, the causality in these relationships is inherently difficult to pin down.

Cole et al also found that in India, rural households and households with a female head exhibit lower levels of financial literacy, while households that own a non-farm enterprise have higher financial literacy. With respect to age, financial literacy is quadratic and peaks at around 40 years old. Respondents that take a fatalistic world view have significant lower financial literacy. But neither discount rates nor risk aversion predicts financial literacy. Wealth and cognitive ability are also positively correlated with financial literacy in India, but, surprisingly, there is no systematic relationship between education and financial literacy.

This review relies heavily on the discussion of Agarwal, Amromin, Ben-David, Chomsisengphet

and Evanoff (2011) who also found that financially literate individuals are more likely to plan for retirement, and those who plan have greater net worth upon reaching retirement. Second, causation goes from literacy to planning to wealth.

Another aspect of financial literacy which has gained prominence is the self-assessment of financial knowledge or perceived assessment of one's financial knowledge. The major findings which form the base of this paper indicate that individuals with more financial knowledge are more likely to engage in a wide range of financial products and practices. Hilgert, Hogarth and Beverley (2003) confirm positive and significant relationship between knowledge and behavior. Financial knowledge was measured through a quiz and was statistically linked to financial practices related to cash-flow management, credit management, saving, and investment.

Cliff & Woodyard, 2011 collected a nationally representative sample of 1,488 participants in US and analyzed for a relationship between financial knowledge and behavior. Findings suggest that financial knowledge influence financial behavior. Other variables that have a significant impact on financial behavior include financial satisfaction, income, education, age, race and ethnicity.

IIM Ahmedabad in collaboration with CITI group, in 2012, conducted a study on financial behavior in which they adopted the questionnaire developed by the Organisation for Economic Cooperation and Development (OECD) to facilitate international benchmarking. Financial Literacy was measured through broad dimensions of financial knowledge, financial behavior and financial attitude. The survey involves nearly 3,000 respondents who are either employed, unemployed or students spread across India. The findings suggest that high financial knowledge is not widespread among Indians.

Another study by Carlo de Bassa Scheresberg (2013) documents that despite being financially 'active', most American young adults do not have adequate knowledge and information to deal with ever-increasing financial responsibility. Young Americans display very low levels of financial literacy, especially among certain demographic subgroups, such as women and minorities. Several studies have reported that the level of financial literacy in India is poor. For instance, the VISA (2012) study ranks India at the 23rdposition among the 28 countries surveyed. Their study found that the younger population in India have significantly lower level of literacy compared to adults.

Another puzzle relating to this area is whether financial literacy causes financial behavior or vice versa. The finding noted earlier that most individuals cite personal experience as the most important source of their financial learning (Hilgert et al. 2003) suggests that some element of reverse causality is likely. While this endogeneity does not rule out the possibility that financial literacy improves financial outcomes, it does make interpreting the magnitudes of the effects estimated in the literature difficult as they are almost surely upwardly biased in magnitude. A number of empirical studies confirm the supposition that 'financial knowledge is positively correlated with consumer financial behavior, and that causality runs from knowledge to behavior.'

4.CONCEPTUAL FRAMEWORK

Defining and Measuring Financial Literacy

Financial literacy though sounds an objective measure but in reality is a construct and has been variably defined by researchers as per the objective of their study. Since financial literacy is an open

ended concept, it is at the discretion of the researcher to define it with subjectivity through different variables.

Following are some definitions of 'Financial Literacy' as proposed by different organizations:

- Financial literacy is "the ability to process financial information and make informed decisions about personal finance…" (Asian Development Bank)
- "A combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." (OECD INFE, 2011)
- Financial education is "the process by which people improve their understanding of financial products, services and concepts, so they are empowered to make informed choices, avoid pitfalls, know where to go for help and take other actions to improve their present and long-term financial well-being." (The President's Advisory Council on Financial Literacy, 2008)
- Financial literacy/education "seeks to strengthen and change behaviors that lead to increased incomes, better management and protection of scarce assets, and effective use of financial services…" (Microfinance Opportunities)

The common basis in the above mentioned definitions is the understanding with regard to some familiarity with some limited form of basic financial concepts.

For the purpose of our study, we define Financial Literacy as follows:
"Financial Literacy may be defined as a combination of awareness, knowledge and understanding of basic financial concepts, such as calculation of interest, compounding, time value of money, basics of risk diversification etc."

It is worthy to mention here that the definition of financial literacy adopted for this paper only limits to the amount of knowledge and information a respondent has in relation to the basic concepts of finance which are tested in the survey. The attitude and behavior of the respondent towards financial decision making is kept out of purview while arriving at a score for financial literacy. Hence, the actionable aspect of making choices about personal finance does not form a part of measurement of financial literacy.

A definition of financial literacy can be split into three connecting parts: (1) competencies, (2) proficiencies, and (3) opportunity and enabling environment. This means that a financially literate person must be proficient in a number of competencies, and have the opportunity to access finance and become competent through experience (Angelo & Ramsey, 2011).

A questionnaire based study is conducted for this study wherein 12 objective questions (including Big Three by Lusardi) are framed in order to assess the financial literacy of the respondent and then a aggregate score of the financial literacy is computed on the scale of 0 to 12. These questions ranges from assessing numeracy, calculation of interest, compounding, time value of money, inflation, knowledge about stock market and financial products etc. Thus, this study uses the aggregate score to measure and establish relationship between financial literacy with other variables.

DEFINING AND MEASURING FINANCIAL BEHAVIOR

Although the theory is largely silent on the definition of Financial Behavior, the concept has been measured in terms of the actions and decisions taken by an individual with regard to management of his personal finances. Researchers have defined financial behavior as a construct with varied meanings but for the purpose of our study financial behavior is defined as follows:

"Financial Behavior can be defined as any human behavior that is relevant to money management. For instance cash management, credit management, saving habits etc."

The survey attempts to understand the financial behavior of the respondents as reflected by the way they deal with money in their daily lives. A total of 17 statements with regard to money management have been asked during the survey which are employed to capture the important dimensions about the respondent's handling of personal finances. These dimensions include, assessment of affordability of products and expenditures, behavior related to timely payment of bills, planning and monitoring of the household budget, active saving habits, and borrowing propensities. The ordinal measure of financial behavior was then converted into a scale of 17 to 85 score and then this aggregate score was used to establish further relationships.

The authors believe that there is one way causal relationship which flows from financial literacy to financial behavior. Although experiential learning may be an important self-correcting mechanism in financial markets, many important financial decisions like saving and investing for retirement, choosing a mortgage, or investing in an education, are undertaken only infrequently and have delayed outcomes that are subject to large random shocks. Learning by doing may not be an effective substitute for limited financial knowledge in these circumstances (Campbell et al. 2010), and consumers may instead rely on whatever limited institutional knowledge and numeracy skills they have.

Defining and Measuring Self-Assessment of Financial Literacy

Another measure of financial literacy that has been operationalized in the literature is individuals' self-assessments of their financial knowledge or alternatively, the level of confidence in their financial abilities.

In general, the literature finds that self-assessed financial capabilities and more objective measures of financial literacy are positively correlated (e.g., Lusardi & Mitchell 2009, Parker et al. 2012), and self-reported financial literacy or confidence often have independent predictive power for financial outcomes relative to more objective test-based measures of financial literacy.

For the purpose of the study, self-assessment of financial literacy has been defined as follows:

"Self-Assessment of financial literacy indicates the level of confidence that an individual associates with himself/herself with regard to his/her own understanding and knowledge of different financial products like shares, bonds, mutual funds, pension funds, debentures etc."

For measurement of self-assessment of financial literacy, a set of 11 questions were asked from the respondents to assess their knowledge about various financial products ranging from fixed deposits, shares, bonds, mutual funds, insurance, derivatives, etc. on a 3-pointer scale ranging from 'Low' to 'Medium' to 'High'. This ordinal measure was converted into a consolidated score ranging from

11 (all answers being 'Low') to 33 (all answers being 'High') and this aggregate score was used for further analysis.

Defining and Measuring Asset Holding Pattern of Individuals

To judge the level of variety of investments held by the respondent, questions relating to actual asset holdings were asked in the questionnaire. These were objective questions wherein the respondent had to mark a 'Yes' or 'No' or "Don't know/Can't Say". Asset Holding Pattern has been defined as below for the purpose of our study.

"Asset Holding Pattern of an individual indicates the extent of variety of investments that he/she holds in various financial products like fixed deposits, life insurance, gold, real estate, stocks, bonds, mutual funds etc."

In order to assess the diversity of actual asset holdings of the respondents, a set of 10 questions were asked as to whether they hold any investment in products like fixed deposits, life insurance, gold, real estate, stocks, bonds, mutual funds etc. And the answers for each financial product were converted into a score ranging from 0 (all answers being 'No') to10 (all answers being 'Yes') and this aggregate measure was used in analysis.

5.RESEARCH OBJECTIVES

The larger goal of this research paper is to contribute to a broader understanding of the role of financial literacy in determining the financial behavior among urban population of India. For the purpose of this study, the entire sample comprises of citizens of Delhi. Individuals need to make sound financial decisions for their economic security and well-being. The scope of such decisions is vast. Examples may include savings &investment decisions, retirement planning, debt management etc. To get a comprehensive picture of how financial literacy affects financial behavior, we also need to consider how both these constructs vary across demographic characteristics of the respondents. It is also important to analyze whether the standing obtained by the respondent on the subjective scale designed for measurement of financial behavior is reflected in the actual investment decisions of the respondent. This is done by analyzing the relationship between financial behavior and asset holdings of the respondents. To sum up, the objectives of the study can be categorized into the following broad sections.

I.Relationship between demographic characteristics and financial literacy: The aim is to find out whether the mean financial literacy score of the respondents varies across different categories of demographic characteristics of the respondents.
II.Relationship between demographic characteristics and financial behavior: The aim is to find out whether the mean financial behavior score of the respondents varies across different categories of demographic characteristics of the respondents.
III.Relationship between demographic characteristics and financial assessment: The aim is to find out whether the mean financial assessment score of the respondents varies across different categories of demographic characteristics of the respondents.
IV.Relationship between financial literacy and financial behavior: The aim is to find out the nature and

strength of the relationship between the financial literacy score and financial behavior score of the respondents. The focus is to find out if a higher financial literacy score entails into a higher financial behavior score also and vice-versa.

6.RESEARCH METHODOLOGY

After the final data is collated in MS Excel, variables were defined in SPSS for each piece of information collected in the questionnaire for the purpose of statistical analysis. Once the variables are defined in SPSS, data is inserted from MS Excel for all variables. The descriptive analysis is performed for all demographic variables and constructs separately to get an understanding of the sample composition. Then, each objective is selected and relevant techniques are applied to obtain results. As part of the analysis for first four objectives, 'Analysis of Variance' is applied wherever the assumptions (namely independence of samples, homogeneity of variances and normality of the test variable) are met for the same. If the assumptions of ANOVA are not met, the non-parametric counterpart 'Kruskal-Wallis Test is performed. For the last objective of the study, OLS Regression is performed by introducing demographic characteristics as dummy variables. Different combinations of explanatory variables are applied to reach at a model with variables having significant impact on the dependent variable in line with suggestive theoretical basis. This model is then tested for linear specification and violation of OLS assumptions. Relevant rectifications are made for each violation to arrive at a final model to derive necessary interpretations and conclusions

7.SAMPLING DESIGN AND DATA

This study is based on a primary survey conducted over a period of 90 days. Hence, all the data used for analysis is primary and pertains to information collected through the survey. Keeping in view parameters considered in the past studies to measure constructs like Financial Literacy, Financial behavior etc., a detailed questionnaire was prepared for measurement of all relevant constructs to serve the objectives of the study.

The sampling method used for data collection is 'Convenience Sampling'. The questionnaire was sent to potential respondents electronically through various available options such as email and social networking platforms. The data has been collected randomly from all respondents irrespective of any segmentation on the basis of age, income, education levels etc. This is done to collect data from a diverse set of respondents. A total of 266 responses were collected initially but due to incomplete and duplicate data records, 185 responses are finally considered for analysis out of which 175 responses are collected electronically and 10 responses are collected physically. All final respondents are citizens of Delhi.

Following is a list key constructs and their respective constituent concepts used for arriving at comprehensive scores as a proxy for quantitative analysis.

1.Financial Literacy: There are 12 questions which serve the purpose of measurement of Financial Literacy of a respondent. Different finance related skills and attributes such as Numeracy, Compounding, Inflation, Time value of money, Understanding of financial products, Diversification benefits and others are tested based on objective type questions. Each question has only one correct

answer for which a respondent gets 1 mark. Other answers are marked 0. Hence the scale for financial literacy varies from 0 (for no correct answers) to 12 (for all correct answers.) This score is taken as a proxy for 'Financial Literacy' in the analysis.

2.Self-Assessment of Financial Knowledge: Respondents are asked to rate their level of knowledge regarding 11 financial products on a 3 pointer scale: Low, Average and High for which 1, 2 and 3 points are awarded respectively to arrive at a total score out of 33. The scale varies from 11 to 33 in this case.

3.Money Management Behavior: There are 17 statements relating to how people save, plan, spend and manage their finances. These statements try to predict how carefully and wisely people take their regular financial decisions. Key attributes that are enquired about are Cash Flow Management, Savings Pattern, Consumption and Payment Behavior, Budgeting, Debt management etc. Responses to these statements are measured on a scale of 1 to 5 based on level of agreement ranging from 'Strongly Disagree' to 'Strongly Agree'. A consolidated score is then arrived out of 85 with the minimum score being 17. This score is taken as proxy for 'Financial Behavior' in the analysis.

4.Diversity of asset holdings: To gauge the level of diversity in the investment held by the respondent, questions are asked with respect to their asset holdings in the 10 financial products listed in the questionnaire. Responses are collected in the form of Yes/No/Can't Say. A 'Yes' is coded as 1 mark for calculating the respondent's score out of 10. 'No'/'Can't Say' is coded as 0. The score is used as a proxy for 'Asset Holdings' in the analysis.

Apart from the above mentioned constructs, data were collected regarding the demographic characteristics of the respondents to study changes or patterns in the constructs across demographic attributes. The data collected for demographic characteristics is described below:

Demographic Variable	Category	No. of respondents	Percentage (out of 185)
Gender	Male	106	57.3
	Female	79	42.7
Marital Status	Single	126	68.1
	Married	57	30.8
Age	below 25	65	35.1
	25 to 35	84	45.4
	35 to 45	23	12.4
	45 to 55	8	4.3
	more than 55	5	2.7

No. of Children	None	109	58.9
	1	18	9.7
	2	22	11.9
	3	5	2.7
	more than3	1	.5
Occupation	Unemployed	6	3.2
	Student	57	30.8
	own business/self employed	13	7.0
	service-public/government	49	26.5
	service-private	51	27.6
	Retired	3	1.6
	Others	4	2.2
Education	up to higher secondary	14	7.6
	Graduate	45	24.3
	post graduate	90	48.6
	M.Phil./Ph.D.	34	18.4
	Others	2	1.1
Work Experience	Nil	47	25.4
	1 to 3 years	74	40.0
	4 to 7 years	22	11.9
	8 to 10 years	8	4.3
	more than 10 years	34	18.4
Income	less than 2,50,000	53	28.6
	2,50,0000 to 5,00,000	38	20.5
	5,00,000 to 10,00,000	55	29.7
	more than 10,00,000	21	11.4

Financial Dependents	Nil	116	62.7
	1	12	6.5
	2	24	13.0
	3	16	8.6
	more than 3	14	7.6

8.DATA ANALYSIS & INTERPRETATION

I.Relationship between demographic characteristics and financial literacy: The questions relating to measurement of financial literacy require not just mathematical skills but knowledge and understanding of financial products, investment considerations like benefits of diversification and so on. Hence, it is possible that the mean financial literacy score of the respondents may vary across respondents with different demographic characteristics like gender, age, income level, level of education, work experience, etc.

In this study, information relating to nine demographic variables has been collected. The variation in mean financial literacy score across different categories of these variables is studied using the statistical tool of 'Kruskal-Wallis Test'instead of ANOVA because our Financial Literacy Score is not normally distributed rather skewed towards left. Since normality is an assumption for using ANOVA, we instead use non parametric test called Kruskal-Wallis test which helps us to measure whether the mean financial literacy score varies across different demographic variables or not. The financial literacy score of the respondent is taken as the test variable and is analyzed against each demographic variable individually which is taken as the grouping variable.

Following is a summary of the results of the Kruskal Wallis Test conducted to study the relationship between demographic variables and financial literacy score of the respondents.

S. No.	Statement of Hypothesis	Result (α=0.05)	p value
1.	H_0: Mean financial literacy score does not vary across gender	Not Rejected	0.348
2.	H_0: Mean financial literacy score does not varyacross levels of age	Not rejected	0.68
3.	H_0: Mean financial literacy score does not vary across marital status	Not rejected	0.464
4.	H_0: Mean financial literacy score does not vary across number of children that the respondents have	Not rejected	0.550
5.	H_0: Mean financial literacy score does not vary across types of occupation	Not rejected	0.169
6.	H_0: Mean financial literacy score does not vary across levels of education	Rejected	0.002
7.	H_0: Mean financial literacy score does not vary across levels of work experience	Not rejected	0.101
8.	H_0: Mean financial literacy score does not vary across income levels	Rejected	0.037
9.	H_0: Mean financial literacy score does not vary across number of financial dependents that the respondents have	Not rejected	0.120

From the above summary statistics we infer that the mean financial literacy varies across only levels of Education and Income since significance level as denoted by p-value less than 0.05 and hence we reject their null hypothesis. The theory also supports that as the individual's level of education increases he/she becomes literate enough to understand daily household personal finance decision. Thus, increased cognitive ability as depicted by increased levels of education qualification impacts one's level of financial literacy.

The mean financial literacy also varies across level of income because as the person starts earning money, he starts spending, saving and investing to meet his personal financial objective,it is then that his level of financial literacy increases due to actual experience. Thus, financial literacy doesn't vary across gender, age, marital status, no. of children, no. of dependents, occupation and work experience.

II.Relationship between Demographic Characteristics and Financial Behavior: The questions relating to measurement of financial behavior implies analyzing the actual daily money management behavior of the individuals which involve 17 statements on budgeting, cash management, savings, thriftiness, wealth management, retirement planning, taxation etc. Hence, it is possible that the mean financial behavior score of the respondents may vary across respondents with different demographic characteristics like gender, age, income level, level of education, work experience, etc.

In this study, information relating to nine demographic variables has been collected. The variation in mean financial literacy score across different categories of these variables is studied using the statistical tool of 'ANOVA' because our Financial Behavior Score follows all the 3 assumption of ANOVA which helps us to measure whether the mean financial behavior score varies across different demographic variables or not. The implied assumption of doing ANOVA is that our Levene's Test is being accepted i.e. homogeneity of variance assumption of ANOVA is being fulfilled.

But in case of age and education level we had to use Kruskal-Wallis test as Levene's test was being rejected. The financial behavior score of the respondent is taken as the test variable and is analyzed against each demographic variable individually which is taken as the grouping variable. Following is a summary of the results of the KS Test conducted to study the relationship between demographic variables and financial behavior score of the respondents.

S. No.	Statement of Hypothesis	Result (α=0.05)	p value
1.	H_0: Mean financial behavior score does not vary across gender	Not rejected	0.254
2.	H_0: Mean financial behavior score does not vary across levels of age(KS Test)	Rejected	0.000
3.	H_0: Mean financial behavior score does not vary across marital status	Rejected	0.048
4.	H_0: Mean financial behavior score does not vary across number of children that the respondents have	Rejected	0.000
5.	H_0: Mean financial behavior score does not vary across types of occupation	Rejected	0.006
6.	H_0: Mean financial behavior score does not vary across levels of education (KS Test)	Not rejected	0.109
7.	H_0: Mean financial behavior score does not vary across levels of work experience	Rejected	0.001
8.	H_0: Mean financial behavior score does not vary across income levels	Rejected	0.001
9.	H_0: Mean financial behavior score does not vary across number of financial dependents that the respondents have	Not rejected	0.190

From the above summary statistic, we infer that the mean financial behavior varies across age, marital status, no. of children, occupation, work experience and income levels as the p statistic is less than 0.05. The rationale behind financial behavior varying across age is the as the age progresses, the personal financial decisions starts cropping up in one's life. During the student age , person needs to accumulate money for education and tuitions , then when one settles , daily money management requirements begins like saving for future, investments in assets, consumption expenses and towards the 40's one starts planning for retirement and wealth management .

The reason behind mean financial behavior varying across marital status is that a lot of financial responsibilities and requirements crops up when one gets married , and hence its logical that financial behavior of a single and married is bound to vary to due varied financial requirements and goals .

Financial behavior varies across no. of children as families with children require more disposable income for bringing up their children and then saving money for his education and future. Financial behavior varies across occupation especially in case of students with self-employed (as per post hoc analysis) as students hardly make any financial decisions since neither they are earning nor they have any such responsibilities.

Financial Behavior varies across level of work experience as when the person gains experience he is more likely to act prudently due to learning curve effect. The post hoc analysis shows that respondents having work experience from 0-3 years having large variation as compared to one with more than 10 years of experience.

The mean financial behavior varies across different levels of income as higher the income, more is the need to invest the same in revenue generating assets and indulge in prudent financial decisions to maximize wealth. According to post hoc analysis, respondents falling in income bracket of less than Rs.

250,000 have significant variation in their financial behavior as compared to respondents in higher income bracket.

III.Relationship Between Demographic Characteristics and Financial Assessment: The questions relating to measurement of financial assessment implies analyzing the perceived knowledge of the respondent with respect to his financial literacy as testing by a set of 11 questions about level of knowledge regarding different financial products like shares, bonds, debentures, mutual funds, PPF etc. Hence, it's possible that one's perceived knowledge about one's financial literacy varies across demographic variables.

In this study, information relating to nine demographic variables has been collected. The variation in mean financial assessment score across different categories of these variables is studied using the statistical tool of 'ANOVA' because our Financial Assessment Score follows the assumption of normality for ANOVA which helps us to measure whether the mean financial assessment score varies across different demographic variables or not. The implied assumption of doing ANOVA is that our Levene's Test is being accepted i.e. homogeneity of variance assumption of ANOVA is being fulfilled except in the case of age where Kruskal-Wallis test is used.

The financial behavior score of the respondent is taken as the test variable and is analyzed against each demographic variable individually which is taken as the grouping variable. Following is a summary of the results of the ANOVA conducted to study the relationship between demographic variables and financial behavior score of the respondents.

S. No.	Statement of Hypothesis	Result (α=0.05)	p value
1.	H_0: Mean financial self-assessment score does not vary across gender	Not rejected	0.051
2.	H_0: Mean financial self-assessment score does not vary across levels of age (Kruskal-Wallis Test)	Not rejected	0.558
3.	H_0: Mean financial self-assessment score does not vary across marital status	Not rejected	0.829
4.	H_0: Mean financial self-assessment score does not vary across number of children that the respondents have	Not rejected	0.987
5.	H_0: Mean financial self-assessment score does not vary across types of occupation	Not rejected	0.873
6.	H_0: Mean financial self-assessment score does not vary across levels of education	Not rejected	0.428
7.	H_0: Mean financial self-assessment score does not vary across levels of work experience	Not rejected	0.459
8.	H_0: Mean financial self-assessment score does not vary across income levels	Rejected	0.013
9.	H_0: Mean financial self-assessment score does not vary across number of financial dependents that the respondents have	Not rejected	0.630

From the above summary table, we conclude that the mean financial assessment varies across only income level as the p statistic less than 0.05. The rationale behind is that as the income level increase, people tend to invest more across different assets and in turn this increases their level of financial assessment through experience curve.

IV.Relationship between Financial Literacy and Financial Behavior: Our fourth objective is to study the relationship between 'Financial Literacy' and 'Financial Behavior'. As discussed earlier, the theory suggests that the level of financial literacy affects financial behavior of an individual. Hence we have a causal relationship between these two constructs with the causality flowing from financial literacy to financial behavior.

Since we have a theoretical causal relationship between financial literacy and financial behavior, we can use regression analysis to further study their relationship with 'Financial Behavior' as dependent variable and 'Financial Literacy' as independent variable. When ANOVA was conducted for financial behavior across demographic variables, we found out that mean financial behavior score of respondents varies across age, marital status, no. of children, occupation, income and work experience. This indicates that these demographic variables could have a significant impact on the financial behavior score of a respondent. To include demographic variables as independent variables in our regression model, we define dummy variables for each demographic variable.

Then taking financial behavior as the dependent variable, the model was specified using different combinations of demographic variables and financial literacy. Each variable which showed a significant impact on financial behavior (i.e. p value less than0.05) was included as an explanatory variable in the model whereas other variables were excluded.

Finally, two explanatory variables showed significant impact on financial behavior namely 'Financial Literacy' (as measured by a score from 0 to 12) and 'Age_25to35' (as a dummy variable where it takes a value of 1 when the respondent lies between the age group of 25 years to 35 years and it takes a value of 0 when the respondent does not lie in the age group of 25 years to 35 years.)

Hence, the model specification for OLS (Ordinary Least Squares) regression is as follows:

$$\textbf{Financial Behavior} = \alpha + \beta_1 \textbf{Financial Literacy} + \beta_2 \textbf{Age\_25to35} + e$$

where, Financial Behavior = Score for financial behavior on a scale of 17 to 85

a = Intercept Term

Financial Literacy = Score for financial literacy on a scale of 0 to 12

Age_25to35 = Dummy variable which takes value of 1 if the respondent lies in age group of 25 years to 35 years and 0 otherwise

This model was tested for correct specification using Ramsey RESET Test and the model was found to be correctly specified as the null hypothesis of correct specification was not rejected with p-value of F-Statistic being 0.1090. The model was tested for presence of outliers using a scatterplot and

no outliers were found with respect to both independent variables.

Verification of OLS Assumptions was carried out in Eviews for the above mentioned model. Following were the results:

1.Error terms have a zero mean: The model includes a constant as the intercept term. Hence this assumption is not violated and does not have any impact of our model.
2.Error terms follow a normal distribution: This assumption was verified by performing the Jarque-Bera Test of normality on residual terms and the null hypothesis of normality of residual terms was not rejected with a p-value of 0.228.
3.Error terms have constant variance: This assumption was verified performing White's Test of heteroskedasticity on residual terms. Null hypothesis of constant variance of error terms was rejected with a p-value of 0.0457. Hence, the model was subsequently run using HAC (Heteroscedasticity and autocorrelation corrected standard errors) method. In this way, the coefficient estimates were modified to be efficient.
4.Error terms are not auto-correlated: This assumption does not apply to our model as the data is cross-sectional. Hence this is assumption is not verified.
5.Independent variables are correlated: This assumption is verified by calculating Variance Inflation Factor (VIF) for both independent variables. The VIF of Financial Literacy and Age_25to35 is found to be 1.008765 which is within the violation limit of 10. The correlation is calculated for both independent variables to be 0.0301 which near 0. Hence, this assumption is not violated.

After checking for violation of assumptions and making necessary rectifications, the final results of the regression model are presented below.

Financial Behavior = a + β_1Financial Literacy + β_2Age_25to35 + ε

Model Summary	
R Squared	0.111511
Adjusted R Squared	0.101747
S.E. of regression	10.51996
F-Statistic	11.42102
Sig. (F-Statistic)	0.000021

Variable	Unstandardised Coefficient	Standard Error	t statistic	p value
α	56.94571	2.616932	21.76048	0.0000
Financial Literacy	0.792445	0.266473	2.973833	0.0033
Age_25to35	-6.478880	1.728168	-3.748989	0.0002

Interpretation:

- R^2 of 11.11% implies that the two independent variables are collectively able to explain 11.11% variation in Financial Behavior.
- F-statistic of 11.42 and Sig. (F-Statistic) value of 0.000021 shows that the model has statistically significant explanatory power.
- Intercept value of 56.94 is the score attained by a respondent on a scale of 17 to 85 even when values of independent variables i.e. Financial Literacy and Age_25to35 are equal to 0. Further p-value (0.0000) shows that intercept has a significant impact on the financial behavior of a respondent.
- Financial Literacy's coefficient (β_1) of 0.7924 implies that if the financial literacy score of a respondent is changed by 1 unit, then financial behavior score of the respondent changes by 0.7924 units. Further p-value (0.0033) shows that financial literacy has a significant impact on the financial behavior of a respondent.
- Age_25to35's coefficient (β_2) of -6.478888 implies that if the age of the respondent lies between 25 years to 35 years, then financial behavior of the respondent falls by 6.47888 units. Since this is a dummy variable, this reduction impacts the intercept which becomes 50.46683 for all respondents in the age group of 25 years to 35 years. Hence, we may conclude that this age group has a lower financial behavior score as compared to other age groups.

9.CONCLUSION

The study attempts to support the ideology that there is a one way causal relationship between financial literacy (the cause) to financial behavior (the effect). The reason for low demand for financial products in emerging economies like India is the lack of cognitive ability of making efficient financial decisions. A leading explanation for this kind of behavior is that consumers are not financially literate - they lack sufficient information about financial concepts and skills to make informed financial decisions. A growing size of literature has evaluated the state of financial literacy and the effectiveness of financial education programs aimed at improving financial decision-making. This is why the governments of emerging nations are increasingly trying to impart financial knowledge to the general population with the sole objective of helping consumers realize the importance of household financial planning, intelligent investing and informed decision making.

In relation to majority of previous work done in this area, this paper differentiates between two fundamental constructs i.e. Financial Literacy and Financial Behavior in order to establish a relationship between them. The study finds that financial literacy varies across levels of education and income whereas financial behavior varies across age, marital status, number of children that an individual has, occupation, work experience and levels of income. Another construct, 'self-assessment of financial knowledge' varies across different levels of income. Finally, the study establishes a positive significant relationship between financial behavior (dependent variable) and financial literacy (independent variable).

10.SCOPE FOR ACTION AND FURTHER RESEARCH

This paper attempts to study the impact of demographic variables across financial literacy,

financial behavior and financial self-assessment. Further, it attempts to study the relationship of financial literacy and financial behavior. Findings of the paper have an indicative direction for policy action and research. As it has been established that financial literacy has a significant positive impact on financial behavior, investment and planning to incorporate concepts of basic financial management and understanding of financial products in the curriculum at school and under-graduate level may lead to better and well informed decision making in the long run with respect to personal financial management at large. Policy measures may include introduction of special campaigns and education drives to educate people regarding personal financial management in the short and long run. Simultaneously, it is important to develop regulatory and legal frameworks that enhance the delivery of financial services and financial advice to serve the more complex and challenging needs of the present generation.

Further research in this area may be pursued from multiple perspectives and broader objectives. Different types of behavior related to financial management like cash flow management, budgeting, retirement planning, savings and consumption patterns may be studied on a standalone basis in relation to financial literacy to arrive at crisp and direct conclusions. Sample size may be enlarged to include multiple cities and people with diverse demographic characteristics of the country. A comparison on rural and urban population's financial literacy and financial behavior may be taken up to highlight gaps and changes in the key patterns of finance related knowledge and behavior for the two populations. A study on designing and preparing adequate and appropriate educational material to strengthen the basic financial skillset and knowledge of respective target audience may be also explored.

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