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Priyadarshi Dash & Rahul Ranjan

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Financial Literacy across Different States of India: An Empirical Analysis

Priyadarshi Dash* & Rahul Ranjan**

Abstract: The paper examines the extent of financial literacy levels across states, sectors, educational levels, and income groups. The paper also evaluates the relationship between financial literacy and saving/investment behaviour, and analyses the determining factors of financial literacy in India. For that, we use the National Sample Survey (NSS) 77th round of unit-level data of 'All India Debt & Investment Survey (January-December, 2019)'. The result shows that 33 per cent and 29 per cent of the rural and urban population respectively do not have any bank account, credit/debit card and e-wallet. It also highlights that Assam, Bihar, Manipur, Nagaland, and Uttar Pradesh need to catch up with the other states and the national average. Logit regression result indicates that education level, income and self-employed workers are the important factors for determining financial literacy in India.

Keywords: Financial Literacy, Saving, Investment

Introduction

Since the 1991 economic reforms, India's economic and financial landscape has evolved significantly. As a result, the economy has become more diverse, with new prospects of growth, marked with significant developments in the financial sector. The financial sector provides a wide range of products with sophisticated features and services (IMF, 2005). These services should reach ordinary people in the most cost-effective manner. In recent years, interest in understanding financial literacy has grown across all countries (OECD, 2020). Financial literacy not only improves people's lives but also contributes to a country's economic growth and development (Hogarth, 2006; Jariwala, 2015; Lusardi, 2019).

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The financial system in a developing country like India aids economic development through channelising savings into investments through efficient financial intermediation (Willis, 2008; Ribaj and Mexhuani, 2021). The depth of domestic financial markets enables this efficient mobilization of savings for capital formation. It also enables a person to make sound and effective financial decisions by understanding finances, which improves one's financial situation as well as the overall economy of a country (Kaur, Vohra and Arora, 2015). Financially educated people are regarded to have positive macroeconomic effects, both within a country and potentially globally (OECD, 2015). Recognizing the growing importance of financial literacy, the OECD/INFE developed a National Programmes for Financial Education Policy Handbook in 2014 to assist governments throughout the world in creating and executing national financial literacy programmes (Davies, 2015; OECD, 2015).

Financial literacy is a weapon in the hands of individuals to improve their financial status and well-being by making informed decisions in creating household budgets, saving plans, managing debt, planning for life cycle needs, and dealing with unexpected emergencies without incurring unnecessary debts (Lusardi and Mitchell, 2011; Lusardi, 2019). In India, this form of financial literacy is vital for increasing financial inclusion and financial stability among disadvantaged households. A financially literate person may make good use of financial products and services (Joshi, 2013; ADB, 2022). Likewise, financially knowledgeable consumers can endure adverse economic times because they have saved enough money, purchased insurance, and diversified their investments (Lusardi & Mitchell, 2014).

This study attempts to understand the state of financial literacy in India and household behaviour toward savings and investment. The main objective of the study is to estimate the financial literacy across states, sectors, educational levels, and income groups. The study examines the relationship between financial literacy and saving/investment behaviour, and the determining factors of financial literacy in India. The paper is organised as follows. Section two captures the trends and perspectives on financial literacy from the literature. Section three examines the empirical evidence of financial literacy and the relationship between financial literacy and financial behaviour. Section four deals with the determinants of financial literacy in India and section five concludes the paper.

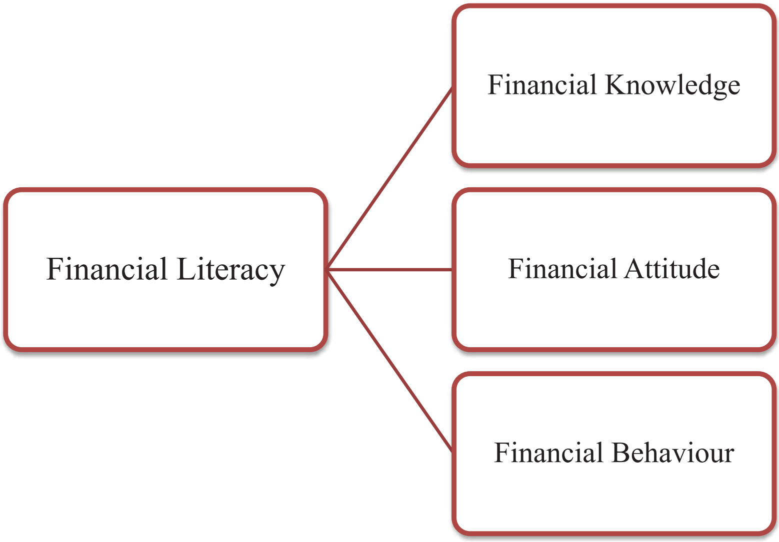
Definitions of Financial Literacy

Literature on financial literacy has grown significantly over the years covering a wide spectrum of issues ranging from measurement to its role in financial inclusion. There is no formal definition of financial literacy; it has been used interchangeably in various studies with terms such as financial competence, financial empowerment, debt literacy, financial knowledge, and economic literacy (Musah *et al*., 2022). Various definitions used in major studies emphasise on knowledge and the ability to make financial decisions to attain a desired outcome, such as lifetime financial security, as well as the skills required achieving those outcomes. In general, financial literacy is characterized as familiarity and understanding of rewards and risks involving financial decisions. It is primarily concerned with personal finance that enables individuals to take effective action to increase general well-being and prevent financial distress. The term "financial literacy" originally emerged from NatWest Bank-commissioned report for the National Foundation for Educational Research (NFER) in 1992 (Coben, Dawes and Lee, 2005). It entails intimate knowledge of financial concepts such as savings account, compound interest, financial planning, credit card mechanics, advantageous savings methods, consumer rights, time value of money as well as the knowledge of making proper decisions about certain personal finance areas such as real estate, insurance, investing, saving, tax planning, and retirement.

As part of global efforts to enhance financial literacy, the measurement of financial literacy assumes significance. Various dimensions of financial knowledge of individuals have been employed to measure the level of financial literacy. The World Bank has traditionally relied on cross-country consumer financial awareness surveys, whereas the OECD mostly used cross-country high-level financial literacy criteria. In the simplest form, it refers to the working knowledge of money and the ability to make intelligent decisions concerning the use and management of money (Schagen and Lines, 1996; Hilgert, Hogarth and Beverly, 2003). It is observed that financial decisions would need a working knowledge of fundamental economic principles as well (Lusardi and Mitchell, 2008). At the same time, others stress on practical experience as the foundation for financial literacy and other aspects of financial understanding (Moore 2003). Lewis (2006), Huston (2010) and Remund (2010) echo similar stand by putting emphasis on the basic knowledge of individuals about various financial tools and their application in business and personal life. Lusardi and Mitchell (2008) list some more attributes of financial literacy such as the understanding of how interest compounding works, the fundamentals of risk diversification, and the distinction between nominal and real values. Similarly, Mandell (2007) underlines the importance of the ability to evaluate fresh and complex financial instruments and make defensible decisions about those instruments to employ in their long-term interests.

In nutshell, financial knowledge can be distinguished from general information, which many people believe is necessary for financial literacy. In fact, financial literacy is a result of actual financial performance rather than a subject that is taught and measured in laboratory settings. It is the product of both formal and informal learning that occurs inside as well as outside of the classroom. Researchers have observed that when projecting hypothetical consequences of investment tasks, finance-specific information is more effective than general knowledge (Hung, Parker and Yoong, 2009). Cognitive abilities including multiple types of knowledge often complement each other (Stanovich and West, 2000; Jenson, 1998). Financial education is the greatest technique to acquire financial knowledge and competencies (PACFL, 2008). As a result, the concept of financial education should be strongly associated with the promotion of financial literacy. In that sense, the most acceptable road to increasing a target population's financial stability is a contextualized approach to financial literacy instruction, one that blends fundamental sensitivities to a certain region, and cultural, institutional, and ideological antecedents. As a result, it should be acknowledged that extensive research and analysis of specific regions are required for the formulation and implementation of financial education courses. Table 1 summarises the various definitions of financial literacy used by the authors globally and in India. Figure 1 shows broad indicators for financial literacy.

Figure 1: Dimensions of Financial Literacy



Source: Drawn by Authors.

Table 1: Indicators of Financial Literacy

Sl. No	Author	Indicators
Global		
1	Hilgert, Hogarth, and Beverley (2003)	Financial Knowledge
2	Moore (2003)	Financial Knowledge, Financial Behaviour
3	PACFL(2008)	Financial Knowledge, Financial Behaviour
4	Atkinson and Messy (2012)	Financial Knowledge, Financial Attitude, and Financial Behaviour
5	World Bank (2012)	Financial Knowledge, Financial Behaviour and Financial Skill
6	Dewi et al. (2020)	Financial Knowledge, Financial Behaviour, Financial Experience, Financial Awareness, Financial Skills, Financial Capability, Financial Goal
7	OECD/INFE (2012)	Financial Awareness, Financial Knowledge, Financial Attitude, and Financial Behaviour
8	Rooij, Lusardi and Alessie (2011)	Interest Rates, Inflation, and Risk Diversification
9	Arrondel, Debbich and Savignac (2013)	Interest Rates, Inflation, and Risk Diversification
10	Klapper, Lusardi and Oudheusden (2015)	Inflation, Interest Rates, Compound Interest, and Risk Diversification
11	Sayinzoga, Bulte, and Lensink (2014)	Compound Interest, Inflation, Interest Rates, and Risk Diversification
India		
12	Gaurav and Singh (2012)	Financial Aptitude, Debt Literacy
13	NCFE (2013 & 2019)	Financial Knowledge, Financial Attitude, and Financial Behaviour

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14	Thomas and Subhashree (2020)	Financial Knowledge, Financial Attitude
15	Ghosh and Günther (2018)	Financial Knowledge, Financial Attitude, and Financial Behaviour
16	Aggrawal et al.(2015)	Interest Rates, Inflation, and Risk Diversification
17	Kiliyanni and Sivaraman (2016)	Financial Knowledge, Financial Attitude, and Financial Behaviour

Source: Authors' compilation from various sources.

Pattern of Financial Literacy in India

Besides the individual experience of people engaged in various banking and financial transactions on their own, financial literacy in India has been mainly steered through policies and programmes on financial inclusion by the union and the state governments. There have been several advancements in India's financial inclusion landscape since the launching of the country's first National Strategy for Financial Inclusion (NSFE) in 2013. The latest in the series was the NSFE 2020-2025 launched in August 2020 which advocated a 5C (Content, Capacity, Community-led, Communication and Collaboration) for spreading financial education in the country. In addition, the Government of India has introduced several programs/initiatives such as Pradhan Mantri Jan-Dhan Yojana (PMJDY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Mudra Yojana (PMMY), Pradhan Mantri Shram Yogi Maan Dhan Yojana (PM-SYM), Atal Pension Yojana (APY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), and Pradhan Mantri Kisan Maan Dhan Yojana (PM-KMY) for increasing financial inclusion in the country. These programs not only integrate excluded populations into the mainstream but also give them access to a variety of financial services offered by national commercial banks, private commercial banks and financial institutions. According to the World Bank's Findex 2021 Report, the number of adults in India possessing a formal bank account has climbed from 35 per cent in 2011 to 53 per cent in 2014, and 80 per cent in 2017 (World Bank, 2021).

The Reserve Bank of India (RBI) is involved in financial literacy efforts and campaigns. RBI conducted a survey titled "Financial Literacy and Inclusion Survey" in 2019 to evaluate the levels of financial literacy among the adult population[3] and to examine variations across geographical regions/states, locations, and various socio-economic categories of the responding population. The first round of the survey was conducted in 2013 and RBI used the same methodology to define financial literacy as proposed by OECD. Ghosh and Gunther (2018) undertook a survey in 2016 to examine financial literacy in India. They defined financial literacy in India using financial knowledge, financial attitude, and financial behaviour by using four financial attitude questions, seven financial behaviour questions, and four financial knowledge questions. They assigned the weight of 27 per cent each to financial attitude and financial knowledge, with the remaining going to financial behaviour. Likewise, Gaurav and Singh (2012) used only two indicators of financial aptitude and debt literacy to define financial literacy whereas Aggrawal et al. (2015) used the methodology proposed by Rooij, Lusardi and Alessie (2011) to define financial literacy in India.

Overall, financial literacy can be estimated based on financial knowledge, financial behaviour, and financial attitude. Accordingly, our study uses financial behaviour to estimate the extent of financial literacy. Financial behaviour covers the indicators capturing whether household members have deposit accounts, credit/debit cards, and an e-wallet. We consider four levels of financial literacy- illiterate, elementary, moderate, and advanced in our paper to gauge the progress in financial education in the country. If the household members have only deposit accounts in commercial banks/RRB/Co-operative banks, then they are considered in the elementary range of financial literacy. If the household members have both deposit accounts in a commercial bank/RRB/Co-operative bank and hold a credit/debit card, then they are considered in moderate level of financial literacy. If the household members have all the three e.g. deposit accounts, credit/debit cards, and e-wallets, then they are considered at advanced level of financial literacy. If the household members do not have any of those e.g. bank account, credit card and e-wallet, then they are considered financially illiterate. The proportion of individuals in different categories of financial literacy by states and union territories in rural and urban areas are presented in Appendix A & B. Based on the above mentioned three indicators- deposit accounts, credit/debit cards and e-wallets, finally, a Financial Literacy Index (FLI) for different states of India is estimated using the formula employed for computation of Human Development Index (HDI).The formula is expressed as the following:

FLI = Average of three indicators calculated as:

$$Indicator = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

The Financial Literacy Index ranges from 0 to 1. FLI value close to '1' indicates a good performer and '0' depicts the worst performer. Further, FLI has been categorised into low, medium, and high for capturing spatial variations in financial literacy. If the FLI value is less than or equal to 0.33 is considered a low performer, the value ranging from 0.34 to 0.53 as medium performer, and the value is greater than or equal to 0.54, is considered a high performer.

Table 2: Financial Literacy Index (FLI) across States

Low (<=0.33)	**Medium (>=0.34 to <=0.53)**	**High (>=0.53)**
	Rural India	
Arunachal Pradesh, Assam, Bihar, Jharkhand, Manipur, Meghalaya, Nagaland, Uttar Pradesh	Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telengana, Tripura, Uttaranchal, West Bengal	Chandigarh, Delhi, Goa, Himachal Pradesh, Kerala, Pondicherry

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Urban India		
Assam, Bihar, Manipur, Meghalaya, Mizoram, Nagaland, Uttar Pradesh	Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Delhi, Gujarat, Haryana, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telengana, Tripura, Uttaranchal, West Bengal	Chandigarh, Goa, Himachal Pradesh, Karnataka

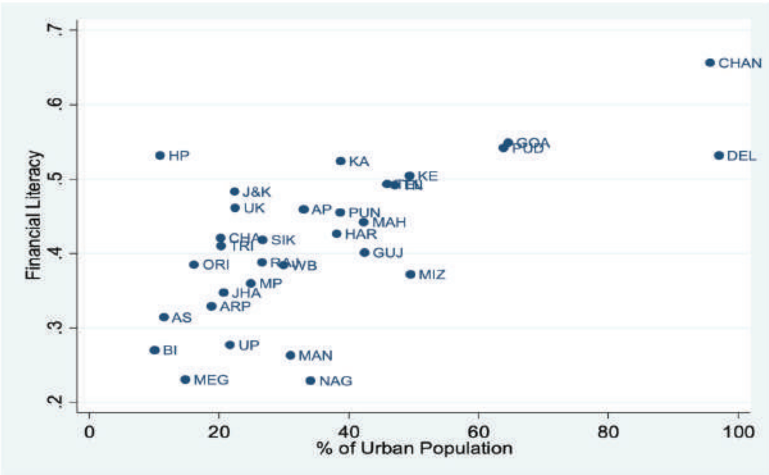
Source: Authors' estimation based on data from NSS 77th round of the All India Debt and Investment Survey.

Table 2 illustrates the distribution of states as per their FLI values in rural and urban India. The FLI values for all states and union territories are given in Appendix C. The common finding across rural and urban areas in the majority of the states displays a pattern that the level of financial literacy falls in the medium range. In other words, people in large areas have an operational bank account along with a debit or credit card. Chandigarh, Goa, and Himachal Pradesh are among the top performers in financial literacy as people living in both rural and urban areas of these states are at relatively advanced stage of financial literacy. In Delhi, Kerala, and Pondicherry, people in rural areas possess a high level of financial literacy while their counterpart in urban areas of the state has a medium level of financial literacy. In Karnataka, urban areas exhibit a high level of financial literacy while rural areas in the state fall at the medium level. This could be because Karnataka is one of the most important centers of the information technology (IT) industry in India and most of the IT firms are located in urban areas of the state.

At the same time, a worrying trend has been observed for some states for whom the level of financial literacy in both rural and urban areas is low. Those states include Assam, Bihar, Manipur, Nagaland, and Uttar Pradesh. In some states like Arunachal Pradesh and Jharkhand, the level of financial literacy in rural areas is low while for the urban areas it is medium. Similarly, a reverse trend is observed in the case of Mizoram as rural areas of the state have medium level of financial literacy while their urban counterpart has a low level of the same.

Urban areas are hubs of economic activity; hence people have higher levels of education and relatively higher income compared to the rural population. As commercial hubs, branch banks are inevitably more in numbers in urban areas. More than 90 per cent of the urban population of Chandigarh possesses a high level of financial literacy. Goa has more than 60 per cent of its urban population as highly financially literate while it is 40 per cent and 20 per cent for Karnataka and Himachal Pradesh respectively. It also reveals an interesting fact that the majority of the urban population is on the upper threshold of a medium level of financial literacy. In Delhi, more than 95 per cent of the urban population possesses moderate level of financial literacy and the value of financial literacy is close to 0.54, whereas more than 60 per cent of the urban population in Pondicherry are at a moderate level. This implies that the urban population in Delhi and Pondicherry shows an upward tendency in achieving financial literacy. Figure 2 illustrates the level of financial literacy based on the size of urban population.

Figure 2: Urban Population and Financial Literacy



Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

Education is commonly believed to be positively associated with the financial knowledge of individuals. Table 3 presents financial literacy according to the level of education. Data in the table substantiates the commonsensical perception of the relationship between education and financial literacy. The proportion of financially illiterate individuals (that is those who do not have either of the following; deposit bank account, debit/credit card, and e-wallet) declines consistently as the level of education goes up. For instance, 43.2 per cent of illiterate persons are found financially illiterate as well. Overall, the level of financial illiteracy shows a consistently declining trend with the rise in the level of education. In other words, only 0.12 per cent of illiterate individuals are found at an advanced level of financial literacy while 29.6 per cent of graduates and above are highly literate.

Table 3: Financial Literacy by Education

Education	Financial Literacy (%)			
	Elementary	**Moderate**	**Advanced**	**Illiterate**
Illiterate	48.31	8.37	0.12	43.19
Primary	44.17	16.74	0.61	38.48
Secondary	41.99	35.92	6.32	15.78
Diploma	24.71	48.65	20.22	6.42
Graduate & Above	21.01	44.43	29.56	5.00
All	42.8	20.8	4.23	32.17

Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

Trends in elementary and moderate levels of financial literacy display similar patterns as mentioned above. Elementary level of financial literacy goes down with the rise in education. About 48.3 per cent of illiterates fall in the intermediate category while the figure falls to 21 per cent for graduates and above. Likewise, 8.4 per cent of illiterates are moderately financially literate while 44.4 per cent of graduates and above possess a moderate level of financial literacy. It implies that increasing the level of education provides the necessary knowledge of using relatively advanced financial tools and services.

On the whole, the majority of individuals possess an elementary level of financial literacy (42.8 per cent) whereas 20.8 per cent of people are moderately literate. One cannot overlook the fact that despite varying levels of education in different parts of the country, 32.2 per cent of them are still financially illiterate and only 4.2 per cent of them have advanced levels of financial literacy. It signals the need of streamlining financial education for achieving financial inclusion and efficient mobilization of domestic financial services.

Table 4: Financial Literacy by Income

Income Groups	Financial Literacy (%)			
	Elementary	**Moderate**	**Advanced**	**Illiterate**
Quintile-1 (Bottom)	51.33	15.79	1.38	31.49
Quintile-2	46.22	17.45	1.63	34.71
Quintile-3	44.86	19.67	2.48	32.99
Quintile-4	39.86	23.74	4.24	32.16
Quintile-5 (Top)	31.62	27.39	11.42	29.57
Total	42.80	20.80	4.23	32.17

Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

The relationship between income and financial literacy is presented in Table 4. We have formulated quintiles depending on the level of income. Quintile 1 indicates the lowest income group while quintile 5 is the highest income group. Quintiles 2, 3, and 4 belong to the middle-income group. The proportion of elementary financial literacy shows a consistent declining trend as we move up the income quintile. For example, 51.3 per cent of individuals in quintile 1 have an intermediate level of financial literacy while the corresponding share is 31.6 per cent for quintile 5. On other words, moderate and advanced level of financial literacy show a consistent rising trend. About 15.8 per cent of people in quintile 1 are moderately literate which increases to 27.4 per cent in the case of quintile 5. The positive relation between income and financial literacy could be probably attributed to the increased familiarity of individuals involving a rise in the variety of financial transactions as an increase in income is often associated with increase in the expenditure. It may also enhance exposure of individuals to cashless transactions, e.g. Debit cards, credit cards, e-wallets, etc. paving the way for higher financial literacy.

From Tables 3 and 4, it is clear that there has been steady progress in financial literacy across states by all major attributes e.g. education, income and employment types. However, a lot remains to be done as close to 30 per cent of individuals across various income quintiles appear to be financially illiterate.

Table 5: Financial Literacy by Employment Types

Household Types	Financial Literacy (%)			
	Elementary	Moderate	Advanced	Illiterate
Self-Employed	45.63	19.64	3.12	31.61
Regular	31.54	29.39	10.65	28.42
Casual	45.19	17.62	2.19	35.00
Total	42.80	20.80	4.23	32.17

Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

There is a close relationship between income and the nature of employment. In simple words, those who have regular employment tend to have a stable source of income which, in turn, would push financial literacy up, as discussed above. Households have been classified as self-employed, regular, and casual according to the nature of employment of their members or primary breadwinner. It is evident from Table 5 that the majority of households who are either self-employed or casually employed have an intermediate level of financial literacy; 45.6 per cent and 45.2 per cent respectively. For these two categories, only 3.1 per cent and 2.2 per cent of households are found with advanced level of financial literacy. Likewise, 31.6 per cent of self-employed households and 35 per cent of causally employed households are financially illiterate indicating that self-employed and irregularly employed households still lack required financial skills. These trends highlight the uneven flow of income for people in those categories, besides it might be indicative of irregularity of income. Casual workers generally work temporarily or on daily wages. They also tend to move from one place to another in search of job opportunities and hence they are unable to maintain bank accounts or debit/credit cards. Consequently, they mostly end up transacting in cash.

Regularly employed households have a stable source of income which is also marked by certainty. Therefore, they can plan their expenditure and ration the same accordingly. They are primarily the ones who engage in savings and investment; hence tend to have higher levels of financial literacy as compared to self-employed and casual households. Although 31.5 per cent are still having elementary level of financial literacy, about 40 per cent regularly employed households are at least moderately literate and above. In relative terms, regularly employed households are better placed as compared to the other two categories of employment across various levels of financial literacy.

Financial Literacy and Investment Behaviour

As mentioned above, it is desirable that people must develop financial knowledge and abilities to make appropriate investing decisions (Seraj, Alzain and Alshebami, 2022). The maturity of financially literate people would reflect in the quality of decisions pertaining to various investment decisions (Kumari, 2020; Stolper and Walter, 2017). The practice of managing difficult circumstances while investing is known as investment decision-making. In this cognitive process, people choose the best options from among all conceivable outcomes. Very often, people are unable to make investment decisions based on their financial means. Thus, choosing the optimal investment type is thus a challenging aspect of making investment decisions (Raut, 2020). Behavioural finance discusses how investors react to diverse market information sources.

Investors occasionally make erroneous financial decisions and may not always make sensible decisions. The behavioural finance underlines the importance of investor behaviour is causing various market oddities (Putri *et al*., 2022). This could be regarded as an aptitude or attitude. However, it is also important to know whether attitudes translate into behaviour. Individuals generally invest in mutual funds, shares of companies or cooperative societies, and bonds/debentures of companies. Table 6 depicts whether the level of financial literacy explains the investment behaviour of individuals or not.

Table 6: Investment Behaviour across Levels of Financial Literacy

Level of Financial Literacy	Type of Financial Assets (%)			
	Mutual Fund	Shares in Companies	Debentures/ Bonds in Companies	Shares in Co-operative Society
Elementary	28.7	50.3	1.2	19.8
Moderate	66.5	27.5	0.2	5.8
Advanced	75.5	22.1	0.4	1.9
Illiterate	8.5	69.5	0.0	22.1
All	68.4	26.4	0.4	4.8

Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

It is quite clear from Table 6 that mutual funds and shares in companies are the preferred investment assets for the households. Around 68.4 per cent of investments take place through mutual funds while investment in shares of companies stands at a distant second position (26.4 per cent). Another notable trend is that a large number of individuals do not prefer to invest either in bonds/debentures of companies or in shares of co-operative societies, only 0.4 per cent in the former while 4.8 per cent in the latter. Investment pattern in mutual funds is particularly striking. The proportion of investment in mutual funds is directly related to the level of financial literacy, as investment increases with a rise in the level of financial literacy. For instance, 28.7 per cent of individuals having elementary level of financial literacy invest in mutual funds while the corresponding figure for moderate and advanced level stands at 66.5 per cent and 75.5 per cent respectively. Investments in mutual funds are closely linked with volatility in the financial market. This underscores the importance of knowledge of current economic and financial trends for taking investment decisions. Perhaps that prompts the people with advanced level of financial literacy tend to invest in mutual funds as they are able to understand the risks involved with those decisions. Muller and Weber (2010) empirically verified the positive association between level of financial literacy and investment in mutual funds.

On the other hand, it is observed that shares of companies, followed by co-operative societies are the most sought-after investment destination for households having elementary levels of financial literacy or even for those who are financially illiterate. In fact, 69.5 per cent of financially illiterate individuals invest in shares of companies while 50.3 per cent of those having an elementary level of financial literacy do so. Likewise, 19.8 per cent of elementary and 22.1 of financially illiterate households invest in shares of cooperative societies. While there could be multiple reasons behind such investment decisions, safety of investments and assured return often dominate household investment decisions. People believe that reputed companies and cooperative societies are less likely to be bankrupt or less likely to suddenly stop their operations. Hence, financially illiterate or moderately literate households who are found risk averse have a natural tendency to invest in shares of companies or cooperatives.

Financial Literacy and Financial Assets

People generally invest to build assets that can be leveraged in circumstances of need. People plan to manage the situations that will unfold in the later part of their lives. Accordingly, they seek to build financial assets which can be monetised in times of need. The influence of financial literacy on those decisions is amply supported by the available data. It has been demonstrated that financial literacy has an impact on borrowing, debt management, and investment, as well as savings behaviour. Additionally, studies demonstrate a correlation between financial literacy and wealth. People with relatively advanced level of financial knowledge are more likely to make retirement plans. This is probably because they are better at mathematics and are more likely to understand the value of interest compounding (Mitchell and Lusardi, 2015; Lusardi, 2019). Table 7 presents interesting findings on the link between financial literacy and financial assets. Overall, a whopping majority of individuals in India are found preparing themselves to meet the needs of the future even if it requires foregoing present opportunities. Besides, they also plan for their retired lives and some unforeseen emergencies which is why people invest in provident funds and pension funds. About 56.5 per cent people with varying understanding of financial matters have life insurance whereas 27.1 per cent maintain saving deposits and 14.8 per cent have investments in pension funds or provident funds. More than half of individuals across levels of financial literacy have life insurance policies. The figure is relatively higher for the financially illiterate and those at an intermediate level of financial literacy, 66.6 per cent and 62 per cent respectively, than for moderately literate (52.5 per cent) or those having an advanced level of financial literacy (59.2 per cent). This can be understood in the light of risk averseness, contingency, and inability to meet sudden expenses combined with the need to build financial assets in a piecemeal fashion which they wish to leverage as and when required.

Table 7: Financial Assets across Levels of Financial Literacy

Level of Financial Literacy	**Financial Assets (%)**			
	Deposit	**PF/Pension Fund**	**Life Insurance**	**Others**
Elementary	30.4	6.5	62.0	1.0
Moderate	29.3	16.1	52.5	2.0
Advanced	18.8	20.6	59.2	1.4
Illiterate	25.9	3.8	66.6	3.7
All	**27.1**	**14.8**	**56.5**	**1.6**

Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

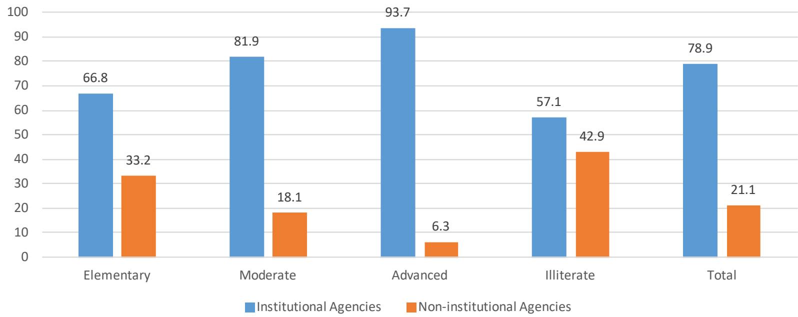
Savings deposit is a primary but important financial asset that people preferred to opt for particularly those who are financially illiterate. As expected, 30.4 per cent of those having an elementary level of financial literacy and 25 per cent of financially illiterate ones have saving deposits. It might be indicative of low level awareness about other financial assets or high risk aversion. Regarding the preparation for retired lives, it is clear that mainly those, who have advanced or moderate levels of financial literacy, have assets in either pension or provident funds; 20.6 per cent and 16.1 per cent respectively. This is plausible if we take into account the fact that regularly employed individuals have a stable flow of income which help them plan for their retired lives. In similar logic, provident fund is the only or the most feasible treasure of savings for the workers in the organised sector.

Financial Literacy and Access to Loans

Individuals and businesses often need loans to meet essential expenditure and working capital requirements, and tackle unforeseen contingencies. Usually, the type of loan, sources and the terms and conditions involving those loans will correspond to the level of financial knowledge of the borrowers. In terms of debt behaviour, persons at higher levels of financial literacy are less likely to have credit card debt and are more likely to pay off their credit card balance in full each month rather than simply the minimum required (Lusardi and Tufano, 2015; Lusardi, 2019). Individuals with higher levels of financial literacy are also more likely to renegotiate their mortgages and employ lower-cost borrowing alternatives (Lusardi, 2019). Literature finds correlation between poor debt behaviour and financial literacy. Moore (2003) finds that those with the least financial literacy are more likely to have expensive mortgages. Substantiating it further Lusardi and Tufano (2015) observe that the least financially literate people experience greater transaction costs, pay higher fees, and choose high-cost borrowing techniques. Mottola (2013) corroborates it with the finding that individuals with low financial literacy are more likely to participate in expensive credit card behaviour and depend heavily on non-institutional organisations.

As India is striving to achieve financial inclusion, it is imperative to understand whether increased financial literacy has helped people access credit. (Figure 3 clearly illustrates that more than three-fourth of the total loan (78.9 per cent) by the sample households is availed from institutional sources and the rest from non-institutional sources. Interestingly, loans from institutional sources are directly related to the level of financial literacy. Around 93.7 per cent of those having advanced financial knowledge avail loans from institutional sources and the corresponding figures for moderate and elementary levels of financial literacy stood at 81.9 per cent and 66.8 per cent respectively. Even a sizeable fraction of financial illiterates (57.1 per cent) avail loans from institutional sources. The link between financial literacy and access to loans is indicative of the fact that higher level of financial literacy is closely associated with possession of required documents and access to verifiable income. Institutional sources evaluate loan applications diligently and grant loans if they feel that such a loan would not turn into a non-performing asset. Among other things, lack of such documents or not facing those requirements perhaps makes 42.9 per cent of financial illiterates avail loans from non-institutional sources. As financial illiterates do not have operational bank accounts, they would have no choice except approaching non-institutional sources.

Figure 3: Loans from Institutional Agencies & Non-institutional Agencies across the Level of Financial Literacy



Source: Authors' estimation based on data from NSS 77th Round of the All India Debt and Investment Survey.

Determinants of Financial Literacy

The study uses the National Sample Survey (NSS) 77th round of unit-level data of 'All India Debt & Investment Survey (January-December, 2019)'. The primary goal of the Debt & Investment Survey was to collect basic quantitative information on the assets, liabilities, and banking facilities such as whether household members have deposit accounts, credit/debit cards, and an e-wallet. Furthermore, the survey also collected information on the investments in shares and related instruments, and particulars of cash loans payable by the household to institutional/non-institutional agencies. The all India survey was conducted in 5,940 villages covering 69,455 rural households and 47,006 urban households, covering 302,654 persons from rural and 192,919 persons from urban areas.

Discussion in the preceding sections indicates several interesting observations about financial literacy of households and their associated financial behaviour. While financial literacy itself a major factor that explain the choice of financial services and transactions by the households, it is worth examining the factors that determine the variations in financial literacy empirically. In this section, we examine the possible factors that affect the level of financial literacy using NSS 77th round data. We use a logit model to assess the variations in financial literacy. Age, gender, household types, income groups, sector, and state zones are considered as independent variables. For estimating these variables simply logit regression semi-log has been employed.

If any member of the household has a bank account, credit/debit card, or e-wallet, then the household is considered to be financially literate and assigned a value of one, and zero othetwise. The logit model is used in cases where a choice is to be made between two options, as is our case, where a person is financially literate or not. In our analysis, we are interested in estimating the magnitude of impact on the financially literacy due to a change in an independent variable. Since the direct interpretation of β in the logit model is difficult, we may predict the marginal effect of X on the probability of making choice '1' (evaluated at the mean of X)

$P_i = E(Y = 1 \mid X_i) = \beta_1 + \beta_2 X_i$..................................(1)

Where 'P_i' represents the probability of an individual being financialy literate. 'Y' takes the value '1' if the household is financially literate, otherwise '0'.

'X_i' represents independent variables such as age, gender, household type, income group, sector and state zone

The marginal effect of X on the probability of making choice 1 corresponds to the impact of a change in an independent variable in leading to the financial literacy on the margin in our case for instance. This is an indicator of the magnitude of impact on financial literacy given a marginal increase in the independent variables.

β can be interpreted as a marginal effect in terms of the log odds ratio. If we increase X by one unit, the log of the odds ratio will change by β units.

Age: This refers to the age of the head of household

Gender: This is defined according to the sex of the head of the household or of those in whose name bank accounts are operational. It can be either male or female.

Household Types: This refers to the nature of employment of the head of household or of those in whose name bank accounts are operational. Accordingly, three categories have been developed; self-employed, casually, and regularly employed households. The self-employed household has been taken as the benchmark category.

Income Groups: We have formulated five quintiles depending on the level of income. Quintile 1 indicates the lowest level of income; it is also the benchmark category. Quantile 5 indicates the highest income group while Quintiles 2, 3, and 4 belong to the middle-income group.

Sector: This refers to the regional aspect that is whether the household lives in rural or urban areas. The rural sector has been set as a benchmark category.

State Zones: India is a vast country; therefore, it has been divided into six geographical zones, namely North, East, West, South, Central, and North-East zones. North Zone has been taken as the benchmark category.

The nature of the independent variables is listed in Table 9. Table 8 provides the summary statistics of the variables and Table 9 shows the logit regression results.

Table 8: List of Variables Used in Logit Regression

Variables	Nature of Variables
Dependent Variable	
Financial Literacy	Categorical (Yes=1, No=0)
Independent Variables	
Age	Continuous
Gender (Benchmark being Male):	Categorical (Yes=1, No=0)
Household Types (Benchmark being Self-Employed):	
Regular	Categorical
Casual	Categorical
Income Groups (Benchmark being Lower Quintile):	
Quintile -2	Categorical
Quintile -3	Categorical
Quintile -4	Categorical
Quintile -5	Categorical
Sector (Benchmark being Rural)	Categorical (Yes=1, No=0)
State Zones (Benchmark being North Zone)	
East Zone	Categorical

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West Zone	Categorical
South Zone	Categorical
Central Zone	Categorical
North East Zone	Categorical

Source: Authors' Compilation.

Table 9: Summary Statistics of the Variables

Variables	**Observation**	**Mean**	**Std. Dev.**	**Min**	**Max**
Financial Literacy	4,95,573	0.69	0.46	0	1
Age	4,95,573	30.74	19.68	0	110
Gender	4,95,453	0.49	0.50	0	1
Household Types	4,95,573	1.77	0.85	1	3
Income Groups	4,95,573	3.29	1.43	1	5
Sector	4,95,573	1.39	0.49	1	2
State Zones	4,95,573	3.04	1.64	1	6

Source: Authors' estimation.

Table 10: Logit Regression Results

Variables	**Coefficient**	**p-value**
Age	0.0699	0.000***
Gender **(Benchmark being Male):**	-0.3201	0.000***
Household Types (Benchmark being Self Employed):		
Regular	0.1376	0.000***
Casual	-0.0908	0.000***
Income Groups (Benchmark being Lower Quintile):		
Quintile-2	0.0228	0.069*
Quintile-3	0.0260	0.035**
Quintile-4	0.0403	0.001***
Quintile-5	0.0827	0.000***

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Sector (Benchmark being Rural)	0.0294	0.000***
State Zones (Benchmark being North Zone)		
East Zone	0.0553	0.000***
West Zone	0.1159	0.000***
South Zone	0.3099	0.000***
Central Zone	0.2397	0.000***
North East Zone	-0.3838	0.000***
Constant	-0.9746	0.000***
Number of observations: 4,95,453 Prob > chi-square: 0.0000 Pseudo R square: 0.2064		

Source: Authors' estimation.

Age exhibits a positive relationship with financial literacy and the figure is significant. This implies that people tend to gain experience and expertise in relevant matters as they grow older. Besides, one also gains awareness with experience. The result shows a negative relationship between a female with financial literacy (we have already mentioned that male has been taken as the benchmark category) and the figure is significant. This implies that females tend to have low access to financial knowledge and thus they tend to have lower levels of financial literacy. Besides, they also generally do not have decision-making powers in matters of education and finance. Regularly employed households exhibit a positive relationship with financial literacy. On the other hand, the relationship between casually employed households and financial literacy is negative. This implies that employment stability contributes to enhancing levels of financial literacy and lack of job security lessens the scope of financial literacy. All the quintiles of income display a positive relationship with financial literacy and the coefficients are significant for each of the quintiles. This affirms our perception that increased income necessitates opting for financial services beyond having just a bank account. To manage their transactions, people opt for using debit or credit cards and also prefer to use e-wallets. Further, people in urban areas tend to be more financially literate. The relationship between urban life and financial literacy is positive. Urban life is characterised by a heightened division of labor and the structure of work puts severe constraints on leisure time. People cannot always go to the bank and withdraw cash. Therefore, they are forced to have debit/cards or e-wallets as these sorts of financial services save time and effort. Each of the East, West, Central, and South zones tends to have more chances of having financial literacy. The relationship in each of the above-mentioned zones with financial literacy is positive and the coefficients are significant for all of them. This implies that there are necessary financial infrastructure in these zones and that people have an awareness of financial matters. The North-East zone though is an exception in this regard. The relationship between North-East zone and financial literacy is not only negative but the figure is also significant. This means that people in the North-East zone of India do not perform well in terms of financial literacy. This could well be because of a lack of necessary institutional infrastructure in the region and a lack of awareness on the part of individuals.

Conclusion

Financial literacy is an important indicator of household welfare, as a means to economic empowerment of people, especially in rural areas. Our study reveals interesting trends with respect to the level of financial literacy and its role in saving and investment patterns. People in large areas of India have an operational bank account along with debit/card. Chandigarh, Goa, and Himachal Pradesh are among the top performers in terms of financial literacy as people living in both rural and urban areas of these states possess high levels of financial literacy. At the same time, a worrying trend of low level of financial literacy in both rural and urban areas is observed. States like Assam, Bihar, Manipur, Nagaland, and Uttar Pradesh need to catch up with the other states and national average. The study shows that there is a positive association between the level of financial literacy and investment in mutual funds. The study also shows that financial literacy has an impact on borrowing, debt management, and investment options.

Given the differences in financial literacy among states, the focus should be on establishing financially sound infrastructure to bridge the gap and help aid in the integration of targeted sections of the population into the mainstream. In this context, financial institutions need to collaborate with the government on financial literacy initiatives. Thus, there is a need to design financial literacy programs for vulnerable populations like low-income groups, women, and the elderly people and these programs should address their unique financial challenges.

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Appendix

Appendix A: Financial Literacy in Rural India (%)

State	Elementary	Moderate	Advanced	Illiterate
A & N Islands	41.9	38.9	0.5	18.7
Andhra Pradesh	45.4	24.8	3.9	26.0
Arunachal Pradesh	32.1	24.3	1.4	42.2
Assam	30.4	27.0	0.8	41.8
Bihar	42.1	12.4	1.2	44.3
Chandigarh	41.8	26.0	10.1	22.1
Chattisgarh	54.9	20.8	0.5	23.8
D & N Haveli	47.0	25.8	0.0	27.2
Daman & Diu	45.5	34.5	7.9	12.0
Delhi	47.2	25.2	10.6	17.1
Goa	39.3	23.7	6.5	30.6
Gujarat	48.6	15.4	1.1	34.9
Haryana	48.7	19.0	3.5	28.9
Himachal Pradesh	53.5	26.2	4.8	15.5
Jammu & Kashmir	55.3	21.6	2.9	20.2
Jharkhand	51.1	13.2	0.6	35.0
Karnataka	53.4	25.3	2.3	19.1
Kerala	33.3	41.5	3.8	21.5
Lakshadweep	13.9	49.1	1.2	35.8
Madhya Pradesh	56.0	10.1	1.1	32.9
Maharashtra	48.1	18.4	2.8	30.7
Manipur	17.1	29.7	0.5	52.7
Meghalaya	16.5	28.0	0.0	55.4
Mizoram	32.2	22.1	4.3	41.4
Nagaland	8.2	20.9	2.7	68.3

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Orissa	48.2	21.0	0.7	30.1
Pondicherry	35.2	40.9	4.9	19.0
Punjab	50.8	22.5	2.1	24.6
Rajasthan	48.5	17.6	1.7	32.1
Sikkim	20.2	41.6	3.1	35.1
Tamil Nadu	33.7	39.6	2.2	24.5
Telengana	45.0	26.4	3.6	25.0
Tripura	59.9	14.0	0.8	25.3
Uttar Pradesh	49.1	7.3	0.6	42.9
Uttaranchal	39.6	30.3	3.9	26.3
West Bengal	56.0	14.1	0.6	29.3
All India	**47.5**	**17.6**	**1.6**	**33.4**

Source: Authors' Compilation.

Appendix B: Financial Literacy in Urban India (%)

State	Elementary	Moderate	Advanced	Illiterate
A & N Islands	28.0	60.8	2.3	8.9
Andhra Pradesh	27.5	30.9	11.8	29.8
Arunachal Pradesh	36.4	33.6	4.9	25.1
Assam	22.4	35.9	7.3	34.4
Bihar	31.6	20.5	6.8	41.1
Chandigarh	28.9	31.5	19.8	19.7
Chattisgarh	29.3	35.4	7.1	28.1
D & N Haveli	23.2	37.8	10.1	29.0
Daman & Diu	31.5	34.7	12.8	21.0
Delhi	32.2	25.1	14.2	28.5
Goa	31.3	36.3	13.9	18.5
Gujarat	39.9	23.3	10.3	26.5
Haryana	37.1	21.9	10.1	30.9
Himachal Pradesh	29.0	30.5	18.5	21.9
Jammu & Kashmir	41.1	32.9	8.9	17.1
Jharkhand	40.8	23.4	7.3	28.5

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Karnataka	30.4	30.2	17.1	22.3
Kerala	33.3	39.3	5.9	21.5
Lakshadweep	13.2	52.1	2.7	31.9
Madhya Pradesh	44.3	22.6	5.5	27.6
Maharashtra	29.9	26.3	14.1	29.7
Manipur	17.7	38.9	2.8	40.5
Meghalaya	18.9	45.7	3.0	32.3
Mizoram	23.5	40.1	3.7	32.6
Nagaland	11.9	37.5	10.3	40.3
Orissa	25.4	38.9	7.1	28.6
Pondicherry	20.1	44.1	10.9	24.9
Punjab	34.5	29.0	10.1	26.4
Rajasthan	35.7	24.5	9.6	30.2
Sikkim	22.5	47.0	4.7	25.8
Tamil Nadu	20.8	42.5	10.4	26.2
Telengana	17.0	28.2	19.8	34.9
Tripura	50.5	29.9	2.6	17.1
Uttar Pradesh	36.8	18.5	5.7	39.0
Uttaranchal	24.3	30.8	13.8	31.0
West Bengal	39.1	27.3	5.2	28.4
Total	**32.3**	**28.1**	**10.2**	**29.4**

Source: Authors' Compilation.

Appendix C: Financial Literacy Index in Rural and Urban India (%)

State	Rural	Urban
Andhra Pradesh	0.49	0.41
Arunachal Pradesh	0.32	0.38
Assam	0.31	0.32
Bihar	0.28	0.27
Chandigarh	0.68	0.58

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Chhattisgarh	0.41	0.38
Delhi	0.73	0.45
Goa	0.53	0.53
Gujarat	0.35	0.43
Haryana	0.45	0.39
Himachal Pradesh	0.58	0.55
Jammu & Kashmir	0.50	0.49
Jharkhand	0.33	0.38
Karnataka	0.49	0.53
Kerala	0.54	0.42
Madhya Pradesh	0.35	0.37
Maharashtra	0.42	0.44
Manipur	0.24	0.22
Meghalaya	0.20	0.29
Mizoram	0.40	0.30
Nagaland	0.18	0.30
Orissa	0.37	0.37
Pondicherry	0.59	0.44
Punjab	0.45	0.43
Rajasthan	0.38	0.39
Sikkim	0.44	0.36
Tamil Nadu	0.48	0.42
Telengana	0.49	0.45
Tripura	0.40	0.43
Uttar Pradesh	0.27	0.28
Uttaranchal	0.50	0.42
West Bengal	0.37	0.36
Total	**0.37**	**0.40**

Source: Authors' Compilation.

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