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## Financial literacy for rural India: A case study of Aligarh district

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### Abstract

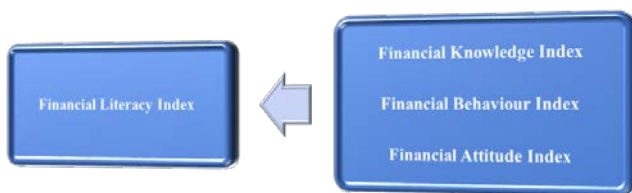
The dynamic financial sector of India has been rapidly growing over the last few years. There has been significant development over the previous five years to move India into digital financial inclusion through cost-effective, convenient, and secure means, which bring the unbanked rural households into the economic mainstream. Despite the rapid growth of the sector, significant sections of the country's population experience these positive changes at a much slower pace. Although the majority of the households having a bank account, they are unaware of the financial services, products and investment provisions, less financial knowledge, unsatisfactory and adverse financial behavior, and attitudes. Bank accounts are being opened forcefully as part of drawing MGNREGA wage, old age, and agricultural pension, getting LPG and other subsidies, etc... Many of them are unfamiliar with even the most basic economic and financial concepts needed to make sensible saving and investment decisions and proper utilization of digital tools. All these have led to the financial illiteracy of the people. Their knowledge of various financial institutions, financial activities, and financial products is not adequate. A comprehensive approach for measuring financial literacy is developed by constructing the Financial Literacy Index (FLI) comprising the indicators likes' financial knowledge, financial behavior and financial attitude. The study is based on the primary data which is collected from the rural areas of Aligarh district.

**Keywords:** financial literacy, determinants, financial knowledge, financial behaviour, financial attitude

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### 1. Introduction

In this 21<sup>st</sup> century, basic financial literacy is one of the essential competencies an individual should have to survive financial problems. Financial illiteracy of people often results in a lack of understanding, which in turn makes them distance themselves from the formal financial institutions. Even though banks have some suitable financial products for all people, due to their lack of knowledge and low literacy levels makes them distance themselves from financial services. "Financial literacy refers to the knowledge and understanding of concepts and risks related to financial matters and the skills, and the level of confidence to put in such knowledge and understanding in order to make effective financial decisions across a range, to enhance the financial well-being of individuals and community, and to enable participation in economic life" (OECD, 2019) <sup>[2]</sup>.



It is the ability to learn, monitor, and effectively use financial resources to improve the well-being and economic security of an individual. "Financial literacy is a mixture of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately

attain individual financial well-being." (Atkinson & Messy, 2012a) <sup>[2]</sup> (OECD/INFE, 2016) <sup>[15]</sup>. This definition is now globally acknowledged and was also endorsed by G20 leaders in 2012 (OECD, 2018) <sup>[14]</sup>.

Financial Literacy & Inclusion Survey (NISM, 2014) in Uttar Pradesh, comprises of 5768 face-to-face personal interviews in the age-group of 18-80 Years in 15 districts of Uttar Pradesh. The overall financial literacy is measured by combining financial attitude, behaviour & knowledge as adopted by OECD. The survey found that urban respondents are more financially literate than rural respondents. Financial literacy within males and females is 12 percent and 8 percent, respectively. General category respondents are more financially literate and included, followed by OBC, SC, and ST social category respondents. Financial literacy in various age groups is around 15 percent being highest in the case of 50-65 years age group. Financial inclusion is highest in the case of 50-65 years age group followed by 25-49 years, 66-80 years, and 18-24 years age groups. An increasing trend is observed for financial literacy as well as an inclusion with the increase in income level. The highest level of financial literacy and inclusion is seen in the case of Government employees, followed by retired persons and private employees. In the case of self-employed respondents, more than 10 percent are found financially literate.

This paper tried to measure the financial literacy of rural households of Aligarh district based primary data with five hundred sample size. A comprehensive approach for measuring financial literacy is developed by constructing the Financial Literacy Index (FLI) comprising the indicators

likes financial knowledge, financial behavior and financial attitude.

**2. Methodology for Measuring the Financial Literacy**

The concept of financial literacy is considered to be a complex phenomenon comprising financial knowledge, attitudes, and behaviors of rural households. The basic financial literacy is a combination of financial awareness, knowledge, skill, attitude, and behavior necessary to make sound financial and economic decisions for achieving financial wellbeing (OECD-2011) [10]. A comprehensive approach of measuring financial literacy will be employed by comprising financial knowledge, behavior, and attitude for this study which is used by OECD. To measure financial literacy and awareness about financial products and services same methodology of OECD will be used. A comprehensive approach for measuring financial literacy will be employed by comprising financial knowledge, behavior, and attitudes for this study. The overall financial literacy score is measured through a sum of the three components of financial literacy divided by three.

A well-structured questionnaire designed to capture information about financial behavior, attitudes, and knowledge to assess levels of basic financial literacy. The questions cover planning and managing finances, choosing and using financial products, financial knowledge and a range of attitudes and behaviors that impact on financial literacy and financial well-being. The overall Financial Literacy Index (FLI) is measured through a sum of the three components of financial literacy.

**Table 1:** Components Financial Literacy

S.No	Components	Minimum Score	Maximum Score
1	Financial Knowledge	0	10
2	Financial Behaviour	0	9
3	Financial Attitude	1	15

Financial literacy is a combination and integration of financial awareness, knowledge, skill, attitude and behavior essential to make financial decisions and ultimately achieve financial wellbeing of individual and community (OECD, 2011) [10]. A comprehensive approach of measuring financial literacy will be employed by comprising three independent dimensions representing three different aspects of financial literacy namely financial knowledge, behavior, and attitude for this study as proposed by Organization for Economic co-operation and Development (OECD). The overall financial literacy index is measured by taking the arithmetic three components of financial literacy. Having first defined the minimum and maximum values, the dimension-specific indices are the calculated as follows:

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

After calculating the indices for the three dimensions, the scores are aggregated into a composite index using Arithmetic mean, which is the average of the three dimensions indices.

$$FLI = \frac{FKI + FBI + FAI}{3}$$

Where

FLI = Financial Literacy Index

FKI = Financial Knowledge Index

FBI = Financial Behaviour Index

FAI = Financial Attitude Index

Financial Literacy Index value lies between zero (financially illiterate) and one (the highest financial literacy) and tehsils, blocks and villages of Aligarh districts are then ranked accordingly.

Category	Financial Literacy Score
Poor Financial Literacy	0 - 0.25
Satisfactory Financial Literacy	0.25 - 0.50
Good Financial Literacy	0.51 - 0.75
Excellent Financial Literacy	0.76 - 1.00

The respondent who scores is zero would be considered financial illiterate. The respondent who scores more than zero points would be technically considered financially literate. However, we can further segregate financial literate segment into four categories – poor financial literacy, satisfactory financial literacy, good financial literacy and excellent financial literacy. The respondent who scores less than 0.25 points would be considered poor financial literate. The respondent who scores more than 0.25 points but scores less or equal to 0.50 points would be considered satisfactory financial literate. The respondent who scores more than 0.50 points but scores less or equal to 0.75 points would be considered good financial literate. The respondent who scores more than 0.75 points would be considered excellent financial literate.

**3. Financial Knowledge**

The knowledge of financial concepts, the ability to apply numeracy skills in financial matters, people able to act and manage the financial crisis, and their reaction to news and events may have the highest implications for the financial well-being of poor rural households. The core questionnaire contains sufficient financial knowledge questions to provide a good overview of a person’s basic knowledge, their general willingness to absorb financial information, and the ability to apply knowledge to particular problems. The financial knowledge focused on responses to ten questions framed to test different aspects of knowledge that are widely considered and accepted to be useful to individuals when making financial decisions. The knowledge score is estimated as the number of correct responses to the ten financial knowledge questions, and it ranges between 0 and 10. Thus, awareness of digital technologies is the key to the success of digital financial inclusion. The Financial Knowledge Index (FKI) was calculated using a minimum value of zero and a maximum value of 10 points. The normalized index value of the indicator ranges from zero to one where zero represents lack of financial knowledge and one shows full knowledge of the same.

**Table 2:** The Financial Knowledge Score

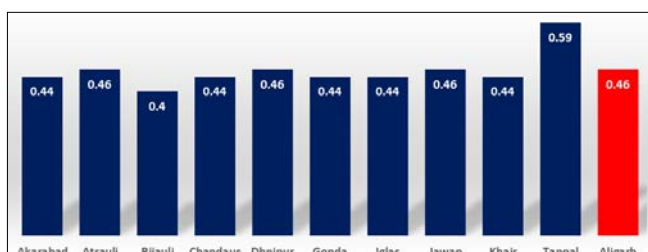
Score	No. of Respondents	Percentage
0	7	1.40
1	8	1.60
2	47	9.40
3	76	15.20
4	100	20.00
5	130	26.00
6	171	14.20
7	15	3.00
8	42	8.40
9	4	0.80
10	0	0.00
Total	500	100.00

Table 2 shows the financial knowledge scores of respondents of Aligarh district. The survey found that the maximum respondents (26 percent) scored five out of 10, followed by scores of four (20 percent), scores of three (15.20 percent) and six (14.20 percent). The field survey found that only 52.4 percent of respondents were scored five and more, showing that a satisfactory level of financial knowledge in the rural areas of Aligarh district. The average score of basic financial knowledge score in the rural areas of Aligarh district is 4.6 points. The financial knowledge index of Aligarh district is only 0.46 reveals a satisfactory level of financial knowledge.

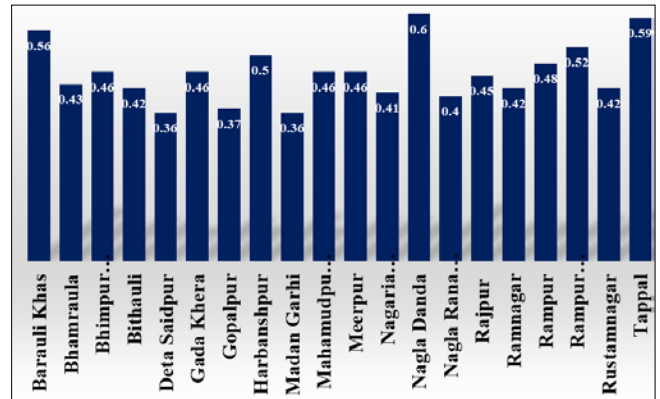
**Table 3:** Tehsil-wise Financial Knowledge

S.No	Tehsil	Average Score	FKI
1	Atrauli	4.30	0.43
2	Gabhana	4.51	0.45
3	Iglas	4.38	0.44
4	khair	5.17	0.52
5	Koil	4.47	0.45
	Aligarh	4.57	0.46

Table 3 shows the tehsil wise average score of basic financial knowledge where the highest score is found in Khair Tehsil with 5.17 points represent a good financial knowledge followed by Gabhana with 4.51 and along with the least average score (4.30) and financial knowledge index value of 0.43 found in Atrauli tehsil. Figure 1 displays the block-wise financial knowledge index. The block-wise financial knowledge index demonstrates that the Tappal block from Khair tehsil found the highest value of index with 0.59, followed by Jawan Sikanderpur block from Gabhana Tehsil, Atrauli block from Atrauli tehsil and Dhanipur block of Koil tehsil reported 0.46 points each. The least financial knowledge index found in the Bijuali block from Atrauli tehsil with the value of 0.40 represents a satisfactory level of financial knowledge.



**Fig 1:** Block-wise Financial Knowledge Index



**Fig 2:** Village-wise Financial Knowledge Index

The village wise financial knowledge index is shown in figure 2. The survey found that Nagla Danda village of Tappal block of Khair Tehsil reported a high financial knowledge index with 0.60 value representing good financial knowledge followed by Tappal village of Tappal block of Khair Tehsil and Barauli Khas village of Jawan Sikanderpur block with index value of 0.59 and 0.56 respectively against Aligarh district scenario of 0.46 index value. The lowest index of financial knowledge is found in the Deta Sidapur village of Chandaus block and Madan Garhi village of Jawan Sikanderpur tehsil with a value of only 0.36.

**4. Financial Behaviour**

How a person behaves will have a significant impact on their financial wellbeing. It is, therefore, essential to capture evidence of behavior within a financial literacy measure. It focused on a wide range of financial behaviours with an emphasis on those that can enhance or reduce financial wellbeing. The OECD INFE core questionnaire does this by asking a variety of questions in different styles to find out about behaviors such as thinking before making a purchase, paying bills on time and budgeting, saving, and borrowing to make ends meet. The positive results from being financially literate are driven by behavior such as planning expenses and strengthening a financial safety net; conversely, certain practices, such as over-using credit, can reduce financial wellbeing. The financial behaviour comprised of a total of nine questions, which elicit information about various ways in which the respondents manage their money, make financial decisions, keep a tab on their expenses, and timeliness in terms of paying bills, etc. They also included questions on whether people set any long-term goals, have a household budget, and are personally or jointly responsible for it, the way they choose their financial products, and if they have borrowed anything to make ends meet.

To understand the overall status of the respondents with regard to financial behaviour, a combined score of these nine questions was calculated. The Financial Behaviour Index (FBI) was calculated using a minimum value of zero and a maximum value of nine points. The normalized index value of the indicator ranges from zero to one where zero represents a lack of positive financial behaviour and one shows positive financial behaviour. The financial behaviour index of Aligarh district is only 0.58 reveals a good level of financial behaviour.

**Table 4:** The Financial Behavior Score

Score	No. of Respondents	Percentage
0	10	2.0
1	26	5.2
2	25	5.0
3	20	4.0
4	39	7.8
6	90	18.0
7	171	34.2
8	89	17.8
9	30	6.0
Total	500	100.00

Table 4 shows the financial behavior scores of respondents of the Aligarh district. The survey found that the maximum respondents (34.2 percent) scored seven out of nine, followed by scores of six (18 percent) and eight (17.8 percent). By looking at the table, 76 percent of the total respondents can score higher than equal to 6 on the behavior test. The remaining 24 percent of the respondents have achieved a relatively lower score on the behavioral test, indicating minor scope for improvement in financial behavior.

**Table 5:** Tehsil-wise Financial Behavior

S.No	Tehsil	Average Score	FBI
1	Atrauli	4.72	0.52
2	Gabhana	5.44	0.60
3	Iglas	5.16	0.57
4	khair	5.75	0.64
5	Koil	5.24	0.58
	Aligarh	5.26	0.58

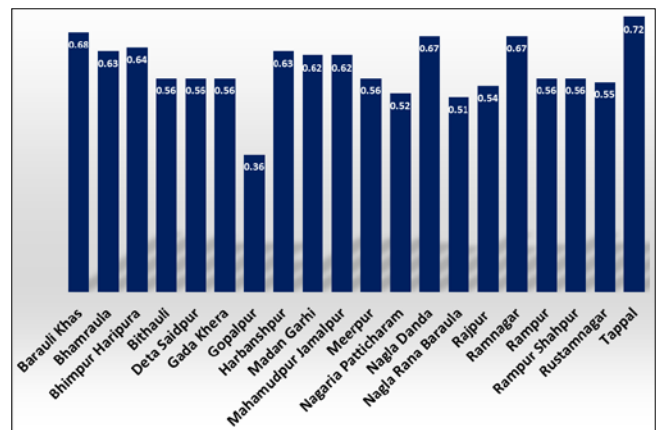
Table 5 shows the tehsil average score and index of financial behavior where the highest index secured by Khair Tehsils with 0.64 points followed by Gabhana with 0.60 and along with the least score of 0.52 in Atrauli tehsil. All these FBI values represent a good financial behavior of respondents of rural areas of Aligarh. Figure 3 displays a block-wise average basic financial behavior score. The block-wise index of financial behavior shows that the Tappal block from Khair Tehsil secured the highest point with 0.70 and the Bijauli block from Atrauli tehsil reported 0.45 points as the least financial behavioral index as against average district financial literacy score of 0.58 points. The overall FBI shows a good financial behavior of respondents among these blocks.



**Fig 3:** Block-wise Financial Behaviour Index

The village-wise financial behavior index is shown in figure 4. The survey found that the Tappal village of the Tappal block of Khair Tehsil gained a high index financial behavior with 0.72, followed by Barauli Khas village of Jawan Sikanderpur block with 0.68 points as against Aligarh

District scenario of 0.58 points. The lowest index of financial behavior score found in the Gopalpur village of Bijauli block with only 0.36 index values.



**Fig 4:** Village-wise Financial Behaviour Index

**5. Financial Attitude**

The financial attitude is measured from statements that focused on preferences for the short term through living for and spending money. The questions asked with households to use a scale to indicate whether they agree or disagree with particular statements. The financial attitudes average score is computed as the sum of the values for the three statements and then divided by three. This score ranges from 1 to 5. The questionnaire adopted the financial attitude scale used in the OECD evaluation, which comprised of three attitude related questions with responses captured on a five-point Likert scale. The average score could vary from a minimum of 1 to a maximum of 5. All the individuals who scored three or above were considered as a positive financial attitude, that is, a saving orientation. The financial attitude indicators are first normalized using a minimum value and maximum value of the score and actual value achieved by the respondents. Financial Attitude Index (FAI) is calculated using a minimum value of one and a maximum value of 15 points. The normalized value of the indicator ranges from zero to one where zero represents the lack of or low financial attitude towards financial products and services and one shows a perfect positive attitude.

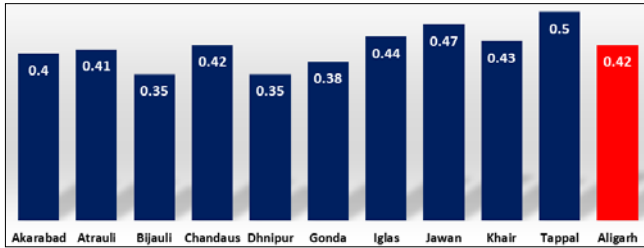
**Table 6:** The Financial Attitude Score

Score	No. of Respondents	Percentage
1	33	2.9
2	314	55.0
3	135	35.5
4	14	4.9
5	4	1.8
Total	500	100

By looking at table 6, only 42.2 percent of the total respondents can score higher than equal to 3 on the financial attitude test. A remaining significant proportion, 58 % of the respondents, have achieved a relatively lower score on the test, indicating major scope for improvement and need for intervention in financial attitude. The 55 percent of the respondents secured only two out of five, showing poor performance in terms of financial attitude test. The financial attitude index of Aligarh district is only 0.42 reveals a satisfactory level of financial attitude.

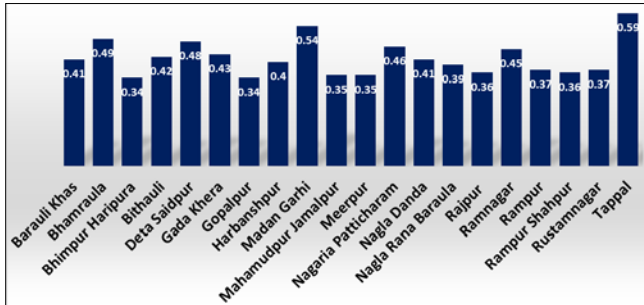
**Table 7:** Tehsil-wise Average Financial Attitude

S.No	Tehsil	Average Score	FAI
1	Atrauli	2.11	0.38
2	Gabhana	2.42	0.45
3	Iglas	2.25	0.41
4	Khair	2.49	0.46
5	Koil	2.08	0.38
	Aligarh	2.27	0.42



**Fig 5:** Block-wise Financial Attitude Index

Table 7 shows the tehsil wise average score and index financial attitude where the highest score found in Khair Tehsil with 0.46 points followed by Ghabhana tehsils with 0.45 and along with the least score of 0.38 shared by Atrauli and Koil tehsils. Figure 5 displays a block-wise financial attitude index. The block-wise index of financial attitude shows that the Tappal block from Khair Tehsil found the highest value with 0.50, followed by Jawan block from Iglas tehsil with 0.47 points. Bijauli block from Atrauli tehsil and Dhanipur block from Koil tehsil are gained only 0.35 value as the least index of financial attitude as against district index of 0.42.



**Fig 6:** Village-wise Financial Attitude Index

The village wise index of financial attitude shown in figure 6 the survey found that the Tappal village of Tappal block of Khair Tehsil reported a high financial attitude index with 0.59 points followed by Madan Garhi village of Jawan Sikanderpur block as against Aligarh district scenario of 2.3 points. The lowest financial attitude index is found in Bhimpur Haripura village of Akarabad block and Gopalpur village of Bijauli block shared with the value of only 0.34 points.

**6. Financial Literacy Index (FLI)**

The concept of financial literacy is considered to be a complex phenomenon comprising financial knowledge, attitudes, and behaviors of rural households. In this study, we will do in two ways- firstly,

By looking at whether respondents scores on several components and secondly, by adding the scores together. To assess the levels of overall financial literacy, a questionnaire developed to capture information about financial behavior, attitudes, and knowledge. The questions cover planning and managing finances, choosing and using financial products, financial knowledge, and a range of attitudes and behaviors that impact on financial literacy and financial well-being. The overall financial literacy score is measured through a sum of the three components of financial literacy. The score can take a minimum value of 1 and a maximum value of 24. After calculating the indices for the three dimensions, the scores are aggregated into a composite index using arithmetic mean, which is the average of the three dimensions indices. This is done by normalizing the indicators into indices whose values range from 0 to 1, using the minimum and maximum values. The overall FLI is then calculated by taking the arithmetic mean of normalized indices measuring achievements in each dimension. The study found a satisfactory financial literacy in the rural areas of Aligarh district. The majority of the respondent (45.8 percent) are found in the category of good financial literacy and their financial literacy index is 0.56, showing a good financial literacy level. The 40 percent of respondents are under the category of satisfactory financial literacy and FLI value is 0.44. The survey found that 10.4 percent of respondents are poor financially literate and surprisingly, only 3.8 percent of respondents come under the category of excellent financial literate along with the FLI of 0.79.

**Table 8:** Tehsil-wise Financial Literacy Index

S.No	Tehsil	FKI	FBI	FAI	FLI
1	Atrauli	0.43	0.52	0.38	0.44
2	Gabhana	0.45	0.60	0.45	0.50
3	Iglas	0.44	0.57	0.41	0.47
4	Khair	0.52	0.64	0.46	0.54
5	Koil	0.45	0.58	0.38	0.47
	Aligarh	0.46	0.58	0.42	0.49

**Table 9:** Category-wise (Tehsil) Percentage of Financial Literacy

Tehsil	Poor	Satisfactory	Good	Excellent	Total
Atrauli	21.0	31.0	48.0	0.0	100
Gabhana	3.0	52.0	43.0	2.0	100
Iglas	19.0	26.0	51.0	4.0	100
khair	1.0	51.0	35.0	13.0	100
Koil	8.0	40.0	52.0	0.0	100
Total	10.4	40.0	45.8	3.8	100

Table 8 shows the tehsil wise financial literacy index where the highest index value found in Khair Tehsil with the value of 0.54 followed by Gabhana tehsils with 0.50 points and along with the least index value of 0.44 in Atrauli tehsil. Table 10 displays the block-wise financial literacy index. The block-wise financial literacy index shows that the Tappal block from Khair Tehsil found the highest index value with 0.60, followed by Jawan Sikanderpur block from Gabhana tehsil with 0.53 index value. Bijauli block from Atrauli tehsil secured only 0.40 as the least financial literacy index as against district index value of 0.49.

**Table 10:** Block-wise Financial Literacy Index

S.No	Blocks	FKI	FBI	FAI	FLI
1	Akarabad	0.44	0.58	0.40	0.47
2	Atrauli	0.46	0.60	0.41	0.49
3	Bijauli	0.40	0.45	0.35	0.40
4	Chandaus	0.44	0.56	0.42	0.48
5	Dhnipur	0.46	0.59	0.35	0.46
6	Gonda	0.44	0.53	0.38	0.45
7	Iglas	0.44	0.61	0.44	0.50
8	Jawan	0.46	0.65	0.47	0.53
9	Khair	0.44	0.58	0.43	0.48
10	Tappal	0.59	0.70	0.50	0.60
	Aligarh	0.46	0.58	0.42	0.49

The village wise financial literacy index is shown in table 12. The survey found that the Tappal village of the Tappal block of Khair Tehsil reported a high financial literacy index value with 0.63, followed by Nagla Danda village of Gonda block with the value of 0.56. The lowest financial literacy index is found in the Gopalpur village of Bijauli block with a value of only 0.36.

**Table 12:** Village-wise Financial Literacy Index

S.No	Village	FKI	FBI	FAI	FLI
1	Barauli Khas	0.56	0.68	0.41	0.55
2	Bhamraula	0.43	0.63	0.49	0.52
3	Bhimpur Haripura	0.46	0.64	0.34	0.48
4	Bithauli	0.42	0.56	0.42	0.47
5	Deta Saidpur	0.36	0.56	0.48	0.47
6	Gada Khera	0.46	0.56	0.43	0.48
7	Gopalpur	0.37	0.36	0.34	0.36
8	Harbanshpur	0.50	0.63	0.40	0.51
9	Madan Garhi	0.36	0.62	0.54	0.51
10	Mahamudpur Jamalpur	0.46	0.62	0.35	0.48
11	Meerpur	0.46	0.56	0.35	0.45
12	Nagaria Patticharam	0.41	0.52	0.46	0.46
13	Nagla Danda	0.60	0.67	0.41	0.56
14	Nagla Rana Baraula	0.40	0.51	0.39	0.43
15	Rajpur	0.45	0.54	0.36	0.45
16	Ramnagar	0.42	0.67	0.45	0.51
17	Rampur	0.48	0.56	0.37	0.47
18	Rampur Shahpur	0.52	0.56	0.36	0.48
19	Rustamnagar	0.42	0.55	0.37	0.45
20	Tappal	0.59	0.72	0.59	0.63
	Aligarh	0.46	0.58	0.42	0.49

The overall average financial literacy score in the rural area of Aligarh district is found to be a highly satisfactory level. These results expose that there is a need for persistent and prolonged intervention from all the stakeholders, including policymakers, to educate and improve the level of basic financial literacy for bright financial decision making in the rural areas. There is a need for empowering and enlightening rural people so that they are knowledgeable about basic finance in a way that is relevant to their sustenance and that enables them to use this knowledge to evaluate products and services available and make informed decisions. As a consequence of the changing structure of our economy, financial knowledge has become not just a convenience but an essential survival tool. A lack of financial knowledge may contribute to the making of poor financial choices that could be harmful to both individuals and communities.

**7. Conclusion**

Financial literacy is a way by which individuals can enhance their understanding of the financial concepts, markets, and products to take effective action to improve overall well-being and avoid distress in financial matters, especially vulnerable people of the rural area and thus improve their financial status. Although various initiatives have been undertaken by the government and financial institutions to improve it, the level of digital and financial literacy is very poor in India due to their incapability to absorb the same. This level of literacy cannot accelerate the pace of financial inclusion and will hamper the rural transformation. There is an immediate action needed to create awareness among the citizens, especially in rural and semi-urban areas regarding digital finance services and also enable/support in access to digital financial services options. The post-demonetization period, transactions like e-commerce & m-commerce success is largely attributed to the phenomenal growth of various digital payment technologies such as card payments, electronic fund transfers, payment gateways, e-payments, smart cards, mobile money wallets, etc. There is an immediate requirement of creating awareness and skill among the citizens, especially in rural and semi-urban areas, regarding digital finance services and products and also enable/support in access to digital finance service options.

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