

Relationship between Demographic Factors and Digital Financial Literacy

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Abstract: Digital financial literacy has recently piqued the interest of researchers and policymakers worldwide, especially in India. Financial inclusion could be effectively achieved by promoting digital financial literacy. Digitalization and faster internet technologies lead to a greater rural and urban digital divide due to their digital incompetency and illiteracy. Much literature shows that demographic variables namely age, gender, marital status, level of education, social groups, religion, profession, size of the family, APL/BPL, and the size of the landholding has a significant relation with digital financial literacy. Therefore, all these factors should be taken into account when developing financial training programmes to improve digital financial literacy. This paper tries to identify the relationship between digital financial literacy and demographic factors in rural areas of India. A multi-stage sampling technique has been used for choosing the 500 respondents from the rural areas of the Aligarh district of Uttar Pradesh for the study.

Keywords: Digital Financial Literacy, Digitalization, Financial Inclusion, Digital Financial Infrastructure.

1. INTRODUCTION

Digital financial literacy has recently piqued the interest of researchers and policymakers worldwide, especially in India. Financial inclusion could be effectively achieved by promoting digital financial literacy (OECD/INFE, 2018; Ozili, 2018). The significant advantages of digital financial literacy are acquiring information on financial management and getting self-motivated through heightened confidence levels for managing and taking financial activities and decisions. However, the reach of digital financial services is still questionable and unsatisfactory in many rural areas. It is high time to make it convenient

for rural people to get included in the arena of the financial system with digital financial literacy. The digital financial divide is still one of the significant issues in rural-urban areas (Park & Mercado, 2015), which hinders digital financial transactions (Townsend *et al.*, 2013; Ben *et al.*, 2017). Thus digitalization and faster internet technologies leads to greater rural and urban digital divide due to their digital incompetency and illiteracy (Malady & Buckley, 2014; OECD, 2018; Singh & Rana, 2017) in most the developing countries including India (ITU, 2016; Thomas & Krishnamurthi, 2017). Developing and constructing physical infrastructures for the smooth functioning of digital transactions in far-flung rural areas is much more expensive (Prasad *et al.*, 2018). The higher expenses of construction, maintenance and other operating expenses have been a significant hindrance to expanding the digital financial services and infrastructures to the poor sections of society or rural-based areas where such amenities are difficult to provide.

In India, there is a lack of scholarly publications that can assist decision-makers in developing a long-term financial literacy programme, especially in the digitalized era. Much literature shows that the adult population has a significant digital financial literacy gap. As a result, adults should not be viewed as a homogeneous group; rather, level of education, marital status, gender, social groups, religion, profession, size of the family, APL/BPL, age and the size of the landholding should all be taken into account when developing financial training programmes. Therefore, this paper tries to identify the relationship between digital financial literacy and demographic factors in rural areas of India.

2. LITERATURE REVIEW

A significant aspect of financial literacy is identifying its relationship with demographic factors. The literature review on digital financial literacy brings into light some demographic characteristics that significantly impact people's digital financial literacy level. Many studies and evidence have sought to identify these relationships. Several studies give clear evidence that gender significantly affects financial literacy. Results are shown by Atkinson & Messy, (2012); Calamato, (2011); Cheronoh, (2019); Hung *et al.*, (2012); Ibrahim *et al.*, (2009); Lusardi & Mitchell, (2011); Lusardi & Wallace, (2013); Taylor, (2011) found that male is more financially literate as compared to female. Higher digital financial literacy levels are expected to be found in persons with a higher level of education and, thereby, superior access to financial products and services. Corroborating such evidence, Lusardi & Mitchell, (2011) found that individuals with a low level of education are less likely to answer the questions correctly regarding financial literacy and more likely to say they do not know the answer, especially women.

Several studies revealed that financial literacy is highly and positively correlated with higher education (Agarwalla *et al.*, 2017; Bhushan & Medury, 2013; Gutti, 2020; Ibrahim *et al.*, 2009; Thaler, 2013). According to ANZ Banking Group, (2003); Brown & Graf, (2013), the single person has a significant propensity to lower the level of financial literacy compared to married people. When an individual has a low financial literacy level, there is a risk of taking bad financial and economic decisions that, in the long term, may result in debts, and the latter endangers the well-being of their relationships (Calamato, 2011; Potrich *et al.*, 2016). Financial literacy is also associated with income levels of people. Higher financial literacy are likely to be shown by individuals with higher personal income levels and lower by those with lower incomes (Anz, 2008; Potrich *et al.*, 2016; Shusha, 2017). Several studies examine that age is one of the most critical factors that affect digital financial literacy. Financial capability varies significantly with age for both men and women, increasing rapidly (Cherono & Ntinyari, 2019; Gutti, 2020; Taylor, 2011). A high and positive relationship exists between age and financial well-being variables and financial literacy (Taft *et al.*, 2013).

3. METHODOLOGY AND SOURCES OF DATA

The study makes a worthwhile attempt to identify the relationship between demographic variables and digital financial literacy among rural households of the Aligarh district in Uttar Pradesh. A multi-stage sampling technique has been used for choosing the respondents for the study. The district has been divided into five administrative tehsils, and for this study, all the five tehsils were selected at the first stage. The five tehsils are further subdivided into 12 development blocks. Two blocks were selected from each tehsil for the study based on the general literacy rate as per Census 2011. Thus, ten blocks out of 12 were selected in the second stage. In the third stage, two villages were selected from each selected development block of the Aligarh district based on the same criterion. Thus, a total of 20 villages were chosen accordingly. From each selected village, 25 respondents were chosen in the final stage. Therefore, for this study, a total of 500 samples were taken accordingly.

The primary data were collected through survey schedules from respondent. Before finalizing the interview schedule, a pre-testing was conducted. The tool was developed after several rounds of interaction with a few informants, banking officials and other experts. Before administering the interview schedule to the sample population, a pre-test was done and checked the reliability. The targeted population of this study is rural people of the Aligarh district of Uttar Pradesh, which included all men and women aged 15 years or above. The null hypothesis established no relationship between digital financial literacy and demographic factors.

Digital financial awareness, digital financial skill and knowledge and digital financial behaviour and attitude are used to estimate digital financial literacy in the present study. The independent t-test is used to determine the statistical significance of the differences between the value of different parameters, i.e. demographic factors and digital financial literacy among the two groups. Similarly, a one-way ANOVA test is used to examine the statistical significance of the differences between the values of different parameters among more than two groups.

4. GENDER-WISE DIGITAL FINANCIAL LITERACY

While considering the factor 'gender', in support of literature, as expected, the larger proportions of male respondents than female respondents scored a high index value of digital financial literacy. The digital financial literacy index of males is higher with the value of 0.25 against the females whose index value is only 0.17 points, as shown in Table: 1. Eighty-three percent of the female are in the poor category of digital financial literacy, and the remaining 17 percent are in satisfactory digital financial literacy. However, no female members are found in the good and excellent category of digital financial literacy. Similarly, the major proportion of male members is found in the poor category of digital financial literacy, and 26 percent are in satisfactory digital financial literacy. As against females, 6.7 percent of male members are in good digital financial literacy, but no one is found in excellent digital financial literacy. Thus, while comparing men with women, it is to be noted that the literacy on finance is comparatively high in the case of men than women in the rural areas of Aligarh district. The digital financial literacy average score of male and females are statistically significantly different because the *p-value* is less than 0.05 ($t = 4.336, p < 0.05$).

Table 1: Gender-wise Digital Financial Literacy (Percent)

<i>Gender</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>t (DFLI)</i>	<i>Sig</i>
Female	83.0	17.0	0.0	0.00	0.17	4.336	.0000
Male	67.3	26.0	6.7	0.00	0.25		

Source: Author's Calculation from Field Survey

5. EDUCATION-WISE DIGITAL FINANCIAL LITERACY

It has been revealed from several studies that educational level of respondent is having a significant effect on the digital financial literacy. More digital financially literate persons are likely to be more educated as revealed from the results of the various studies. It is also expected that individuals with higher level of education will have superior access to the financial products and services as they are having high digital financial literacy. As revealed

through the survey, it is noted that there will be an increase in the digital financial literacy index with the increase in the level of education. The digital financial literacy index (DFLI) of illiterate people is only 0.14, and all of them remain under the category of poor digital financial literacy, followed by lower primary 0.17 and the upper primary is 0.20. Although the DFLI is increasing along with the increasing level of education, the major proportions of them are found in poor digital financial literacy groups. The DFLI of higher secondary school is 0.30 showing the satisfactory level of digital financial literacy. Interestingly, the DFLI of graduates and its above level of education is found as 0.56, showing a good digital financial literacy level. It found that along with increase in the educational level of people, the level of digital financial literacy also increases.

The educational attainment is measured to be an imperative demographic variable as it would influence the ability to make a financial decision. Association between the educational level of the respondents and their digital financial literacy was established through rejection of the null hypotheses, ($F = 341.186$, $p < 0.05$) proving that there exists a statistically significant difference among the various levels of education of respondent and financial literacy.

Table 2: Education-wise Digital Financial Literacy

<i>Level of Education</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig</i>
Illiterate	100.0	0.0	0.0	0.0	0.14	341.186	.000
LP	97.7	2.3	0.0	0.0	0.17		
UP	89.9	10.1	0.0	0.0	0.20		
HSS	31.5	67.8	0.7	0.0	0.30		
Graduate	0.0	31.0	69.0	0.0	0.56		
Above Graduation	0.0	18.2	81.8	0.0	0.56		

Source: Author's Calculation from Field Survey

6. MARITAL STATUS AND DIGITAL FINANCIAL LITERACY

Status of marriage of the respondents is also associated with the level of digital financial literacy of rural households of Aligarh district. The survey found that unmarried respondent has high digital financial literacy than married. The digital financial literacy index of the unmarried respondent is found to be 0.34 represents satisfactory digital financial literacy as against the married whose score is reported as only 0.24, which comes under the category of poor digital financial literacy. 71.2 percent of married respondents and 42.1 percent of unmarried were reported under the poor digital financial

literacy groups, and surprisingly, no respondent comes under excellent digital financial literacy category, as shown in Table 3. There is a significant difference were found between marital status of the respondents and digital financial literacy ($t = -5.008, p < 0.05$) indicated by insignificant value of 0.000 at five percent level.

Table 3: Marital Status and Digital Financial Literacy

<i>Marital Status</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>t (DFLI)</i>	<i>Sig</i>
Married	71.2	23.8	5.0	0.0	0.24	-5.008	.000
Unmarried	42.1	39.5	18.4	0.0	0.34		
Widow	0.0	0.0	0.0	0.0	0.0		

Source: Author's Calculation from Field Survey

7. RELIGION-WISE DIGITAL FINANCIAL LITERACY

Many studies found that religious belief has the significant effect on financial decisions of the individual. The religion-wise digital financial literacy index is shown in the table 4. The performance of the people following Hindu religion is found to be better than Muslims. The DFLI of Hindu respondents is 0.25, represent just satisfactory digital financial literacy and performing well as compared to Muslims whose DFLI is only 0.20 showing poor digital financial literacy. Interestingly, the significant proportion of respondents of both religions are coming under poor digital financial literacy showing the backwardness related to digital literacy and no one is found under excellent digital financial literacy category. There is a significant difference exists between digital financial literacy and the religious groups of respondents ($t = -3.119, p < 0.05$).

Table 4: Religion-wise Digital Financial Literacy

<i>Religion</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>t (DFLI)</i>	<i>Sig</i>
Muslim	82.3	13.9	3.8	0.0	0.20	-3.119	.001
Hindu	66.5	27.1	6.4	0.0	0.25		
Others	0.0	0.0	0.0	0.0	0.0		

Source: Author's Calculation from Field Survey

8. AGE-WISE DIGITAL FINANCIAL LITERACY

From the review of certain literature, it is clear that the age of individuals is having close connection with the literacy over finance and also proven through studies that high digital financial literacy is accompanied as the age of the person increases. It is expected that maturity of the person makes reforming of attitudes, skills and more

knowledge. Interestingly, while comparing the respondents in the middle age and old, it is revealed that, the younger generation have much more digital financial literacy. Table 5 shows that digital financial literacy of age group 18- 39 is highest with an index value of 0.27 represents satisfactory digital financial literacy followed by middle age group (40-59) and older people (60 and above) with index values of 0.20 and 0.18 respectively. The young generation have the highest digital financial literacy than old because young people are more educated than oldsters. The respondents were found to have a statistically significant association between their age and their digital financial literacy average score as indicated by significant value 0.000 ($p < 0.05$) at five percent level. The null hypotheses were rejected, implying that there is a significant relationship with respect age group and their digital financial literacy.

Table 5: Age-wise Digital Financial Literacy

<i>Age</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
18-39	53.9	37.7	8.4	0.0	0.27	24.188	.000
40- 59	90.9	6.6	2.5	0.00	0.20		
60 & Above	100.0	0.0	0.0	0.00	0.18		

Source: Author's Calculation from Field Survey

9. SOCIAL GROUP-WISE DIGITAL FINANCIAL LITERACY

Table 6 shows the digital financial literacy index among the social groups of respondents. The literacy index of the general category has an index value of 0.28, showing a just satisfactory literacy index followed by other backward classes and the scheduled caste with the index value of 0.23 and 0.22, respectively. The digital financial literacy index of scheduled tribes is found to be lowest among them all with the value of 0.19 showing one of the backward social groups concerning the digital financial literacy. There exists a statistically significant difference between digital financial literacy and the social groups of respondents indicated by the significant value of 0.000 ($p < 0.05$) at five percent level ($F = 8.113$, $p < 0.05$).

Table 6: Social Group-wise Digital Financial Literacy

<i>Social Groups</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
SCs	81.5	8.3	10.2	0.0	0.22	8.113	.000
STs	100.0	0.0	0.0	0.0	0.19		
OBCs	72.7	25.0	2.3	0.0	0.23		
General	55.4	36.3	8.3	0.0	0.28		

Source: Author's Calculation from Field Survey

10. OCCUPATION-WISE DIGITAL FINANCIAL LITERACY

Profession or occupation is a crucial determinant and also has significant correlation with digital financial literacy. The occupation-wise digital financial literacy index estimated is shown in the table 7. The results reflect that the self-employed people and salaried people have the highest digital financial literacy index with a value of 0.29. Surprisingly, the survey results found that DFLI of 'no job' respondent is higher than agricultural and casual labour with the index value of 0.24. The high literacy index of 'no job' respondents may be justified in a manner where most of them are educated and high-income categories. The least DFLI is found among the casual labour with a meager index value of 0.14 showing poor digital financial literacy. Existence of association between occupation groups of the respondents and digital financial literacy were proved. There exist a significant difference between nature of job and digital financial literacy among the rural people indicated by the significant value of 0.000 ($p < 0.05$) at five percent level.

Table 7: Occupation-wise Digital Financial Literacy

<i>Occupation</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
No Job	81.3	18.8	0.0	0.0	0.24	65.076	.000
Agriculture	73.6	24.9	1.6	0.0	0.23		
Casual	96.0	4.0	0.0	0.0	0.14		
Salaried	70.0	0.0	30.0	0.0	0.29		
Self Employed	53.9	34.5	11.7	0.0	0.29		

Source: Author's Calculation from Field Survey

11. RATION CARD-WISE DIGITAL FINANCIAL LITERACY

There is a connection between the people in the below and above poverty line with regard to their digital financial literacy. People in the below poverty line as per their card, are expected to be having comparatively low financial literacy than people in the category of above poverty line. As expected, this study also shows that above poverty line cardholders have high digital financial literacy index than below poverty line cardholders. But the no cardholders secured highest DFLI of 0.49 represents high satisfactory digital financial literacy. There is a statistically significant difference exists between the type of ration card and digital financial literacy of rural people indicated by the significant value of 0.000 ($p < 0.05$) at five percent level ($F = 50.518$).

12. INCOME-WISE DIGITAL FINANCIAL LITERACY

While considering the income of the people, there is a close relationship with their acquired level of digital financial literacy. The literature shows that higher digital

Table 8: Ration Card-wise Digital Financial Literacy

<i>Type</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
APL	70.7	25.6	3.6	0.0	0.23	50.518	.000
BPL	100.0	0.0	0.0	0.0	0.19		
Antyodaya	0.0	0.0	0.0	0.0	0.0		
No Card	14.3	23.8	61.9	0.0	0.49		

Source: Author's Calculation from Field Survey

financial literacy is likely to be found among people with higher income and vice versa. The table 9 shows the survey results of income-wise digital financial literacy of rural households of Aligarh district. As expected, increasing the income level led to increase in the digital financial literacy of the respondents. People with high income level seem to be higher digital financial literacy index and vice versa. The major proportions of the respondents whose income is less than Rs. 20000 are found in the poor digital financial literacy category. Forty-seven percent of the respondents in the income group between Rs. 20000 - Rs. 30000 are found in the satisfactory digital financial literacy category and the 66.67 percent of respondents of above Rs. 30000 income groups are in good digital financial literacy category. Surprisingly, no respondents were reported under the excellent category of digital financial literacy. The DFLI index of the higher income group (30000 and above) is 0.51, followed by income group between Rs. 20000 - Rs. 3000 (0.31). The least DFLI index value is found in the lower-income category (0.16), represents a very poor level of digital financial literacy. Low-income groups, however, often come to digital finance with pre-existing distrust of formal financial institutions and digital services. Thus, the digital financial literacy index value varies positively with the level of income of the respondents. The Digital financial literacy with respect to monthly income earned by the respondents shows statistically significant differences among the various income groups with significant value 0.000 ($F = 65.076$, $P < 0.05$).

Table 9: Income-wise Digital Financial Literacy

<i>Level of Income</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
Less than Rs. 10000	89.09	10.91	0.00	0.0	0.16	65.076	.000
Rs. 10000- Rs. 20000	77.14	20.00	2.86	0.0	0.22		
Rs. 20000- Rs. 3000	43.48	46.96	9.57	0.0	0.31		
Rs. 30000 and above	20.00	13.33	66.67	0.0	0.51		

Source: Author's Calculation from Field Survey

13. FAMILY SIZE -WISE DIGITAL FINANCIAL LITERACY

The number of dependent family members is also considered as one of the important factors affecting digital financial literacy. An appreciable concern with regard to financial matters have been seen with the members of the family who are highly dependent on family. However, the survey found that a general trend of the low and poor level of digital financial literacy among the larger family size.

Table 10: Family Size wise Digital Financial Literacy

<i>Family Size</i>	<i>Poor</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>	<i>DFLI</i>	<i>F</i>	<i>Sig.</i>
2	20.0	80.0	0.0	0.0	0.39	5.423	.000
3	20.6	61.8	17.6	0.0	0.32		
4	36.2	47.2	16.6	0.0	0.27		
5	61.2	29.9	9.0	0.0	0.22		
6	74.2	14.1	11.7	0.0	0.20		
7	53.1	40.8	6.1	0.0	0.24		
8	34.5	34.5	31.0	0.0	0.30		
9	100.0	0.0	0.0	0.0	0.23		
10	100.0	0.0	0.0	0.0	0.14		
11	100.0	0.0	0.0	0.0	0.14		
12	0.0	100.0	0.0	0.0	0.30		

Source: Author's Calculation from Field Survey

The highest level of DFLI is found in the family size of two members with a value of 0.39, followed by three members (0.32) showing a satisfactory level of digital financial literacy. This relationship is justified on account of the fact that the major proportion of small families with the highest DFLI belongs to the category of wealthier and better educated. The least level of DFLI is found in the family size with ten and eleven members with a value of 0.14. However, the DFLI of family size with twelve members is found to be 0.30 having satisfactory digital financial literacy. There exist a statistically significant differences exist between household size and digital financial literacy with significant value 0.000($F = 5.423, p < 0.05$).

14. CONCLUSION

The demographic characteristics are focused as the determinants of digital financial literacy. The variables like gender, education level, occupation, income level, landholding and ownership of the house have a positive and are found statistically significant with digital financial literacy. Therefore, all these factors should be taken into account when developing financial training programmes to improve digital financial literacy.

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