Impact of Digital Finance Literacy on Rural Households' Adoption Behaviour

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Abstract: *Digital finance literacy and digital finance adoption are considered the two sides of a coin for digital financial inclusion. They are directly proportional to each other. Rural households' digital finance literacy played an important role in determining their digital finance access and adoption behaviour. The present study focuses on finding out the impact of rural households' digital finance literacy and their digital finance adoption. A multistage sampling technique was employed to collect the sample data. The structural equation modeling technique is employed to find out the relationship between rural households' digital finance literacy and their adoption behaviour. Factor, cluster, and discriminant analyses are used to find out the most significant digital finance literacy factor that contributed to the rural households' digital adoption behaviour. Findings of this study recommended that there exists a strong positive relationship between rural households' digital finance literacy and their adoption behaviour. Further discriminant analysis revealed that information literacy has played a crucial role in influencing rural households' digital adoption behaviour.*

Keywords: Digital India, Digital Finance, Digital literacy, Digital adoptions, Digital adoptions Classifications

INTRODUCTION

Digital finance literacy is defined as "the ability to define access, manage, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies and networked devices for participation in economic and social life" (OECD, 2018). Financial literacy and the digital platform are the components that play a major role in defining digital finance literacy (Tony & Desai, 2020). Digital financial literacy envisages the knowledge of various digital platforms for those who use it, (Prasad et al., 2018). Further, it has been found that financial awareness influences the motivations behind access to digital financial services. Digital finance literacy consists of four dimensions. They are knowledge and experience about the products and services; awareness concerning risk' and ability to control and manage digital finance transactions (P. Morgan & Trinh, 2019). Digital finance literacy enables people to save more and spend less (Setiawan et al., 2022). Developing economies like India need to change to paperless and digitized economies. The COVID-19 pandemic further accelerated the people to access and use more digital financial services, (Prasad et al., 2018). Initiatives like the 'Digital India' programme have made people access all government services through digital mode (Joshi & Goswami, 2016). Some of the government initiatives are Pradhan Mantri Jan Dhan Yojna, UPI payment services, Aadhaar-enabled payment systems, the BHIM app, etc. The role of private players is inevitable for further broadening the digital finance industry. The government has taken many initiatives to impart digital finance literacy among rural households. (Prasad et al., 2018). The post-COVID pandemic period has made customers adopt and use more digital platforms for their daily financial activities. Individuals' purchasing and saving patterns have drastically changed due to mobile penetration and the e-commerce industries (Setiawan et al., 2022). Support from fintech companies for India's digital finance expansion is inevitable for the digital penetration of the population. It allows people to access various payment services through numerous digital platforms, (Rahayu et al., 2022). Without digital finance literacy, it has been difficult to achieve 100 percent digital inclusion. Digital exclusions arise due to data theft, security issues, a lack of digital skills, cyber threats, misuse of personal data, etc. Digital finance literacy helps people to easily access and use various digital financial services for their needs, and wants, (Lyons & Kass-Hanna, 2021). This study has taken digital finance as one of the factors to find out its influence on rural households' digital finance access and adoption behaviour.

The digital adoption behaviour of people is changing due to changing information and communication

technology (ICT). Digital finance adoption is essential for the efficacy of digital finance transactions (He et al., 2020). Financial transactions are most vulnerable to digital adoption. In most of the developing countries, people still prefer cash and physical presence for using various financial services of the banks. The adoption of digital finance is slow in emerging countries like India, Malaysia, and China (Aziz and Naima, 2021). Many rural towns and small businesses still struggle to adopt digital finance technology in their daily financial activities (Philip and Williams, 2019). Developing countries like India still have unreached people. Digital finance adoption is low among older adults (Choudrie et al., 2020). Lesser acceptance of digital finance adoptions needs to be further studied to identify the causes of the non-adoption behaviour, (Demir et al., 2020). Numerous advancements have been seen in the financial industry by using various digital financial tools like virtual banking blockchain technology, e-banking, artificial intelligence services, chatbots, social media banking, etc. (J. Liu et al., 2020). The customer's perception of ICT and smartphone penetration helps people in rural areas to use more digital financial tools for their financial transactions. Changing user perceptions could inevitably lead researchers to frame new theories of digital finance adoption models (Sharma et al., 2023). The findings of Balaji and Vijayakumar (2019), suggested that access and risk are the two major factors contributing to the adoption of digital payments. Factors that contribute to digital adoption are very important for rural households' digital access and adoption behaviour. The present study tries to investigate the impact of rural households' digital finance literacy on their digital adoption behaviour. The findings of this study help banks, non-financial institutions, and policymakers to produce products and services and frame policies to meet the end users' satisfaction.

REVIEW OF LITERATURE

Technology plays a significant role in influencing people to accept digital technologies for their daily activities. Even though mobile phone and internet penetration is quickly expanding in rural regions, access to and use of various digital services remains low. Lack of awareness is the major factor hindering their digital access and acceptability (Grandolini, 2015). Digital financial services help to reduce the cost of transactions, increase speed and transparency, reduce risk, and enable higher-quality financial services for the poor (World Bank, 2020). Park (2011) has found that there are strong predictive powers of user knowledge that will determine their privacy and controlled behaviour. Digital skills are the set of abilities required to perform digital transactions or connect with the digital world (van Dijk, & Peters, 2011). Digital payments affect people's spending behaviour, (Cobla and Osei-Assibey, 2018). Digital financial literacy plays an important role for new-age customers. Smart money management is a big challenge for new-age people. Digital financial literacy helps people smartly manage their financial resources to optimize their wealth. Digital finance literacy enables users to effectively use digital financial products and services (Morgan, P.J., Huang, B., & Trinh, L.Q., 2019).

Financial knowledge is essential to ensuring the achievement of social initiatives chances (Shetty & Thomas, 2015). Education has the potential to overcome the barrier to digital finance usage due to ignorance and misperceptions (Haliassos and Bertaut, 1995). Park (2011) identified the safety behaviours associated with using digital finance. It entails familiarity with the internet, awareness of institutional procedures, and comprehension of privacy regulations. Financial literacy is described as "a person's ability to comprehend, analyze, manage, and communicate personal financial matters." Overall, it describes the collection of abilities and information that allow people to make financial decisions. It is a skill to handle money effectively. Gerrard, Cunningham, and Devlin (2006) discovered a substantial positive relationship between financial awareness and the likelihood of using digital financial services. Michael et al. (2017) argued that financial literacy is necessary to comprehend the fundamental financial challenges that most individuals and families face today. According to Tomaskova et al. (2011), financially educated individuals understand money and pricing and can manage their budgets appropriately. Ineffective management of finances erodes long-term prosperity (Hung et al., 2009). Mobile phones have changed consumer behaviours, (Jack & Suri, 2011).

Technology makes work easier, influences savings, and increases spending habits (Maurer, 2012). Digital finance in the financial sector bridges the access gap, allowing for socioeconomic progress, particularly among financially disadvantaged rural people in many developing nations. Depositing, moving cash, and purchasing products and services are all made easier and simpler with mobile banking. It offers a low-cost and easy means for family members and friends to trade financial aid in the form of remittances, particularly in rural places with little or no access to official financial institutions such as banks (Mbiti and Weil, 2015). Farmers are excluded from traditional banking due to costly transactions, data disparity, and a lack of security (Wang X., & He G., 2020). Digital financial services assist farmers in improving their income and spending patterns (Beck, T.; Lu, L.; Yang, R., 2015). Safety is paramount, and changes in financial services influence positive or negative behaviour regarding online banking (Solomon, Shamsuddin, and Wahab, 2013).

Roy, R., & Gupta, N. (2018) opined that security in performing digital transactions should be acknowledged. The usefulness of digital finance played an important role in determining the attitude of those who accept and adopt digital finance tools and techniques. e-payment solutions make the users easy to use and user-friendly (Anouze and Alamro, 2019).

More trust and security must be created to encourage people to accept digital payment services. Nowadays, people still prefer physical persons in banks to avail themselves of the financial services of the bank. Offline banking is still preferred by users because it allows people to have personal interactions, which makes them feel secure (K.-W. Lee et al., 2011). The service quality of the financial institutions, perceived risk, security, usability, societal influence, and compatibility influence consumers' intentions to use digital payments, except for age (Tang et al., 2021). The digital payments facility should provide satisfaction to the end users to encourage them to access and adopt digital technology for their daily financial activities. Ghazali et al. (2018) suggested that financial institutions should get customer feedback to identify the needs of the customers and incorporate their feedback on producing the products and rendering the services. Creating digital financial awareness is the primary role of the government in establishing an ecosystem to increase internet access and digital penetration.

RESEARCH METHODOLOGY

To determine the impact of digital finance literacy on rural households' digital finance adoption, an exploratory study approach was adopted. Villupuram District was chosen based on data from the Financial Inclusion Index (2018) and RBI initiatives related to the digital financial literacy program "DIGI SAKHI." Primary data was gathered from the target audiences of rural people using a multistage stratified random sampling procedure. Approximately 660 samples have been gathered and examined using the SPSS and AMOS software programs.

OBJECTIVE OF THE STUDY

The primary objective of the study is to find out the impact of digital finance literacy on rural households' digital finance adoption.

VARIABLES UNDER THE STUDY

Digital finance literacy factors like Awareness (A), Knowledge (K), Skill (S), and Attitude (AT) are taken for factor analysis. There are 17 variables included in these four factors. In this study, the major factors of adoption are taken as Access (AA), Cost (AC), Security (AS), Products and channels (APC), and Productivity (AP). These five factors constitute 16 variables, which help to find out rural households' digital finance adoption behaviour. Households' opinions about digital finance literacy and digital finance adoption factors are collected using the questionnaire, which contains statements on a five-point Likert scale. The collected data are reduced into smaller components using a factor analysis method. There are three factors extracted from digital finance literacy and digital adoption variables using principal component analysis and Varimax rotation methods. The extracted components of the digital finance literacy variables are technical, data, and information literacy and digital finance adoption variables as perceived operational efficiency, perceived ease of use, and perceived usefulness.

ADOPTIONS BEHAVIOUR

Using cluster analysis, perceived operational efficiency, perceived ease of use, and perceived usefulness factors are clustered into three homogenous groups. They are laggards, pragmatists, and persuasive.

Laggards: Slow to adopt technology, more stubborn, skeptical, and wary of technology.

Pragmatists: Moderate to adopt technology, less stubborn, moderately convinced, mature, and trust the technology.

Persuasive: Fast to adopt technology, intuitive, satisfied, young and more trusting of the technology, risk-seeking, persuasive, willing to use new technology, and concerned about their reputations.

THE IMPACT OF DIGITAL FINANCE LITERACY ON RURAL HOUSEHOLDS' DIGITAL FINANCE ADOPTION BEHAVIOUR

Structural equation modeling (SEM) is used to find out the relationship between rural households' digital finance literacy and their adoption behaviour. The diagrammatic representation of the relationship model is shown in the following figure 1.

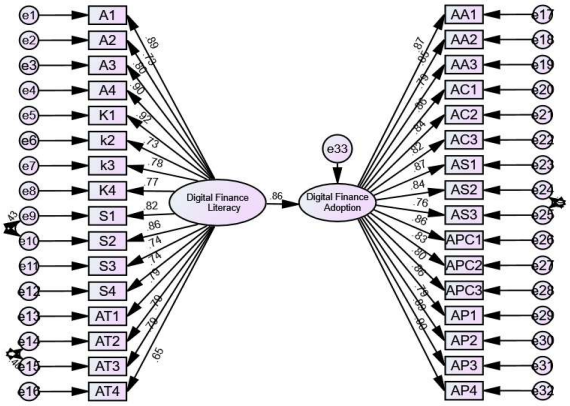

Figure 1: Relationship SEM Model of Rural Households' Digital Finance Literacy and Digital Finance Adoption Behaviour

Table 1: Result of Digital Finance Literacy and Digital Finance Adoption Model

Digital Finance literacy	**Independent variable**
Digital Finance Adption	**Dependent variable**
0.86	**Path coefficient**
19.83	**t-Value**
000	**p-Value**
Significant	**result**

T**able** 1 explores the value of the standard estimates (path coefficient) as 0.86 and the t-value as 19.83. The p-value is 0.000, which shows that the relationship is significant. It indicates that there is a positive causal relationship between digital finance literacy and digital adoption behaviour.

Table 2: Result of Goodness of Fit

Statistics categories	Indexes	Recommended values	Study value	Interpret action
Absolute fit	P value	=0.05	0.00	Adequate fit
	GFI	=0.90	0.95	Good fit
	RMSEA	=0.08	0.058	Good fit
Incremental fit	AGFI	=0.90	0.93	Good fit
	NFI	=0.90	0.95	Good fit
	TLI	=0.90	0.95	Good fit
	CFI	=0.90	0.95	Good fit
Par sim only fit	CMIN/DF	With In 1 to 5	2.5	Good fit

Source:*P value is sensitive to sample size, if N>200, (Hair et al, 2010; Hu and Bentler,1995; Wheaton et al.,1977), CMIN/DF (Hu and Bentler,1995; Marsh and Hocevar,1985), GFI (Chau and Hu,2001; Hair et al,2010), RMSEA (Brown and Cudeck,1993; Hair et al,2010), NFI(Bollen, 1989) TLI(Tucker and Lewis,1973 and Bentler and Bonnet, 1980),), CFI (Bentler(1990), Bagozzi and Yi,1988; Hair et al, 2010), AGFI (Chau and Hu,2001)*

Table 2 shows the values of absolute fit, incremental fit, and parsimony fit. All the above indices meet the recommended values. Hence, it can be concluded that the variables taken for the relationship study are perfectly fit.

RELATIONSHIP BETWEEN RURAL HOUSEHOLDS' DIGITAL FINANCE LITERACY AND DIGITAL FINANCE ADOPTION BEHAVIOUR

Discriminant analysis is used to determine the relationship between rural households' digital finance literacy and their digital adoption behaviour variables. To conduct the study, dependent variables are taken as the digital adoption clusters, and independent variables are taken as factors of digital finance literacy. Dependent variables are taken as laggard, pragmatic, and persuasive. Technical literacy, data literacy, and information literacy are taken as independent variables.

Table 3: Tests of Equality of Group Means

Factors	Wilks' Lambda	F	df1	df2	Sig.
Technical Literacy	.733	23.34	2	657	.000
Data Literacy	.757	14.53	2	657	.000
Information Literacy	.625	26.70	2	657	.000

Wilk's lambda, F statistics, degrees of freedom, and significant values are all included in the test of equality of means table 6.3. The significance values of all three digital finance literacy factors are statistically significant at p values less than 0.05. Wilk's lambda values for digital finance literacy factors vary from 0.625 to 0.757. Wilk's lambda values suggest that information literacy has the lowest value of 0.625. Further, the F statistics of the information literacy factor are 26.707. It is the highest among the other literacy factors. An overall conclusion can be drawn from these findings that information literacy has a lower Wilk's lambda value and higher F statistics. From these findings, it can be concluded that information literacy shows a significant influence on discriminating rural households' digital adoption behaviour.

Table 4: Eigen values

Function	Eigen value	%of Variance	Cumul Ative %	Canonical Correlation
1	1.151[a]	55.7	55.7	0.732
2	0.915[a]	44.3	100	0.691

The Eigen value of function one is greater, indicating that the function and its factors are highly contributing to defining the digital adoption behaviour. Canonical correlation explains the relationship between the functions and the three digital finance literacy factors. The first function has a high coefficient of canonical correlation, indicating a strong and significant relationship between function one and the digital finance literacy factors.

Table 5: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	0.244	101.735	6	0.000
2	0.523	9.782	2	0.008

Wilks' Lambda explains the fraction of the overall variation in discriminant scores that cannot be explained by group differences. Wilks' lambda values of less than one suggested that the function has a higher discriminating ability. Table 5 suggests that function one has a lower Wilks' lambda value.

Table 6: Structure Matrix

Factors	Function	
	1	2
Information Literacy	.702*	.693
Technical Literacy	.466	.876*
Data Literacy	.645	.755*

The structure matrix demonstrates that an asterisk (*) represents the factors with the highest relative correlation with one of the canonical functions. These indicated factors are then arranged by the magnitude of the association with each function. Information literacy occupies function one with the strongest correlations of 0.702 percent, and function two contains the factors of technical and data literacy with canonical correlations of 0.876 and 0.755 percent.

Z1 = (0.702)* Information Literacy and

Z2 = (0.876)*Technical Literacy + (0.755)* Data Literacy

Z1 and Z2 are two discriminant functions that will describe the relationship between rural households' digital financial literacy and digital adoption behaviour.

Conclusion

Digital finance literacy is the key factor that motivates people to access and use digital finance platforms for their financial needs. The success of digital finance inclusions depends on the acceptance and use of digital finance. The Indian government has taken many initiatives under the umbrella of the Digital India programme to motivate the people to access various government schemes through e-governance platforms. But still, the rural people are behind the urban in accessing and adopting digital finance platforms. Digital finance literacy is the primary factor that hinders the success of digital finance adoption. The findings of this study confirmed that digital finance literacy has shown a significant influence in determining rural households' digital adoption behaviour. Further in-depth analysis of the factors that contributed to the digital adoption behaviour is identified as information literacy. It plays a significant role in determining rural households' digital adoption behaviour. Government, regulators, and financial institutions can utilize these findings to give importance to information literacy for framing policies and producing products and services.

Directions for Future Research

This study has taken digital finance literacy as the only factor that contributed to influencing rural households' digital finance adoption behaviour. There are some other factors like digital finance infrastructure, digital exclusions, and digital financial decisions that can influence rural households' adoption behaviour. It needs to be studied. Further, the role of demographic and financial awareness factors on digital adoption should also be studied. These are the promising areas of research area related to this topic.

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