



Digital Finance and Financial Inclusion among Rural Masses: An Empirical Study

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Abstract

Digital finance has gained prominence as an effective mechanism for extending formal financial services to populations traditionally excluded from the banking system. This study empirically investigates the role of digital finance in promoting financial inclusion among rural masses. Primary data was collected from 160 rural respondents using a structured questionnaire, and the data were analyzed using percentage analysis supported by tables and figures. The results indicate that although a majority of respondents possess bank accounts and demonstrate awareness of digital financial services, the depth and diversity of usage remain limited. Unified Payments Interface (UPI) platforms, particularly Google Pay are the most widely used digital payment tools, with mobile phones serving as the primary access device. Respondents generally perceive digital finance as convenient and secure; however, challenges such as inadequate internet connectivity, limited digital literacy, language barriers, cyber security concerns and the persistence of a cash-based economy continue to impede adoption. The study concludes that digital finance has a positive but uneven impact on rural financial inclusion, underscoring the need for targeted policy and institutional interventions.

Keywords: Digital finance, financial inclusion, rural population, UPI, digital literacy



1. Introduction

Digital finance refers to the delivery of financial services through digital channels such as mobile phones, computers, internet-based platforms and electronic payment cards. It includes services such as internet banking, mobile banking, e-wallets, UPI platforms and electronic fund transfer mechanisms. Globally, digital finance has been recognized as a critical instrument for enhancing financial inclusion and reducing poverty, particularly in developing economies. International initiatives led by institutions such as the G20 and the World Bank have emphasized the integration of digital technologies into financial systems to expand access and affordability.

In India, digital finance has expanded rapidly due to policy initiatives such as the Pradhan Mantri Jan Dhan Yojana, Aadhaar-enabled payment systems and the Digital India programme. These initiatives have significantly increased bank account penetration in rural areas. However, access alone does not guarantee effective financial inclusion. Rural populations continue to face barriers related to infrastructure deficits, low digital literacy, limited trust in technology, and socio-cultural preferences for cash-based transactions. This study seeks to examine the extent to which digital finance contributes to financial inclusion among rural masses and to identify the key challenges influencing its adoption and usage.

2. Review of Literature

Existing literature highlights the transformative potential of digital finance in enhancing access to financial services. Shen and Huang (2016) observed that internet-based financial services reduce transaction costs and information asymmetry, thereby improving efficiency. Ozili (2018) reported that digital finance positively affects financial inclusion by providing affordable and accessible services to low-income populations. Haider (2018) emphasized the role of mobile banking and digital lending in improving livelihoods and smoothing consumption for disadvantaged groups. Singh and Malit (2019) found that although digital banking services have expanded, rural



users face challenges related to literacy, infrastructure, and awareness. Mavlutova et al. (2020) demonstrated that digital payment intensity is positively associated with financial inclusion and operational efficiency, provided adequate institutional support exists. Kitsios et al. (2021) further emphasized that training and user acceptance is essential for successful digital transformation in the banking sector. These studies collectively suggest that while digital finance can promote inclusion, contextual barriers must be addressed to realize its full potential.

3. Research Methodology

3.1 Research Design

The study follows a descriptive research design to assess current usage patterns and challenges related to digital finance.

3.2 Objectives of the Study

- To analyze the usage of digital financial services among rural masses.
- To identify the impact of digital finance in bringing about financial inclusion among rural masses.

3.3 Data Collection

Primary data were collected from through a structured questionnaire. Respondents were selected using a convenient random sampling technique due to accessibility and time constraints. The questionnaire was designed to capture information related to the usage of digital financial services and the challenges affecting their adoption. Secondary data was collected from academic journals, books, government reports and official websites relevant to digital finance and financial inclusion.



3.4 Sample Size

The sample size for the present study consists of **160 respondents**, which is considered adequate for descriptive and inferential statistical analysis such as percentage analysis, descriptive statistics and Chi-square tests.

3.5 Hypothesis

H₀: There is no significant association between age and usage of digital finance.

H₁: There is a significant association between age and usage of digital finance.

3.6 Tools for Analysis

The study employs percentage analysis, descriptive statistics (mean and standard deviation) and Chi-square tests.

4. Analysis and Interpretation

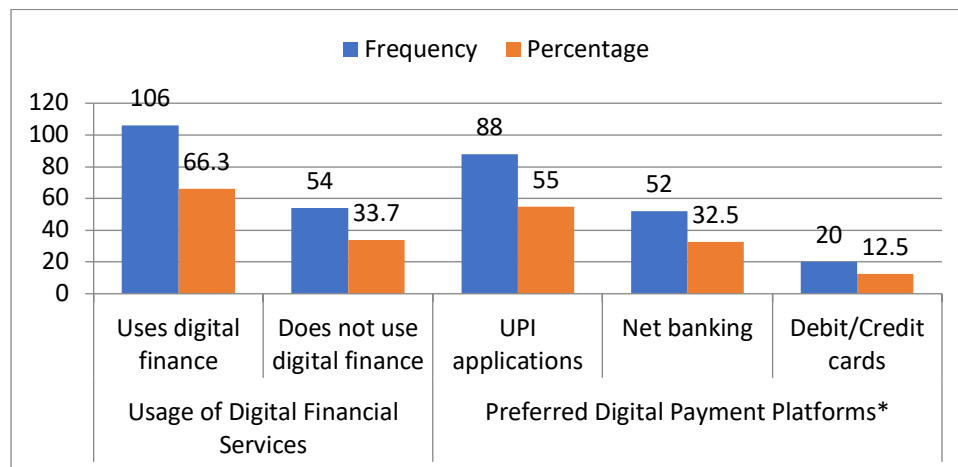
4.1 Usage of digital financial services among rural masses

Understanding usage patterns helps assess how far digital finance has penetrated rural areas and the role it plays in improving access to formal financial services. The analysis focuses on identifying the proportion of rural respondents who actively use digital financial services and the preferred platforms used for transactions. Usage levels reflect not only access to technology but also factors such as digital literacy, availability of internet connectivity, trust in digital systems, and ease of use. By examining usage patterns, the study highlights the level of acceptance of digital finance among rural masses and identifies gaps where segments of the population remain excluded.

Table:1 Usage Pattern and Preferred Digital Payment Platforms among Rural Masses (N = 160)

Category	Particulars	Frequency	Percentage
Usage of Digital Financial Services	Uses digital finance	106	66.3
	Does not use digital finance	54	33.7
Preferred Digital Payment Platforms	UPI applications	88	55.0
	Net banking	52	32.5
	Debit/Credit cards	20	12.5

The table indicates that a majority of rural respondents use digital financial services with UPI applications being the most preferred digital payment platform. The dominance of UPI platforms reflects user preference for accessible and low-cost digital payment systems, while the moderate overall usage rate suggests the need for further efforts to enhance awareness, infrastructure and digital skills among rural populations.



4.2 Impact of Digital Finance on Financial Inclusion

To assess whether digital financial services have improved access to formal banking, reduced reliance on cash transactions, enhanced convenience and efficiency in financial dealings and increased financial awareness among rural users, the impact of digital finance on financial inclusion needs to be analyzed. By evaluating these dimensions, the study determines the effectiveness of digital finance as a mechanism for integrating rural populations into the formal financial system. Understanding the impact of digital finance on financial inclusion provides insight into its role in bridging the rural–urban financial divide and promoting inclusive economic participation.

Table 2: Descriptive Statistics on the Impact of Digital Finance on Financial Inclusion among Rural Masses (N = 160)

Impact Indicators	Mean	Standard Deviation
Digital finance has improved access to banking services	3.98	0.82
Digital payments have reduced dependency on cash	4.05	0.79
Digital finance has made financial transactions more convenient	4.12	0.76
Digital finance has increased financial awareness among rural people	3.87	0.85
Digital finance has helped in saving time and transaction costs	4.08	0.81
Digital financial services promote financial inclusion	4.15	0.74
Overall Impact of Digital Finance on Financial Inclusion	4.04	0.80

(Note: Responses were measured on a 5-point Likert’s scale (1=strongly disagree to 5=strongly agree))

The descriptive statistics indicate a **high perceived impact of digital finance on financial inclusion** among rural masses, with mean scores ranging from **3.87 to 4.15**. The highest mean

score (4.15) corresponds to the statement that digital financial services promote financial inclusion, suggesting strong agreement among respondents. Similarly, improved convenience, reduced cash dependency and enhanced access to banking services also record high mean values, reflecting positive outcomes of digital finance adoption. The relatively low standard deviation values indicate **consistency in respondents' perceptions** reinforcing the reliability of the findings. Overall, the results confirm that digital finance plays a **significant role in enhancing financial inclusion in rural areas**.

4.3 Hypothesis testing:

Table 2: *Chi-Square Test Results (N = 160)*

Test	Value	df	Asymp. Sig.
Chi-Square	12.486	3	0.006

Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates that age significantly influences the usage of digital financial services, with younger respondents showing higher adoption levels.

5. Conclusion

The study concludes that **digital financial services have achieved moderate adoption among rural masses**, with mobile-based platforms playing a dominant role in facilitating financial transactions. The findings further reveal that **digital finance has a positive and significant impact on financial inclusion**, improving access to banking services, reducing cash dependency, and enhancing convenience in financial transactions. However, a notable section of the rural population still remains outside the digital financial ecosystem due to limitations related to digital literacy, infrastructure, and trust.



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