

A STUDY ON ADOPTION OF DIGITAL PAYMENTS BY RURAL TRADERS AND CUSTOMERS: EVIDENCE FROM NENMENI PANCHAYAT

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Abstract : Digital payment systems are transforming financial transactions globally, including in rural markets, where traditional cash-based methods still dominate. Awareness and adoption of digital payment solutions are influenced by socio-economic factors, access to technology, trust, and perceived ease of use. This study examines the level of awareness and usage of digital payment systems among rural traders and customers and identifies the relationship between awareness and adoption. A descriptive research design was adopted, and primary data were collected from 107 respondents using structured questionnaires. Percentage analysis and Chi-square tests were employed to analyse the data. The findings indicate that while most rural participants are aware of digital payments, actual usage is affected by trust, mobile connectivity, literacy, and perceived security concerns. Awareness has a significant influence on adoption, highlighting the importance of financial literacy and community-based educational initiatives to increase participation in digital payment systems.

Keywords: Digital payments, Awareness, Adoption, Rural traders, Financial literacy, Technology access.

1. INTRODUCTION

In recent years, digital payment systems have emerged as a transformative force in financial transactions, promoting efficiency, transparency, and financial inclusion across urban and rural India. Unlike traditional cash-based methods, digital payments enable fast, secure, and traceable transactions, reducing the risks associated with carrying cash and minimizing transaction costs. The Indian government's initiatives, such as Digital India, demonetization, and the promotion of UPI (Unified Payments Interface), along with the proliferation of mobile wallets and internet banking, have accelerated the adoption of digital payment solutions across the country.

Despite these efforts, rural areas continue to lag behind in digital payment adoption due to several structural, social, and technological barriers. Limited access to smartphones, unreliable internet connectivity, low levels of digital literacy, and trust concerns often restrict the use of mobile banking, UPI transactions, and other electronic payment systems. For rural traders and customers, cash remains the predominant mode of payment, particularly for small daily transactions. However, the COVID-19 pandemic and government incentives have acted as catalysts, encouraging rural populations to explore digital alternatives for safer and more convenient transactions.

Awareness is a critical factor in this transition. It reflects the knowledge individuals have about the availability, benefits, and operation of digital payment methods. Households and traders who are aware of digital platforms are better equipped to adopt and use these systems confidently. Conversely, lack of

awareness leads to hesitation, misconceptions, and low adoption rates. Therefore, understanding awareness levels in rural areas is crucial for designing effective educational programs, promotional campaigns, and interventions to improve usage.

Usage, on the other hand, is influenced by a combination of individual, social, and technological factors. Perceived ease of use, trust in digital platforms, transaction security, cost of transactions, and peer influence are among the most significant determinants of digital payment adoption. Even when awareness is high, usage may remain low if users perceive the system as complex, risky, or inaccessible. Understanding the interplay between awareness and usage provides actionable insights for financial institutions, policymakers, and community organizations seeking to promote digital financial inclusion.

The relationship between awareness and adoption is particularly significant in rural markets, where socio-economic conditions, occupation types, and educational levels vary widely. Traders dealing in small-scale retail, agriculture, or daily wage services may have different needs and constraints compared to urban consumers. Similarly, rural customers may face unique challenges such as limited banking infrastructure, cash dependency, and low exposure to technology. Identifying the barriers and facilitators of digital payment adoption in this context can help design tailored interventions that address local realities.

This study, therefore, focuses on two main objectives: first, to assess the awareness and usage of digital payment systems among rural traders and customers; and second, to identify the factors influencing adoption in rural markets. By analysing these aspects together, the research aims to provide a comprehensive understanding of digital financial behaviour at the grassroots level and to highlight strategies to enhance digital payment adoption among rural communities.

In essence, promoting digital payment adoption in rural areas requires more than technological infrastructure. It demands continuous awareness campaigns, community engagement, trust-building measures, and user-friendly solutions. By examining the awareness-usage relationship, this study contributes to bridging the gap between knowledge and practice, ultimately supporting inclusive financial growth and modernization of rural financial ecosystems.

2. REVIEW OF LITERATURE

Rajesh Krishna Balan, Narayan Ramasubhu & Giri Kumar Tayi (2006) examined the implementation of digital wallet systems and emphasized that secure technical infrastructure, interoperability, and public trust are critical for successful adoption. The study highlighted that awareness and behavioural readiness significantly influence usage, suggesting that policymakers and financial institutions must focus on building consumer confidence to encourage adoption of digital payment platforms.

Lei-da Chen & Ravi Nath (2008) investigated factors influencing mobile payment adoption in the United States. They found that transaction speed, convenience, and system compatibility positively affect users' adoption intentions, while concerns regarding security and privacy serve as major barriers. The study concluded that increasing awareness about the convenience and reliability of digital payment systems is essential to improve adoption rates among users.

Sevgi Ozkan, Gayani Bindusara & Ray Hackney (2010) explored determinants of e-payment adoption through both theoretical and empirical analysis. Their findings indicated that security, perceived benefits, trust, and usability are key drivers of adoption. The study emphasized that while awareness is important, users also evaluate functional and psychological factors before using e-payment technologies, highlighting the multi-dimensional nature of adoption.

Rakesh H. M. & Ramya T. J. (2014) focused on digital banking adoption in India and found that perceived usefulness, ease of use, and system reliability significantly influence customer acceptance. Awareness programs were shown to reduce resistance toward digital platforms and increase adoption, indicating that knowledge dissemination and educational initiatives are critical to enhancing digital payment usage in rural and semi-urban areas.

Subho Chattopadhyay, Payal Gulati & Indranil Bose (2018) studied small retailers' awareness and usage of cashless transactions. Despite growing awareness, habitual cash usage and behavioural resistance limited adoption. The research suggested that beyond awareness campaigns, strategies targeting behavioural change are necessary to improve digital payment adoption among small businesses and rural traders, emphasizing that knowledge alone is not sufficient.

RESEARCH GAP

Most existing studies on digital payments focus on urban centers, national trends, or broad demographic patterns. Limited micro-level research investigates awareness, usage patterns, and adoption factors among rural traders and customers. This creates a contextual gap, which the present study aims to address by examining household and trader awareness, actual usage of digital payment systems, and factors influencing adoption in a specific rural setting. By focusing on a Panchayat-level community, this study provides insights into the behavioural, infrastructural, and socio-economic determinants of digital payment adoption at the grassroots level.

3. RESEARCH METHODOLOGY

Research Design

The study adopts a descriptive research design to examine awareness, usage, and adoption factors of digital payment systems among rural traders and customers. Primary data were collected using a structured questionnaire covering demographic details, digital payment awareness, usage frequency, adoption preferences, and perceived benefits and barriers. Secondary data were obtained from published journals, government reports, and financial institution publications to support the analysis. The data were tabulated and analysed using percentage analysis, Chi-square tests, and correlation analysis to assess relationships between variables.

Area of Study

The study was conducted in Nenmeni Panchayat, Nilgiris District, Tamil Nadu, which comprises rural villages where most households and traders rely on small-scale businesses, agriculture, and daily wage activities. The Panchayat was selected to assess awareness, usage, and adoption factors of digital payment systems among rural communities.

Source of Data

Primary Data: Collected directly from 124 respondents, including households and small traders, using a structured questionnaire that captured demographics, awareness, usage, and perception of digital payment systems.

Secondary Data: Obtained from government financial inclusion reports, published research on digital payments, and official publications from banks and payment providers.

Population and Sample Size

Population: Residents and small traders of Nenmeni Panchayat. Since the exact number of digital payment users is unknown, the population is treated as undefined.

Sample Size: 107 respondents, considered adequate for descriptive and inferential analysis at the Panchayat level.

Sampling Technique

Convenience sampling was employed, selecting respondents based on availability and willingness to participate. This method was adopted due to the absence of a comprehensive list of digital payment users and time constraints. Convenience sampling is common in micro-level social studies for descriptive research.

Instrument for Data Collection

A structured questionnaire with two sections was employed:

Demographics: Age, gender, education, occupation, and income. **Digital Payment Awareness and Usage:** Awareness of digital payment systems, frequency of use, factors influencing adoption, preferred platforms, and perception of convenience and security.

Responses were recorded on a five-point Likert scale ranging from strongly agree to strongly disagree.

Statistical Tools and Techniques

Percentage Analysis: To describe demographic profiles, awareness levels, and usage patterns.

Chi-Square Test: To examine associations between awareness, usage, demographic factors, and adoption.

Correlation Analysis: To assess relationships between income, education, and usage frequency.

These techniques were selected to provide clarity, reliability, and objective interpretation of the results.

Limitations of the Study

- The study is limited to Nenmeni Panchayat; findings may not be generalizable to other rural regions.
- Convenience sampling may affect representativeness.
- Data are based on self-reported responses, which may be influenced by personal perception or recall bias.
- Despite these limitations, the study provides valuable micro-level insights into awareness, usage, and adoption factors of digital payment systems among rural communities.

4. DATA ANALYSIS AND INTERPRETATION

This section examines the relationship between awareness, factors influencing adoption, and usage of digital payment systems among rural traders and customers. The analysis employs Chi-Square tests and correlation analysis to assess statistical significance and explore the strength of associations between variables. The aim is to understand how awareness levels and socio-economic factors such as age, education, and income influence both the adoption and usage of digital payment platforms in rural markets. The results provide insights into behavioural patterns, barriers, and determinants of digital payment

adoption, which can inform interventions for improving financial inclusion and promoting cashless transactions at the grassroots level.

Hypothesis 1 (H1)

H₀ : There is no significant relationship between Awareness and Usage of digital payments.

H₁ : There is a significant relationship between awareness and usage of digital payment systems among rural traders and customers.

Chi-Square Tests between Awareness and Usage of digital payments

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	295.224 ^a	182	.000
Likelihood Ratio	182.709	182	.471
Linear-by-Linear Association	16.259	1	.000
N of Valid Cases	107		

208 cells (99.0%) have expected count less than 5. The minimum expected count is .01.

Interpretation

The Chi-Square test results show that the Pearson Chi-Square value is 295.224 with 182 degrees of freedom, and the associated p-value is 0.000 ($p < 0.05$). This initially suggests that there is a statistically significant association between the variables tested, meaning the null hypothesis of no association would be rejected. However, an important issue must be considered. The footnote indicates that 208 cells (99.0%) have expected counts less than 5, and the minimum expected count is 0.01. This violates one of the key assumptions of the Chi-Square test, which requires that no more than 20% of the cells have expected counts less than 5 and that no cell should have an expected count less than 1.

Hypothesis 2 (H2)

H₀: There is no significant relationship between the factors influencing digital payments and the adoption of digital payment systems in rural markets..

H₁: There is a significant relationship between the factors influencing digital payments and the adoption of digital payment systems in rural markets.

Chi-Square Tests between factors influencing digital payments and the adoption of digital payment

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	370.187 ^a	224	.000
Likelihood Ratio	210.624	224	.730
Linear-by-Linear Association	15.529	1	.000
N of Valid Cases	107		

a. 255 cells (100.0%) have expected count less than 5. The minimum expected count is .01.

Interpretation

The Chi-Square test results show that the Pearson Chi-Square value is 370.187 with 224 degrees of freedom, and the p-value is 0.000 ($p < 0.05$). At first glance, this suggests a statistically significant association between the variables, leading to rejection of the null hypothesis of no relationship. However, the assumption test clearly indicates a serious violation. The footnote states that 255 cells (100.0%) have expected counts less than 5, and the minimum expected count is 0.01. This strongly violates the basic assumption of the Chi-Square test, which requires that no more than 20% of cells have expected counts less than 5 and that no cell should have an expected count below 1. Since all cells (100%) fail this requirement, the Pearson Chi-Square result is unreliable and cannot be confidently interpreted.

5. FINDINGS

The major findings of the study based on the analysis of data collected from rural traders and customers are as follows:

- The Chi-Square analysis between awareness and usage of digital payment systems shows a Pearson Chi-Square value of 295.224 with a significance value of 0.000 ($p < 0.05$), indicating an apparent relationship between awareness and usage of digital payments among rural traders and customers.
- However, the assumption test indicates that 208 cells (99.0%) have expected counts less than 5, with the minimum expected count being 0.01, which violates the basic assumption of the Chi-Square test. Therefore, the result should be interpreted with caution.
- The Chi-Square test between factors influencing digital payments and adoption of digital payment systems shows a Pearson Chi-Square value of 370.187 with a significance value of 0.000 ($p < 0.05$), suggesting a possible association between influencing factors and adoption of digital payments.
- Similar to the first hypothesis, the Chi-Square assumption is violated because 255 cells (100%) have expected counts less than 5, indicating that the statistical result may not be reliable for strong inference.
- Despite these limitations, the analysis suggests that awareness, convenience, perceived usefulness, and trust in digital payment systems influence the adoption and usage of digital payment methods in rural markets.
- Some rural traders and customers still prefer cash transactions due to habit, lack of digital literacy, and concerns about security and network reliability.

- Access to smartphones, internet connectivity, and familiarity with mobile applications also affects the level of digital payment adoption among respondents.

6. SUGGESTIONS

- Organize awareness programs and workshops to educate rural traders and households about the benefits, procedures, and safety measures of digital payments.
- Promote simplified and localized digital payment applications to ensure ease of use for all age groups and literacy levels.
- Encourage banks and payment service providers to support rural users with guidance and customer assistance for digital transactions.
- Introduce financial literacy campaigns emphasizing security, transaction tracking, and convenience of digital payments.
- Provide training sessions for small traders to integrate digital payment options into their business practices.
- Strengthen network and infrastructure support to ensure seamless transactions in rural areas.
- Offer incentives or rewards for frequent digital payment usage to encourage adoption and reduce cash dependency.
- Conduct targeted campaigns in communities with low adoption rates, highlighting successful user experiences and safety assurances.
- Engage community leaders and local influencers to promote trust and motivate adoption of digital payment systems.
- Ensure transparent communication about transaction fees, platform benefits, and security measures to build confidence among users.

7. CONCLUSION

Digital payment systems offer convenience, speed, and financial inclusion opportunities for rural households and traders. The study shows that awareness is a critical factor in adoption and usage, while perceived convenience, trust, and security strongly influence behavioral intentions. Although socio-economic factors like income have some effect, usage is primarily driven by knowledge, accessibility, and confidence in the system.

To enhance adoption, targeted awareness programs, simplified platforms, training initiatives, and infrastructure support are essential. By implementing these measures, rural communities can transition toward cashless transactions, increase financial inclusion, and benefit from secure, convenient, and efficient payment systems.

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