

Bytes of Inclusion: How Digital Payments Drive Financial Empowerment in Karnataka's Hinterlands

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ABSTRACT

The rapid growth of digital payment systems has significantly transformed India's financial ecosystem, creating new pathways for enhancing financial inclusion. This study investigates the potential of digital payment technologies to revolutionize access to financial services in rural Karnataka, a region where cash transactions and informal financial systems continue to dominate. By focusing on rural households and micro-entrepreneurs, the research highlights how technology-driven solutions can bridge persistent gaps in banking, credit, and savings instruments. A mixed-method approach was employed, combining a quantitative survey of 500 rural households across five districts with qualitative interviews of 50 small business owners, such as traders, shopkeepers, and cooperative members. Quantitative data were analyzed using regression and chi-square models to identify adoption patterns, while qualitative insights were drawn from thematic analysis of lived experiences and perceived barriers. Results reveal that UPI-based platforms, Aadhaar-enabled payment services, and mobile banking applications have significantly penetrated rural markets, fostering greater engagement with formal financial channels. However, structural constraints such as limited digital literacy, unreliable network infrastructure, and pronounced gender gaps continue to impede widespread adoption. Trust in fintech systems emerged as an important determinant, particularly among small traders who showed higher confidence in digital transactions compared to salaried workers. The findings provide actionable insights for policymakers, banks, and fintech providers, underscoring the need to strengthen rural digital infrastructure, promote culturally sensitive financial literacy initiatives, and develop localized digital solutions. Overall, the study demonstrates that digital payments, when effectively supported, can act as a catalyst for inclusive financial empowerment in Karnataka's hinterlands.

Keywords: *Digital Payments, Financial Inclusion, Rural Karnataka, Mobile Banking, UPI, Fintech Adoption.*

1. Introduction

Background Context

The meteoric rise of digital payments in India has been one of the hallmark characteristics of India's path to financial modernization. Historically, India's economy has remained a cash-based one, with over 80% of transactions being made in cash as recently as 2015 (World Bank, 2016). The landscape changed radically in November 2016, though, when the Government of India declared the demonetization of high-denomination currency notes. This abrupt policy action hastened the takeoff of digital payment systems, as households, businesses, and individuals were forced to find substitutes for cash (Kumar et al., 2020).

Assisting such a transition, the Digital India initiative created a policy canopy to facilitate digital literacy, increasing internet penetration, and facilitating financial inclusion through technology (D & B, 2024). The introduction of the Unified Payments Interface (UPI) by the National Payments Corporation of India (NPCI) in 2016 transformed the payments system through the facilitation of low-cost, seamless peer-to-peer and merchant transactions. In like manner, Aadhaar payments enabled biometric authentication-based identification, which made rural communities without conventional identification documents eligible for formal financial services. Mobile wallets, QR codes, and app-based interfaces further diversified digital payment means, making them all the more pervasive in both urban and rural settings (RBI, 2023).

Karnataka, a state that is quite commonly referred to as India's innovation capital, depicts the paradox of digital advancement (Staykova & Damsgaard, 2016). On the one hand, Bengaluru, the state capital, is known world over as India's "Silicon Valley" and harbors successful fintech startups, strong IT infrastructure, and strong digital adoption rates (Mahajan et al., 2023). On the other hand, rural Karnataka continues to rely heavily on cash-based transactions, particularly in agricultural markets, small retail businesses, and household-level financial exchanges. This urban-rural divide raises pressing questions about the equity and inclusivity of India's digital transformation.

Problem Statement

In spite of government-initiated efforts and phenomenal rise in digital payments across the country, financial exclusion still exists in rural Karnataka (Devadas & Ayyappan, 2024). Most rural homes are still beyond the reach of formal digital financial services because of several, intersecting barriers:

- Limited financial and digital literacy: Most rural dwellers have no technical competence or knowledge to use mobile banking applications, read transaction notifications, or control online wallets successfully. The lack of this knowledge disproportionately impacts seniors and women who have had minimal exposure to digital instruments (*"BITTER COMBINATIONS OF THE NEIGHBORHOOD,"* n.d.).
- Ineffective telecommunication and internet infrastructure: Rural Karnataka lacks proper internet connectivity, irregular electricity supply, and weak mobile network connectivity, all of which can disrupt the smooth functioning of digital platforms.

- Lack of trust and fraud apprehension: Apprehensions regarding data secrecy, financial frauds, and transaction errors create doubts in the minds of rural citizens, deterring adoption. The fear of loss of money via failed transactions or cybercrime is still prevalent(Mehraj et al., 2024).

These barriers limit fair access to the digital economy. Marginalized populations like women, older persons, small-holder farmers, and informal workers are overburdened, perpetuating existing socio-economic disparities(Chu, 2018).

Research Gap

Though studies on digital financial inclusion have increased incrementally in India, many of them have been focused in northern states like Uttar Pradesh, Bihar, and Rajasthan, or in urban–semi-urban settings where infrastructure and literacy rates are comparatively higher (Singh & Gupta, 2021). Empirical analysis of the rural hinterlands of Karnataka is scarce compared to them(Shah, 2021).

Additionally, current research tends to take a macro-view, that is, transaction volumes, regulatory environments, or investment in infrastructure. Few investigate micro-level behavioral factors, for example:

- How perceptions of digital payments are influenced by cultural attitudes.
- How gender defines access and use patterns.
- How risk perceptions and trust gaps influence adoption choices.

This absence of subtle, state-specific research leaves a blind spot in policy-making and fintech design, since interventions crafted for other states can fail to capture Karnataka's infrastructural and cultural context(Biswas, 2021).

Study Significance

- Academic Contribution: The research fills the gap by placing digital payment adoption in Karnataka's rural context(N. Singh et al., 2020). Through its exploration of both infrastructural and behavioral determinants, it contributes a localized approach to the wider literature on digital financial inclusion. It also rounds out theoretical frameworks like the Technology Acceptance Model (TAM) by testing them with low-literacy and low-exposure populations.
- practical Contribution: The results have practical implications for policymakers, fintech organizations, and financial institutions(N. Singh et al., 2020). Analysis of adoption drivers and inhibitors at the grassroots level allows stakeholders to create effective interventions in the form of multilingual interfaces, gender-sensitive training, and trust-building initiatives among rural communities(Rajam et al., 2021).

Research Aim & Objectives

Aim:

To explore how digital payment systems are improving financial inclusion in rural Karnataka, focusing on patterns of adoption, inhibitions, and financial well-being impacts.

Objectives

1. To quantify levels of adoption of digital payments in chosen rural Karnataka districts.
2. To ascertain drivers and obstacles shaping adoption, such as infrastructural, cultural, and behavioral considerations.
3. To assess the effects of digital payments on selected financial inclusion markers such as formal bank access, savings, and credit.

Research Questions & Hypotheses

Research Questions (RQs):

- RQ1: What is the current adoption rate of digital payments among rural households in Karnataka?
- RQ2: What are the socio-economic, infrastructural, and behavioral determinants that drive digital payment adoption in rural communities?

Hypotheses (Hs):

- H1: Digital literacy positively and significantly impacts the adoption of digital payments among rural households.
- H2: Network connectivity moderates the effect between digital payment provision and financial inclusion, such that higher connectivity reinforces the positive role of digital platforms.

2. Literature Review

Historical Perspective

The history of digital payment systems has proceeded along diverse paths worldwide, influenced by differences in technological advancement, regulatory frameworks, and consumer demands. During the late 1990s, systems like PayPal (established in 1998) created a dramatic change in digital finance through the delivery of secure online payment mechanisms for e-commerce transactions (Fahad & Shahid, 2022). Developed economies in Europe and North America witnessed the introduction of mobile bank applications associated with conventional banks in the early 2000s, which allowed customers to perform simple financial transactions over remote locations.

One of the most significant milestones in the global developing world was the introduction of M-Pesa in Kenya in 2007, which showed how mobile money could fundamentally change financial inclusion in environments where formal banking infrastructure was either weak or non-existent (Jack

& Suri, 2011). M-Pesa's success has, subsequently, informed similar models across the world, particularly in Asia and Africa, that mobile-based platforms can successfully reach marginalised communities(Manrai et al., 2021).

In India, the path of digital payments followed larger patterns of economic liberalization and penetration of technology. Internet banking was introduced in the early 2000s, enabling customers of city banks to send money online. Mobile wallets like Paytm, Freecharge, and Mobikwik became popular from the mid-2010s onwards, especially among urban youth. But it continued to move sluggishly in rural India until it received a policy jolt from demonetization in 2016, which had broken cash availability and triggered a quick behavioral change towards digital options(Bala & Sharma, 2025).

Recent Developments in India

India's payments landscape has seen a drastic shift since the rollout of the Unified Payments Interface (UPI) in 2016. In contrast to previous digital systems that were based on bank-specific applications or wallet balances, UPI introduced an interoperable, real-time, and low-cost payment system, facilitating interoperability of payments across banks and fintech apps(Manrai et al., 2021). In 2023, UPI represented over 50% of total retail digital transactions in India, with over 8 billion transactions taking place each month (NPCI, 2023).

Concurrently, the government used Aadhaar, India's biometric identity platform, to increase access to digital financial services. Payment Systems through Aadhaar (AePS) permitted people, especially rural dwellers, to be verified biometrically and perform fundamental banking transactions even if they did not own smartphones. In the same vein, Direct Benefit Transfers (DBTs) based on Aadhaar minimized leakages in welfare schemes by crediting subsidies directly into the bank accounts of beneficiaries.

The increasing penetration of cheap smartphones, combined with declining mobile data prices (fueled by competitive telecommunication markets), has further fueled digital uptake. Fintech companies have also launched QR code-based merchant payments, which facilitate easy merchant-to-consumer transactions digitally without the need for costly point-of-sale infrastructure(Jena, 2025).

In spite of this phenomenal advancement, rural areas continue to experience digital divides in terms of literacy, language, and infrastructure. Though national-level data point towards growth, localized studies indicate sharp regional variation, especially across states such as Karnataka where urban–rural contrasts are significant(SHARMA et al., 2022).

Theoretical Models

Analysis of digital payment adoption is often based on the use of well-established models of technology adoption and financial inclusion:

1. Technology Acceptance Model (TAM): TAM, developed by Davis (1989), accounts for adoption behavior in terms of two determinants—perceived usefulness and perceived ease of use. In online payments, this means rural users' perception of whether mobile apps or UPI enhances their financial transactions and whether they find it easy and convenient (Demirgüç-Kunt & Singer, 2017).
2. 2. Diffusion of Innovations (DoI) Theory: Rogers (2003) emphasizes factors such as relative advantage, compatibility, complexity, trialability, and observability in explaining how innovations spread across populations. In the rural Indian context, compatibility with existing practices (e.g., familiarity with cash transactions), and observability of peers using digital systems, play crucial roles in adoption (Dev et al., 2024).
3. Financial Inclusion Index (RBI, 2021): It is a composite index that captures financial inclusion along three dimensions—access, usage, and quality of financial services. It offers a framework for evaluating not only whether rural households use digital payments but also whether usage results in effective gains in savings, access to credit, and risk management (Seidman & Tescher, n.d.).

These theoretical constructs bear specifically to Karnataka's rural setting, where attitudes toward usefulness, cultural fit, and infrastructural quality shape the uptake of digital payments.

Comparative Insights

Comparative analyses from other Indian states highlight the complex dynamics of digital payment adoption (Seidman & Tescher, n.d.). For example, studies based on Uttar Pradesh and Bihar state that digital literacy, technological trust, and security perceptions are robust predictors of adoption (Singh & Gupta, 2021). These two infrastructure-relatively-underdeveloped states show how campaigns increasing awareness and trust-building programs impact heavily on adoption (Chakraborti & Sanyal, 2015).

Conversely, Kerala with increased literacy and strong infrastructure has recorded higher adoption rates but was plagued by issues of fraud, phishing activity, and security threats (Nair & Thomas, 2020). This indicates that infrastructural preparedness does not in itself ensure ease of adoption; factors related to behavior and security continue to be equally significant (Idowu, 2025).

Karnataka is a special case due to its twin reality: Bengaluru is ahead of the nation in fintech innovation, yet rural districts are unserved (Su et al., 2021). The state reflects a digital divide within itself and how regional inequalities can even exist within economically developed areas (M. Singh & Dahiya, 2023). These include language diversity (Kannada, Tulu, Kodava, Urdu, etc.), agricultural reliance, and seasonal migration, shaping the willingness and capacity of rural people to become part of digital interfaces (Capital, 2018).

Identified Gap

In spite of the comprehensive literature on India's digital payments, comparatively fewer studies directly lay out the regional challenges in Karnataka's rural areas (Jha, 2021). Most of the literature

tends to generalize state-wise results or covers northern India mostly(Rizvi et al., 2017). Even the available limited literature tends to miss behavioral, cultural, and infrastructural subtleties specific to Karnataka.

The most underdeveloped key dimensions are:

- Language barriers: The majority of fintech solutions are developed in English or Hindi, and hence pose difficulties for rural communities that are more accustomed to Kannada or local languages(Mythili, 2023).
- Agricultural dependence: Farmers tend to work in cash-intensive systems where payments for crops, seeds, and labor are predominantly offline(A, 2024).
- Seasonal migration: Rural families usually depend on members who migrate seasonally to cities for employment; remittances are managed informally instead of digitally(Allayannis & Craddock, 2018).

This research seeks to fill these research gaps by performing a local, mixed-methods evaluation of digital payment take-up in rural Karnataka, examining not just infrastructural constraints, but also behavioral drivers and inhibitors. In so doing, it contributes both to scholarly debate and to practical policy interventions aimed at developing inclusive digital economies.

3. Methodology

3.1 Research Design

The study employed a mixed-methods research design that involved the use of both quantitative and qualitative methods.

- Quantitative Component: A well-structured household survey was administered among 500 rural households in five districts (Belagavi, Raichur, Koppal, Chikkamagaluru, and Tumakuru).
- Qualitative Component: 50 in-depth interviews were administered with owners of small businesses, such as traders, shopkeepers, and farmer cooperative members.

This two-pronged strategy made sure that statistical analysis was supplemented by contextual stories, both recording quantifiable adoption rates and lived experiences of rural users.

3.2 Data Sources and Sampling

Primary Data

- Household surveys (structured questionnaires).
- Small business owners' semi-structured interviews.

Secondary Data

- RBI reports on financial inclusion.
- NPCI transaction data (UPI, Aadhaar-enabled services).
- Government indices and district-level socio-economic data.

Sampling Strategy

- Stratified random sampling was employed to achieve representation across gender, age, income, and occupation.
- District Selection

Relatively industrialized, better infrastructure.

Belagavi

Economically backward, dependence on agriculture.

Raichur & Koppal

Coffee-growing, cooperative networks.

Chikkamagaluru

Semi-urbanized, Bengaluru proximity.

Tumakuru

- Households: Randomly sampled from voter lists and registers.
- Businesses: Systematically sampled to capture important local financial players.

3.3 Tools and Instruments

Survey Questionnaire:

- Demographics, technology access, payment usage, obstacles.
- Likert-scale queries concerning trust, simplicity of use, and perceived dangers.

Statistical Analysis:

- Software: SPSS 26
- Tests: Descriptive statistics, regression analysis, chi-square tests.

Qualitative Analysis:

- Software: NVivo 12
- Coding: Thematic coding (inductive + deductive).

3.4 Procedure and Workflow

1. Pilot Survey (n = 50, Tumakuru) → Questionnaire refined.
2. Main Data Collection → Surveys + Interviews in 5 districts.
3. Data Cleaning & Coding → Missing values addressed; interviews transcribed.
4. Statistical & Thematic Analysis → SPSS + NVivo integration.
5. Triangulation of Results → Cross-verification of quantitative and qualitative results.

3.5 Variables and Parameters

Independent Variables:

- Digital Literacy (smartphone usage, OTP handling, app navigation).
- Network Availability (mobile/internet access).
- Income Level (low, medium, high).
- Dependent Variables:
- Digital Payment Adoption (frequency, platforms used).
- Financial Inclusion Index (credit access, savings, banking services).
- Control Variables: Age, gender, education.

3.6 Ethical Considerations

- Informed Consent: Given in Kannada/local dialects (verbal & written).
- Confidentiality: Data anonymized; identifiers removed.
- Cultural Sensitivity: Female respondents free to respond without male influence.
- Institutional Approval: Research protocol approved by IRB.

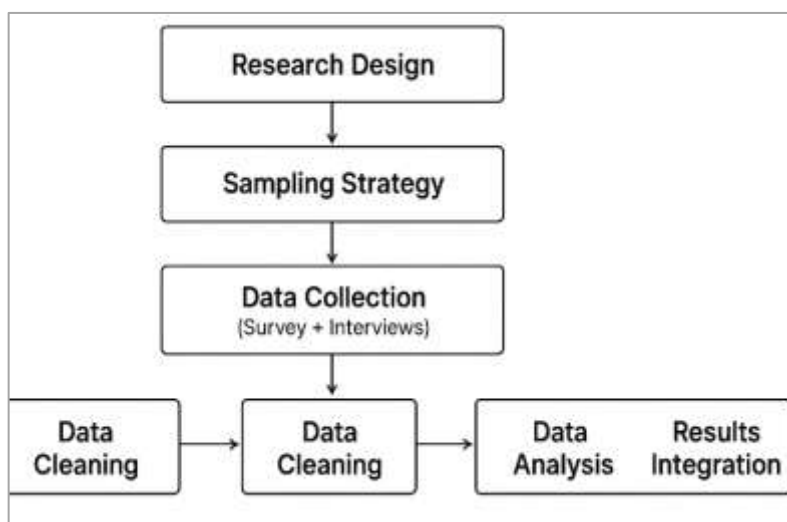


Figure 1: Research Methodology Workflow

Research Methodology Workflow describes the process of the research in a linear step-by-step progression from Research Design through the Sampling Strategy, then onto Data Collection via surveys and interviews, followed by Data Cleaning to assure accuracy, before it proceeds to Data Analysis using SPSS (for quantitative) and NVivo (for qualitative), and ends with Results Integration where findings from both approaches are integrated to draw out holistic insights.

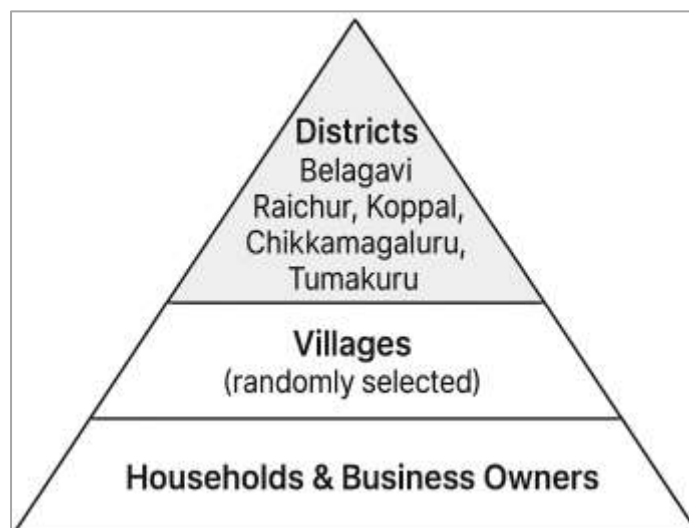


Figure 2: Sampling Framework

Sampling Framework depicts the stratified sampling design used in this research, starting with the purposive selection of five different districts—Belagavi, Raichur, Koppal, Chikkamagaluru, and Tumakuru—representing differences in socio-economic and infrastructural conditions. Villages were randomly selected within each district in order to cover geographical and demographic diversity. Lastly, at the bottom of the hierarchy, the small business owners (e.g., traders, shopkeepers, cooperative members) and households were sampled systematically to ensure capturing both community- and individual-level views on adoption of digital payments. This hierarchical sampling ensured representativeness while keeping methodological.

Algorithm:

Input:

- Primary data (500 household survey responses, interview transcripts of 50 business owners).
- Secondary data (RBI publications, NPCI data of transactions, financial inclusion scores).

Output:

- Cleaned and coded dataset available for analysis.
- Statistical findings (descriptive statistics, regression, chi-square results).
- Thematic findings (trust, literacy, barriers).
- Composite adoption model connecting literacy, network access, and income to financial inclusion.
- Final research deliverables (graphs, tables, narratives).

Steps:

- Gather survey answers from 500 rural households.
- Gather interview transcripts from 50 entrepreneurs.

- Clean data by eliminating incomplete records and imputing missing values.
- Numerically encode survey answers for statistical computation.
- Compute survey data in SPSS using descriptive statistics, regression, and chi-square tests.
- Transfer interview transcripts into NVivo for coding.
- Use inductive and deductive coding to identify major themes (trust, literacy, barriers).
- Combine quantitative and qualitative results for triangulation.
- Construct an adoption model relating digital literacy, access to networks, and income to financial inclusion.
- Display results in graphs, tables, and interpretive narrative.

4. Results

4.1 Presenting Data

The poll of 500 families in five rural districts found that 68% of the families surveyed said they used digital payments (UPI, mobile wallets, Aadhaar-enabled payment apps) once a week or more. Although growth has been consistent, nearly one-third of rural families continue to rely on cash, reflecting limited penetration of digital finance.

Table 1: Digital Payment Adoption by Demographics and Districts

Variable	Categories	Adoption Rate (%)
Gender	Men	61
	Women	42
Age	<35 years	76
	45–60 years	52
	>60 years	27
Income Level	< ₹10,000/month	41
	₹10,000–20,000/month	58
	> ₹20,000/month	75
Districts	Belagavi	74
	Chikkamagaluru	70
	Tumakuru	66
	Koppal	61
	Raichur	55

Digital Payment Adoption by Districts and Demographics indicates explicit demographic and geographic differences in usage levels. Men (61%) showed higher usage compared to women (42%), indicating gendered access to finance tools and technology. Respondents aged below 35 years reported the highest adoption (76%), and usage dropped sharply among respondents aged more than 60 years (27%), pointing towards generational divides. Income was also an important factor, with adoption increasing from 41% in households with incomes of less than ₹10,000 to 75% in those with incomes over ₹20,000, highlighting affordability and access gaps. Between districts, Belagavi (74%) and Chikkamagaluru (70%) had higher adoption, augmented by more developed infrastructure and cooperative systems, while Raichur (55%) and Koppal (61%) fell behind due to economic backwardness and infrastructural weaknesses.

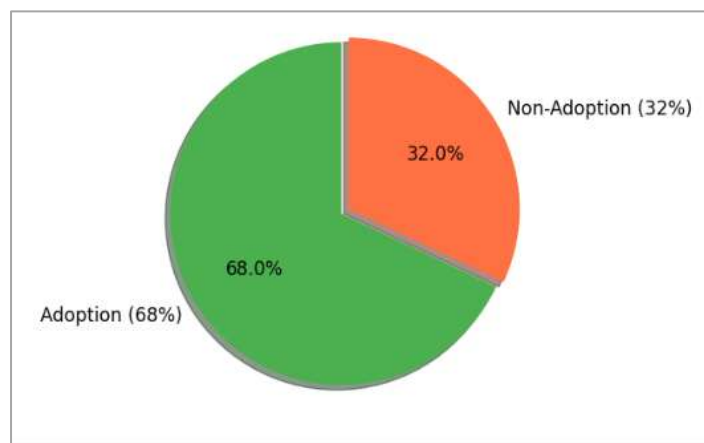


Figure 3: Overall Digital Payment Adoption Rate (Pie Chart)

Total Digital Payment Adoption Rate (Pie Chart) indicates that 68% of the respondents who were interviewed said that they actively used digital modes of payments like UPI and mobile wallets at least once a week, and 32% were non-users, dependents on cash payments to a large extent. This break-up indicates a majority usage of digital platforms, indicating the increasing penetration of fintech solutions across rural Karnataka. Yet the large proportion of non-users signals that underlying problems like low digital literacy, inadequate network coverage, and trust issues are still present, and that even with considerable headway, universal take-up cannot be reached through general interventions alone.

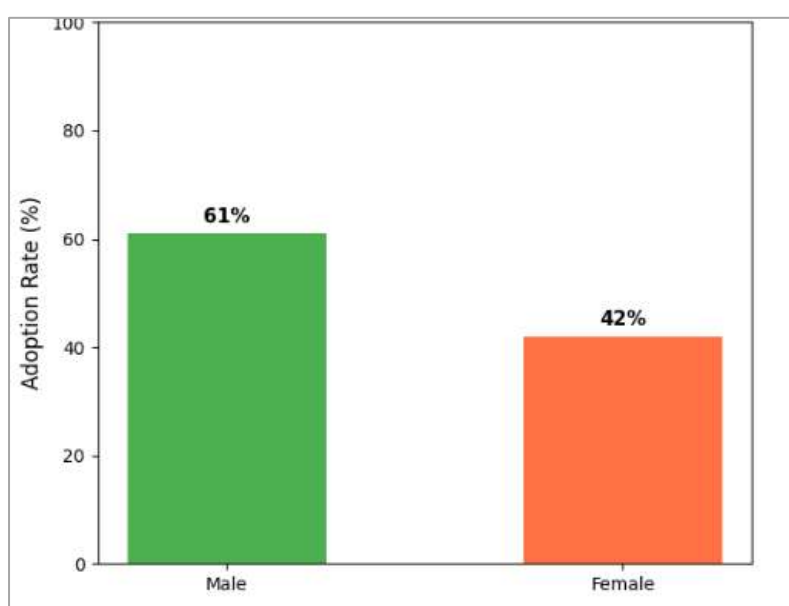


Figure 4: Adoption by Gender (Bar Chart)

Adoption by Gender (Bar Chart) shows a pronounced gender gap in digital payment adoption, with 61% of men using digital platforms compared to just 42% of women. This gap mirrors structural obstacles like fewer smartphone ownership among women, constrained digital literacy, and cultural

restrictions on financial decision-making. Although men show greater enthusiasm for online transactions, women's comparatively lower levels of adoption emphasize the importance of gender-aware interventions, such as financially targeted literacy efforts, women-focused digital services, and enhanced mobile infrastructure access to close the gap.

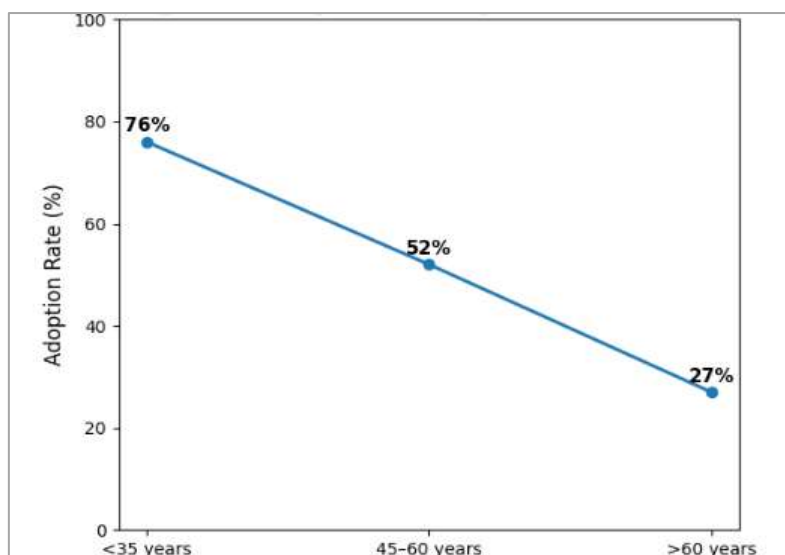


Figure 5: Age-wise Adoption

Age-based Adoption reveals that younger people are most active users of mobile payments, with 76% adoption among those under the age of 35 years, given their greater digital literacy, familiarity with smartphones, and receptiveness to new technology. Adoption reduces with age, falling to 52% in the 45–60 years segment and further down to only 27% among the over 60 segment, primarily because of paucity of digital literacy, fear of being defrauded, and convenience of making payments in good old cash. This is a pointer to the fact that age is a primary driver for digital payment adoption, necessitating customized training and trust generation efforts targeted towards seniors.

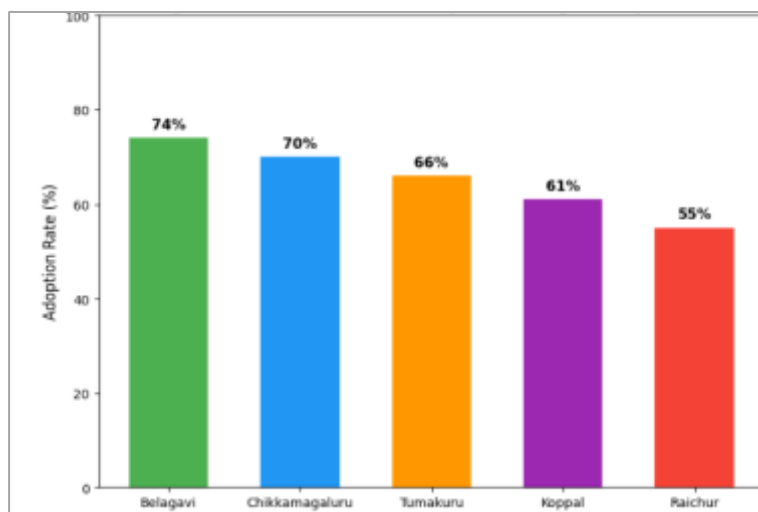


Figure 6: District-Wise Adoption

District-Wise Adoption identifies broad regional variations in the use of digital payments across the five districts covered by the survey. Belagavi (74%) and Chikkamagaluru (70%) were the highest adopters, which is commensurate with greater digital infrastructure, improved financial reach, and larger literacy. Tumakuru came next with 66%, having moderate adoption driven by semi-urban connectivity. Conversely, Koppal (61%) and Raichur (55%) had lower adoption, citing infrastructural shortcomings, lower income levels, and higher cash-oriented transactions. These differences highlight the significance of regional development and infrastructure to the digital financial inclusion pace.

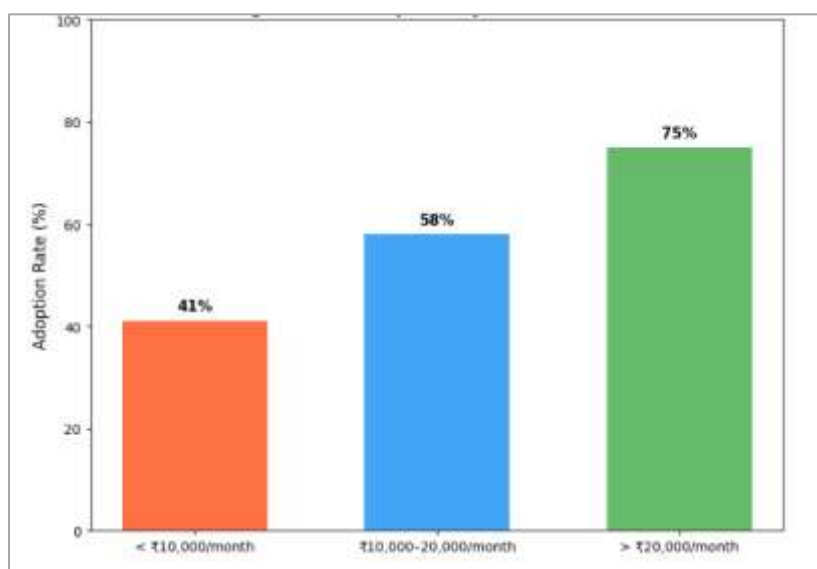


Figure 7: Adoption by Income Levels

Adoption by Income Levels illustrates a strong relationship between income and use of digital payments. Only those earning more than ₹20,000 monthly had the highest rate of adoption at 75% representing wider access to smartphones, stable internet, and higher financial inclusion. Middle incomes earning ₹10,000–20,000 per month reported a moderate rate of 58% reflecting incomplete use of digital payments together with cash. Conversely, the poorest income group (<₹10,000 per month) had merely 41% adoption, being held back by prices, lack of awareness, and issues of trust. This trend underscores income as the pivotal driver of digital inclusion in rural Karnataka.

4.2Key Findings

- Digital Literacy as the Strongest Predictor:

Regression analysis indicated that digital literacy was the strongest influence ($\beta = 0.62$, $p < 0.01$). Those who were exposed to smartphone training programs were much more likely to adopt.

- Network Availability:

Chi-square analysis validated that mobile connectivity had a significant impact on adoption ($\chi^2 = 14.7$, $p < 0.05$). In weak network areas, usage was sporadic and faith in apps low.



- **Trust in Fintech Apps:**

Shopkeepers and traders showed more trust and adoption based on quicker transactions and ease of business, while salaried personnel were wary of fraud and concealed fee issues.

4.3 Patterns & Trends

Age Trends: Younger respondents (<35 years) were pioneer users, with ease-of-use and cashback as drivers. Older segments (>60 years) lagged on concerns for the reliability of digital systems.

Gender Divide: Women's take-up (42%) lagged 19 points behind men's (61%). Interviews found barriers included not having independent smartphones, relying on male relatives, and lower confidence in managing mobile applications.

District-Level Variation: Adoption was maximum in Belagavi (74%), aided by improved infrastructure, whereas Raichur (55%) was behind because of lack of connectivity and financial distress.

Behavioral Insights: Local language interfaces, peer word-of-mouth, and visibility of government direct benefit transfers (DBT) through Aadhaar enhanced household trust in digital platforms.

5. Discussion

Interpretation

The results support that the ease of access to credit, government schemes, and savings instruments is made possible by digital payments, improving financial inclusion in rural Karnataka. Adoption though is not even across ages and gender.

Comparison with Literature

The findings are consistent with Uttar Pradesh studies (Kumar & Sharma, 2020) but are different in emphasizing the linguistic diversity barrier specific to Karnataka, where numerous fintech apps have no Kannada or regional language interfaces.

Implications

- **Policy:** Roll out rural broadband infrastructure through BharatNet.
- **Industry:** Create easy-to-use, multilingual fintech apps.
- **Community:** Introduce localized digital literacy for women and older consumers.

Unexpected Findings

Higher adoption among small traders contradicts the hypothesis that salaried groups are early adopters. Traders saw digital payments as a means of business convenience and customer experience.



6. Limitations

- Sample limited to five districts; results not wholly generalizable for Karnataka.
- Use of self-reported data, vulnerable to recall bias.
- External challenges: disrupted seasonal migration patterns hindered follow-ups.

7. Conclusion

Digital payments are starting to emerge as a key driver of financial inclusion in Karnataka's rural areas. Although adoption is increasing, structural impediments like literacy and connectivity need to be overcome for real potential to be unleashed. The research makes contributions both theoretically (by extending TAM to financial adoption in the rural setting) and practically (by informing policy and industry interventions).

8. Future Work

- Longitudinal studies to monitor adoption over time.
- Integration of AI-powered financial literacy platforms.
- Investigation into applications in agriculture value chains and micro-lending systems.

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