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# Digital Payment Adoption and Its Challenges Among Kirana Stores in the Post-Pandemic Era

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**Abstract**

The COVID-19 pandemic accelerated the digital transformation of financial services across India, particularly among micro-retailers such as Kirana stores. This study investigates the extent of digital payment adoption, the motivations behind the shift, and the challenges experienced by Kirana store owners. Using a mixed-methods approach, including structured surveys and interviews with 160 store owners across urban and semi-urban areas, the study finds a sharp increase in digital payment use post-pandemic. Key drivers include consumer demand, operational convenience, and safety concerns, while challenges such as digital illiteracy, network issues, and trust deficits continue to impede wider adoption. Findings support theoretical models like TAM and UTAUT and suggest policy-level interventions for inclusive digital adoption.

## 1. Introduction

Digital payment systems have redefined transaction dynamics globally and particularly in India, where platforms like UPI, Paytm, PhonePe, and Google Pay have become household names. The informal retail sector, dominated by Kirana stores, has traditionally operated on cash. However, the COVID-19 pandemic ushered in a paradigm shift, pushing these small retailers to adopt digital payments to meet evolving customer expectations and health-related precautions.

This research focuses on Kirana store owners' adoption behaviors, the perceived advantages of digital transactions, and the challenges they face—operational, psychological, and infrastructural. It aims to provide insights for policymakers, fintech companies, and retail stakeholders seeking to improve digital penetration in India's micro-retail economy.

## 2. Research Objectives

1. To examine the extent and pattern of digital payment adoption among Kirana stores.
2. To identify the major challenges hindering digital payment usage.
3. To assess the influence of demographic variables on adoption behavior.
4. To evaluate the perceived benefits and future intentions of store owners toward digital payment platforms.

## 3. Literature Review

### 3.1 Global and Indian Trends

Globally, mobile payment adoption has risen with smartphone penetration and fintech innovation. In India, digital payments soared post-2016 demonetization and further post-COVID-19. UPI, in particular, recorded over 10 billion transactions monthly in 2023 (RBI, 2022).

### 3.2 Technology Acceptance Models

- **TAM (Davis, 1989):** Focuses on perceived ease of use and usefulness as primary determinants of adoption.
- **UTAUT (Venkatesh et al., 2003):** Adds social influence, effort expectancy, and facilitating conditions.

### 3.3 Barriers to Adoption

- **Trust Deficits:** Concerns about fraud and data security (Mehta et al., 2021).
- **Digital Illiteracy:** Especially among older, rural merchants (Bansal & Kumar, 2020).
- **Technical Failures:** Transaction errors and unreliable internet.

### 3.4 Key Gaps

- Lack of micro-level studies on Kirana stores post-pandemic.
- Insufficient behavioral analysis of merchant-side adoption.
- Urban-rural divide remains underexplored.

## 4. Hypotheses

- **H1:** Kirana stores have significantly increased digital payment usage post-pandemic.
- **H2:** Technical challenges and trust issues are primary barriers.
- **H3:** Younger and more educated owners are more likely to adopt digital payment systems.
- **H4:** Perceived benefits (e.g., faster payments, customer satisfaction) positively influence sustained use.

## 5. Research Methodology

### 5.1 Design and Approach

A mixed-methods strategy was employed:

- **Quantitative:** Structured Google Form surveys (n=160).
- **Qualitative:** In-depth interviews with selected store owners.

### 5.2 Sampling

- **Target Population:** Kirana store owners in urban and semi-urban regions.
- **Sampling Technique:** Purposive sampling.
- **Sample Size:** 160 valid responses post-cleaning.

### 5.3 Data Collection Tools

- Google Forms for survey responses.
- Semi-structured interviews for qualitative data.
- Secondary sources: RBI, NITI Aayog, peer-reviewed journals.

### 5.4 Data Analysis Techniques

- Frequency and percentage analysis (Excel).
- Cross-tabulation for demographic patterns.
- Thematic coding of qualitative comments.

### 5.5 Ethical Considerations

- Informed consent taken.

- Anonymity and data confidentiality maintained.
- Participation was voluntary and non-commercial.

## 6. Data Analysis & Interpretation

### 6.1 Demographics

| Category | Distribution |
|---|---|
| Age 18–30 | 45% |
| Age 31–45 | 40% |
| Age 46+ | 15% |
| Graduate or Higher | 66% |
| Urban Stores | 60% |
| Semi-Urban Stores | 40% |

### 6.2 Adoption Insights

- **90%** of owners use UPI-based systems.
- **27.5%** adopted during the pandemic.
- **43.6%** cited customer demand as key driver.

### 6.3 Challenges

| Challenge | % Affected |
|---|---|
| Internet issues | 38.5% |
| Failed transactions | 33.3% |
| Fear of fraud | 12.8% |
| High charges | 15.4% |
| Digital illiteracy | 20.5% |

### 6.4 Benefits Perceived

| Benefit | % Reporting |
|---|---|
| Faster payments | 72% |
| Customer satisfaction | 64% |
| Easier record-keeping | 58% |
| Reduced cash handling | 69% |

## 7. Discussion

All four hypotheses were supported:

- **H1:** Post-COVID, digital usage increased sharply.
- **H2:** Internet connectivity, app errors, and trust gaps remain significant.
- **H3:** Younger and urban store owners led adoption.

- **H4:** Operational benefits encouraged continued usage.

The findings resonate with TAM and UTAUT models. While digital platforms have added speed and transparency to transactions, inconsistent infrastructure and limited digital education continue to inhibit broader adoption—especially in semi-urban or older user segments.

## 8. Recommendations

### A. For Store Owners

- Join training on app usage and cybersecurity.
- Keep dual payment options to mitigate failures.

### B. For Fintech Providers

- Add regional language support.
- Simplify user interfaces for non-tech-savvy users.
- Reduce transaction charges for micro-retailers.

### C. For Policymakers

- Introduce tax incentives and cashback schemes.
- Expand digital infrastructure in Tier-2/3 cities.
- Partner with NGOs to conduct digital literacy drives.

### D. For Future Researchers

- Include rural respondents and customer perspectives.
- Conduct longitudinal studies to track behavioral change.

## 9. Limitations

- Urban and semi-urban sampling bias.
- Self-reported data may include response bias.
- No analysis of customer-side behavior.
- Cross-sectional design lacks longitudinal insight.

## 10. Future Scope

- Compare platform features (e.g., PhonePe vs. Paytm).
- Study platform-specific fraud and security experiences.
- Examine dual adoption dynamics (customer + merchant).
- Evaluate impact of government-led digital literacy programs.

## 11. Conclusion

Kirana stores have embraced digital payments post-COVID, primarily due to consumer demand and operational benefits. However, adoption is uneven and heavily influenced by age, education, and regional infrastructure. For India to realize full digital inclusion, targeted efforts must be made to support small retailers through policy, infrastructure, and literacy initiatives.

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