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## **The impact of digital payment systems (e.g., UPI) on cash transaction in india**

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### **Abstract**

The sudden surge in digital payment systems, particularly the Unified Payments Interface (UPI), has revolutionized the financial transaction landscape in India. This empirical research paper examines the impact of UPI on cash transactions, focusing on the levels of adoption, associated challenges, and the benefits of this digital transformation. Using both primary (surveys) and secondary data sources, the study investigates the extent to which UPI has reduced reliance on cash, with insights into both urban and rural contexts. The paper also addresses key barriers such as infrastructure and security issues and evaluates how governmental efforts have influenced this transition. The findings highlight a noticeable decline in cash usage in urban India while identifying persistent obstacles in rural adoption. The study concludes with policy recommendations to promote wider acceptance of digital payment systems nationwide.

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**Keywords:** Digital Payment Systems, Unified Payments Interface (UPI), Cash Transactions, Financial Inclusion, FinTech, Cashless Economy, Digital India

## 1. Introduction

India's evolution in payment systems has been marked by innovation and digital transformation. Among the most significant milestones is the introduction of the Unified Payments Interface (UPI) by the National Payments Corporation of India (NPCI) in 2016. UPI enables real-time transactions using mobile phones and has become central to India's digital payment infrastructure.

Before this digital revolution, India was predominantly a cash-based economy. The launch of government initiatives like **Digital India** and **Make in India** played pivotal roles in promoting digital finance. UPI, in particular, has become a catalyst in driving this change, leading to a sharp reduction in cash transactions—especially in urban areas. This paper aims to empirically assess UPI's influence on cash usage patterns and explore the broader implications for India's payment ecosystem.

## 2. Literature Review

### 2.1 Evolution of Digital Payments in India

The journey toward digital financial transactions began with systems like NEFT and RTGS. The introduction of IMPS in 2010 and UPI in 2016 brought rapid growth. Gupta and Sharma (2018) noted that UPI reduced transaction costs and enhanced accessibility, promoting financial inclusion.

### 2.2 UPI Adoption and its Effect on Cash Usage

Nayak (2021) observed a strong shift from cash to digital payments post-2016, particularly due to UPI's mobile integration. RBI (2020) reported UPI transactions amounting to ₹84 trillion in FY 2020-21—highlighting growing user preference for digital methods over physical cash.

### 2.3 Challenges in Rural Adoption

Rural India still faces several challenges such as poor internet access, limited smartphone penetration, and low digital literacy. Sarkar & Chowdhury (2020) and the World Bank (2019) emphasized that these factors significantly slow down UPI adoption in rural areas.

### 2.4 Role of Government Initiatives

Schemes like **PMGDISHA** have helped improve digital literacy, particularly in rural

India. Singh & Yadav (2020) recognized that while government programs have made strides, their reach and effectiveness still require enhancement.

## 2.5 Impact on the Informal Economy

Cash remains dominant in informal sectors, but digital tools are making inroads. Jain & Soni (2021) observed that UPI and mobile wallets are gaining acceptance even among small traders, reducing the overall volume of cash transactions.

## 3. Research Methodology

### 3.1 Data Collection

- **Primary Data:** Surveys of UPI users across urban and rural India, along with interviews with merchants, financial institutions, and officials.
- **Secondary Data:** Reports and statistics from RBI, NPCI, government portals, and scholarly publications.

### 3.2 Sampling

A diverse sample of respondents from different socioeconomic backgrounds in both rural and urban settings was selected to observe patterns in digital payment adoption.

### 3.3 Data Analysis

Descriptive statistics and regression analysis were used to identify correlations between UPI adoption and the decline in cash transactions. Tools such as SPSS were employed for statistical validation, with the results visualized using tables and graphs.

## 4. Research Analysis and Interpretation

**Table 1: Growth of UPI Transactions (2016–2023)**

YEAR	UPI TRANSACTIONS (₹ TRILLIONS)	YOY GROWTH (%)
2016–17	0.12	-
2017–18	1.48	1167%
2018–19	21.03	1300%
2019–20	41.20	96.5%
2020–21	84.16	104.5%
2021–22	112.00	33.1%

**Source:** NPCI, RBI

**Interpretation:** There is exponential growth in UPI transactions, especially post-2017, reflecting strong user adoption and increasing trust in digital platforms.

**Table 2: Frequency of Cash Transactions Before and After UPI Adoption**

FREQUENCY	BEFORE UPI (%)	AFTER UPI (%)
DAILY	58	30
WEEKLY	25	40
MONTHLY	12	20
RARELY	5	10

**Source:** Primary Survey (2023)

**Interpretation:** A notable reduction in daily cash transactions indicates a shift toward UPI and digital payments, especially for day-to-day purchases.

## 5. Key Findings

- **Urban Shift:** There is a significant decline in cash usage in urban centers due to better infrastructure and digital access.
- **Rural Lag:** Adoption in rural areas is slower due to poor internet, low smartphone access, and limited digital education.
- **Government Role:** Programs like PMGDISHA have improved awareness, but rural gaps persist.
- **Advantages of UPI:** Users favor UPI for its speed and ease of use.
- **Security Concerns:** Trust issues and fear of fraud continue to hinder complete digital payment adoption.
- **Informal Sector:** While cash still dominates, digital adoption is growing among street vendors and small businesses due to government incentives.

## 6. Conclusion

UPI has had a transformative effect on India's payment ecosystem, significantly reducing the dependence on cash in urban areas and enabling broader financial inclusion. Despite these gains, rural areas remain underserved, highlighting the need for targeted

investments in infrastructure, digital literacy, and cybersecurity.

To move toward a truly cashless economy, India must bridge the rural-urban divide and build trust in digital systems through user education, policy support, and robust digital ecosystems.

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