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Impact of Cashless Economy on Monetary Policy Transmission Mechanism in India

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Abstract

The rapid expansion of digital payments system has significant transformation the financial architecture of India over the past decade,the shift from cash dominated transactions towards electronic models of payment has alternate liquidity pattern, banking behaviour and financial intermediaries.This study examined how the growth of the cashless Economy influence the effectiveness of monetary policy transmission in India.In particular it analyzes whether increased digital financial transactions enhance the Speed and magnitude of interest rate pass through and improve the credit channel of transmission.

The research relies on secondary time series data obtained from publication of the Reserve Bank of India and transactions statistics released by the National payment corporation of India.The study evaluate Trends in digital payments policy rate adjustment banker lending rates, liquidity condition.By exploring The relationship between financial digitalization and monetary policy outcomes the paper aims to contribute to the understanding of how structural changes in payment system affect macroeconomics policy efficiency in emerging economies like India The

finding are expected to provide policy insights regarding the role of digital financial.infrastructure in strengthening monetary transmission mechanism and promoting overall economic stability.

Keywords: Cashless economy , Digital payment, monetary policy transmission ,Interest rate channel, Credit channel, Financial Digitalization,Repo rate , India, Liquidity management, Financial Inclusion

Introduction

In recent years, the Indian economy has witnessed a remarkable transformation in its payments ecosystem. The increased adoption of electronic payment platforms, mobile banking applications, and real-time transaction systems has gradually reduced reliance on physical currency. The development of platforms such as the Unified Payments Interface (UPI) has accelerated the movement towards a digitally integrated financial system. This has implications not only for financial inclusion and efficiency but also for macroeconomic management.

Monetary policy transmission refers to the process through which changes in policy instruments, like the repo rate, influence broad economic variables such as lending rates, credit availability, investment, and

inflation is crucial. In India, the effectiveness of this transmission has historically faced constraints. Due to high currency circulation outside the banking sector and a large informal economy, the slow pass-through of policy rates to bank lending rates has often limited the impact of monetary policy decisions.

The expansion of the cashless economy may alter this dynamic. Digital transactions increase transparency, formalization, and banking system participation. As more transactions pass through the banking channel, liquidity becomes more trackable and responsive to policy signals. This can potentially strengthen the interest rate channels and enhance the responsiveness of financial institutions to the central bank's policy actions. Furthermore, reduced dependence on cash may improve the efficiency of liquidity management and reduce transaction frictions.

Given these developments, it becomes essential to examine whether the growth of digital payments has improved the effectiveness of monetary policy transmission in India. This study seeks to analyze the evolving relationship between financial digitalization and monetary policy outcomes, thereby contributing to contemporary discussions on macrofinancial stability in emerging economies.

1.1 Background of the Study

The structure of India's payment system has undergone substantial transformation over the past decade. Traditionally, the Indian economy operated largely on cash-based transactions, particularly in rural and informal sectors. A high currency-to-GDP ratio and limited digital penetration characterized the financial system for many years. However, technological advancements, expansion of banking infrastructure, and policy initiatives promoting digital payments have accelerated the transition towards a less-cash economy. The establishment of the National Payments Corporation of India (NPCI) marked a significant milestone in strengthening retail payment systems. The introduction of the Unified Payments Interface (UPI) further revolutionized digital transactions by enabling real-time, low-cost fund transfers. These reforms enhanced accessibility, reduced transaction costs, and increased the formalization of economic activities.

Simultaneously, monetary policy in India has evolved under the framework administered by the Reserve Bank of India (RBI). The adoption of flexible inflation targeting and liquidity adjustment mechanisms aimed to improve transparency and strengthen policy transmission. Despite these reforms, the transmission of policy rate changes to bank lending and deposit rates has often been uneven and delayed. The interaction between digital financial expansion and monetary transmission is, therefore, an emerging area of academic interest. As digital transactions increase banking system participation and reduce reliance on cash, the effectiveness of policy tools may improve through enhanced liquidity control and faster interest rate adjustments.

1.2 NEED OF THE STUDY

The need of the study arises from the structural transformation occurring within Indian financial system. While numerous studies have examined monetary policy transmission independently limited research has explored its linkage with the expansion of the cashless economy.

First the rapid growth has altered the liquid distribution within the banking system. Understanding whether this change improve policy rates, pass throough is crucial for evaluating monetary effectiveness.

Secondly, policymakers increasingly rely on digital infrastructure to promote financial inclusion and macroeconomic stability. Assessing its impact on transmission mechanisms provides evidence-based insights for future reforms.Thus, as India continues to modernize its payment system, it is important to analyze whether digitalization reduces frictions in the credit and interest rate channels. This study fills the gap by integrating digital payment trends with monetary transmission analysis.

1.3 Statement of the Problem

Monetary policy transmission in India has historically faced challenges such as delayed pass-through of repo rate changes, structural rigidities in banking operations, and high cash dependency in the informal sector. Although policy reforms have aimed to improve transmission efficiency, the outcomes have not always been aligned with the policy adjustments.

With the expansion of digital payment systems and declining reliance on physical currency, the financial structure of the economy is gradually changing. However, it remains unclear whether this transformation has strengthened the responsiveness of banks and financial markets to policy rate changes.

Therefore, the central problem addressed in this study is-

Does the growth of the cashless economy enhance the effectivenss and the speed of monetary policy transmission in India.

1.4 Research Questions

1. Has monetary policy transmission improved in the post-digital expansion period?
2. What is the relationship between digital transaction volume and monetary policy effectiveness?
3. Does increased digitalization enhance the pass-through speed of policy rates to bank lending rates?
4. How has the cashless economy reduced dependency on physical currency?
5. How the growth of digital payments altered the structure of financial transaction in India?

1.5 Objectives of the study

1. To examine the growth and structural expansion of the digital payment system in India.
2. To analyze the functioning of the monetary policy transmission mechanism in India.
3. To evaluate the impact of the cashless economy on the interest rate channel of monetary transmission.
4. To assess whether increased digital transactions improve the credit channel and liquidity management.
5. To study the relationship between digital financial deepening and overall monetary policy effectiveness.

Review of literature

Monetary policy transmission has been widely discussed in macroeconomic theory, particularly through the interest rate, credit, exchange rate, and expectation channels. Studies on emerging economies suggest that structural rigidities and informal sector dominance often weaken policy effectiveness.

Research conducted by the Reserve Bank 0f India have highlighted that monetary policy transmission has historically been slow due to factors such as high nonperforming assets, administered interest rates, and liquidity constraints. The introduction of external benchmark lending rates was intended to strengthen rate pass-through.

In recent years, academic attention has shifted toward financial digitalization and its macroeconomic implications. The rapid expansion of digital payment infrastructure through the National Payments Corporation of India (NPCI) and platforms such as the Unified Payments Interface (UPI) has significantly increased transaction formalization. Scholars argue that greater digital penetration enhances transparency, improves banking participation, and reduces information asymmetry.

However, limited empirical research has directly linked digital payment growth with monetary policy transmission in the Indian context. While some studies suggest that digitalization improves liquidity management and financial inclusion, a comprehensive analysis of its effects on interest rate pass-through remains insufficient. This study attempts to fill this research gap by integrating digital payment expansion with monetary transmission analysis

Hypothesis

Null Hypothesis (H0): The expansion of the cashless economy has no significant impact on monetary policy transmission in India.

Alternate Hypothesis (H1): The expansion of the cashless economy significantly improves monetary policy transmission in India.

Research Methodology

1. Nature of Study:

The study is empirical and analytical in nature, relying on secondary data sources.

2. Data Sources:

Data will be collected from:

- Publications and statistical databases of the RBI (Reserve Bank of India).
- Digital transaction statistics from the National Payments Corporation of India (NPCI).
- Government and financial reports.

3. Time Period:

The study will focus on the period 2015–2025 to capture the post-digital expansion phase.

4. Variables:

- **Dependent Variable:** Monetary policy transmission (measured through changes in lending rates and credit growth).
- **Independent Variables:**
- Digital transaction volume.
- Currency in circulation.
- Repo rate.
- Liquidity indicator.
- **Analytical Tools:**
- Descriptive statistical analysis.
- Correlation analysis.
- Ordinary Least Squares (OLS) Regression model.
- Trend analysis.
- A basic regression model may be specified as:
- *Monetary Transmission = f(Digital Transaction, Repo Rate, Liquidity, Currency Circulation)*
- This model will help determine whether digital payment growth significantly influences transmission efficiency.

Data Analysis: Growth of Cashless Economy in India

a. Digital Payments Volume Trends

S.No.	Indicator	Data / Year
1.	Digital payment as % of total transaction volume (2024)	99.7% of total transactions by volume, 97.5% by value (CY 2024)
2.	Digital payment as % of transaction (H1 2024)	99.8% volume, 97.7% of value
3.	Total digital transaction (CY 2024)	20,849 crore (208.49 billion)
4.	UPI transaction volume (CY 2024)	17,221 crore
5.	UPI share in digital payments (2024)	~ 83% volume share
6.	UPI transactions in FY 25	185.8 billion (41.7% from FY 24)
7.	UPI recorded 228.3 billion transactions in 2025	Domestic growth, estimate (value ~ ₹ 300 lakh crore)

S.No.	Indicator	Data / Year
8.	Monthly UPI high example (Oct 2025)	20.7 billion transactions worth ₹ 27.3 lakh crore

Interpretation

The data shows an explosive growth of digital payments, particularly through the Unified Payments Interface (UPI), which now dominates the system. The ecosystem, with near 99-100% adoption in transaction volume by 2024-25, demonstrates increasingly formalized economic activity and huge penetration of digital channels an essential driver of cashless economy dynamics in India.

2. Data Analysis: Monetary Policy Transmission & Cashless Economy Dynamics in India

a) Interest Rate Data & Transmission Indicator

For this segment, we focus on the repo rate, lending rate, and transmission measurements.

Measurement	Observation / Period
	During Feb 2019 - March 2022: Easing repo by 250 bps saw lending WALR fall up to ~ 232 bps. **From May 2022 - Jan 2025:** Tightening repo up 250 bps saw WALR up ~ 181 bps.

Transmission to lending rates (RBI data April 2025)

Measurement	Observation / Period
	Up to 8.7% in Nov 2024: Banks adjusting rates.
Weighted Average Lending Rate (WALR)	Focused on fresh loans.
Home Loan rate reacting to policy cut	Major public banks lowered home loan rates following RBI's repo rate cuts in 2025.

Interpretation

This RBI data shows that changes in the policy rate do transmit to bank interest rates, albeit with a lag and less than full magnitude. A 250 bps change in the repo rate does not translate into an exact 250 bps shift in bank lending rates but much less (e.g., ~ 181 bps), indicating incomplete but active transmission.

3.Integrating Cashless Growth with Monetary Policy Transmission

Trend Interpretation: Digital Payment & Monetary Transmission Link

1. **Massive digital adoption:** Digital payment share at 99.7% ~ 99.8% implies almost all transactions now follow formal banking rails.
2. **Enhanced banking data flows:** With high usage of UPI and electronic payments, the RBI operating data daily and liquidity signals may reach the banking system more rapidly.
3. **Liquidity management improves:** A high digital payment base implies less cash outside the banking system, making liquidity conditions more predictable for policymakers.
4. **Interest Rate Responsiveness potentially reducing transmission lags:** Lending rate adjustments (e.g., WALR change in 2024) demonstrate that banks are increasingly aligning with policy rate changes.

Figure 1: Growth of UPI transactions (2019-2025) o 2019: 34.1% digital volume share. o 2024: ~83% digital volume share. o FY 2024: 185.8 Billion transactions.
2025: 228.3 Billion transactions.

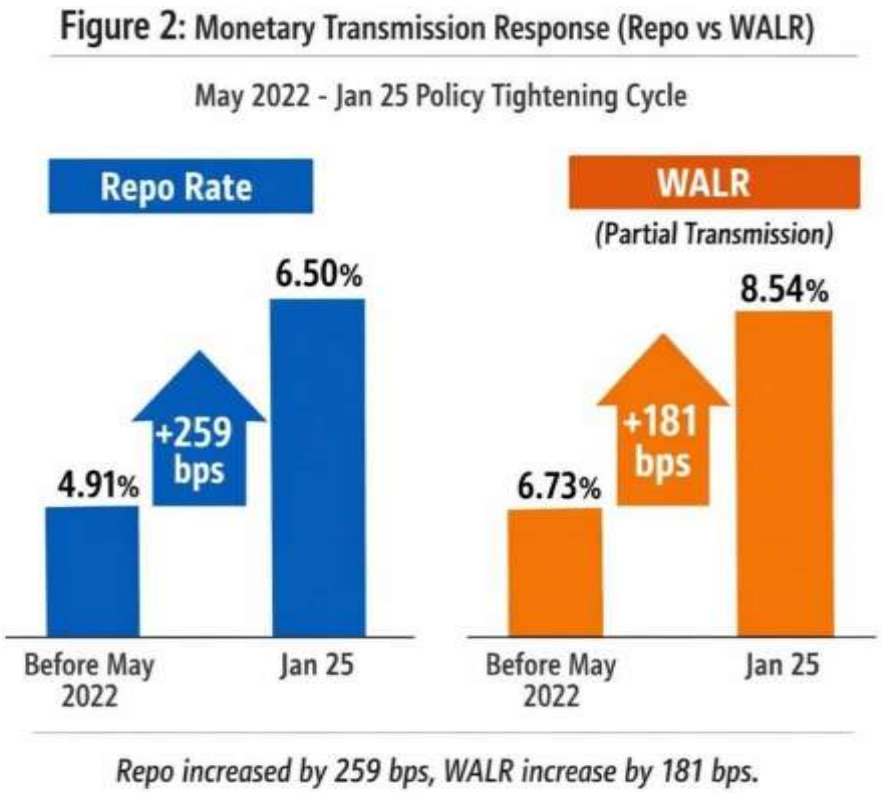

Figure 2: Monetary transmission response (Repo vs WALR)

May 2022 - Jan 2025 policy tightening cycle: Repo increased by 250 bps, WALR increased by ~ 181 bps (partial transmission).

Figure 1: Growth of UPI Transactions and Digital Payment Share (2019–2025)

Findings

1. Digital payment transactions in India have witnessed significant growth during 2014-2025, especially through systems developed by the National Payments Corporation of India (NPCI).
2. The growth of the Unified Payments Interface (UPI) has reduced transactional dependence on physical cash.
3. Increased digital transactions have strengthened formal banking participation and financial transparency.
4. Liquidity management has improved as more funds circulate within the formal banking system.
5. Repo rate changes by the RBI are transmitted to lending rates, though the passthrough is partial.
6. The credit channel shows improvement due to higher financial inclusion and digital penetration.

Limitations of the Study

1. The study is based entirely on secondary data obtained from official publications and databases, which may limit primary-level insights.
2. The time period (2015-2025) captures the digital expansion phase but may not fully reflect long, recent structural effects.
3. Monetary transmission is influenced by multiple macroeconomic factors (inflation expectations, banking health, global shocks), which are not exhaustively model.
4. The simplified regression framework used may not capture complex dynamic variables.
5. Informal sector responses to digitalization are difficult to measure accurately due to data limitations.

Policy Implications

1. Strengthening digital payment infrastructure can enhance the efficiency of monetary policy transmission.
2. Expansion of secure and low-cost digital platforms should remain a priority for policymakers.

3. Greater financial inclusion through digital channels can improve the responsiveness of the credit market.
4. The RBI should continue refining liquidity management tools in line with increasing digital transaction volumes.
5. Banks should improve transparency in lending rate adjustments to ensure faster policy rate pass-through.
6. Regulatory policies should integrate digital financial development with broader banking sector reforms.
7. Promoting digital literacy and cybersecurity awareness is essential to sustain confidence in the cashless ecosystem.

Conclusion

The study concludes that the expansion of the cashless economy has positively influenced monetary policy transmission in India. The rapid growth of digital payments has increased financial formalization and strengthened banking system participation.

Improved liquidity visibility has supported more effective policy implementation.

Although interest rate pass-through remains incomplete, responsiveness has improved compared to earlier periods. Digital infrastructure acts as a facilitating factor in enhancing the efficiency of the transmission mechanism. However, structural banking constraints and market conditions continue to alter the magnitude of transmission. Therefore, digitalization should be complemented with financial sector reforms to maximize policy effectiveness. Overall, the findings support the view that a strong and more transparent monetary framework.

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