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Review Article

Payment Systems

Payment System Instruments in India

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Purpose: To examine major payment system instruments in India and describe the work of digital payments, financial inclusion, transaction efficiency, transparency, and economic development.

Design/Methodology/Approach: The study adopts a descriptive analytical approach using secondary data from RBI reports, NPCI publications, government reports, journals, books, and official digital payment sources.

Findings: India's payment system comprises RTGS, NEFT, NACH, IMPS, UPI, card-based payments, PPIs, BBPS, TReDS, NETC, and AePS, offering secure, efficient, and real-time financial transactions. These instruments support individuals, businesses, and government operations by enhancing transaction speed, transparency, convenience, financial inclusion, digital adoption, and economic growth while promoting accessible, reliable, and technology-driven payment services nationwide.

Originality/Value: The paper comprehensively reviews India's payment system instruments, highlighting their collective role in digital transformation, financial inclusion, policy development, and sustainable economic growth.

Keywords: Payment Systems, Digital Payments, Unified Payments Interface (UPI), Real Time Gross Settlement (RTGS), National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS)

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1. Introduction

India has developed a comprehensive and technologically advanced payment system infrastructure that supports both domestic and cross-border financial transactions. The payment ecosystem comprises multiple instruments designed to facilitate secure, efficient, and real-time fund transfers across different segments of the economy. The major payment system instruments operating in India are discussed below.

Jindal (2019) emphasized that customer satisfaction is essential for the long-term growth of banks and that banking services must continuously evolve to meet changing customer expectations. Saxena and Jindal (2019) highlighted the growing importance of digital banking services such as ATM cards, passbooks, cheque books, and electronic transaction facilities in improving customer convenience. Chandra et al. (2020) observed that demonetization accelerated the adoption of digital transactions across India, thereby encouraging the use of electronic payment systems. Jindal and Sharma (2020) reported that online banking has significantly enhanced transaction convenience by enabling customers to conduct banking activities remotely. Joshi and Jindal (2022) found that several rural cooperative banks still lag in providing online banking services, while Jindal (2020) recommended strengthening digital banking infrastructure in cooperative banks. Jindal and Srivastava (2021) noted that urban cooperative banks need to improve their technology-driven services to remain competitive in the evolving financial environment. Similarly, Jindal and Sharma (2022) observed that district cooperative banks continue to operate with lower technological integration compared with private and public sector banks. Goswami and Jindal (2021) argued that Primary Agricultural Credit Societies (PACS) play a crucial role in rural finance but still operate with limited technological support. Arya and Jindal (2020) emphasized that digital banking services are necessary for promoting digital marketing and financial inclusion among rural populations. Pokhariya and Jindal (2022) further highlighted that inadequate banking facilities in rural regions contribute to migration from native places. Dhawan et al (2024) Co-operative banks have some unique features that made co-operative banks different. Jindal (2023) SBI has come into existence by merging of many banks and bank has a wide experience in many areas.

Sharma & Jindal (2022) 1542 urban co-operative banks are working with some payment methods. Singh and Jindal (2024) Uttarakhand state cooperative bank has less technological methods in the compression of private and public sector banks. Sachan et al (2020) Technological payment method can reduce workload. Sachan et al (2019) Public sector banks in India operated under highly regulated and bureaucratic systems and digitalized system is properly required due high risk.

2. Review of Literature

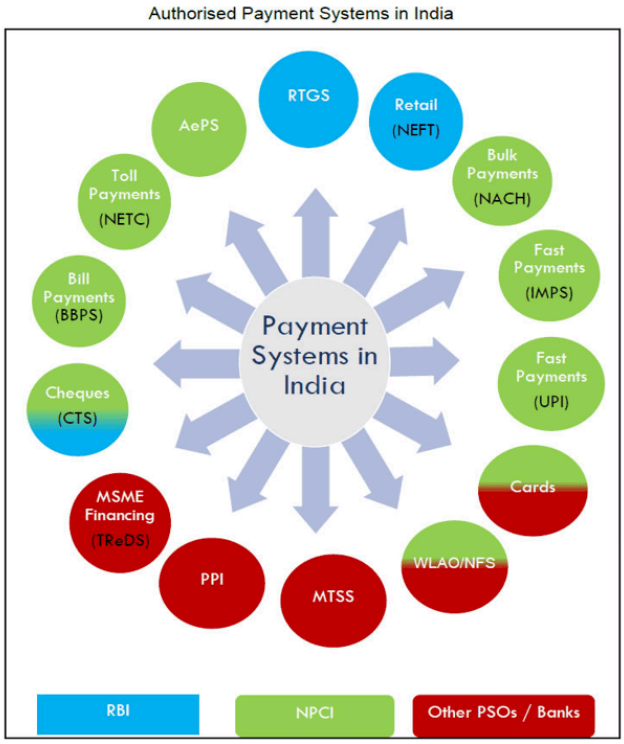
Saxena and Jindal (2021) found that rural customers exhibit lower satisfaction levels with digital banking services, suggesting the need for improved service quality and accessibility. Joshi and Jindal (2022) also emphasized that customer-centric banking services are critical for enhancing service quality and user satisfaction. Srivastava and Jindal (2021) noted that technological advancements can improve banking productivity, profitability, and customer service efficiency. Jindal (2021) discussed the structure of cooperative banks in India and their role in extending financial services to local communities. Jindal and Srivastava (2021) described urban cooperative banks as important financial institutions serving urban and semi-urban populations. Sharma et al. (2022) argued that cooperative banks provide services similar to public and private sector banks while maintaining distinct cooperative characteristics. Jindal (2022) further emphasized the importance of cooperative banks in meeting the financial needs of rural populations. Recent studies have focused on the role of financial technology in transforming payment systems. Jindal (2024) observed that FinTech enables quick, secure, and error-free transactions while improving transaction record management. Singh and Jindal (2024) highlighted that FinTech innovations are reshaping traditional financial services through enhanced digital platforms. Singh and Jindal (2024) also reported that artificial intelligence contributes significantly to transaction security, fraud detection, and operational efficiency in financial services. Virmani and Jindal (2025) noted that the emergence of robo-advisory services has introduced new regulatory challenges within the digital financial ecosystem. Among digital payment systems, UPI has received substantial academic attention.

Jindal (2024) emphasized that the 24×7 availability and real-time transaction capabilities of UPI distinguish it from other payment methods. Chandra et al. (2021) observed that the digital payment ecosystem witnessed remarkable growth following demonetization. Saxena and Jindal (2022) highlighted the significance of the Digital India initiative in promoting internet and broadband connectivity, which has facilitated the growth of digital payments across the country. Financial inclusion remains a major theme in payment system research. Singh et al. (2025) identified the Aadhaar Enabled Payment System (AePS) as a key mechanism for expanding financial inclusion in rural and underserved areas. Jindal and Dubey (2025) noted that lack of awareness regarding digital platforms continues to hinder the adoption of digital financial services in rural communities. Jindal and Jindal (2022) identified language barriers as another challenge affecting the adoption of digital technologies among rural populations. The broader banking literature also underscores the contribution of banks to economic development. Singh and Jindal (2025) argued that banks facilitate economic growth through savings mobilization, credit creation, and financial intermediation. Sharma and Jindal (2022) highlighted the unique role of banking institutions in supporting economic activities, while Sachan et al. (2018) emphasized that technological advancement and digital transformation have become essential drivers of organizational and financial sector development. Sachan et al. (2021) further observed that digital platforms have transformed traditional service delivery models, influencing customer behavior and transaction patterns.

3. Research Methodology

This study is based entirely on secondary data and adopts a descriptive and analytical research design to examine the development and significance of payment system instruments in India. Secondary data were collected from various authentic sources, including the Reserve Bank of India (RBI) Annual Report 2025–26, publications of the National Payments Corporation of India (NPCI), RBI bulletins, government reports, research articles, books, journals, and official websites related to digital payments and banking services and the study focuses on major payment system instruments such as RTGS, NEFT, IMPS, UPI, NACH, BBPS, AePS, PPIs, TReDS, and NETC

4. Payment System Instruments in India



Real Time Gross Settlement (RTGS): RTGS is a large-value payment system introduced by the Reserve Bank of India (RBI) in 2004. It enables real-time settlement of funds on a gross basis, ensuring immediate and irrevocable transfer of money between participating banks. The system operates round the clock, providing continuous access to high-value transaction services.

National Electronic Funds Transfer (NEFT): NEFT is a nation-wide electronic payment system managed by the RBI for retail and large-value fund transfers. Transactions are processed in half-hourly batches throughout the day, allowing individuals and businesses to transfer funds efficiently across bank accounts.

National Automated Clearing House (NACH): Operated by the National Payments Corporation of India (NPCI), NACH facilitates bulk and repetitive transactions such as salary payments, pension disbursements, subsidy transfers, utility bill collections, and loan repayments. It supports both credit and debit transactions and enhances operational efficiency for government agencies and corporate entities.

Immediate Payment Service (IMPS):

IMPS is an instant payment system developed by NPCI that enables real-time fund transfers through mobile banking, internet banking, and automated teller machines (ATMs). The service is available 24×7 and supports both person-to-person and person-to-merchant transactions.

Unified Payments Interface (UPI): Introduced in 2016, UPI has revolutionized India's digital payment landscape. It allows users to conduct real-time interbank transactions through mobile applications using a simple virtual payment address. UPI has become one of the world's largest digital payment platforms due to its convenience, interoperability, and widespread acceptance.

Card-Based Payment Systems: Card payments constitute a major component of retail digital transactions in India. These include debit cards, credit cards, and prepaid payment cards. Debit cards are primarily issued by banks, while credit cards are issued by banks and selected Non-Banking Financial Companies (NBFCs). These instruments facilitate secure electronic payments across online and offline channels.

Prepaid Payment Instruments (PPIs): PPIs enable users to purchase goods and services, transfer funds, and access financial services against a stored monetary value. These instruments include mobile wallets and prepaid cards. PPIs are categorized into Small PPIs, Full-KYC PPIs, Gift PPIs, and PPI-Mass Transit Systems (PPI-MTS), each with specific transaction limits and operational features.

Bharat Bill Payment System (BBPS): Launched in 2016, BBPS is an integrated and interoperable bill payment platform that provides customers with a convenient mechanism for paying recurring bills such as electricity, water, gas, telecommunications, insurance premiums, and educational fees through multiple payment channels.

Trade Receivables Discounting System (TReDS): TReDS is an electronic platform designed to facilitate the financing of trade receivables of Micro, Small, and Medium Enterprises (MSMEs). It enables MSMEs to receive early payments against invoices raised on corporate buyers, government departments, and public sector undertakings, thereby improving liquidity and working capital management.

National Electronic Toll Collection (NETC):

NETC provides an interoperable electronic toll collection system across India's highway network through FASTag technology. Based on Radio Frequency Identification (RFID), the system facilitates seamless toll payments and reduces congestion at toll plazas.

Aadhaar Enabled Payment System (AePS): AePS is a bank-led payment model that enables customers to access Aadhaar-linked bank accounts using biometric authentication. Through Business Correspondents, users can perform banking transactions such as cash withdrawals, deposits, balance inquiries, and fund transfers, thereby promoting financial inclusion, particularly in rural and underserved regions.

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