

Impact of Digital Payment on Indian Economy UPI Growth

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Abstract

Digital payments have transformed the financial landscape of India by promoting transparency, efficiency, and financial inclusion. The introduction of the Unified Payments Interface (UPI) by the National Payments Corporation of India in 2016 marked a revolutionary step in the country's digital payment ecosystem. UPI enables instant, real-time interbank transactions through mobile devices, eliminating the need for physical cash and simplifying peer-to-peer and merchant payments. Its user-friendly interface, interoperability among banks, and zero or minimal transaction costs have significantly accelerated digital adoption across urban and rural areas. The rapid growth of UPI has had a profound impact on the Indian economy. It has strengthened financial inclusion by bringing unbanked and underbanked populations into the formal banking system. Government initiatives such as Digital India and Pradhan Mantri Jan Dhan Yojana have further supported this transition by expanding bank account ownership and digital literacy.

Keywords

Digital Payments, Unified Payments Interface (UPI), Indian Economy, Financial Inclusion, Cashless Economy, NPCI, Digital India, Fintech Growth, Demonetization, Economic Development.

Introduction

Global business is driven by technology and innovations. In many cases, technological innovations change the face of the businesses and the ways through which businesses are carried out. Technological innovations have also changed the prospect of payment systems. Modern technologies have turned traditional cash-based payments systems into a cashless payments system which is more efficient and effective. The features of digital payments like the ease of use, convenience, safety, and speed made digital transactions lucrative in the field of payments than a traditional system. Digital payments emerge as a favourite mode of payments all over the world including India. Digital payments have been picking up rapidly in India since 2014 due to "Digital India" initiatives of the government, internet penetration, smart-phone penetration and adoption of the technologies by the people. India has achieved a Cumulative Average Growth Rate (CAGR) of 58.9% in terms of volume and CAGR of 28.4% in terms of value in digital payments in the year 2019. This growth rate of India is remarkable in the global payments market (NITI Aayog, 2018). Digital payments have many advantages. Cashless payments discourage robbery and cash related crimes (Laura Armeay, 2014). An efficient payments system increases the efficiency of financial markets and the financial system as a whole, boosts consumer confidence, and facilitates trade both in goods and services (BIS, 2003). On the other hand, unsafe and inefficient payment systems hamper the transfer of funds among individuals and economic actors (Humphrey et al 2006). Digital payments ensure efficient and effective payments among the parties involved at a minimum cost. Impact of Digital Payments on Economic Growth in India. The paper explains how technological innovations have transformed the traditional payment system into a digital payment system. Earlier, most transactions were done using cash, but today many transactions are completed electronically through online platforms. Digital payment systems provide several advantages such as speed, convenience, safety, and lower transaction costs. Because of these benefits, many countries are adopting digital payment methods. In India, the use of digital payments increased significantly after initiatives like Digital India, the spread of smartphones, and better internet connectivity. Digital payments also help reduce the use of physical cash in the economy and make financial transactions more efficient. The study aims to understand whether the growth of digital payments in India has influenced economic growth.

Problem Formulation

The government of India takes digitalization forward rigorously and tirelessly. The government pushed digitalization through "Digital India" and Demonetization. These initiatives faced a lot of appreciations and criticisms in India. However, the digitalization effort has gained the confidence of people and started to pick up. The digitalization has reached the field of payments and settlement as well. The payments and settlements in India are dominated by cash and this dominance has gradually been minimized by digital payments like Real Time Gross Settlement (RTGS), National Electronic Fund Transfer (NEFT), Immediate Payment Services (IMPS), Cheque Truncation System (CTS), Unified Payment Interface (UPI), Bharat Interface for Money (BHIM) and Andhra Enabled Payment System (AEPS) since 2014. Even after having robust growth in the digital payments market, there are still many questions unanswered in India. These questions include; Can a country like India where there is a large number of low-income people having low financial literacy and computer literacy transit to the cashless economy? Does the cashless economy impact economic growth in India as there is proved the relationship between these variables in other countries? Therefore, this study investigates quantitative evidence of the relationship between digital payments and economic growth in India and also this study look for the impact of digital payments on the economic growth of India.

Literature Survey

Digital payments literature is evolving and there is no conclusive definition of digital payments. Digital payments are considered synonyms with electronic payment, online payment, and cashless payments. In fact, digital payment is the function of electronic fund transfer, card payments, paper clearing, and prepaid payment instruments. Paper clearing indicates cheque clearing and prepaid payment instruments are prepaid payment cards and m-wallets.

Cashless payment is the economic transaction wherein goods and services are transacted without cash (Paul and Friday 2012). The e-payment is any payment service that makes use of information and communications technologies including Integrated Circuit (IC) cards, cryptography, and telecommunications (Jussi Snellman, 2001).

"Electronic funds transfer means any transfer of funds which is initiated by a person by way of instruction, authorization or order to a bank to debit or credit an account maintained with that bank through electronic means and includes point of sale transfers; automated teller machine transactions, direct deposits or withdrawal of funds, transfers initiated by telephone, internet and, card payment" (Government of India, 2017). Many kinds of research have been done considering cause and effect relationships between the use of electronic payment instruments and the profitability of the organizations. Electronic payment technologies increase productivity and profitability (Berger, 2003). Development in the use of electronic payments is related to remarkable improvement in bank performance (Humphery, 2006).

An efficient payment infrastructure facilitates trade, services, and transfers of funds, fostering economic interactions by eliminating or reducing market frictions and costs. Consumption and trade increase, in turn, support higher production and thereby overall economic development (Zandi, 2013). Electronic card payments have a significant impact on each economy which has adopted it. Greater usage of electronic card payment products added \$983 billion in real U.S. dollars to the GDP of 56 countries they studied from 2008 to 2012. Card payment has raised consumption by an average of 0.7% across the 56 countries. Asian economies gained an average growth of 0.06% in their GDPs and 0.12% growth on consumption in the Asian economies. Further, India's GDP gained 0.07% due to the use of electronic card payments during the period of 2008 to 2012 (Zandi, 2013). The present research work sought to identify and analyse the contribution of digital payments to the economic growth of India during the periods between 2011 and 2019.

UPI's Global Expansion

India's digital payments revolution is gaining international momentum, with both UPI and RuPay expanding rapidly across borders. Currently, UPI is operational in seven countries, including key markets like the UAE, Singapore, Bhutan, Nepal, Sri Lanka, France, and Mauritius.



UPI's entry into France is particularly significant, marking its first foray into Europe. This expansion enables Indian consumers and businesses to make and receive payments seamlessly, even while living or traveling abroad. As part of its global outreach, Prime Minister Modi has actively pitched for UPI's expansion within the BRICS grouping, which now includes six new member states. This initiative is expected to further bolster remittance flows, improve financial inclusion, and enhance India's stature in the global financial landscape. According to the ACI Worldwide Report 2024, India now accounts for around 49% of global real-time payment transactions as of 2023, underscoring India's leadership in digital payment innovation. With UPI's growing international presence and the continued rise of digital transactions, India is setting new global benchmarks for financial inclusion and economic empowerment.

Impact Of UPI

UPI has had a profound impact on small businesses, street vendors, and migrant workers, offering them an easy and efficient way to transfer money and receive payments. Its adoption was particularly accelerated during the Covid-19 pandemic, as people sought safer, contactless alternatives to cash transactions. UPI's success, however, extends beyond the strength of its infrastructure; it also stems from the behavioural shift it has inspired, where trust in the system and its accessibility have been key factors in driving widespread use. One of the small yet significant innovations that facilitated this shift is the use of voice boxes by payment apps. These devices, commonly found at snack carts and tea stalls, announce the amount of money received with each QR code transaction, ensuring that vendors who are often too busy to check phone messages are aware of their earnings. This simple yet effective feature has played a crucial role in gaining the trust of small merchants who were previously accustomed to cash transactions and wary of digital payments.

Another important design feature of UPI is its provision for users to choose their preferred payment apps, regardless of the bank where their account is held. This flexibility has given consumers the power of choice, making it easier for them to embrace UPI as their go-to payment method. The integration of RuPay credit cards with UPI marks another revolutionary step in the digital payment landscape. This feature allows users to access the benefits of both credit cards and UPI for transactions, enabling them to make payments through their credit lines instead of drawing from savings accounts.

Research Methodology

The methodology explains how the research was conducted. The study uses secondary data collected from official sources such as the Reserve Bank of India (RBI). The data covers the period 2011 to 2019. The study's Dependent Variable is Real Gross Domestic Product (GDP). GDP is used as a measure of economic growth. Independent Variables include Digital payment indicators used in the study: incliners (Real Time Gross Settlement) – High value fund transfers between. CCIL Operating Systems – Clearing systems used for financial market transactions. Paper Clearing – Transactions through cheque clearing systems. Retail Electronic Clearing – Includes NEFT, ECS, IMPS, and NACH. Card Payments – Debit and credit card transactions. Prepaid Payment Instruments (PPI) – Mobile wallets and prepaid cards. The study uses statistical techniques such as Ordinary Least Square Regression (OLS) and Auto-Regressive Distributed Lag (ARDL) models to analyse the relationship between digital payments and GDP.

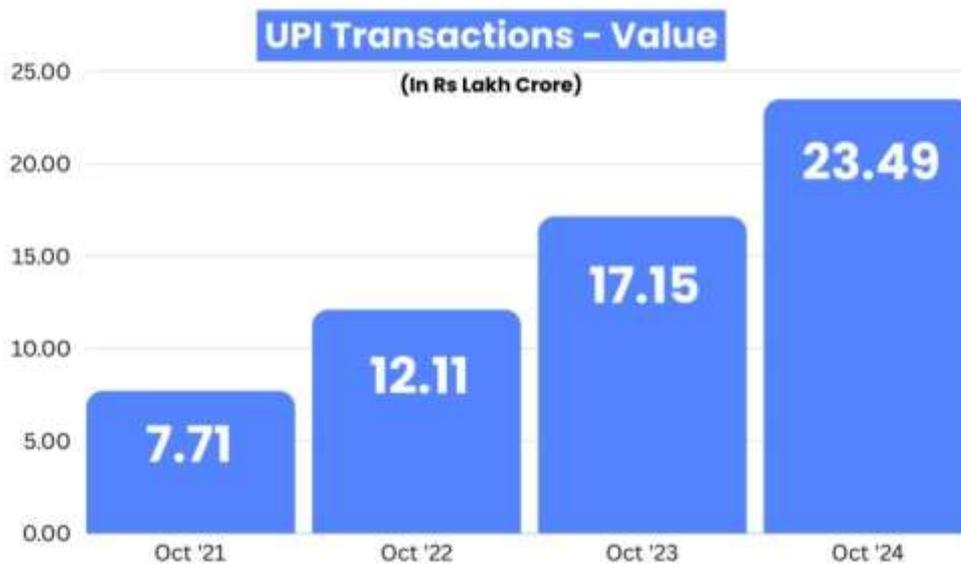
The present study follows a descriptive and analytical approach. It aims at describing the pattern of usage of digital payments among users in India and discusses their perceived impact on the economy on account of convenience, transparency, financial inclusion, and reduction of cash dependence. A descriptive design is appropriate because the study focuses on "what is" - current behaviour, preferences and perceptions - rather than on experimental manipulation. The population of the study consists of users of digital payment systems in India, such as students, salaried employees, self-employed persons, business owners, and homemakers who use digital modes like UPI, mobile wallets, net banking, cards, etc. For the purpose of this study, a sample of 200 respondents, $n = 200$, would be considered enough to represent diverse users. The sample population is selected from urban and semi-urban areas

through both online and offline modes, namely through Google Forms and printed questionnaires. Convenience sampling is adopted in this present study due to limitations of time and resources. Selection is done based on respondents' ease of accessibility, together with their willingness to be research respondents, and diverse age groups, occupations, and income levels. Gathered through a structured questionnaire with close-ended questions and statements on a Likert scale.

UPI In Numbers

UPI processed an impressive ₹23.49 Lakh Crores across 16.58 billion financial transactions in October 2024, marking a 45% year-on-year growth from 11.40 billion transactions in October 2023. With 632 banks connected to its platform, this surge in usage highlights UPI's expanding dominance in India's payment landscape. As more individuals and businesses embrace the

convenience and security of digital transactions, the increasing volume and value of transactions underscore UPI's pivotal role in advancing the country's shift toward a cashless economy. UPI's Role in Reducing Cash Dependency



UPI has significantly reduced dependency on cash, achieving an exponential rise in transaction volumes. Monthly UPI transactions surpassed 10 billion by late 2023, showcasing its widespread adoption (TOI, 2023). This reduction in cash dependency has also led to lower costs associated with printing, handling, and securing physical currency. Studies indicate that this shift has helped formalize economic activities, increasing transparency in financial transactions.

Support for Small Businesses

UPI's QR-code-based system has empowered micro and small enterprises (MSMEs) by providing cost-effective payment solutions. Reports highlight that 80% of small businesses experienced revenue growth due to digital payments (AB Academies, 2023). Furthermore, UPI has minimized transaction delays, enabling businesses to improve cash flow and reduce dependency on informal credit. Research shows that digital payment platforms have facilitated the growth of new business models, particularly in rural and semi-urban areas, where access to traditional banking services is limited.

Financial Inclusion and Rural Penetration

UPI's growth in rural areas, supported by the Jan Dhan- Aadhaar-Mobile (JAM) trinity, has bolstered financial inclusion. Over 200 million rural accounts were activated for digital payments, reducing regional economic disparities (PIB, 2023). The availability of localized language options and user-friendly interfaces has further encouraged adoption in underserved regions. Evidence suggests that UPI has empowered women and self-help groups, enabling them to access credit and participate in economic activities more effectively.

Catalysing Economic Growth

UPI has contributed to GDP growth by increasing consumer spending and promoting economic formalization. Studies estimate that digital payments added 1.5% to India's GDP between 2017 and 2023 (IJRPR, 2023). Additionally, the platform has enabled faster and more efficient subsidy disbursements, reducing leakage and improving the effectiveness of government welfare programs. This efficiency has, in turn, enhanced household incomes and supported economic resilience during crises such as the COVID-19 pandemic.

Technological Innovation and Ecosystem Growth

The success of UPI has spurred technological innovation, encouraging the development of fintech start-ups and digital payment solutions. Its open API architecture has allowed third-party developers to create a variety of applications, fostering a competitive ecosystem. As a result, India has become a global leader in digital payments, setting benchmarks for interoperability and scalability in financial technology. The Evolution of the Digital Backbone

The trajectory of the Unified Payments Interface (UPI) from its inception in 2016 to its current status in 2026 represents one of the most significant shifts in global financial history. What began as a mobile-first experiment to simplify bank-to-bank transfers has matured into the primary nervous system of India's retail economy. By early 2026, UPI has moved beyond a simple payment "app" to become a comprehensive financial layer that integrates credit, savings, and micro-transactions. This transformation was driven by the "India Stack," a set of open APIs that allowed private fintech players like PhonePe, Google Pay, and Paytm to innovate on top of a robust public infrastructure maintained by the National Payments Corporation of India (NPCI).

Macroeconomic Impact and Formalization

The impact of UPI on India's macroeconomic health is measurable through the rapid formalization of the informal sector. Previously, millions of small-scale vendors—from vegetable sellers to roadside artisans—operated entirely in a cash-based "shadow" economy, leaving them invisible to the traditional banking system. In 2026, the digital footprint created by billions of monthly UPI transactions allows these micro-entrepreneurs to access formal credit for the first time. Financial institutions now use transaction flow data as a proxy for creditworthiness, replacing the need for physical collateral. This shift has not only boosted tax buoyancy for the government but has also significantly lowered the "cost of cash" for the Reserve Bank of India (RBI), which previously spent billions of rupees annually on the printing, security, and physical distribution of currency notes.

Technological Leapfrogging in 2026

Technologically, 2025 and 2026 have been years of "smart" expansion. The introduction of UPI Lite X solved the persistent challenge of internet connectivity in remote regions by utilizing Near Field Communication (NFC) for offline payments. Meanwhile, the integration of Conversational Payments via "Hello! UPI" has democratized the system for the elderly and those with limited digital literacy, allowing them to authorize payments through voice commands in over 20 Indian

languages. Perhaps the most disruptive change in the current year is the full-scale rollout of Credit on UPI. By allowing users to link pre-sanctioned bank credit lines and RuPay credit cards directly to their UPI ID, the ecosystem is successfully challenging the dominance of physical plastic cards, making short-term credit as easy to use as a scanned QR code.

Global Ambitions And The Future Outlook

As we look toward the second half of the decade, the "Internationalization of UPI" has become a key pillar of India's soft power and economic strategy. By March 2026, UPI is no longer confined to the Indian subcontinent; it is functional in over 20 countries through various cross-border linkages like Project Nexus. This allows Indian travellers to pay in rupees at merchants in Paris, Dubai, and Singapore, while also providing a low-cost alternative for international remittances, which previously carried high fees. With the target of reaching one billion transactions per day by 2028, UPI is not just a tool for convenience-it is the foundational infrastructure upon which India's goal of a \$7 trillion economy is being built, serving as a global blueprint for digital public goods. Of early 2026, the Unified Payments Interface (UPI) has fully cemented itself as the structural backbone of the Indian economy, accounting for over 80% of all retail digital payments. Growth has been explosive; in February 2026 alone, the system processed 20.39 billion transactions worth approximately ₹26.84 lakh crore, marking a 27% year-on-year increase in volume. This "population-scale" success is driven by deep penetration into Tier-2 and Tier-3 cities, where nearly 70% of users now reside, effectively formalizing the informal economy by bringing street vendors and small merchants into the digital tax and credit fold. The integration of advanced features such as UPI Lite X for offline "tap-and-pay" via NFC and Credit on UPI-which allows users to link pre-sanctioned bank credit lines-has transformed the platform from a simple transfer tool into a comprehensive financial ecosystem. From a macroeconomic perspective, UPI acts as a powerful catalyst for GDP growth; research indicates that every 1% increase in UPI transaction volume correlates with a measurable rise in economic output by reducing the "cost of cash" and improving capital velocity. The "India Stack" has also expanded its global footprint, with UPI now operational in over 20 countries, including the UAE, Singapore, France, and most recently Israel, facilitating seamless cross-border remittances and tourism. As the Reserve Bank of India (RBI) and NPCI push toward a target of one billion transactions per day, UPI is no longer just a fintech innovation but a critical piece of public digital infrastructure that underpins India's ambition to become a \$7 trillion economy by the end of the decade.

Short Run and Long Run Relationship

The study examined both short-term and long-term relationships between digital payments and economic growth.

Short Run Impact

Retail electronic payments such as NEFT, IMPS, ECS, and NACH have a significant positive impact on GDP in the short run. This means that when digital transactions increase, economic activity may increase in the short term.

Long Run Impact

However, the ARDL bounds test shows that there is no long-term relationship between digital payments and GDP. This means that digital payment systems alone cannot drive long-term economic growth. Economic growth depends on several other factors such as: Investment, Industrial development, Infrastructure, Government policies.

Conclusion

The study concludes that digital payments are an important innovation in the financial system. They help improve the efficiency of financial transactions and reduce costs for businesses and consumers. However, digital payments alone cannot directly drive long-term economic growth in India. Instead, they contribute indirectly by improving financial infrastructure and supporting economic activities. Therefore, while digital payment systems are important for modern economies, they must be supported by strong economic policies and infrastructure development to generate sustainable economic growth. IN conclusion, UPI has not only revolutionized the way India conducts financial transactions but has also positioned the country as a global leader in digital payments. By offering a seamless, secure, and accessible platform for both individuals and businesses, UPI has played a pivotal role in promoting financial inclusion and accelerating the nation's shift towards a cashless economy. Its remarkable growth, both in terms of transaction volumes and geographical reach, highlights its transformative impact on the financial landscape. As UPI continues to expand globally, it is setting new standards for digital payments, empowering citizens, enhancing economic opportunities, and contributing to India's increasing influence in the global financial arena.

References

1. NITI Aayog. (2018). *Digital Payments: Trends, Issues, and Opportunities*. New Delhi: NITI Aayog.
2. Armev, L. E. (2014). The impact of electronic financial payments on crime. *Information Economics and Policy*, 46–57.
3. Bank for International Settlements. (2013). *The Role of Central Bank Money in Payment Systems*. BIS Publications.
4. Humphrey, D., Willeson, M., Bergendahl, G., & Lindblom, T. (2006). Benefits from changing payment technology in European banking. *Journal of Banking and Finance*, 30, 1631–1652.
5. Smart Card Alliance. (2003). *Contactless Payment and the Retail Point of Sale: Applications, Technologies and Transaction Models*.
6. Zandi, M., Singh, V., & Irving, J. (2013). *The Impact of Electronic Payments on Economic Growth*. Moody's Analytics.
7. Hasan, I., De Renzis, T., & Schmiedel, H. (2013). *Retail payments and the real economy*. Bank of Finland Research Discussion Papers.
8. Paul, A., & Friday, S. (2012). *Nigeria's Cashless Economy: The Imperatives*. *International Journal of Management and Business Studies*.
9. Government of India. (2017). *The Payment and Settlement Systems Act*. Government of India.
10. Berger, A. N. (2003). The economic effects of technological progress: Evidence from the banking industry. *Journal of Money, Credit and Banking*.