



International Journal of Research in Finance and Management

P-ISSN: 2617-5754
E-ISSN: 2617-5762
Impact Factor (RJIF): 5.32
IJRFM 2025; 8(2): 444-449
www.allfinancejournal.com
Received: 18-08-2025
Accepted: 21-09-2025

Aashima Jain
Assistant Professor, Shree
Atam Vallabh Jain College,
Ludhiana, Punjab, India

Digital payments in India: Trends, growth analysis and future prospects

Aashima Jain

DOI: <https://www.doi.org/10.33545/26175754.2025.v8.i2e.571>

Abstract

The Indian digital payments ecosystem has transformed significantly over the past decade, driven by government initiatives, smartphone adoption, and internet penetration. This study analyzes growth trends in digital payments in India from FY 2017-18 to FY 2024-25, using data from the Press Information Bureau, the Reserve Bank of India, and the National Payments Corporation of India. The findings reveal a sharp rise in transaction volume and value, with overall payment volume growing at a CAGR of 44.5% and value at 12.1%. This disparity highlights a shift toward smaller, more frequent transactions. The Unified Payments Interface (UPI) emerged as the key driver, with transaction volume rising at a CAGR of 129.5% and its share of total digital payments increasing from 4.44% to 79.87%. The paper also identifies challenges in digital literacy and cybersecurity, while highlighting future opportunities such as global UPI expansion and offline or voice-based payment solutions.

Keyword: Digital payments, CAGR, UPI, fintech, financial inclusion

1. Introduction

In the last decade, India has witnessed a remarkable shift in the way financial transactions are carried out. Payments that were once done largely in cash are now increasingly being done through mobile apps, QR codes, and online platforms. This move towards digital payments has not happened overnight it is the result of several changes in government policies, technological progress, and changing consumer habits.

One of the turning points was the 2016 demonetization, when cash availability suddenly reduced, and people had no option but to try digital modes. Although there was initial hesitation, this step made many individuals and businesses aware of the convenience of cashless payments. Later, the government's Digital India campaign and various financial inclusion schemes further encouraged people to open bank accounts, link Aadhaar numbers, and use mobile-based payment options.

Another major driver has been technology. The launch of the Unified Payments Interface (UPI) by the National Payments Corporation of India (NPCI) made digital transfers simple, instant, and free of cost. Unlike earlier online banking methods that were sometimes slow and complicated, UPI only requires a smartphone and internet connection. This has changed how people pay for even the smallest of transactions, from buying vegetables at a local market to paying electricity bills.

The COVID-19 pandemic gave a sudden push to this transformation. During lockdowns, physical shops were closed, and people depended heavily on digital platforms for shopping, education, and even medical consultations. Cash payments were also avoided due to hygiene and safety concerns. As a result, digital payments became a habit for millions of people, including those who had never used them before.

India's progress in digital payments has also attracted international attention. Reports by the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI) show that the country now handles one of the highest numbers of digital transactions in the world. However, this success story also comes with challenges. Issues such as cyber fraud, data privacy risks, limited digital literacy, and weak internet connectivity in rural areas continue to create barriers.

Looking at these developments, it becomes important to carefully study how digital payments have grown over time.

Correspondence Author:
Aashima Jain
Assistant Professor, Shree
Atam Vallabh Jain College,
Ludhiana, Punjab, India

Understanding the growth trends helps in knowing whether this shift is temporary or permanent, and what kind of future policies and infrastructure will be needed to support it. With this background, the present paper focuses on analyzing the trends and growth of digital payments in India between 2017-18 and 2024-25. It also highlights the major challenges that need attention and discusses the opportunities that digital payments create for financial inclusion and economic growth.

2. Literature Review

The digital payments in India have undergone a rapid transformation over the past decade, reshaping the financial ecosystem and consumer behavior. A growing body of research has examined the trends, adoption patterns, and challenges associated with digital payment systems, highlighting the impact of government initiatives, technological innovations, and socio-economic factors.

Baghla ^[1] explored the initial adoption trends of digital payments in India following the 2016 demonetization initiative. The study emphasized that while government incentives initially encouraged digital transactions, a significant portion of the population remained hesitant due to concerns about security, lack of digital literacy, and familiarity with traditional cash-based systems. Using primary data from 110 respondents, the study identified PayTM as the most popular payment method, with users citing convenience, cashback offers, and the ability to track transactions as key factors driving adoption. However, challenges such as internet connectivity issues, delays in cashback processing, and occasional system failures were highlighted as barriers to sustained usage.

Kumar ^[2] analyzed trends in digital financial services in India, providing a detailed examination of transaction volumes and the evolution of various payment platforms. The study found that mobile banking and wallet-based payments were increasingly preferred, with younger demographics showing higher adoption rates. It also highlighted that while digital payments contributed to transparency and financial inclusion, gaps in infrastructure and digital literacy remained significant constraints.

Choudhary and Singh ^[3] focused on the growth and penetration of digital payments across urban and rural areas. Their findings indicated a steady increase in digital transaction volumes, driven largely by mobile wallet usage and UPI-enabled payments. The study stressed that consumer trust and awareness played a pivotal role in adoption, with rural populations lagging behind due to limited access to digital infrastructure.

Singh and Sethi ^[4] conducted a trend analysis of growth patterns of digital payment modes in India, examining both volume and value over a five-year period. They noted that while the adoption of UPI and mobile wallets surged, other digital payment methods such as NEFT and RTGS maintained relevance primarily for high-value transactions. Their study emphasized that ease of use, interoperability, and low transaction costs were key enablers for UPI adoption, particularly for low-value, high-frequency transactions.

Tripathi and Sharma ^[5] investigated the growth of the digital payment system using a comprehensive trend analysis framework. They highlighted the remarkable rise of UPI

transactions, noting that it had become the preferred mode for both person-to-person (P2P) and person-to-merchant (P2M) payments. The study also pointed out that while the overall volume of transactions increased rapidly, the transaction value grew at a comparatively slower rate, suggesting a shift toward small, everyday digital payments. Kumar *et al.* ^[6] analyzed the adoption of digital payment technologies using a quantitative approach, focusing on the determinants of consumer behavior. Their findings revealed that perceived ease of use, trust, security, and availability of incentives significantly influenced user adoption. They further observed that despite high awareness levels, structural challenges such as inconsistent network coverage and technological barriers continued to limit full-scale adoption.

Reddy and Gupta ^[7] examined digital payment adoption from the perspective of financial inclusion. They reported that UPI and mobile wallets played a crucial role in bridging the gap between urban and rural users, although disparities in digital literacy and infrastructural availability still posed challenges. Their research emphasized the necessity of policy interventions and educational programs to sustain long-term adoption.

Sharma and Verma ^[8] conducted a detailed study on digital payment usage, focusing on consumer satisfaction, trust, and the frequency of transactions. The study highlighted that while digital payments were increasingly perceived as secure and convenient, user concerns related to cybersecurity and transaction failures persisted. They concluded that continued technological enhancements and awareness campaigns were essential to drive adoption across all demographics.

Tripathi *et al.* ^[9] provided a macro-level analysis of the Indian digital payments ecosystem, highlighting growth trends from 2017-2024. Their study reaffirmed that UPI had become the dominant platform, with high-volume, low-value transactions representing the majority of digital activity. They also identified the exponential growth in digital transactions as a reflection of changing consumer behavior, with convenience and speed being primary drivers.

Collectively, these studies demonstrate that the adoption of digital payments in India has been influenced by government policies, technological innovations, and consumer behavior patterns. While substantial research exists on early adoption drivers, UPI's initial success, and general trends, there remains a gap in understanding recent developments up to FY 2024-25. Specifically, there is limited research analyzing the year-wise growth in total digital payment volumes and values, calculating the compound annual growth rate (CAGR), and interpreting the changing patterns of consumer behavior post-pandemic. This study addresses these gaps by providing a comprehensive, data-driven assessment of India's digital payment ecosystem, focusing on UPI's growing market share, evolving consumer preferences, and future opportunities for financial inclusion.

2.1 Objectives of the study

1. To analyze the year-wise growth in total digital payment volumes and values in India from FY 2017-18 to FY 2024-25

- 2. To study the growth of UPI transactions separately in terms of both volume and value during the same period.
- 3. To calculate the Compound Annual Growth Rate (CAGR) for digital payments and UPI transactions.
- 4. To interpret the changing patterns of consumer behavior reflected in the rising share of UPI in digital payments.
- 5. To identify the opportunities and challenges for the future expansion of digital payments in India.

3. Research Methodology

This paper employs a descriptive and analytical research design to examine the trends, growth, and future prospects of digital payments in India. The study is based on secondary data, as its objectives are centered on analyzing existing, officially published figures rather than collecting new primary data.

3.1 Data Sources

The data for this study has been exclusively sourced from credible and official government and regulatory bodies. The primary sources of information include:

- Official publications, reports, and data releases from the Reserve Bank of India (RBI).
- Publicly available statistics from the National Payments Corporation of India (NPCI) on key payment platforms, particularly the Unified Payments Interface (UPI).
- Press releases and fact sheets from the Press Information Bureau (PIB), which provide consolidated, year-wise data on digital payment volumes and values.
- Reports and dashboards from the Department of Financial Services, Ministry of Finance, related to the "Digital India" and "less-cash" initiatives.

3.2 Data Collection Period

The data was collected for the financial years ranging from 2017-18 to 2024-25, providing a comprehensive and up-to-date analysis of the seven-year growth trajectory.

3.3 Analytical Techniques

The quantitative data collected was analyzed using the following methods to fulfill the study's objectives:

- **Trend Analysis:** A year-on-year analysis of the total digital payments and UPI transactions was conducted to identify growth patterns and key trends in both volume and value.
- **Compound Annual Growth Rate (CAGR) Calculation:** The CAGR was calculated for both total digital payments and UPI transactions to provide a standardized metric for measuring the exponential growth over the study period.
- **Percentage Share Analysis:** The share of UPI transactions in the total digital payment volume was calculated year-wise to interpret the changing patterns of consumer behavior and the increasing dominance of UPI.
- **Qualitative Analysis:** The final objective was addressed through a qualitative analysis of existing literature, official reports, and expert opinions to identify and discuss the opportunities and challenges for the future expansion of digital payments in India.

3.4 Limitations

The study's primary limitation is its reliance on publicly available secondary data, which may be provisional in some cases and may not capture real-time market dynamics. However, by using data from the most reputable government sources, this limitation is mitigated, ensuring the findings are robust and reliable.

4. Analysis

1. Overall Digital Payment Trends

The analysis of official data reveals a consistent and significant upward trend in both the volume and value of digital payment transactions in India. The period from FY 2017-18 to FY 2024-25 marked a pivotal shift in the country's financial landscape, moving away from a cash-dominated economy towards digital-first transactions.

Table 1: Total Digital Payment Transactions in India

Financial Year	Volume (in Crore)	Value (in ₹ Lakh Crore)
2017-18	2,071	1,962
2018-19	3,134	2,231
2019-20	4,572	2,742
2020-21	5,554	3,000
2021-22	8,839	3,021
2022-23	13,462	3,355
2023-24	18,737	3,659
2024-25	23,834	4,580

Source: Press Information Bureau, RBI, and Ministry of Finance reports (data as of March 31, 2025).

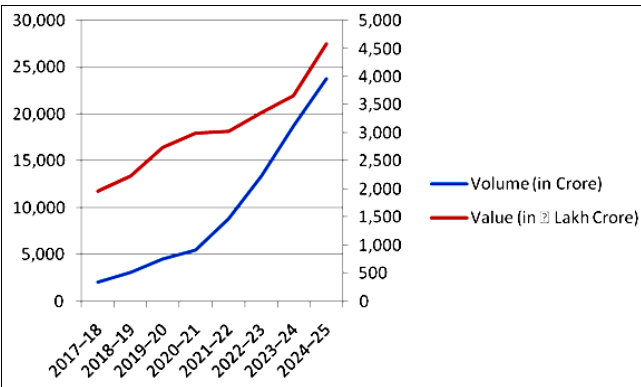


Fig 1: Volume and Value of Digital Payments in India (FY 2017-18 to FY 2024-25)

As shown in Table 1 and Figure 1 the total volume of digital payment transactions in India grew from 2,071 crore in FY 2017-18 to a remarkable 23,834 crore in FY 2024-25. The value of these transactions also witnessed robust growth, increasing from Rps.1,962 lakh crore to Rps. 4,580 lakh crore during the same period. This exponential growth is a direct result of several factors, including government initiatives, enhanced digital infrastructure, and a growing population of internet users.

2. The Rise of UPI: A New Paradigm in Payments

While the overall digital payment ecosystem showed impressive growth, UPI emerged as the dominant force and the key driver of this transformation. Its ease of use, instant settlements, and a zero-MDR (Merchant Discount Rate) policy on low-value transactions have made it the preferred payment method for millions of Indians.

Table 2: UPI Transaction Growth in India

Financial Year	Volume (in Crore)	Value (in Rps. Lakh Crore)
2017-18	92	1
2018-19	313	5.3
2019-20	1,246	21.3
2020-21	2,732	49.3
2021-22	4,597	84.7
2022-23	8,411	139.1
2023-24	13,116	200
2024-25	19,035	233

Source: National Payments Corporation of India (NPCI) and official reports (data as of March 31, 2025).

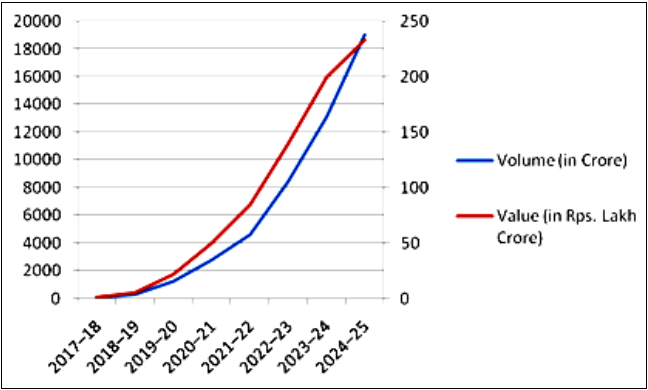


Fig 2: UPI Transaction Growth in India: Volume and Value (FY 2017-18 to FY 2024-25)

The data in Table 2 and Figure 2 highlights UPI's explosive growth. From just 92 crore transactions in FY 2017-18, UPI volume skyrocketed to 19,035 crore by FY 2024-25. Similarly, the transaction value grew from Rps. 1 lakh crore to Rps. 233 lakh crore in the same period. This indicates that while UPI has become a platform for high-value transactions, its true strength lies in its high-volume, low-value use cases for daily commerce.

3. Compound Annual Growth Rate (CAGR) Analysis
The Compound Annual Growth Rate (CAGR) offers a powerful lens through which to view the extraordinary transformation of India's payment ecosystem. While the raw numbers show impressive growth, the CAGRs tell a more profound story of a nation in the midst of a digital revolution

Looking at the overall digital payments landscape, the volume of transactions has expanded rapidly with a CAGR of 44.5%. However, the total value has grown at a more modest 12.1%. This striking difference is a key insight: it tells us that digital payments are no longer just for high-value transactions like online shopping or large bill payments. Instead, they are being adopted by millions for everyday, small-ticket purchases, a trend that is dramatically

reshaping consumer behavior at the grassroots level. UPI, however, stands out with extraordinary growth. Transaction volumes grew at 129.5% annually, and transaction values at 138.8%. This demonstrates that UPI is not only supporting the growth of digital payments it is the primary engine driving it. By bridging the urban-rural and banked-unbanked divide, UPI has made digital payments accessible to a much wider population, encouraging financial inclusion and convenience for millions of users.

Table 3: CAGR of Digital Payments and UPI (FY 2017-18 to FY 2024-25)

Metric	CAGR (FY 2017-18 to FY 2024-25)
Total Digital Payment Volume	44.5%
Total Digital Payment Value	12.1%
UPI Transaction Volume	129.5%
UPI Transaction Value	138.8%

Source: Calculated by the author based on data from Press Information Bureau (PIB) press releases and Ministry of Finance reports.

Analysis of discrepancy: volume vs. value
The analysis of the Compound Annual Growth Rate (CAGR) reveals a powerful story about the transformation of India's digital payments ecosystem. While the number of digital payments grew very quickly, the total value of these payments grew at a much slower rate. This important difference shows a fundamental change in how people use digital payments, a change driven primarily by the massive popularity of the Unified Payments Interface (UPI). Traditionally, other digital payment systems like NEFT and RTGS were used mainly for large, high-value transfers, such as business transactions or property payments. These payments were not very frequent. However, UPI has made digital payments simple and accessible for everyone, allowing for small, daily transactions like buying groceries or a cup of tea. The data in this paper strongly supports this. UPI's transaction count grew at an extraordinary rate, far outpacing the overall growth of the digital payment ecosystem. By FY 2024-25, UPI transactions made up nearly 80% of all digital payments in India. This demonstrates that the growth in India's digital payments is now coming from the widespread use of digital methods for small, everyday transactions, which is truly changing the country's financial landscape.

4. The Changing Pattern of Consumer Behavior
The rising share of UPI in the overall digital payments market reflects a fundamental shift in consumer behavior. Over the years, UPI has not only grown in absolute terms but has also captured a dominant share of the market, proving to be the preferred choice for both person-to-person (P2P) and person-to-merchant (P2M) transactions.

Table 4: UPI's Share of Total Digital Payment Volume

Financial Year	Total Digital Payment Volume (in Crore)	UPI Transaction Volume (in Crore)	UPI Share (%)
2017-18	2,071	92	4.44%
2018-19	3,134	313	9.99%
2019-20	4,572	1,246	27.25%
2020-21	5,554	2,732	49.19%
2021-22	8,839	4,597	52.01%
2022-23	13,462	8,411	62.48%
2023-24	18,737	13,116	70.00%
2024-25	23,834	19,035	79.87%

Source: Press Information Bureau and National Payments Corporation of India (data as of March 31, 2025)

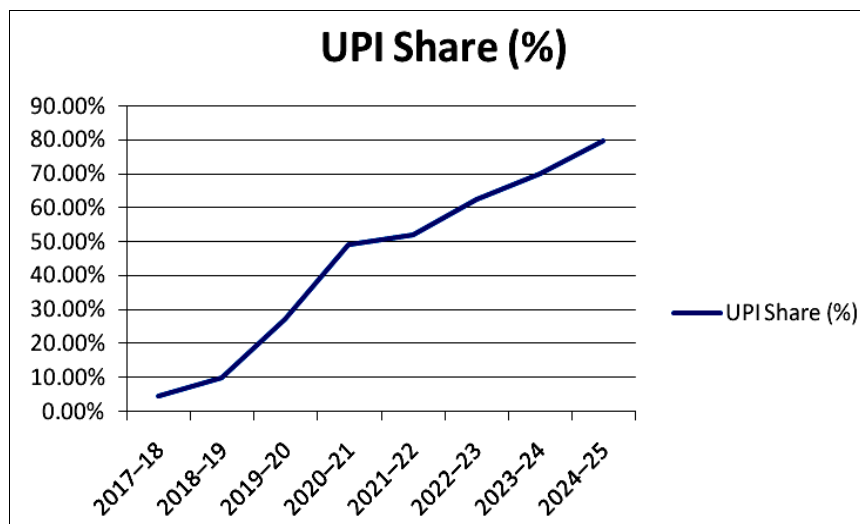


Fig 3: UPI's Share of Total Digital Payment Volume (FY 2017-18 to FY 2024-25)

As shown in Table 4 and Figure 3 UPI's share of total digital payment volume has increased dramatically, from just 4.44% in FY 2017-18 to a remarkable 79.87% in FY 2024-25. This growth reflects a clear shift in consumer behavior, with people increasingly choosing UPI for its ease of use and wide accessibility. Users across India, including those in smaller towns and rural areas, have adopted UPI for its simplicity, making it a key driver of financial inclusion. The growing use of UPI for peer-to-merchant transactions, even for very small payments at local shops and vendors, further underscores its role as a transformative force in India's digital payment ecosystem.

Challenges and future prospects

While India has emerged as a global leader in the digital payments landscape, its journey toward a fully cashless economy is not without challenges. Addressing these obstacles and capitalizing on future opportunities will be critical for sustained growth and deeper financial inclusion.

Challenges to Sustained Growth

Despite the widespread adoption of digital payments, a number of key challenges persist, particularly in reaching the last mile of the population.

- **Digital Literacy and Cybersecurity:** A significant portion of the population, especially in rural and semi-urban areas, lacks the digital and financial literacy to use digital payment platforms safely and confidently. This vulnerability is a major cause of concern, as it makes users susceptible to phishing scams, cyber fraud, and other forms of security breaches. Ensuring robust customer protection and building user trust remains a paramount challenge.
- **Infrastructure Gaps:** Consistent and high-speed internet connectivity is the backbone of the digital payments ecosystem. However, unreliable or slow internet in remote regions and Tier-3 cities can lead to transaction failures, which erodes user confidence and limits the reach of digital platforms.
- **Persistent Preference for Cash:** While digital transaction volumes have grown exponentially, cash remains a dominant mode of payment for a large

segment of the population. This is driven by long-standing habits, a desire for anonymity, and a lack of trust in digital systems, especially for larger transactions.

- **Regulatory Complexity:** As the fintech landscape evolves, there is a constant need for a balanced regulatory framework that fosters innovation while ensuring customer safety and system stability. Issues like data privacy, cross-border payment regulations, and evolving business models for fintechs continue to pose a challenge.

Future Prospects and Opportunities

India's success in digital payments provides a robust foundation for future innovations and growth. Several trends and opportunities are set to shape the next phase of this transformation.

- **UPI's Global Footprint:** India is actively working to export its successful UPI model. Partnerships with countries like France, Singapore, UAE, and others are making it easier for Indian travelers and non-resident Indians to use UPI abroad. This expansion will solidify India's position as a global leader in digital payment technology.
- **Expanding Use Cases:** UPI is moving beyond just P2P (person-to-person) payments. Recent initiatives, such as linking RuPay credit cards to UPI and increasing transaction limits for specific categories like education and insurance, will drive the adoption of digital payments for higher-value transactions.
- **Offline and Voice-Based Payments:** The launch of features like UPI Lite, which enables small-value transactions without a constant internet connection, is designed to overcome connectivity issues. Furthermore, the development of voice-based payment solutions will help millions of feature phone users and those with low digital literacy to participate in the digital economy.
- **Central Bank Digital Currency (CBDC):** The introduction of the digital rupee (₹) by the Reserve Bank of India presents an opportunity to create a more efficient and secure form of digital cash. This can complement the existing payment infrastructure and further reduce the reliance on physical currency.

5. Conclusion

The analysis of digital payment trends in India from FY 2017-18 to FY 2024-25 reveals a powerful story of financial revolution. The findings demonstrate that digital payments, led by the Unified Payments Interface (UPI), have evolved from a niche service to the backbone of the country's economic activity. The exponential growth in transaction volume, significantly outpacing the growth in value, stands as a testament to a fundamental shift in consumer behavior, where digital platforms are now trusted for even the most basic, daily transactions.

While this transformation has been remarkable, the journey toward a fully inclusive digital economy is still underway. Persistent challenges, such as the need for enhanced digital literacy, improved cybersecurity, and robust infrastructure in rural areas, must be addressed to ensure that this growth is both sustainable and equitable. The future, however, is rich with opportunities, from UPI's potential global expansion to the promise of offline payment solutions and the advent of a Central Bank Digital Currency.

In essence, India's digital payments revolution is a shining example of how technology, combined with forward-thinking policy, can drive unprecedented financial inclusion. The foundation has been laid, and with continued innovation and strategic focus, digital payments are poised to become a universal and permanent feature of the Indian economy.

References

1. Baghla A. A study on the future of digital payments in India. *International Journal of Research and Analytical Reviews*. 2018;5(4):86-89. <http://ijrar.com/>
2. Kumar R. Digital financial services in India: An analysis of trends in digital payment [Internet]. ResearchGate; 2019. <https://www.researchgate.net/publication/333369877>
3. Choudhary S, Singh P. Growth and penetration of digital payments in India. *AIP Conference Proceedings*. 2020;2954(1):020013. <https://pubs.aip.org/aip/acp/article-abstract/2954/1/020013>
4. Singh S, Sethi A. A trend analysis of growth pattern of digital modes of payments in India [Internet]. ResearchGate; 2021. <https://www.researchgate.net/publication/379053042>
5. Tripathi D, Sharma V. Growth of digital payment system in India: A trend analysis [Internet]. ResearchGate; 2022. <https://www.researchgate.net/publication/371686757>
6. Kumar P, Reddy S, Gupta A. Adoption of digital payment technologies in India: A quantitative study. *IEEE Xplore* [Internet]; 2022. <https://ieeexplore.ieee.org/document/10985363>
7. Reddy T, Gupta R. Digital payments and financial inclusion in India. *Dialnet* [Internet]; 2023. <https://dialnet.unirioja.es/servlet/articulo?codigo=8984892>
8. Sharma N, Verma K. Consumer satisfaction and trust in digital payment systems. *IEEE Xplore* [Internet]; 2023. <https://ieeexplore.ieee.org/document/10985363>
9. Tripathi D, Singh A, Nadar P. Analysis of trends and growth in digital payments in India. *Journal of Justice and Economics Management*. 2024;SP-4:476-488. <https://jjem.jnnce.ac.in/journals/SP-4/JJEMSP0476.pdf>
10. Reserve Bank of India (RBI). Payment and settlement systems in India: Annual report 2024-25 [Internet]. Mumbai: RBI; 2025. <https://www.rbi.org.in/Scripts/AnnualPublications.aspx?head=Payment%20and%20Settlement%20Systems>
11. National Payments Corporation of India (NPCI). UPI transaction statistics and reports [Internet]. NPCI; 2025. <https://www.npci.org.in/what-we-do/upi/product-statistics>
12. Press Information Bureau (PIB). Digital payments in India - Year-wise data [Internet]. Government of India; 2025. Available from: <https://pib.gov.in/>
13. Ministry of Finance, Government of India. Digital India and less-cash initiatives [Internet]. New Delhi: Ministry of Finance; 2025. <https://www.finmin.nic.in/>
14. Department of Financial Services, Ministry of Finance. Reports on digital payment growth and financial inclusion [Internet]. New Delhi: DFS, Ministry of Finance; 2025. <https://dfs.gov.in/>