

IMPACT OF DIGITAL PAYMENT SYSTEMS ON FINANCIAL INCLUSION: A DECADE IN REVIEW (2015-2025)

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Abstract:

Over the last decade (2015–2025), digital payment systems have transformed the way people access and use financial services, especially in developing economies. This paper reviews the impact of digital payment systems on financial inclusion, focusing on how technologies such as mobile wallets, Unified Payments Interface (UPI), internet banking, and fintech platforms have helped bring unbanked and underbanked populations into the formal financial system. The study highlights key developments during this period, including the rapid growth of smartphone usage, government-led digital initiatives, and increased participation of fintech companies. It examines how digital payments have improved access to banking services, reduced transaction costs, increased transparency, and encouraged savings and formal credit usage among low-income groups, women, and rural populations. At the same time, the paper discusses major challenges such as digital literacy gaps, cybersecurity risks, infrastructure limitations, and concerns related to data privacy. By analyzing trends and evidence from the past ten years, this review concludes that digital payment systems have played a significant role in advancing financial inclusion, though sustained policy support, technological investment, and consumer awareness are essential to ensure inclusive and secure digital financial ecosystems in the future.

Introduction:

Financial inclusion refers to the availability and accessibility of formal financial services—such as banking, payments, savings, credit, and insurance—to all sections of society at affordable costs. For many years, a large portion of the global population, particularly in developing and emerging economies, remained excluded from the formal financial system due to factors such as low income, lack of documentation, geographical barriers, and high transaction costs. However, the period from 2015 to 2025 has witnessed a significant transformation in this area, driven largely by the rapid expansion of digital payment systems. Digital payment systems include mobile banking, internet banking, digital wallets, QR-code-based payments, and real-time payment platforms such as the Unified Payments Interface (UPI). These systems have reduced dependence on cash and traditional banking infrastructure, enabling individuals to conduct financial transactions easily using mobile phones and other digital devices. The widespread adoption of smartphones, improved internet connectivity, and the growth of fintech companies have further accelerated this shift toward digital finance.

Governments and regulatory authorities have also played a crucial role in promoting digital payments to support financial inclusion. Initiatives such as digital identity systems, direct benefit transfers, and cashless payment campaigns have encouraged individuals,

especially those in rural and low-income communities, to open bank accounts and use digital financial services. As a result, millions of previously unbanked individuals have gained access to formal financial systems over the past decade.

Despite these positive developments, challenges such as digital illiteracy, cybersecurity risks, inadequate infrastructure in remote areas, and concerns over data privacy continue to limit the full potential of digital payment systems. Therefore, it is important to assess both the achievements and limitations of digital payments in promoting financial inclusion.

This paper aims to review the impact of digital payment systems on financial inclusion over the decade from 2015 to 2025, analyzing key trends, benefits, and challenges. By examining this period, the study provides insights into how digital payments have reshaped financial access and identifies areas that require policy attention to ensure inclusive and sustainable digital financial growth.

Objectives of the Study

The main objectives of this study on “Impact of Digital Payment Systems on Financial Inclusion: A Decade in Review (2015–2025)” are as follows:

- To examine the growth and development of digital payment systems during the period 2015–2025.
- To analyze the role of digital payment systems in promoting financial inclusion, especially among unbanked and underbanked populations.
- To assess the impact of digital payments on access to financial services such as savings, payments, credit, and government benefit transfers.
- To study the contribution of government policies and digital initiatives in encouraging the adoption of digital payment systems.

These objectives help in understanding the overall impact of digital payment systems on financial inclusion over the last decade.

Research Methodology

The present study adopts a descriptive and analytical research design to examine the impact of digital payment systems on financial inclusion during the period 2015–2025. The methodology is structured to provide a clear understanding of trends, developments, and outcomes using simple and reliable sources of information.

1. Research Design

The study is based on a review-based and analytical approach, focusing on secondary data to analyze the growth of digital payment systems and their influence on financial inclusion over the last decade.

2. Nature of Data

This research uses secondary data, as the study relies on already published and authenticated information. No primary survey or field investigation has been conducted.

3. Sources of Data

The secondary data for this study has been sourced from a wide range of credible and authoritative institutions to ensure reliability and accuracy. These include official reports from the Reserve Bank of India, publications by international organizations such as the World Bank and IMF, Government of India reports from the Ministry of Finance and NITI Aayog, as well as scholarly research papers, journals, and articles focusing on digital payments and financial inclusion. Additionally, data from the National Payments Corporation of India on UPI and other digital payment systems, along with trusted websites and statistical databases related to digital finance, provide a comprehensive and well-validated foundation for analysis and interpretation.

4. Period of Study

The study covers a ten-year period from 2015 to 2025, allowing analysis of long-term trends and changes in digital payment adoption and financial inclusion.

5. Tools and Techniques of Analysis

The collected data has been systematically analyzed using a combination of tabular and graphical presentations to enhance clarity and interpretation. Trend analysis has been employed to examine growth patterns in digital payments over time, while comparative analysis has been used to assess changes before and after the implementation of major digital initiatives. Additionally, simple statistical tools such as percentages and growth rates have been applied to quantify variations and support meaningful evaluation of the study's findings.

6. Scope of the Study

The study mainly focuses on developing economies, with special reference to India, where digital payment systems have shown rapid growth and strong linkage with financial inclusion initiatives.

7. Limitations of the Study

The study is subject to certain limitations, including its reliance on secondary data, which may not comprehensively reflect individual user experiences and perceptions. Variations in the availability and consistency of data across different years may also affect comparability, while rapid technological advancements occurring after 2025 are beyond the scope of this analysis. Despite these constraints, the adopted research methodology offers a systematic and structured framework to effectively evaluate the impact of digital payment systems on financial inclusion during the selected period.

Literature Review

The relationship between digital payment systems and financial inclusion has been widely discussed in academic research, policy reports, and institutional studies over the last decade.

Existing literature highlights that digital payments have become a key driver in expanding access to formal financial services, particularly in developing economies.

The World Bank (2016, 2018) emphasized that digital financial services, especially mobile payments, significantly reduce barriers to financial access for low-income households. These studies pointed out that digital payments lower transaction costs, minimize the need for physical bank branches, and enable secure money transfers, thereby encouraging participation in the formal financial system.

Demirgüç-Kunt et al. (2017) using Global Findex data revealed that the adoption of digital payments increased account ownership and usage, particularly among women and rural populations. The study found that government-to-person (G2P) digital payments, such as subsidies and welfare transfers, played an important role in motivating first-time bank account usage.

In the Indian context, studies by the Reserve Bank of India (RBI, 2019) highlighted the rapid growth of digital payment instruments such as UPI, mobile wallets, and prepaid payment instruments after 2016. RBI reports noted that digital payments enhanced transparency, reduced cash dependency, and improved financial access for small merchants and informal workers. The introduction of Aadhaar-based identification and the Jan Dhan Yojana further strengthened the link between digital payments and financial inclusion.

Suri and Jack (2016) studied mobile money systems and found a strong positive impact on household financial resilience and poverty reduction. Their research demonstrated that digital payment platforms enabled users to save securely, manage risks, and access emergency funds more efficiently.

Fintech-focused literature from OECD (2020) and IMF (2021) highlighted the role of innovation and competition in expanding digital financial services. These studies argued that fintech firms have improved service delivery, increased customer choice, and supported inclusion by offering low-cost, user-friendly digital payment solutions. However, they also warned about risks related to consumer protection and regulatory challenges.

Recent studies (2022–2024) emphasized emerging challenges such as digital literacy gaps, cybersecurity threats, and unequal access to smartphones and the internet. Authors like

Ghosh (2023) pointed out that while digital payment adoption has grown rapidly, marginalized groups may still face difficulties due to lack of digital skills and trust in technology.

Overall, the literature confirms that digital payment systems have made a significant contribution to financial inclusion over the past decade. However, researchers consistently highlight the need for supportive policies, digital education, robust infrastructure, and strong regulatory frameworks to ensure that the benefits of digital payments are inclusive, secure, and sustainable.

Key Numerical Data (2015–2025)

Global Financial Inclusion & Digital Payments

Global financial inclusion has improved markedly, with nearly 80% of adults worldwide now owning a financial account, up from 50% in 2011, reflecting significantly expanded access to formal financial services. In low- and middle-income economies, digital payments have become mainstream, as 61% of adults (82% of account holders) made or received a digital payment in 2024—an increase of 27 percentage points since 2014. Digital finance is also deepening engagement beyond payments: 10% of adults in developing economies now save using mobile money accounts, up 5 percentage points since 2021, while digital merchant payments have grown steadily, with 42% of adults using QR codes or app-based payments in 2024 compared to 35% in 2021, underscoring the expanding role of digital channels in everyday financial activity.

Indicator	2011	2014	2021	2024-25	Change
Adults with a financial account (Global)	50%	-	76%	~80%	+30%
Adults making/receiving digital Payments (low- & Middle-Income Economies)	34%	34%	54%	61%	+27%
Account owners using Digital payments	-	-	-	82%	-
Adults using mobile money for Saving (Developing Economies)	-	-	5%	10%	+5%
Adults making digital merchant payments (LMICs)	-	-	35%	42%	+7%

India’s Digital Payment Numbers as a case study

Growth & Volume Digital payments accounted for 99.8% of total transaction volume and 97.7% of the value in the first half of 2025 in India, reinforcing the near-complete shift toward digital financial activity. (The Economic Times)

Financial Year	Digital Transactions (Volume in Crore)
FY2015- 16	593
FY2016-17	1,004
FY2017-18	2,071
FY2018-19	3,134
FY2019-20	4,572
FY2020-21	5,554
FY2021-22	8,840
FY2022-23	13,462
FY2023-24	18,737
FY2024-25	-

UPI Transactions - India

In FY 2024–25, the Unified Payments Interface (UPI) demonstrated its extraordinary scale and momentum by recording approximately 186 billion transactions valued at around ₹260.6 trillion, reflecting robust year-over-year growth of about 42% in transaction volume and 30% in transaction value. With over 500 million active users, UPI has firmly established itself as one of the largest and most widely used instant payment systems in the world. Its global significance is further underscored by the fact that during 2024–25, UPI accounted for nearly 48.5% of total real-time payment volumes worldwide, highlighting India’s leadership in digital payment innovation and the transformative role of UPI in shaping the global payments ecosystem.

Financial Year	UPI Volume (Billion)	UPI Value (Trillion)
FY2016-17	0.9	3.4
FY2017-18	3.7	6.2
FY2018-19	8.7	14.0
FY2019-20	12.5	21.3

FY2020-21	38.7	71.5
FY2021-22	74.0	126.0
FY2022-23	117.6	182.0
FY2023-24	168.0	240.0
FY2024-25	186.0	260.6

Trends Over Time

Monthly & Daily Highlights

In August 2025, UPI surpassed a milestone of 20 billion transactions in a single month, underlining rapid penetration into everyday payments. Daily UPI transaction volumes reached ~700 million in late 2025, showing how deeply digital payments have been integrated into daily financial behavior.

Period	Share in Transaction Volume (%)	Share in Transaction Value (%)
FY2017-18	-	-
FY2021-22	97.1	95.4
H1 FY2024-25	99.8	97.7

Implications for Financial Inclusion

Rising adoption of mobile and digital payments has been closely associated with improved formal account usage worldwide, with global account ownership reaching nearly **80%**, particularly benefiting rural and previously unbanked populations by lowering access barriers to formal financial services. In low-income economies, a substantial increase in the number of adults making or receiving digital payments indicates deeper penetration of formal financial tools and a gradual shift away from cash-based systems. This transformation has also had a notable gender dimension, as women's formal account ownership has **approximately doubled since 2011**, driven in large part by simplified digital onboarding processes and the widespread availability of mobile payment platforms, thereby strengthening women's financial inclusion and economic participation.

Indicator	2014	2021	2024
Women with bank accounts (%)	58	74	~78
Gender gap in account ownership (%)	7	4	~3

Contribution of Government Policies & Digital Initiatives to Digital Payment Adoption
(India)

Governments Policy/Initiatives	Objectives	Key Numeric Evidence	Impact on Digital Payments
PMJDY	Financial inclusion through bank accounts	520+million bank accounts opened by 2024	Expanded access to Formal Banking and digital payments.
JAM Trinity	Digital identity & Connectivity	1.3+ billion Aadhaar IDs linked with bank accounts	Enabled secure digital transactions and DBT
Unified Payments Interface (UPI)	Real-time, low-cost digital payments	186 billion transactions, 260.6 trillion value in FY2024-25	Massive increase in digital payments usage
Direct Benefit Transfer (DBT)	Digital Welfare Payments	34+ trillion transferred digitally since launch	Encouraged regular account usage and reduced cash handling
BHIM app & QR Code	Merchant Digital Adoption	500+ million UPI users, millions of QR-enabled Merchants.	Increased acceptance of digital payments at retail level.
Demonetization (2016)	Reduce cash Dependency	Digital transactions rose from 593 crore (FY201516) to 1,004 crore (FY2016-17)	Accelerated shift from cash to digital modes
RBI Digital Payment Policies	Security, trust and regulation	Digital Payments formed 99.8% of transaction volume (H1 FY2024-25)	Strengthened trust and system stability

Analysis-

The numerical evidence from 2015 to 2025 clearly indicates a strong and positive relationship between the expansion of digital payment systems and improvements in financial inclusion at both global and national levels. Globally, financial account ownership increased from nearly 50% in 2011 to about 80% by 2024–25, representing a significant widening of access to formal financial services. This rise suggests that digital financial infrastructure,

supported by policy initiatives and technological innovation, has played a crucial role in bringing previously unbanked populations into the formal financial system. The increased penetration of accounts also lays the foundation for broader usage of digital financial services.

Digital payment usage in low- and middle-income economies shows a similarly strong upward trend. The proportion of adults making or receiving digital payments increased from approximately 34% in 2014 to 61% in 2024, a rise of 27 percentage points. Notably, about 82% of account holders in these economies actively use digital payment modes, indicating that access is increasingly translating into actual usage rather than remaining dormant. This shift reflects growing trust in digital platforms, improved digital literacy, and wider availability of mobile-based payment solutions.

The growth of mobile money savings further strengthens the inclusion narrative. In developing economies, the percentage of adults using mobile-money accounts for saving doubled from 5% in 2021 to 10% by 2024–25. Although the absolute level remains modest, the rapid growth highlights how digital platforms are gradually enabling low-income users not only to transact but also to save, which is a critical dimension of meaningful financial inclusion. Similarly, the increase in digital merchant payments—from 35% in 2021 to 42% in 2024—demonstrates the expansion of digital ecosystems on both the consumer and merchant sides, facilitating cashless transactions in everyday economic activities.

India's digital payment landscape provides a compelling case study of how policy-driven digital infrastructure can accelerate financial inclusion at scale. By the first half of 2025, digital payments accounted for 99.8% of total transaction volume and 97.7% of transaction value, indicating an almost complete transition from cash to digital modes. The Unified Payments Interface (UPI) has been central to this transformation. UPI transaction volumes reached approximately 186 billion in FY2024–25, with a transaction value of ₹260.6 trillion, reflecting robust year-on-year growth in both volume (around 42%) and value (around 30%). This rapid expansion highlights the system's scalability, low-cost structure, and ease of use.

Trend analysis further reveals that UPI's share of total digital payments grew dramatically from about 4.4% in FY2017–18 to nearly 80% by FY2023–24. This sharp increase indicates a strong preference for interoperable, real-time payment systems among users and businesses. The achievement of over 500 million active users and daily transaction volumes of nearly 700 million by late 2025 underscores the deep integration of digital payments into routine financial behavior. India's handling of nearly 48.5% of global real-time payment volumes during 2024–25 also positions UPI as a global benchmark for inclusive digital payment systems.

From a financial inclusion perspective, these trends have important implications. Increased account ownership, particularly among women and rural populations, correlates strongly with the adoption of digital payments. Globally, women's account ownership has nearly doubled since 2011, suggesting that simplified digital onboarding and mobile-based payment systems have helped reduce long-standing gender gaps in access to finance. The widespread use of digital payments among newly banked individuals indicates that digital platforms are not merely increasing access but also encouraging sustained participation in the formal financial system.

The government-led financial inclusion programs, digital infrastructure initiatives, and regulatory support have been instrumental in scaling digital payment adoption. The sharp rise in transaction volumes and values highlights the effectiveness of coordinated policy intervention in transforming payment behaviour and promoting financial inclusion.

Overall, the analysis demonstrates that digital payment systems act as a powerful enabler of financial inclusion by improving access, increasing usage, and encouraging savings and formal economic participation. The numerical trends from 2015 to 2025 provide strong empirical support for the argument that digital finance—when supported by appropriate policy, infrastructure, and regulatory frameworks—can significantly advance inclusive economic development.

Discussion and Findings

This section discusses the major observations of the study and presents the key findings related to the impact of digital payment systems on financial inclusion during the period 2015–2025.

Discussion

The analysis of data from 2015 to 2025 clearly shows that digital payment systems have played a transformative role in expanding financial inclusion. The rapid growth of mobile phones, internet connectivity, and fintech innovations has enabled millions of people to access formal financial services for the first time.

One of the most significant developments during this decade has been the shift from cash-based transactions to digital modes such as mobile wallets, UPI, debit cards, and internet banking. Digital payment platforms have reduced dependency on physical bank branches, which is especially beneficial for rural and remote areas where banking infrastructure is limited. As a result, individuals who were earlier excluded due to distance, cost, or lack of documentation have been able to participate in the formal financial system.

Government initiatives have strongly supported this transition. Programs like Jan Dhan Yojana, Aadhaar-based identification, and Direct Benefit Transfers (DBT) in India encouraged people to open bank accounts and use digital payment channels. Welfare payments delivered digitally increased trust in banking systems and promoted regular account usage rather than dormant accounts.

The study also reveals that digital payments have helped small merchants, self-employed workers, and informal sector participants. Digital transactions created financial records, which improved access to formal credit and micro-loans. Women and low-income households particularly benefited, as digital payments provided safer and more convenient ways to save and manage money.

However, the discussion also highlights several challenges. Digital literacy remains uneven, especially among elderly people and rural populations. Limited access to smartphones, poor internet connectivity in some regions, and concerns related to cybersecurity and data privacy have restricted full inclusion. While adoption has increased rapidly, usage depth and digital confidence still vary across socio-economic groups.

Findings

Based on the analysis of secondary data and an extensive review of relevant literature, the study identifies several key findings regarding the growth of digital payment systems and their impact on financial inclusion.

- Digital payment transactions experienced rapid and sustained growth between 2015 and 2025, reflecting widespread acceptance and increasing reliance on digital modes of payment across diverse population segments. This growth indicates a structural shift in payment behavior from cash-based to digital transactions.
- The expansion of digital payment systems has significantly improved financial inclusion by increasing both bank account ownership and active usage, particularly among unbanked and underbanked groups. Digital platforms have transformed access into meaningful participation by encouraging regular transactions, savings, and receipt of payments through formal financial channels.
- Government initiatives and policy interventions played a critical role in accelerating digital payment adoption. Programs supporting digital infrastructure, direct benefit transfers, and financial digitization created an enabling environment that strengthened trust, accessibility, and usage of digital payment systems.
- Digital payments have had a positive impact on rural and low-income populations by reducing geographical, procedural, and cost-related barriers to financial services.

Mobilebased payment systems and interoperable platforms allowed users in remote areas to access financial services without dependence on physical banking infrastructure.

- Increased access to digital financial tools has contributed to the empowerment of women and small businesses. Digital payments enhanced financial autonomy for women and expanded market participation and transaction efficiency for small merchants and microentrepreneurs, supporting inclusive economic activity.
- The growing adoption of digital payment systems has contributed to a reduction in cash dependency, leading to improved transaction transparency, faster settlement, and lower transaction costs. This shift has also supported better financial tracking and accountability within the economy.

Conclusion

The review of the period 2015–2025 clearly shows that digital payment systems have played a vital role in advancing financial inclusion. The rapid expansion of mobile banking, digital wallets, UPI, and other electronic payment platforms has transformed the financial landscape by making financial services more accessible, affordable, and convenient for a large segment of the population. Digital payments have helped bridge the gap between the formal financial system and previously excluded groups such as low-income households, rural communities, women, and small businesses.

Government initiatives, supportive policies, and technological innovations have been key drivers of this progress. Programs focused on digital identity, bank account expansion, and direct benefit transfers encouraged widespread adoption and regular use of digital financial services. As a result, financial access improved not only in terms of account ownership but also in active usage of financial services such as payments, savings, and credit.

However, the study also concludes that financial inclusion through digital payments is not without challenges. Issues such as digital illiteracy, unequal access to smartphones and internet connectivity, cybersecurity risks, and data privacy concerns continue to affect certain sections of society. These challenges highlight the need for inclusive digital infrastructure, strong consumer protection mechanisms, and continuous financial and digital literacy programs.

Overall, digital payment systems have emerged as a powerful tool for promoting financial inclusion over the last decade. To sustain and deepen this impact in the future, coordinated efforts by governments, financial institutions, fintech companies, and regulators

are essential. With the right policy support and technological safeguards, digital payments can continue to drive inclusive and sustainable economic growth.

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