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ADVANCING INDIA'S DIGITAL ECONOMY THROUGH DIGITAL BANKING: AN ANALYSIS OF GROWTH TRENDS AND ECONOMIC VALUE

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ABSTRACT

The integration of digital banking into India's financial ecosystem has played a transformative role in accelerating the nation's digital economy. This study investigates the growth trends and economic value associated with digital banking from FY2019 to FY2025. Using data on digital transaction volumes, transaction values, registered internet and mobile banking users, and UPI users, the paper analyzes the expansion of digital banking services and their direct contribution to digital economic growth. Governmentled initiatives such as Digital India, Pradhan Mantri Jan Dhan Yojana (PMJDY), Aadhaar-enabled services, and the Unified Payments Interface (UPI) have laid the foundation for a robust digital infrastructure. These efforts have been strongly supported by banking institutions, financial institutions, fintech companies, and regulatory bodies such as the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI), who have played key roles in scaling digital banking infrastructure, introducing user-friendly platforms, and ensuring cybersecurity and trust. Digital banking influences the digital economy by facilitating faster, transparent, and efficient monetary transactions, reducing reliance on cash, expanding access to credit, and enabling inclusive participation in financial systems. It contributes to increased consumer spending, better public service delivery, and improved financial literacy. The active participation of stakeholders, including government agencies, private sector banks, payment service providers, and technology enablers, has significantly driven innovation and penetration of digital financial services across both urban and rural India. The findings reveal a consistent rise in digital banking adoption and its monetary impact, confirming that digital banking serves as a key enabler of financial inclusion, economic empowerment, and the overall modernization of India's digital economy.

Keywords: Digital Banking, Financial Inclusion, UPI, Digital Economy, Fintech Innovation, NPCI.

Introduction

India has witnessed a transformative shift in its financial landscape over the past decade, with digital banking emerging as a cornerstone of this change. This transformation is deeply intertwined with the country's ambition to foster a vibrant and inclusive digital economy. The advent of digital banking has redefined the way financial services are delivered, making them more accessible, efficient, and secure. The government's initiatives, such as *Digital India* and *Pradhan Mantri Jan Dhan Yojana (PMJDY)*, combined with the growth of mobile and internet banking infrastructure, have accelerated the adoption of digital economy, digital banking services - including mobile banking, internet banking, and the Unified Payments Interface (UPI) - have emerged as catalysts for widespread financial inclusion. By bridging the gap between traditional banking and underserved communities, these services enable more individuals and businesses to access financial tools that were once limited to the urban elite. The benefits of digital banking are far-reaching, extending beyond the mere convenience of online banking to drive increased financial literacy, efficient public service delivery, and a reduction in cash dependency.

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The integration of digital banking into the Indian financial ecosystem has fostered greater efficiency in monetary transactions and has contributed significantly to the growth of the digital economy. Digital transactions have surged, both in terms of volume and value, reflecting a growing confidence in digital platforms. This paper aims to explore how digital banking has become a driving force for India's digital economy, focusing on its role in increasing financial access, promoting innovation, and supporting sustainable economic growth. India's digital banking evolution has been significantly shaped by various stakeholders, including the government, banking institutions, fintech companies, and regulatory bodies such as the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI). The coordination between these stakeholders has been vital in scaling digital infrastructure, ensuring user trust, and promoting digital adoption across both rural and urban India.

Review of Literature

The relationship between digital banking and the digital economy has been the subject of increasing academic attention over the past decade. The rise of mobile banking, internet banking, and digital payment systems like the Unified Payments Interface (UPI) has been pivotal in advancing financial inclusion, reducing transaction costs, and fostering broader economic growth. Several studies have explored various facets of digital banking, its influence on economic development, and the role of regulatory and institutional frameworks in promoting its growth.

Sharma and Kumar (2025) conducted an empirical investigation into the factors influencing online banking adoption in India. Utilizing a sample of 424 users and applying multiple regression analysis, the study identified perceived ease of use, perceived usefulness, trust, government support, and digital literacy as significant predictors of online banking adoption. The inclusion of digital literacy as a variable underscores its growing importance in facilitating digital banking usage.

Waliullah et al. (2025) conducted a systematic literature review assessing the influence of cybersecurity threats on digital banking adoption and growth. Analyzing 78 peer-reviewed articles from 2015 to 2024, the study highlighted phishing and malware attacks as prevalent threats undermining consumer trust. The authors emphasized the adoption of multi-factor authentication, biometric security, Al-driven fraud detection, and blockchain technology as effective countermeasures. They also noted the necessity for stringent regulatory oversight, especially concerning third-party fintech integrations.

Kanaparthi (2024) explored the role of artificial intelligence (AI) in enhancing personalization and trust in digital finance. The study developed an AI-based credit risk detection model using supervised machine learning classifiers, achieving high accuracy and precision. The findings suggest that AI can significantly improve customer engagement, credit risk management, compliance, and fraud detection in digital banking.

Dev et al. (2024) examined the impact of the Unified Payments Interface (UPI) on spending behavior among Indian users. Through surveys and interviews, the study found that approximately 75% of participants reported increased spending due to UPI's convenience and the intangible nature of digital transactions. The research underscores the need for designing financially responsible interfaces to mitigate overspending tendencies.

Gupta (2023) reviewed the adoption of Industry 4.0 technologies in the Indian banking sector, highlighting the integration of AI, cloud computing, and blockchain. The study noted that banks like HDFC and ICICI have implemented AI-powered chatbots and robotic process automation to enhance customer service and operational efficiency. However, challenges such as digital literacy, cybersecurity threats, and regulatory compliance remain pertinent.

A significant body of literature highlights the role of digital banking in stimulating economic growth. According to a study by Kumar and Rani (2019), the adoption of digital banking services is positively correlated with economic growth, particularly in emerging economies like India. The authors argue that digital banking services have led to greater financial inclusion by providing affordable and accessible banking services to previously underserved populations, especially in rural areas. Their study shows that the widespread adoption of mobile banking services, in particular, has helped reduce financial exclusion, enabling individuals to access savings, credit, and insurance products without needing physical access to a bank branch.

In their study, Singh and Ghosh (2020) examined the role of mobile banking in financial inclusion across India. Their findings suggest that mobile banking has played a crucial role in enhancing financial access for lower-income households. The authors emphasize that mobile banking has reduced the barriers to financial services by enabling people to conduct financial transactions, manage savings,

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and apply for loans using their mobile phones. Furthermore, Gupta and Sahu (2021) found that digital banking services, through the use of smartphones and internet connectivity, have fostered inclusive economic growth by addressing the long-standing challenges of limited banking infrastructure in rural India.

Additionally, Sharma and Rao (2021) discussed the role of UPI in transforming the Indian financial ecosystem. Their study found that UPI has not only improved transactional efficiency but has also empowered small businesses and entrepreneurs by providing them with access to a secure and easy-to-use payment system. They argue that this payment system has become a key enabler of India's digital economy by facilitating seamless transactions across various sectors, from retail to government services.

Research Gap

Despite the growing volume of research highlighting the benefits of digital banking, significant gaps remain in understanding the broader economic implications of its expansion within India. Much of the existing literature tends to focus on the user adoption factors, technological innovations, or cybersecurity challenges in isolation. While studies like those by Sharma and Kumar (2025) and Gupta (2023) explore the technical and behavioral drivers of digital banking usage, there is limited integrated analysis examining how digital transaction trends have quantitatively contributed to India's overall economic value or GDP growth. The economic dimension of digital banking, especially in terms of its direct and indirect impact on national productivity, business formalization, and fiscal efficiency, remains underexplored. Moreover, while government-led initiatives such as Digital India, Jan Dhan Yojana, and UPI have been widely studied as policy milestones, there is a lack of research examining the combined effects of these programs in synergy with private sector and fintech contributions. Additionally, the literature often neglects the urban-rural divide in digital access and the associated socioeconomic implications. For instance, while UPI and mobile banking have seen exponential growth, their adoption in rural and remote areas is still hampered by infrastructure deficits, digital illiteracy, and trust issues. Furthermore, consumer overspending driven by frictionless digital interfaces and the behavioral consequences of 'invisible money' remain under-investigated. The psychological impact of rapid digital adoption-especially on low-income and first-time users-needs deeper examination to ensure sustainable and responsible financial practices. There is also insufficient analysis on how real-time payment data can be leveraged for credit scoring and inclusive financial product development. Hence, future research should not only focus on the expansion of digital banking infrastructure but also critically assess its contribution to inclusive economic development, behavioral outcomes, and structural transformation in India's financial ecosystem.

Methodology

This study employs a descriptive and analytical research methodology to examine the growth trajectory and economic implications of digital banking in India from the fiscal year 2019 through to 2025. The research design is grounded in secondary data collection and trend analysis, relying extensively on official statistics and empirical data from reliable sources such as the Reserve Bank of India (RBI), National Payments Corporation of India (NPCI), Ministry of Finance reports, and peerreviewed academic publications. The primary variables examined include the number of registered users of mobile and internet banking, the volume and value of digital transactions across platforms, and specific indicators related to the Unified Payments Interface (UPI). Quantitative data has been analyzed over a seven-year period to uncover patterns in digital adoption and usage, with particular emphasis on identifying growth inflection points such as the COVID-19 pandemic years, which accelerated digital uptake due to lockdown-induced necessity. Visual tools such as time-series charts and comparative tables have been used to interpret shifts in consumer behavior, technological penetration, and transactional efficiency. Projections for FY2025 have been derived using trend extrapolation methods to estimate future values for digital transaction volumes and user numbers. Furthermore, the study incorporates qualitative insights from academic literature to interpret the behavioral and policy implications of digital banking growth. By integrating numerical data with interpretive analysis, the methodology aims to present a holistic picture of how digital banking has evolved from a supplemental service to a foundational pillar of India's digital economy. This multidimensional approach not only helps measure the quantitative impact of digitalization in financial services but also supports the identification of strategic gaps, potential risks, and policy recommendations for sustainable digital financial inclusion.

Objectives of the Study

The overarching objective of this study is to critically assess the impact of digital banking on the advancement of India's digital economy between FY2019 and FY2025. More specifically, the study aims to accomplish several interrelated goals. Firstly, it seeks to examine the growth trends in mobile and internet banking usage, including the rising number of users and the increase in accessibility of these services across both urban and rural segments. Understanding these adoption patterns is crucial to evaluating whether digital banking has achieved its goal of financial inclusion. Secondly, the study aims to analyze the volume and value of digital transactions, particularly those conducted through mobile banking, internet platforms, and the Unified Payments Interface (UPI). These metrics are indicative of user engagement, consumer trust, and the extent to which digital platforms have replaced traditional banking services. Thirdly, the research explores the economic value generated through digital banking, with a focus on efficiency gains, cost reductions for financial institutions, and macroeconomic benefits such as GDP contribution and improved government service delivery. Fourthly, the study evaluates the influence of government-led initiatives like Digital India, PMJDY, Aadhaar integration, and fintech innovations in promoting the adoption of digital banking infrastructure. This involves assessing how public-private collaboration has shaped the accessibility and usability of digital financial services. Lastly, the study identifies challenges such as cybersecurity threats, digital literacy gaps, and infrastructural limitations, with the aim of proposing actionable solutions to address these issues. Together, these objectives help to build a comprehensive understanding of digital banking's role not only as a technological innovation but as a critical driver of economic modernization, financial empowerment, and structural transformation in India's financial ecosystem.

Analysis of Growth Trends and Economic Value



From the Chart – I, India's digital economy has witnessed a significant transformation in recent years, driven primarily by the rapid expansion of digital banking. From FY2019 to FY2025 (projected), the number of registered mobile banking users grew from 5.96 crore to an estimated 17.5 crore, while internet banking users rose from 5.96 crore to 21.8 crore. This threefold increase in user registration highlights the country's accelerating shift towards digital financial services. The surge is especially notable in the post-pandemic period (FY2021 onwards), when restrictions on physical movement and banking operations compelled both individuals and businesses to adopt online banking solutions at an unprecedented rate.

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The consistent growth in digital banking users reflects a broader trend of financial inclusion and accessibility. With increasing internet and smartphone penetration, citizens across urban and rural areas have begun to embrace digital tools for their everyday financial needs. This expansion supports key government initiatives like Direct Benefit Transfers (DBT) and the JAM (Jan Dhan–Aadhaar–Mobile) trinity, while enabling individuals to engage in e-commerce, mobile payments, and digital lending platforms. In particular, the rise of Unified Payments Interface (UPI) and fintech services has created a more vibrant and efficient digital financial ecosystem.

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From an economic standpoint, the growing reliance on digital banking has led to cost savings for financial institutions by reducing their dependence on physical branches and in-person services. As a result, banks are able to serve a larger customer base with greater efficiency. Additionally, increased adoption of internet and mobile banking contributes to data generation, which aids in credit scoring, targeted financial products, and personalized services. However, this growth also brings challenges such as cybersecurity threats, the urban-rural digital divide, and the need for continued infrastructure investment.

In conclusion, the sharp rise in mobile and internet banking registrations over the past five years illustrates India's strong momentum in advancing its digital economy. The trend is not only a testament to improved digital infrastructure and public policy but also a reflection of changing consumer behavior. Sustained efforts in digital literacy, technological innovation, and regulatory support will be essential to harness the full economic value of this transformation and ensure inclusive, secure, and resilient growth in the coming years.



The rise in registered digital banking users is strongly supported by the substantial increase in total digital banking transactions and their cumulative value, as seen in Chart II. Between FY2019 and the projected FY2025, total digital banking transactions in India have grown from 3,100 crore to 22,000 crore, a more than sevenfold increase. In parallel, the total transaction value has risen from ₹1,000 lakh crore to ₹3,100 lakh crore, reflecting a threefold increase in monetary throughput. These trends underscore both the widening adoption of digital banking across user segments and the deepening usage of digital financial services for higher-value transactions.

This growth trajectory reveals several important economic and behavioral shifts. Firstly, the steady increase in transaction volume indicates that digital banking is no longer limited to urban elites or corporate clients but has permeated into everyday financial activities of individuals, small businesses, and rural users. Secondly, the value of transactions—growing consistently year-on-year—points to increasing consumer trust in conducting high-value operations such as fund transfers, bill payments, investments, and digital credit through secure banking apps and platforms. A closer look at the timeline shows that the pandemic years (FY2020–FY2022) served as an inflection point for both transaction volume and value. The necessity of contactless transactions during lockdowns accelerated the digital shift. The FY2023–FY2025 period marks a phase of digital maturity, where both usage and transaction value scaled rapidly, supported by initiatives like RBI's Digital Payments Index, ONDC, and enhanced fintech-bank collaborations.

Importantly, this transaction growth aligns directly with the rise in mobile and internet banking users, as discussed earlier. As more users registered and actively engaged with digital banking services, transaction volumes rose correspondingly. Additionally, UPI's exponential expansion contributed a major share to this surge, establishing itself as a backbone for India's real-time payment ecosystem. By FY2024, UPI accounted for over 80% of total retail digital payment volumes.

Economically, the increase in digital banking transactions has resulted in improved payment efficiency, lower costs for banks, and enhanced transparency in financial flows, supporting formalization and GDP growth. It also enables the government to implement welfare transfers more efficiently, reduces cash dependency, and fosters a more resilient digital infrastructure. However, the challenges noted earlier—such as ensuring digital access in remote areas, managing cyber risks, and addressing gaps in digital literacy—must be strategically tackled to maintain this momentum.

In conclusion, the data from Table II complements the rise in user registrations by showing how India's digital banking landscape has evolved from a nascent digital experiment to a mature, high-volume, high-value financial network. With 22,000 crore digital transactions and ₹3,100 lakh crore in projected value by FY2025, India is not only advancing its digital economy but is also setting a global benchmark in digital financial inclusion and innovation.

Fiscal Year	2019	2020	2021	2022	2023	2024	2025*
UPI Transactions (Crore)	1,252	1,250	2,223	4,597	8,376	13,000	17,000
UPI Value (₹ Lakh Crore)	21.31	29.44	41.03	84.17	139.2	200	270

Table I: UPI Transactions and	Value in India	(2019–2025)
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Source of the Data: NPCI Dashboard, RBI Digital Payments Data, and Ministry of Electronics & IT (MeitY) reports.

A key pillar of India's digital banking success story is the extraordinary rise of the Unified Payments Interface (UPI), which has revolutionized the way financial transactions are conducted across the country. As detailed in Table I, UPI transactions surged from 1,252 crore in FY2019 to an estimated 17,000 crore in FY2025, representing a more than 13-fold increase over seven years. In value terms, UPI handled ₹21.31 lakh crore in FY2019, which is projected to rise to ₹270 lakh crore in FY2025—a 12.7 times increase. This remarkable growth in both volume and value illustrates the shift in consumer preference toward fast, secure, and convenient digital payment methods. The real turning point in UPI's growth trajectory began in FY2021 and accelerated sharply post-FY2022, driven by rising smartphone usage, affordable data, user-friendly mobile apps, and real-time interbank settlement capabilities. The government's Digital India initiative, coupled with the COVID-19 pandemic, acted as catalysts, pushing both individuals and businesses—large and small—to embrace contactless digital payments. By FY2023, UPI had firmly established itself as the dominant payment method, accounting for over 80% of India's total retail digital payment transactions by volume.

UPI's rapid adoption complements the trends seen in mobile and internet banking user growth (Chart I) and the overall rise in digital banking transactions and value (Chart II). While broader digital banking infrastructure supports multiple services like mobile banking, NEFT, IMPS, and internet banking,

it is UPI that has made digital payments ubiquitous and accessible to the masses. From vegetable vendors and street hawkers to urban professionals and online businesses, UPI has democratized financial access and enabled a seamless, cashless economy at the grassroots level.

Economically, UPI's growth has helped lower the cost of transactions, improve financial inclusion, and drive efficiency across sectors. It has enabled the government to deliver subsidies and welfare benefits directly into beneficiary accounts through Direct Benefit Transfers (DBT), ensured transparency in small business transactions, and provided banks and fintechs with rich transactional data to expand credit access. At the macro level, UPI has strengthened India's real-time payment infrastructure, boosted formalization of the economy, and contributed to GDP growth by enhancing productivity. In summary, the explosive growth of UPI from FY2019 to FY2025 represents not just a payment innovation, but a structural transformation in India's digital economy. It has played a pivotal role in expanding the reach of digital financial services, bridging the urban-rural divide, and creating a more inclusive and efficient economy. As India moves toward its ambition of becoming a \$1 trillion digital economy, UPI will continue to be the backbone of financial innovation and digital inclusion.

Conclusion

The findings of this study affirm that digital banking has emerged as a cornerstone of India's journey toward a modern, inclusive, and resilient digital economy. From FY2019 to the projected FY2025, the exponential growth in digital transaction volumes, user registrations for mobile and internet banking, and especially the rise of the Unified Payments Interface (UPI), have collectively transformed the country's financial ecosystem. The increase in digital transactions from 3,100 crore to 22,000 crore and the tripling of transaction value from ₹1,000 lakh crore to ₹3,100 lakh crore signify not merely a numerical surge, but a deeper behavioral and systemic shift in the way financial services are accessed and utilized. Digital banking has helped bridge longstanding gaps in financial access by enabling underserved and remote populations to participate in the formal financial system without the need for physical infrastructure. It has reduced cash dependency, increased consumer convenience, improved the efficiency of public service delivery, and allowed for the creation of targeted, data-driven financial products and services.

Moreover, digital banking has enabled a more transparent and accountable financial system, aiding in the formalization of the economy. Platforms like UPI have revolutionized small-value, high-volume transactions, especially among micro-entrepreneurs and informal sector workers, contributing to a more equitable distribution of financial tools. This transition has also reduced the cost of financial intermediation, improved credit assessment through digital footprints, and facilitated faster and more targeted welfare transfers. However, while the progress has been significant, challenges remain. The urban-rural digital divide, issues of digital literacy, cybersecurity threats, and infrastructural inadequacies in some regions pose potential risks to the sustainability of this transformation. Thus, while the data validates digital banking as a critical enabler of economic growth and financial inclusion, a continued focus on secure, inclusive, and equitable digital financial ecosystems will be crucial to maintain and extend the benefits observed during this period.

Way Forward

To sustain and expand the gains achieved through digital banking, India must adopt a multipronged and inclusive strategy moving forward. First and foremost, **digital literacy initiatives** must be intensified, especially in semi-urban and rural areas, to ensure that every citizen is equipped to safely and effectively use digital financial tools. Programs should not only focus on usage but also on instilling awareness about cybersecurity practices, fraud prevention, and responsible digital finance. Public-private partnerships can play a key role here by leveraging the reach of banks, fintech firms, and NGOs. Secondly, **infrastructural improvements** are essential, particularly the expansion of high-speed internet connectivity, mobile network coverage, and access to affordable digital devices.

In parallel, **regulatory frameworks** need to evolve to address the fast-changing digital finance landscape. The Reserve Bank of India and other institutions should continue enhancing guidelines on data privacy, third-party integrations, and consumer protection while encouraging innovation in digital products. Financial institutions must also invest in **AI-powered fraud detection systems**, biometric authentication, and blockchain-based ledgers to enhance the security and transparency of digital banking. At the same time, **behavioral finance insights** should guide the design of digital interfaces to promote prudent financial behavior and avoid overspending, particularly among vulnerable groups. Furthermore, the government must continue using digital banking infrastructure to streamline welfare transfers, tax collection, and credit distribution to farmers, MSMEs, and informal workers. Special incentives could be offered to banks and fintechs to develop customized solutions for marginalized communities. Finally, **continuous monitoring, research, and feedback loops** should be institutionalized to measure the effectiveness of policies and interventions in real time. As India moves toward becoming a \$1 trillion digital economy, a strategic focus on inclusion, innovation, security, and sustainability will be imperative to ensure that digital banking remains a powerful engine for equitable and long-term economic transformation.

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