

Bridging the Financial Divide: The Impact of Digital Payments and Financial Literacy on Enhancing Financial Inclusion

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Abstract

The world is currently living in an information age marked by technological advancements that have altered human work styles. There is a strong connection between the Finnish financial system and growth, as evidenced by India's fifth-place finish in the world's ranking of fastest-growing economies. All over the world, people are working to achieve growth. The financial system is heavily dependent on financial literacy and inclusion, while growth is dependent on financial movement and liquidity. Digital payments have been widely accepted and have contributed to India's economic expansion in the recent decades of digital India. The government and private sectors of India have taken a lot of initiative to make cashless transactions and, as a result, plastic money. Retail, e-commerce, and government services are just a few of the sectors where economic activity has been sparked by electronic payment methods' capacity to reduce transaction costs, improve market efficiency, and assist small and medium-sized enterprises (SMEs). Notably, measures like demonetization and the push toward a cashless economy have increased the popularity of these platforms in both urban and rural areas. It's interesting to note that the total value of UPI transactions accounted for nearly 86% of India's GDP in FY22. At the end of the year 2023, UPI will have processed 83.75 Billion transactions. The RBI has stated that the increase in the FI-Index from 60.1 in March 2023 to 64.2 in March 2024, which reflects the deepening of financial inclusion, is primarily attributable to the usage dimension. The FI-Index is made up of three broad parameters: access (35%), usage (45%), and quality (20%).

This empirical study tries to explain how digital literacy affects how well digital payments work in an economy without cash. In India, 55% of the population has access to the Internet, and 80% of adults use banking and digital payments. However, they do not explore credit and investment options, which may exclude some rural and high-poverty populations that are in real need of financial services. The success of financial inclusion depends not only on digital payments but also on using financial services and investing, and we can achieve 100% overall financial inclusion with the help of financial literacy.

Keywords: *Digital payments, Financial Inclusion, Financial literacy, Economic development*

Introduction

Electronic payment methods have significantly transformed financial transactions. These systems, which include mobile payments, online banking, and digital wallets, have rapidly changed the way Citizens and businesses handle Monetary exchanges. This technological advancement marks a notable shift from cash-based transactions to digital alternatives, making transactions not only faster and more efficient but also accessible to a broader population. This transformation Goes beyond simply an upgrade in technology; it represents a substantial change in economic practices and societal behaviours.

In numerous developing nations, a large segment of people is either unbanked or underbanked, which means they have minimal or no Access to conventional financial services such as banks accounts, loans, and insurance. This exclusion from the finance industry can restrict economic engagement and growth, and also limit Prospects for people to enhance their quality of life. Online payment platforms have proven to be an essential remedy to address this gap, offering a more inclusive platform that broadens Access to monetary services. By allowing individuals to transfer money, settle bills, and make purchases electronically, digital payments reduce reliance on cash, decrease transaction costs, and increase financial transparency.

Digital payments have a significant effect on financial inclusion, which means making financial services reachable and available to all individuals, irrespective of their socio- economic background. These systems simplify access to Banking solutions, making them easier Easy to use and available to a wider range of people. Mobile money platforms, for instance, allow individuals without bank accounts to handle money transactions using their smartphones. This is particularly important in areas where smartphone usage is widespread but access to traditional banking is limited. A digital means to manage money, platforms give users control on financial situations, encouraging savings, investments, and spending.

Moreover, Electronic payment methods of driving economic growth by facilitating Safer and efficient transactions, which lower the costs of business operations and enhance economic activities. For businesses, particularly SMEs, digital payments.

provide a route to formalization and increased market reach. By adopting digital payments, businesses can attract more customers, streamline their processes, and reduce the risks linked to handling cash. This contributes to a more vibrant business environment.

Beyond enhancing Economic accessibility and economic growth, electronic payment methods encourage innovative financial products and services. financial-technology (fintech) companies illustrate this trend, as they use digital technologies to develop innovative solutions tailored to the changing needs of consumers and businesses. Innovations such as peer-to-peer lending platforms and digital currencies are reshaping the financial landscape, providing more varied and accessible financial products. Incorporating technologies including artificial intelligence, blockchain, and data analytics into electronic payment methods further boosts their efficiency and security, paving the way for a more integrated and robust financial ecosystem.

Additionally, Electronic payment methods improve Clarity and accountability in financial dealings. Cash-based transactions often lack transparency and can be challenging to trace, potentially facilitating corruption, tax evasion, and other illegal activities. Digital payments, on the other hand, create an electronic trail, making it easier to monitor and audit transactions. This increased transparency benefits governments and businesses by helping reduce fraud and enhance tax

collection. For individuals, transparent transactions build trust in the financial system, motivating more people to participate in the formal economy.

The growth of electronic payment methods also promotes greater financial literacy among users. As individuals become more familiar with using digital platforms for their financial transactions, they also gain a better grasp of financial management. This can result in more informed financial decisions, such as better budgeting, saving, and investing. Over time, enhanced financial literacy can lead to increased financial stability and resilience for people and households, further strengthening the positive effects of digital payments on economic development.

Theoretical Background-of-the-Study

- ***Theories of Financial Inclusion***

At the heart of this research is the concept of financial availability, which emphasizes the significance of giving access to useful and affordable financial services to all people and businesses, regardless of their income level or social status. Financial availability is not just about having a bank account but also about assuring that people can access a full suite of financial services—including credit, savings, and transaction services—tailored to their needs. Electronic payment methods have developed as a critical component in advancing financial inclusion, especially in areas where conventional banking services are limited or non-existent. Mobile technology and internet connectivity, digital payment platforms offer a scalable solution to reach communities, participate more fully in economic activities and improving their overall financial well-being.

- ***Economic Development Frameworks***

The study also draws on economic development theories that link financial access to broader economic outcomes. Based on these frameworks, availability of financial services are essential for economic growth because it enables individuals and businesses to put money into improved economic conditions. For instance, access to virtual payment methods allows small businesses and entrepreneurs to manage cash flow more effectively, invest in growth opportunities, and reach new markets, thereby contributing to economic development. Furthermore, virtual payments can lower transaction costs, increase efficiency, and foster a more dynamic and competitive economy by enabling faster and more secure financial transactions.

- ***Technology Adoption Models:***

Understanding the adoption and diffusion of electronic payment methods requires engagement with technology adoption models, such as the Technology-Acceptance-Model-(TAM)-and-the-Unified-Theory-of-Acceptance-and-Use-of-Technology- (UTAUT). These models explain how users come to accept and use new technologies depending on variables such as ease of use, usefulness, and social factors in the context of digital payments, these factors are crucial in determining how quickly and widely these technologies are adopted by different demographic groups. For example, in India, the widespread adoption of digital payment platforms has been influenced by their perceived convenience, security, and the government's move toward a virtual economy through programs like the Digital India initiative and the push for the Unified Payments Interface"

Digital-payment-methods as Enablers of Inclusive Growth

Electronic payment methods are viewed through these theoretical lenses as powerful tools that can drive inclusive growth. Inclusive growth refers to an economic growth process that opens opportunities for all segments of society and guarantees everyone can engage in and gain from economic activities. Digital payments contribute to this by breaking down barriers to financial inclusion and enabling more equitable access to financial services. This, in turn, facilitates greater economic

participation among underserved groups, such as those in rural areas, women, and low-income households, who have traditionally been excluded from the financial system. By integrating these groups into the economy, electronic payment methods help to reduce inequality and promote more balanced economic growth.

Integration into the Formal Economy

Another important theoretical aspect is how electronic payment methods integrate underserved populations into the economy. Many individuals in upcoming markets operate in the informal sector, which is often characterized by cash transactions that are untraceable and outside the purview of regulatory oversight. Virtual payment methods provide a mechanism for bringing these transactions into the formal economy, increasing transparency and accountability.

Implications for Policy and Practice

The theoretical frameworks outlined important implications for policymakers and practitioners. For policymakers, understanding how digital payments enhance financial inclusion and economic growth can aid in crafting more efficient policies that promote the implementation of digital financial services while protecting consumers. For practitioners, such as financial institutions and fintech companies, these concepts offer insights into consumer behaviour and financial literacy are elements that fuel the implementation of cashless economy and financial inclusion.

Literature-Review

Ghosh and Reilly (2022): Ghosh and Reilly assess the influence of virtual payment platforms on financial inclusion in Southeast Asia. Their review indicates significant improvements in gaining access to financial services noting that digital payments have been instrumental in bridging gaps in financial access across the region, thereby enhancing overall economic participation.

Chiu and Koepl (2021): Chiu and Koepl explore the correlation between digital payment adoption and GDP growth in emerging economies. Their study suggests that the use of electronic payment methods enhances economic efficiency and stimulates economic activities, leading to positive effects on GDP growth rates.

Shah et al. (2020): Shah and colleagues examine the effects of digital payments on small and medium-sized enterprises (SMEs). Their research reveals that electronic payment methods facilitate business expansion and economic development by streamlining transactions and providing SMEs with greater market reach and operational efficiency.

Zhang and Lin (2018): Zhang and Lin provide evidence linking the expansion of digital payment infrastructure with fast economic development rates in emerging markets. Their findings suggest that robust electronic payment methods are crucial for accelerating economic development by improving transaction efficiency and market connectivity.

Singh and Singh (2021): Singh and Singh analyze how digital payments contribute to financial liquidity and economic stability in emerging economies. Their study highlights that digital payments improve financial management and stability, thereby supporting a more resilient and stable economic environment.

Arner et al. (2017): Arner and colleagues discuss the role of fintech innovations in advancing electronic payment methods. Their study highlights how financial technology is transforming traditional financial services, driving the development of more efficient and accessible digital payment solutions.

McKinsey & Company (2020): McKinsey's report explores the impact of blockchain technology on digital payments. The study demonstrates how blockchain enhances transaction transparency and

security While simultaneously offering new opportunities for financial innovation, thereby transforming the digital payment landscape.

Kumar et al. (2022): Kumar and team investigate the unification of artificial-intelligence (AI) into electronic payment methods. Their research is all about on how AI technologies improve security and user experience, making virtual payments more secure and efficient by leveraging advanced algorithms and data analytics.

Lee and Chan (2019): Lee and Chan explore the rise of digital currencies and their potential to disrupt traditional payment systems. Their research-study provides insights into how digital currencies are reshaping financial markets and payment practices, offering new areas for economic interaction and innovation.

Bank-for-International-Settlements-(2021): The-Bank-for-International-Settlements-report examines emerging tech and its effects on electronic payments' efficiency and security. This highlights how ongoing technological improvements contribute to the robustness and effectiveness of digital payment platforms.

Arora and Bhatia (2018): Arora and Bhatia address the infrastructure challenges that digital payments face in emerging economies. Their study identifies issues related to internet connectivity and mobile network coverage, which can hinder the effective implementation and implementation of electronic payment methods.

Patel et al. (2020): Patel and colleagues discuss the barriers to adopting digital payments, including high costs and low digital literacy. They propose strategies to overcome these challenges, such as enhancing digital literacy programs and reducing transaction costs, to increase the accessibility of digital payments.

World-Economic- Forum-(2019): The World-Economic-Forum-report highlights the security and regulatory challenges that electronic payment methods encounter. The research underscores the necessity for a solid regulatory system to protect users and ensure the protection of digital transactions, addressing concerns related to Scam and compliance.

Smith and Zhang (2021): Smith and Zhang analyze how socio-economic factors influence virtual payment adoption. Their research is all about cultural and economic barriers that affect the use of electronic payment methods, provides insights into how these factors can be tackled to improve adoption rates.

Al-Mansour and Ali (2022): Al-Mansour and Ali explore the effect of govt policies on vitrual payment adoption. Their comparative analysis examines different regulatory approaches and their effects on virtual payment growth, offering knowledge into how policy decisions can either facilitate or hinder adoption.

Patel and Kumar (2023): Patel and Kumar identify gaps in understanding the specific needs and problems faced by different population segments in implementing digital payments. Their review highlights the value of addressing these gaps to improve financial inclusion and tailor digital payment solutions to diverse user needs.

Jackson and Thomas (2024): Jackson and Thomas insights into many strategies for improving digital payment adoption and addressing related challenges where lack of literacy isidentified as a major challenge. Their research also offers a comprehensive look at effective approaches for overcoming barriers to electronic payment methods and enhancing financial inclusion.

Research-Gap

Despite the progress of extensive research on electronic payment methods, several important areas like availing of online credit facilities and investment options are not explored by the majority of smartphone and internet users. From The examination of the secondary data from sources like RBI data survey details done in all India, the lack of financial literacy has been identified as a major research gap.

Research design:

Problem Statement

The implementation of electronic payment methods in developing economies offers both substantial opportunities and considerable challenges. Electronic payment methods, including mobile money, digital wallets, and online banking platforms, have the potential to transform economic activities by making transactions more efficient, transparent, and inclusive.

Need-for-the-Study

The-significance of developed economy is rooted in the context of global financial relevance will always lies in spread of financial inclusion and financial inclusion depends on the wide spread of finance literacy, particularly as financial systems become increasingly interconnected. India, as a rapidly modernizing economy, this shift, with government initiatives focused at economic modernization and growth. Policies promoting efficiency and are critical to making advantages of this growth are widely distributed. By addressing existing barriers to the implementation of modern financial systems, and educating population on the wide spread of financial literacy. Indian government and banking system can understand the pulse of investors and come up with financial services and products as per requirement in order to attain financial inclusion with integrated economy. Understanding future trends in global finance will also help shape policies that enhance economic development, further helping to advance the nation's overall progress.

Objectives

- To evaluate how electronic payment methods affect financial inclusion
- To analyze the contribution of virtual payments and other areas of financial inclusion to economic growth.

Scope-of-the-Study

The study primarily examined the adoption in India, including urban, rural, and economically disadvantaged communities. It looks at how various segments of the population use various digital payment platforms, such as mobile money services, e-wallets, and online banking, that are prevalent in the nation. Take a look at digital payments in a number of important industries, such as retail, e-commerce, and government services. Pay particular attention to SMEs and the informal economy. However, the reviewed literature has shown that financial inclusion cannot be measured solely by digital payments; it also includes access to financial services, use of financial products, and the quality of financial products that meet the needs of the population.

Hypothesis

H0: financial inclusion has an impact on the development of digital economy.

H1 : Financial inclusion has three major pillars access, use, quality and cannot be only increased digital payments,

Gathering of Data

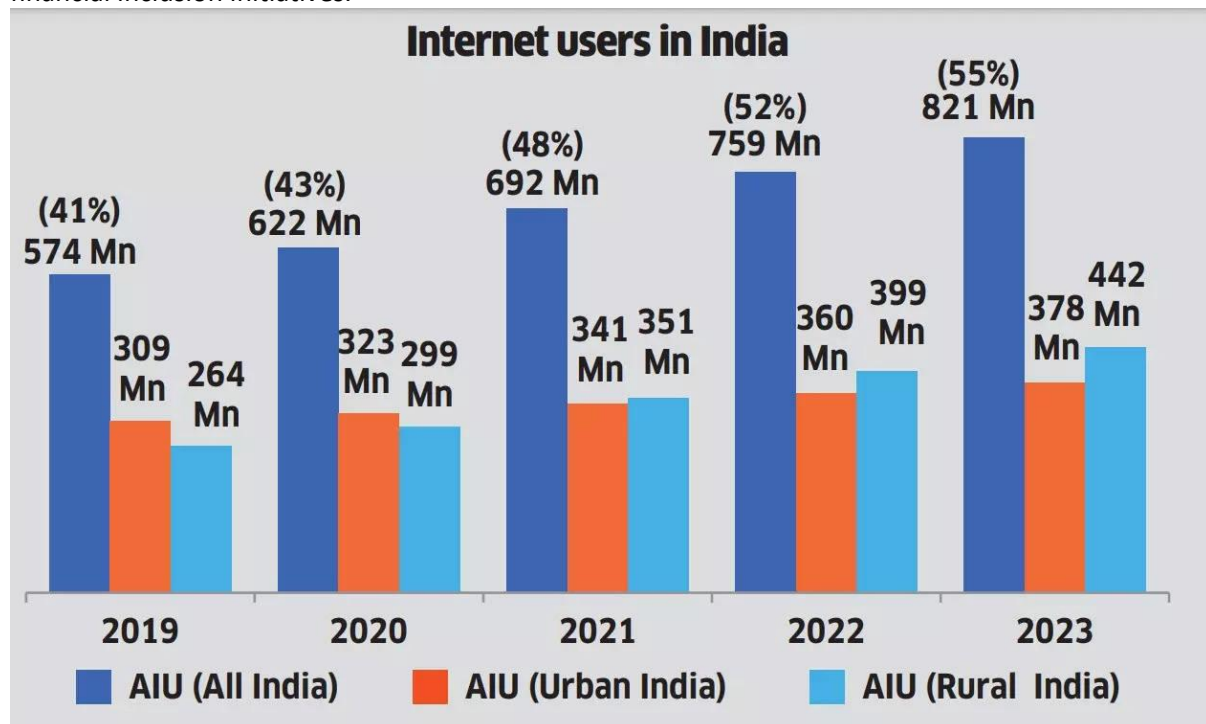
Secondary data: Secondary data collected in bank reports, articles and survey published in online newspapers, books, and annual reports of RBI. The primary drawback of the study is more dependent on secondary data than primary.

Limitation of the study

The study is based on historical data which has been published by RBI and NABARD, IBEF for the previous years. (2019 to 2023)

Data Analysis and Interpretation

India, which is currently the fifth largest economy, seeks to join the ranks of developed nations. To achieve economic development, the government has implemented numerous programs, such as the new issuance of Aadhar cards and the linking of Aadhar cards with banked population direct credit schemes to provide farmers with credit, incentives, and insurance. India has succeeded in digital payment under the Digital India scheme, and new investors in the stock market and the volume of investment are also rising. However, the primary concern is that the middle class and those living below the poverty line, who continue to rely solely on banking for savings and access, will be left behind. In its pursuit of a cashless economy, India has placed less emphasis on other components of financial inclusion initiatives.

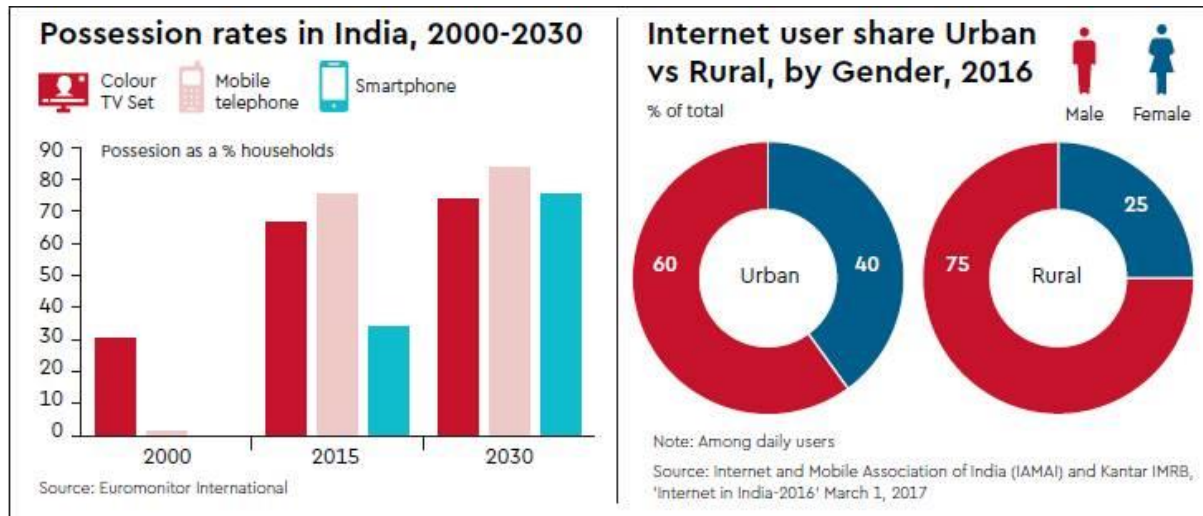


Source: ETtech

Interpretation

According to the aforementioned survey, the number of internet users in both rural and urban areas is rising at a rate that is in contrast to the banked population, which is growing at a rate of 80%. However, only 55% of the population uses the internet. This presents an opportunity for financial

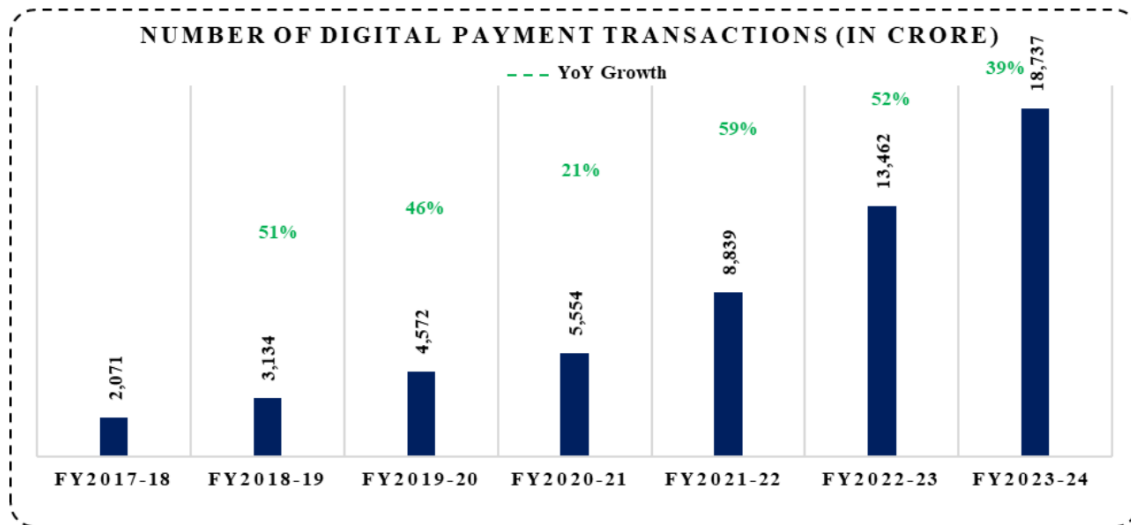
institutions to target existing customers for digital transactions, and 25% of banked customers are still unable to use digital payments or financial services due to a lack of financial literacy.



Interpretation

This particular survey depicts that the users of smartphones is increasing but at the same time use of digital payments and digital turnover is also increasing and has supported the growth of the economy. Technological advancements have revolutionized the trading experience. Gone are the days of physical visits to a broker's office or phone calls to place orders. With a few taps on a smartphone, investors can now buy and sell stocks, track portfolios in real time, and access a wealth of market insights and research.

"Digitalisation and technology have been critical in driving the retail investment boom. The rise of mobile trading apps and robot-advisors has made investing more accessible and personalized. Technological advancements have also enabled better user experiences and more secure transactions. In India, the government's push for digitalization has led to improved internet infrastructure, allowing investors from Tier 2, 3, and 4 cities to participate in the markets. The increased use of artificial intelligence and machine learning has enabled personalized investment advice, making it easier for retail investors to navigate the complex world of investing." This empowerment has given rise to a new breed of informed and engaged retail investors. Technology has bridged the information gap that once favoured institutional investors, providing retail investors with access to the same data, research reports, and educational resources. Online communities and social media platforms have emerged as vibrant hubs for knowledge sharing and investment discussions, fostering a sense of camaraderie and collective learning.

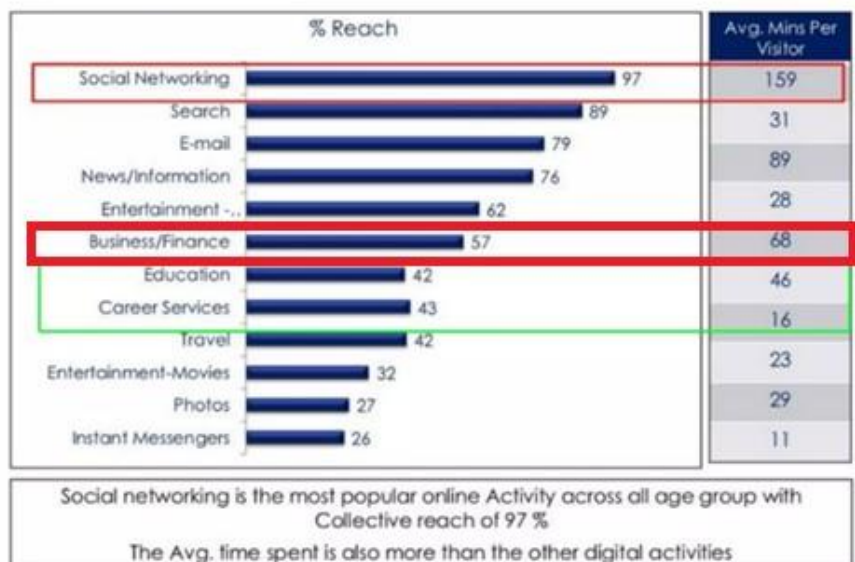


Source: RBI, NPCI & Banks

Interpretation

Financial inclusion has been a major focus in India in recent times. As the country moved towards digital payments, especially UPI, people became less afraid of technology and became more streamlined with the advancements that eventually led to a higher level of financial inclusion. As individuals, especially the younger generation, became more actively involved in their finances, which were previously deemed inaccessible without going to banks or ATMs, they also gained freedom beyond the ..A part of this financial inclusion also came in the form of more easily available knowledge regarding investment options, which made individuals more confident in their potential to earn from capital markets themselves without needing an intermediary

Purpose of Internet visit

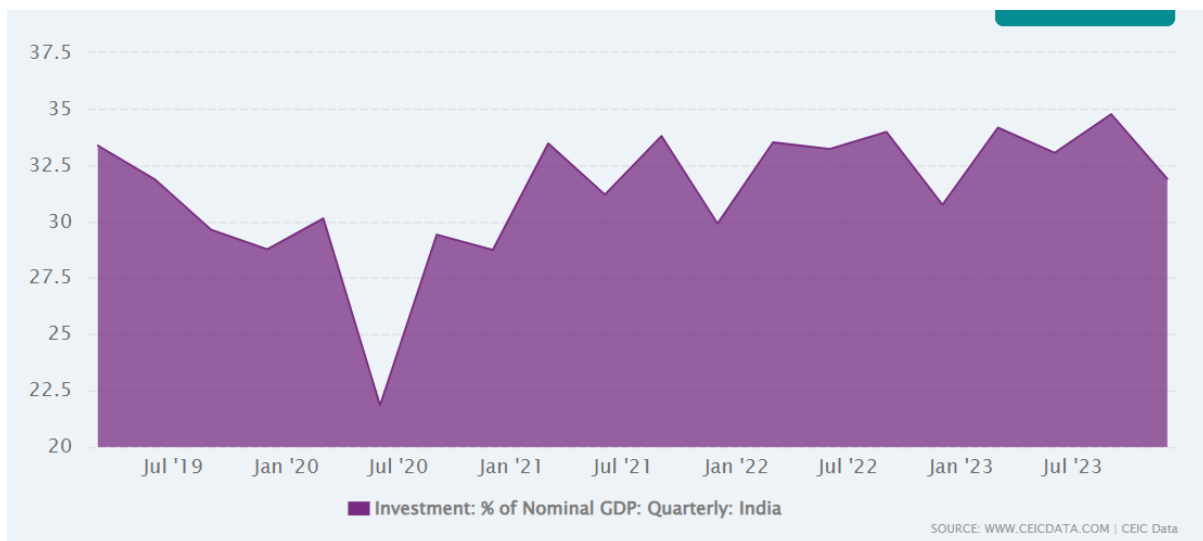


*Source: IAMAI

Source: <http://www.comscore.com> & <http://www.iamai.in>

Interpretation

The graph makes it abundantly clear that the use of smartphones and digital payment methods alone cannot be considered sufficient for financial inclusion; however, the utilization of additional financial services and investment options is essential for the overall success of financial inclusion in India. In developed nations like the United States and the United Kingdom, where more than 55% of the population uses financial services, financial inclusion and a cashless economy are two distinct concepts. Although India is on the path to a cashless economy, this does not guarantee financial inclusion, for which the banking industry must educate existing customers about investing and the government must develop regulatory frameworks for investment apps to gain confidence. All of this can be accomplished with the assistance of financial literacy.



Interpretation

If we do the Comparison with Digital Payment Growth in India: Accelerated Digital Payments: In contrast to the fluctuating investment rates, digital payments have grown significantly in India over the same period. Initiatives such as the Unified Payments Interface (UPI), the proliferation of mobile wallets, and government initiatives (e.g., Digital India, demonetization) have fueled an exponential rise in the number of digital transactions. Pandemic-Driven Shift: While investments dropped during early 2020 due to the pandemic, digital payments surged during the same time as lockdowns pushed businesses and consumers toward contactless transactions. UPI payments, for example, experienced record growth during 2020–2021. Post-Pandemic Economic Growth: As the investment in physical infrastructure recovered post-2021, digital payments became a vital component of economic activity. The rise of e-commerce, digital finance, and fintech startups complemented this recovery, with both digital payments and investment contributing to modernizing the economy.

Conclusion

Based on the analysis, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1), indicating that financial inclusion cannot be solely measured or improved through digital payments. Instead, financial inclusion depends on three critical factors: **access**, **usage**, and **quality**. These components are essential in shaping financial inclusion and supporting the growth of the digital economy. Relying on digital payments alone neglects broader aspects such as equitable access to financial services, effective use, and the quality of financial products, all of which are necessary to drive sustainable growth.

The data from the chart reveals that although India has significant internet (55%) and smartphone (60%) penetration, its contribution to GDP through financial services remains at only around 33%. This highlights a major opportunity to **educate the banked population** about investment options and other financial services that can boost economic participation and inclusion.

While investment as a percentage of GDP experienced volatility due to economic pressures, digital payment adoption surged. The growth of **digital infrastructure** and financial technology has facilitated consumer spending and aided economic recovery during investment slowdowns. Furthermore, the integration of digital payments has enhanced economic resilience and created new investment opportunities, especially within the fintech sector.

Looking forward, the **combination of physical investments and digital financial services** will be pivotal for India's long-term economic growth, with government policies fostering both digitization and financial inclusion playing a key role in this progression.

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