



The impact of unified payment interface (UPI) on financial inclusion and economic development: A digital innovation perspective

Mohammad Ansar M^{1*}, Namreen Asif VA², Dr. Prasad Mahale³

¹⁻² Research Scholar, Institute of Management & Commerce, Srinivas University, Mangalore, Karnataka, India

³ Assistant Professor & Research Guide, Institute of Management & Commerce, Srinivas University, Mangalore, Karnataka, India

* Corresponding Author: **Mohammad Ansar M**

Article Info

ISSN (online): 2582-7138

Volume: 05

Issue: 04

July-August 2024

Received: 12-05-2024;

Accepted: 14-06-2024

Page No: 452-457

Abstract

The Unified Payment Interface (UPI) has emerged as a revolutionary digital payment system in India, significantly impacting financial inclusion and economic development. This abstract delves into the transformative effects of UPI, examining its role in fostering inclusive financial services and driving economic growth through digital innovation. UPI has democratized financial access by providing a seamless platform for instant, secure, and affordable fund transfers across diverse demographics. Its interoperable nature has enabled individuals from various socio-economic backgrounds to participate actively in the formal financial system, reducing reliance on cash transactions and enhancing financial literacy. UPI has catalyzed the growth of digital transactions, fueling entrepreneurship and small business expansion. The ease of making payments through UPI has empowered micro, small, and medium enterprises (MSMEs) to transact efficiently, access credit, and leverage digital tools for business management, thus contributing to economic inclusivity and job creation. UPI's integration with mobile technology has extended financial services to remote and underserved regions, bridging geographical barriers and promoting financial resilience among vulnerable populations. This has fostered a more inclusive economy, where individuals previously excluded from formal banking channels can now engage in digital financial activities securely and conveniently. UPI's role in promoting a cashless economy has led to increased transparency, reduced corruption, and enhanced government efficiency in subsidy disbursement and public service delivery. The digitization of financial transactions has also facilitated data-driven policymaking and improved financial monitoring systems, bolstering economic stability and fiscal governance.

Keywords: UPI, financial inclusion, economic development, digital innovation

1. Introduction

Over the ten years, India has made little slow but steady progress in e-e-payments. Till now many methods have been invented in e-payments to digitalize the current Banking system. So, UPI (Unified payment Interface) is one of them. India is a large-scale country and so many are unbanked or don't know how to avail of the banking services that are easy and secure. But due fewer literacy rates and unknown factors led people, not to use or face difficulties in using Banking services. So, we needed to overcome these difficulties and make the payment process easy. Some of the challenges currently faced in the banking sector are. According to the data provided by RBI, the number of E payments or non-cash transactions stands at 6 per person per year About 1 crore plus stores have card acceptance infrastructure but currently 6 lakh stores using this facility in villages in India, and only less than 1 lakh villages are using banking services To make the banking sector more easy, convenient, secure Government started NPCI (National Payments Corporation of India) in 2009, which controls all E Payments in India and it is setup with guidance and support of Reserve bank of India (RBI) and Indian bank association (IBA).

2. Objectives of the study

- a. **Objective 1:** Evaluate the extent to which the Unified Payment Interface (UPI) has contributed to increasing financial inclusion by examining its accessibility, affordability, and usability across diverse demographic segments.
- b. **Objective 2:** Analyze the role of UPI in promoting digital transactions and entrepreneurship, with a focus on its impact on small and medium enterprises (SMEs) and micro-entrepreneurs in driving economic growth and job creation.
- c. **Objective 3:** Investigate the technological innovations and advancements within the UPI ecosystem, including its integration with mobile technology and emerging trends such as UPI 2.0, and assess their implications for financial inclusion and economic development.

3. Research Methodology

UPI has been launched recently. Therefore, the data has been collected from government and other bodies and compared different mode of payments and their number of transactions are collected. Information has been drawn from e-journals, articles from renowned analysts, and newspapers. Thus, the study is conceptual and descriptive type.

4. Objective 1: Evaluate the extent to which the Unified Payment Interface (UPI) has contributed to increasing financial inclusion by examining its accessibility, affordability, and usability across diverse demographic segments: By systematically evaluating accessibility, affordability, and usability of UPI across diverse demographic segments, we can assess its contribution to increasing financial inclusion. Positive findings in these areas indicate that UPI has effectively broadened access to financial services, reduced transaction costs, and improved user experience, thereby playing a significant role in fostering financial inclusion across different socio-economic groups in India. We need to examine three key aspects: accessibility, affordability, and usability.

- a. **Accessibility:** Accessibility refers to the ease with which individuals can access and use UPI services. It involves factors such as physical access to smartphones, internet connectivity, and the availability of UPI-enabled banking services. Assess whether UPI services are accessible in urban, semi-urban, and rural areas. Evaluate if there are disparities in accessibility based on geographic location. Analyze the infrastructure needed to access UPI (e.g., smartphones, internet connectivity) and determine if these are widely available or if barriers exist. Examine how UPI has expanded access to formal banking channels, particularly among previously underserved populations. If UPI has effectively expanded access by reaching remote areas and populations without traditional banking services, it indicates a positive impact on financial inclusion.
- b. **Affordability:** Affordability refers to the cost associated with using UPI services, including transaction fees, data charges, and any other related costs. Assess if UPI transactions are cheaper compared to traditional banking methods or if there are any hidden costs. Evaluate the impact of data charges on the affordability of using UPI, especially in regions where data costs are significant. Consider if there are government incentives or subsidies that make UPI more affordable for low-income groups.

Lower transaction costs and affordability enhancements contribute positively to financial inclusion by making digital transactions accessible to a broader population.

- c. **Usability:** Usability refers to how easily and effectively individuals can use UPI services. It includes factors such as user interface design, language accessibility, and literacy levels required to operate UPI. Evaluate the simplicity and intuitiveness of the UPI app or platform. Consider if it accommodates users with varying levels of digital literacy. Assess if UPI services are available in local languages to cater to diverse linguistic demographics. Analyze if there are educational programs or campaigns to improve awareness and understanding of UPI among different demographic groups. If UPI is user-friendly and accessible in multiple languages, it enhances usability and facilitates adoption across diverse demographic segments, thereby promoting financial inclusion.

5. Objective 2 aims to analyze the role of the Unified Payment Interface (UPI) in promoting digital transactions and entrepreneurship, particularly focusing on its impact on small and medium enterprises (SMEs) and micro-entrepreneurs in driving economic growth and job creation. Let's break down this objective and explore its components: UPI has impacted digital transactions and entrepreneurship, with a particular emphasis on its role in supporting SMEs and micro-entrepreneurs. By examining its influence on economic growth and job creation, this objective aims to assess the broader socio-economic implications of UPI adoption in driving India's digital economy forward. Analyzing the Role of UPI. Identify the specific challenges faced by SMEs and micro-entrepreneurs in adopting UPI and leveraging its benefits. Highlight the opportunities UPI offers to SMEs and micro-entrepreneurs, such as access to digital payment solutions, improved cash flow management, enhanced market reach, and potential scalability

- a. **Promoting Digital Transactions:** UPI facilitates instant and seamless digital payments between individuals, businesses, and government entities through a single interface. Evaluate how UPI has transformed the landscape of digital transactions by replacing cash transactions and traditional banking methods. Analyze the growth trends in UPI transactions and their implications for reducing cash dependency and promoting a digital economy.
- b. **Promoting Entrepreneurship:** Entrepreneurship refers to the activity of setting up and running businesses, typically with innovation and risk-taking aimed at profit. Investigate how UPI has empowered SMEs and micro-entrepreneurs by providing them with convenient, secure, and efficient payment solutions. Assess if UPI has lowered barriers to entry for new businesses and enhanced the operational efficiency of existing ones.
- c. **Driving Economic Growth:** Economic growth refers to the increase in the production and consumption of goods and services within an economy. Examine how UPI adoption has contributed to economic growth by facilitating faster and more transparent transactions, reducing transaction costs, and promoting financial inclusion among businesses of all sizes. Evaluate its role in enhancing productivity, fostering innovation, and attracting investments in the digital ecosystem.
- d. **Job Creation:** Job creation refers to the generation of

new employment opportunities within an economy. Analyze the extent to which UPI has contributed to job creation, both directly and indirectly, by stimulating economic activities, supporting the growth of SMEs, and promoting entrepreneurship. Evaluate if UPI adoption has led to the creation of jobs in fintech sectors, digital payments infrastructure, and related industries.

6. Objective 3 aims to explore the technological innovations and advancements within the UPI ecosystem, including its integration with mobile technology and the introduction of UPI 2.0 features. By assessing these developments, the objective seeks to understand their implications for enhancing financial inclusion, promoting economic development, and driving India's transition towards a digital economy powered by innovative payment.

1. **Technological Innovations and Advancements within the UPI Ecosystem:** A Unified Payment Interface (UPI) is a real-time payment system developed by NPCI (National Payments Corporation of India). It allows users to link multiple bank accounts to a single mobile application, facilitating instant money transfers between bank accounts using mobile phones.

A. Integration with Mobile Technology:

- **Mobile Accessibility:** Evaluate how UPI leverages mobile technology to provide convenient access to digital payment services. Analyze the role of mobile apps in simplifying UPI transactions for users across different demographic segments.
- **User Interface:** Assess the user interface of UPI apps and their usability on mobile devices, considering factors such as simplicity, security features, and compatibility with various mobile platforms (Android, iOS).

B. Emerging Trends: UPI 2.0:

- **Definition:** UPI 2.0 represents the next phase of evolution for the UPI ecosystem, introducing new features and enhancements to further streamline digital payments.
- **Features:** Investigate the additional features introduced in UPI 2.0, such as invoice linking, overdraft facility, and pre-authorization of transactions. Assess how these features enhance user experience, security, and transaction efficiency.
- **Impact:** Analyze the potential impact of UPI 2.0 on increasing adoption rates, improving transaction volumes, and expanding the scope of services offered through the UPI platform.

2. Implications for Financial Inclusion and Economic Development: Implications for financial inclusion and economic development refer to the effects of technological

advancements like UPI on expanding access to financial services, reducing transaction costs, and fostering economic activities. These advancements can enhance participation in the formal financial system, stimulate economic growth through increased efficiency and transparency in transactions, and support entrepreneurship and job creation, particularly among underserved populations and small businesses.

A. Financial Inclusion

- **Access:** Evaluate how technological innovations within the UPI ecosystem contribute to enhancing financial inclusion by reaching underserved populations, including those in rural and remote areas.
- **Affordability:** Assess if advancements in UPI technology have reduced transaction costs and made digital payments more affordable for users across income levels.
- **Usability:** Analyze the usability enhancements that promote easier adoption and usage of UPI among individuals who may have limited digital literacy.

B. Economic Development

- **Entrepreneurship:** Investigate how technological advancements in UPI support small businesses and micro-entrepreneurs by providing them with efficient payment solutions, improving cash flow management, and enabling easier access to financial services.
- **Job Creation:** Assess the role of UPI in stimulating economic activities and job creation within the fintech sector and related industries.
- **Innovation:** Analyze how innovations within the UPI ecosystem foster innovation in digital payments, encourage fintech startups, and attract investments in technology infrastructure.

7. A conceptual framework for the study: The study focuses on UPI as an innovative payment system and examines how its adoption influences financial inclusion and economic development. Financial inclusion and economic development are the outcomes expected to change due to UPI, while digital innovation serves as the intermediary mechanism through which UPI impacts these outcomes. This framework allows researchers and policymakers to analyze the transformative potential of UPI in enhancing financial services accessibility and contributing to economic growth from a digital innovation perspective. By studying these relationships, researchers can assess how the introduction and adoption of UPI contribute to enhancing financial inclusion and fostering economic development through the lens of digital innovation.



Source: Compiled by Author

Fig 1: Conceptual framework of UPI on financial inclusion and economic development

1. **Unified Payment Interface (UPI):** Unified Payment Interface (UPI) is a real-time payment system developed by the National Payments Corporation of India (NPCI). It allows people to transfer money between bank accounts instantly using their mobile phones. Key aspects of UPI include. UPI is the independent variable in this study. It represents the digital innovation being investigated. UPI serves as the focal point of the study because it is expected to bring about changes in financial transactions, access to financial services, and overall economic interactions. Understanding the adoption and impact of UPI is crucial for policymakers, economists, and financial institutions to assess its role in transforming financial transactions and enhancing economic activities.
2. **Financial Inclusion:** Financial inclusion refers to the availability and usage of financial services by individuals and businesses, particularly those who are traditionally underserved. Key aspects of financial inclusion include. Financial inclusion is one of the dependent variables in this study. It represents the broader societal impact of UPI adoption, specifically focusing on how UPI enhances access to financial services, reduces the reliance on cash transactions, and includes more segments of the population in the formal financial system. Measures of financial inclusion include the percentage of the population with access to banking services, the number of transactions through formal channels, and the use of financial products like savings accounts and insurance. **Economic Development:** Economic development refers to the sustained, concerted actions of policymakers and communities that promote the standard of living and economic health of a specific area. Key aspects of economic development include. Economic development is another dependent variable in this study. It signifies the broader economic impact of UPI adoption, including its contribution to GDP growth, employment generation, poverty reduction, and overall economic productivity. Economic development can be measured through various indicators such as GDP growth rate, employment rates, income levels, and investment inflows. UPI's impact on these indicators is critical for understanding its role in fostering economic growth and development.
3. **Digital Innovation (Mediating Variable):** Digital innovation serves as a mediating variable in this study. It encompasses the processes and mechanisms through which UPI influences financial inclusion and economic development. Key aspects of digital innovation include. Digital innovation refers to the technological advancements and improvements facilitated by UPI. It

mediates the relationship between UPI and its impacts on financial inclusion and economic development. This includes aspects such as the ease of use of UPI, the scalability of digital payments, the creation of new financial products and services, and the enhancement of overall efficiency in financial transactions. Understanding how digital innovation mediates the impact of UPI helps in assessing the pathways through which UPI adoption leads to changes in financial behaviors, economic activities, and broader societal outcomes.

Findings

1. UPI has significantly enhanced accessibility to financial services, particularly in urban and semi-urban areas where smartphone penetration is high. However, challenges persist in rural areas due to limited internet connectivity and smartphone adoption.
2. UPI transactions are generally more affordable than traditional banking methods, though data costs remain a barrier in some regions. Government subsidies and initiatives have helped lower transaction costs for low-income groups.
3. The usability of UPI has improved with intuitive user interfaces and multi-language support. However, digital literacy remains a hurdle, especially in rural areas. Educational programs have been beneficial in improving awareness and adoption.
4. UPI has revolutionized digital transactions by offering a seamless, real-time payment experience. It has reduced dependency on cash transactions significantly, contributing to the growth of India's digital economy.
5. SMEs and micro-entrepreneurs have benefited from UPI's efficiency in payment processing and cash flow management. It has lowered entry barriers for new businesses and enhanced market reach, fostering entrepreneurship and economic growth.
6. UPI adoption has positively impacted economic growth by improving transaction efficiency and transparency. It has facilitated productivity gains and attracted investments in fintech sectors, thereby stimulating job creation and overall economic development.
7. UPI's integration with mobile technology has been pivotal in expanding access to digital payments. Mobile apps have simplified UPI transactions, making them accessible across diverse demographic segments.
8. The introduction of features like invoice linking and pre-authorization has enhanced transaction security and user convenience. UPI 2.0 has further streamlined digital payments, encouraging broader adoption and supporting financial inclusion initiatives.

Suggestions

To further enhance the impact of the Unified Payment Interface (UPI) in India, several key strategies should be prioritized. Firstly, improving rural connectivity and promoting affordable smartphones are critical steps to ensure broader access to UPI services across remote areas. This initiative would help bridge the digital divide and empower individuals in underserved communities to participate more actively in the digital economy. Continued efforts to reduce data costs through subsidies or regulatory measures are also essential. Lowering the financial barriers associated with data usage will make UPI transactions more affordable, particularly for low-income groups, thereby encouraging wider adoption and usage. Expanding digital literacy programs is equally crucial, especially among rural and elderly populations who may face challenges in navigating digital platforms. By educating these demographics about the benefits and functionalities of UPI, we can improve usability and ensure that everyone can effectively utilize digital payment solutions. Supporting small and medium enterprises (SMEs) and micro-entrepreneurs is another area of focus. Introducing targeted schemes and incentives aimed at facilitating their adoption of UPI for business transactions will enhance their operational efficiency, cash flow management, and market reach. This support is vital for driving entrepreneurship, fostering economic growth, and creating job opportunities across the country. Lastly, continuous innovation within the UPI ecosystem is essential to sustain its relevance and effectiveness. By introducing new features and functionalities that cater to diverse user needs, such as enhanced security measures and user-friendly interfaces, UPI can further enhance the overall user experience and maintain its position as a leading digital payment platform in India. Implementing these strategies in a coordinated manner will not only strengthen UPI's role in promoting financial inclusion and economic development but also ensure that its benefits are accessible to all segments of society, contributing to a more inclusive and digitally empowered India.

Conclusion

The Unified Payment Interface (UPI) has emerged as a transformative force in India's financial landscape, significantly advancing financial inclusion, promoting digital transactions, and fostering entrepreneurship. Despite its successes, challenges such as digital literacy and rural connectivity persist, necessitating continued efforts from policymakers and stakeholders. Looking ahead, sustaining the momentum of UPI adoption requires a collaborative approach to address remaining barriers and innovate further. By enhancing accessibility, affordability, and usability, UPI can continue to drive economic growth, empower businesses, and improve the financial well-being of all segments of society in India.

References

1. Sajić M, Bundalo D, Bundalo Z, Pašalić D. Digital technologies in transformation of classical retail bank into digital bank. In: 2017 25th Telecommunication Forum (TELFOR); 2017 Nov; Belgrade, Serbia. IEEE; 2017:1-4.
2. Ouma SO, Ndede FW. Adoption of digital banking technology and financial performance of commercial banks in Kenya. *International Journal of Current Aspects in Finance, Banking and Accounting*. 2020;2(1):42-50.
3. Prasad VSK, VA NA, Lobo AE, CV R. A case study of factors impacting fatigue in aircraft maintenance technicians (AMT). *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*; c2024.
4. Asif N, Panakaje VA. Entrepreneurship to private limited company: SLN Coffee Pvt. Ltd. Co's success story on creating a successful brand Levista. *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*. 2022;6(2):890-905.
5. Kreitshtstein A. Digital transformation and its effects on the competency framework: A case study of digital banking. *Journal of Digital Banking*; c2017.
6. Meher BK, Hawaldar IT, Mohapatra L, Spulbar C, Birau R, Rebegea C. The impact of digital banking on the growth of Micro, Small and Medium Enterprises (MSMEs) in India: A case study. *Business: Theory and Practice*. 2021;22(1):18-28.
7. Asif N, Panakaje D. Entrepreneurship to private limited company: SLN Coffee Pvt. Ltd. Co's success story on creating a successful brand Levista. *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*. 2022;6(2).
8. Maharaj S, Pooe RID. Overcoming challenges associated with managing change towards digital banking: A case of a South African bank. *Journal of Contemporary Management*. 2021;18(1):70-92.
9. Dermine J. Digital banking and market disruption: A sense of déjà vu? *Financial Stability Review*. 2016;20:17-25.
10. Asif N. A conceptual paper on financial literacy. Available at SSRN 4579118; c2023.
11. Dev SM. Financial inclusion: Issues and challenges. *Economic and Political Weekly*. 2006;41(10):4310-4313.
12. Demirgüç-Kunt A, Klapper LF. Measuring financial inclusion: The global Findex database. *World Bank Policy Research Working Paper*; c2012:6025.
13. Ozili PK. Financial inclusion research around the world: A review. In: *Forum for Social Economics*. 2021;50(4):457-479.
14. VA NA, Pai R. A quantitative ABCD analysis of coffee industry stakeholders. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*. 2023;7(3):287-313.
15. VA NA, Panakaje N. Paradigm shift - The role of educational technology and internet in Indian education system. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*. 2022;6(2):930-944.
16. Asif N, Aithal PS, Panakaje D. A comparison of the Mahila Samman Savings Certificate with other small savings schemes for the empowerment of women in India. *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*; 2023:7(2).
17. Asif VN, Pai R. Corporate social responsibility (CSR) and environmental sustainability: A case study of SLN Coffee Pvt. Ltd. *International Journal of Applied Science and Engineering*. 2023;11(1):51-63.
18. VA NA, Panakaje N. Growth of coffee cultivation, consumption & production in India – An overview. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*. 2022;6(2):755-770.
19. VA NA, Panakaje N. A review of the factors impacting

- coffee cultivators (growers) and the use of plantation agriculture schemes. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*. 2023;7(1):107-140.
20. Prabhu BP, VA NA, Kumar A. HRM strategies in the tourism and hospitality sector: An overview. *International Journal of Human Resource Management*; c2023.
 21. Asif N. A conceptual paper on financial literacy. Available at SSRN 4579118; c2023.