

# Advancing Sustainable Financial Inclusion Through Banking: Evidence from India's Public Sector Banks.

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**Abstract**—The concept of financial inclusion has developed as a key idea in India with the objective of promoting financial development sustainably. Public Sector Banks (PSBs) play the key role in providing financial services to the unserved and rural population through various initiatives undertaken by the government and the development of digital financial banking. This research seeks to explore the role of Public Sector Banks in promoting financial inclusion sustainably in India with reference to the development of digital financial transactions and its impact on financial inclusion performance between 2019 and 2024. The data used for conducting the research is secondary data, which is collected from credible sources such as the Reserve Bank of India, World Bank Global Findex Database, Government of India Reports, and financial data. Quantitative analysis is used for conducting the evaluation of the relationship between the growth of digital banking and financial inclusion. Quantitative analysis includes growth rate analysis, correlation analysis, and trend analysis. From the analysis of the data, it is concluded that there is a constant and considerable growth in digital financial transactions in Public Sector Banks, which is rising from 34 billion in 2019 to 131 billion in 2024. Furthermore, correlation analysis has indicated a strong positive correlation between digital transaction and the Financial Inclusion Index, with the correlation coefficient being approximately 0.98. The results of the study confirmed the critical role of the development of digital banking in improving financial inclusion in terms of access, usage, and efficiency of financial services. The results of the study indicated the need for further development in digital banking, financial literacy, and cybersecurity to sustain financial inclusion in India.

**Index Terms**—Financial inclusion, Digital Banking, Public Sector Banks, Digital Transactions, Financial Inclusion Index, Sustainable Development.

## I. INTRODUCTION

Financial inclusion is very important for India to have growth that includes everyone. The main goal of inclusion is to make sure everyone, including the poor and people living in rural areas has access to financial services like savings, credit, insurance and digital payments. Over time financial inclusion in India has changed from opening bank accounts to actually using these services being financially stable and having economic power. Public Sector (Nair & Jain, n.d.)Banks in India play a role in making financial inclusion happen. Because they have branches, especially in rural areas and want to help people they are the main drivers of the government's financial inclusion programs. Programs like Pradhan Mantri Jan Dhan Yojana, Direct Benefit Transfers and loans to businesses and self-help groups have been very successful because of public sector banks. These banks have really helped increase the number of people with bank accounts in areas where there were no banks before.

However, there are also challenges when trying to expand inclusion. While getting credit is important for growth and reducing poverty it has to be done in a way that keeps banks stable and profitable. Financial inclusion needs to be sustainable so that banks can continue to help the people who need it most. Research shows that financial inclusion has a positive impact on the economy and society especially in terms of making income more stable and improving living conditions. The use of technology has also helped a lot with financial inclusion. Mobile banking, digital payments and financial technology services have reduced costs and increased access in rural areas. Public Sector Banks have started using these technologies to reach people and be more efficient.

There are still problems like inactive bank accounts, differences in access to financial services in different regions lack of financial knowledge and bad loans. So, it's necessary to check if the financial inclusion efforts led by public sector banks are not just increasing access but also making sure that this access is sustainable and effective in the term. The purpose of this research is to see how well Public Sector Banks in India are promoting financial inclusion. By looking at how they reach how stable they are and their impact on development this research will try to understand if financial inclusion led by banks can provide a strong foundation for sustainable economic growth in India.

## II. REVIEW OF LITERATURE

Kaur (2014) examined the role Indian banks play in developing sustainable and scalable financial inclusion strategies, particularly with regard to government initiatives like the Pradhan Mantri Jan Dhan Yojana. According to the paper, ensuring that financial services are accessible to all in an equitable and transparent manner is more important for financial inclusion than creating new bank branches. The author points out that lack of education, unawareness, not enough bank branches and high operating costs are hurdles to inclusion. The paper focuses on policy. The importance of public sector banks in executing national financial inclusion programs. It does not look at how sustainable these programs are in terms of economic development leaving room for more research.

Ozili (2022) studied the relationship between inclusion and sustainable development using global data and statistical methods. The results show that higher financial inclusion, measured by the number of bank branches is significantly related to the use of energy, industrial productivity and adult literacy rates. This means financial inclusion has an effect on economic and social sustainability. However, the environmental impact is indirect. Depends on how financial services are provided.

In another study, Ozili (2023) looked at how financial inclusion, sustainability and sustainable developmentary connected. The author argues that financial inclusion supports development when financial services are provided in a sustainable way. The study offers a basis for examining how public

sector banks can integrate environmental and social values into financial inclusion strategies.

Ghaffar & Shaheen (2025) studied the connection between banking stability, sustainability and financial inclusion in Asian countries. The results show that banking stability has an effect on financial inclusion meaning that managing risks and capital well can improve financial inclusion outcomes. Although the study provides evidence it looks at the regional level and not specifically at the Indian public sector banking system leaving room for country-level analysis.

Kumaraswamy and Kailasam (2025) examined the shift in Indian households' savings habits between 2015 and 2025, particularly the shift from bank deposits to market-linked instruments. The authors draw the conclusion that this change may make it more difficult for banks to lend money to small and medium-sized businesses and the renewable energy industry, both of which are critical to sustainable development. The study indirectly shows the challenges public sector banks face in mobilizing deposits for inclusive and green sectors. However, it does not directly assess the performance of inclusion at the institutional level.

Yap et al. (2024) Introduced a Financial Inclusion Index that includes banking, life insurance and non-life insurance variables for 72 countries. The results show that non-life insurance has an effect on overall financial inclusion but life insurance has mixed effects. The study extends the framework for measuring inclusion beyond banking. It shows that a financial system that includes insurance services improves resilience and financial inclusion. However, it does not provide information on the public sector banking system.

Chinnasamy et al. (2024) examined how technology affects long-term financial inclusion in rural India. The study comes to the conclusion that financial literacy, awareness, and access to technology all contribute to sustainable inclusion outcomes. Although the study is relevant to India it focuses on Small Finance Banks and not public sector banks providing an opportunity for a study.

## III. RESEARCH GAP

The literature reviewed confirms that financial inclusion is crucial, for growth, poverty reduction and sustainable development especially when supported

by banking stability, innovation and insurance integration. However, most of the literature is global, regional, theoretical or focused on fintech and small financial institutions. Research explicitly examining the function of Indian Public Sector Banks in advancing integrated strategies for sustainable financial inclusion is scarce. Thus, it is both appropriate and essential to conduct a thorough empirical study of this subject with a sole focus on public sector banks.

IV. OBJECTIVES

- To analyze the growth trend of financial inclusion indicators in public sector Banks.
- To evaluate the impact of digital banking expansion on financial inclusion performance.

V. HYPOTHESES

H01: There is no significant growth in digital financial transactions in Public Sector Banks.

H11: There is a significant increase in digital financial transactions in Public Sector Banks.

H02: Digital banking expansion has no significant impact on financial inclusion performance.

H12: Digital banking expansion has a significant impact on financial inclusion performance.

VI. RESEARCH METHODOLOGY

The current study, which entirely dependent on secondary data, uses a quantitative and analytical research methodology to investigate the extent to which public sector banks are involved in achieving sustainable financial inclusion in India. The reliable and published sources of data used in the study included the Reserve Bank of India (RBI) Annual Reports, Financial Stability Reports, World Bank Global Findex Database, IMF Financial Access Survey (FAS), Ministry of Finance PMJDY reports, Government of India Economic Survey, NABARD reports, SEBI reports, RBI Database on Indian Economy (DBIE), and annual reports from Public Sector Banks. Digital transactions, bank branches, ATMs, credit and deposit accounts, non-performing assets (NPA), capital adequacy ratios (CAR), and other financial aspects are all covered.

The five-year (2019–2024) study looks at the latest developments in financial inclusion, the growth of

digital banking, and banking sector stability. The information gathered was arranged annually and divided into three main categories: sustainability (financial stability ratios such as NPA and capital adequacy), usage (use of financial services), and access (provision of banking facilities).

To evaluate the trends over the five-year period, the data was processed using basic statistical techniques like percentage analysis, growth rate computation, and trend analysis. This method makes it possible to evaluate whether public sector banks are guaranteeing that financial inclusion is a long-term, stable, and sustainable process in addition to expanding access to financial services.

VII. DATA ANALYSIS AND CALCULATION

H01: There is no significant growth in digital financial transactions in Public Sector Banks.

H11: There is a significant increase in digital financial transactions in Public Sector Banks.

VIII. GROWTH RATE MODEL

$$GR = \frac{(X_t - X_{t-1})}{X_{t-1}} \times 100$$

Were,

Xt = Current Period Value

Xt-1= Base Period value

Table1: - Digital financial transactions

Sl no.	Year	Digital transactions (Billion)	Growth Rate (%)
1	2019	34	—
2	2020	44	29.41
3	2021	59	34.09
4	2022	88	49.15
5	2023	114	29.55
6	2024	131	14.91

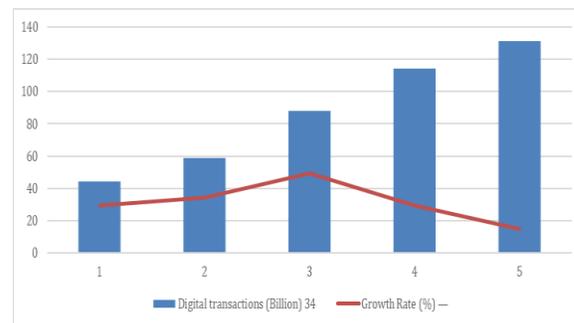


Chart 1 Growth Rate

**Interpretation**

The study of digital financial transactions in Public Sector Banks from 2019 to 2024 using the Growth Rate Model shows a steady increase throughout the period. The number of transactions grew from 34 billion in 2019 to 131 billion in 2024, with positive growth rates every year, reaching the peak growth of 49.15% in 2024. While the growth rate dipped slightly after 2022, the total volume of digital transactions kept rising steadily. This ongoing trend points to the growing use of digital banking services in Public Sector Banks. Thus, the null hypothesis (H01) of no significant growth in digital financial transactions is rejected, and the alternative hypothesis (H11) of the significant growth of digital financial transactions is accepted, which supports the use of digital banking and its contribution to financial inclusion.

H02: Digital banking expansion has no significant impact on financial inclusion performance.

H12: Digital banking expansion has a significant impact on financial inclusion performance.

Table2: - Digital transaction

Sl. No	Year	Digital Transactions (Billion)	FI Index (%)
1	2019	34	53
2	2020	44	56
3	2021	58	60
4	2022	74	64
5	2023	96	67
6	2024	120	70

Were,

- X= Digital Transaction
- Y= Financial Inclusion Index (FI)

Calculation of mean:

Sum of X

$$34 + 44 + 58 + 74 + 96 + 120 = 426$$

$$\bar{X} = \frac{426}{6} = 71$$

Sum of Y

$$53 + 56 + 60 + 64 + 67 + 70 = 370$$

$$\bar{Y} = \frac{370}{6} = 61.67$$

Table 3: - Correlation and Regression Analysis

Year	X	Y	(X- $\bar{X}$ )	(Y- $\bar{Y}$ )	(X- $\bar{X}$ )(Y- $\bar{Y}$ )	(X- $\bar{X}$ ) <sup>2</sup>	(Y- $\bar{Y}$ ) <sup>2</sup>
2019	34	53	-37	-8.67	320.79	1369	75.17
2020	44	56	-27	-5.67	153.09	729	32.15
2021	58	60	-13	-1.67	21.71	169	2.79
2022	74	64	3	2.33	6.99	9	5.43
2023	96	67	25	5.33	133.25	625	28.41
2024	120	70	49	8.33	408.17	2401	69.39

Formula for Correlation

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2}}$$

$$r = \frac{1043}{\sqrt{5302 \times 213.34}}$$

$$r = \frac{1043}{\sqrt{1131014.68}}$$

$$r = \frac{1043}{1063.5}$$

$$r \approx 0.98$$

**Interpretation**

The correlation coefficient between digital transactions and Financial Inclusion (FI) Index is given by  $r \approx 0.98$ , which is a very strong positive linear relationship. This indicates that as digital banking transactions rose from 34 billion in 2019 to 120 billion

in 2024, the Financial Inclusion Index rose from 53% to 70%.

This indicates that digital banking has a significant positive impact on financial inclusion performance. The null hypothesis H02 is therefore rejected, and the alternative hypothesis H12 is accepted.

**IX. RESULT OF STUDY**

The study indicates an increase in digital financial transactions carried out through Public Sector Banks during 2019-2024. It is evident that the number of digital financial transactions has risen from 34 billion in 2019 to 131 billion in 2024. It is also evident that every year has shown positive growth rates, with 49.15% growth recorded in 2024. Hence, it is evident that digital banking services are on the rise. Therefore,

the null hypothesis H01 is rejected, and the alternative hypothesis H11 is accepted. Additionally, from the correlation analysis between digital transactions and the Financial Inclusion (FI) Index, it is observed that there is a very strong positive relationship between them ( $r \approx 0.98$ ). The digital transactions have risen from 34 billion to 120 billion, and the FI Index has risen from 53% to 70%. This reveals that digital banking is a great promoter of financial inclusion. Hence, the null hypothesis H02 is rejected, and the alternative hypothesis H12 is accepted. On an overall basis, it is inferred that the growth of digital banking in Public Sector Banks is playing a significant role in achieving financial inclusion in terms of increased access to formal financial systems and increased usage of digital payment systems.

#### X. CONCLUSION

The study concludes that digital banking is one of the key contributing factors for financial inclusion in India, specifically through Public Sector Banks. From the analysis of the digital financial transaction data over the period ranging from 2019 to 2024, it has been observed that there is a constant and steady rise in the digital financial transaction data. This indicates that more and more individuals are adopting digital financial services such as mobile banking, internet banking, and digital payment systems. This is because more and more individuals are trusting and depending on digital financial services for their day-to-day financial requirements.

Furthermore, the correlation analysis between digital transactions and the Financial Inclusion (FI) Index shows that there is a very strong positive correlation. This means that with the increase in the scope of digital banking, the scope of financial inclusion will also increase. The increase in the FI Index over the period of the analysis shows that digital banking facilities are helping more and more individuals access and benefit from formal financial services such as savings accounts, digital payment systems, financial transfers, and other financial facilities. Digital banking helps remove geographical barriers, transaction costs, and time constraints, which are particularly important for the rural population.

Also, the results of this study confirm that technological advances, government initiatives to encourage electronic payment systems, and increased

accessibility of digital infrastructures are contributing to the growth of electronic financial transactions. In this regard, it is clear that digital banking has enhanced the ability of the banking system to reach a wider section of society and contribute to economic development in an inclusive manner. Accordingly, it is concluded that the enhancement of digital banking services has significantly improved financial inclusion performance, and future efforts in developing digital infrastructures and financial literacy programs would further contribute to financial inclusion.

#### XI. RECOMMENDATION

Public Sector Banks should focus on strengthening digital banking infrastructure, particularly in rural and semi-urban areas, so that people can easily access digital financial services. Improving internet connectivity, mobile banking facilities, and digital payment systems will help more individuals participate in the formal financial system. Banks should also conduct regular financial literacy and awareness programs to educate customers about the benefits and safe use of digital banking services. This will, in turn, encourage people, especially those in rural areas, to use digital payment systems like mobile banking, internet banking, and digital wallets. Second, banks should encourage people to use bank accounts actively. This can be achieved through offering simple and affordable financial products and encouraging them to conduct transactions regularly. Lastly, banks should enhance their cybersecurity and customer protection measures to instill trust in digital transactions. Furthermore, the development of mobile banking units and banking correspondents can also be useful in covering the population of the remote and underserved areas, where the availability of bank branches is limited. Thus, with the development of digital infrastructure, financial literacy, and security, the Public Sector Banks can further increase the use of digital banking.

#### REFERENCES

- [1] Department of Financial Services, Government of India, "Annual report 2024–25," 2025.
- [2] J. Kendall and R. Voorhies, "Digital finance and financial inclusion," 2014.
- [3] Reserve Bank of India, "Digital payment systems and financial inclusion," 2020.

- [4] World Bank, “Global Findex database,” 2022.
- [5] M. Armstrong, *A Handbook of Human Resource Management Practice*. London, U.K.: Kogan Page, 2020.
- [6] Reserve Bank of India, “Financial inclusion index,” Mumbai, India, 2022.
- [7] Reserve Bank of India, “Financial inclusion report 2022–23,” Mumbai, India, 2023.
- [8] Government of India, “Pradhan Mantri Jan Dhan Yojana (PMJDY) progress report,” Ministry of Finance, 2023.
- [9] National Payments Corporation of India (NPCI), “UPI product statistics and digital payments report,” 2023.
- [10] S. Mishra and A. Bhattacharya, “Sustainability-oriented banking reforms and financial inclusion in Indian public sector banks,” *J. Bank. Finance Stud.*, vol. 12, no. 2, pp. 45–58, 2020.
- [11] P. Kumari and R. Singh, “Human resource management practices and performance of Indian banks,” *Int. J. Bank Manag.*, vol. 9, no. 1, pp. 23–37, 2021.
- [12] World Bank, *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience*, 2021.
- [13] Asian Development Bank, “Digital financial services and financial inclusion in Asia,” 2022.
- [14] OECD, “Financial consumer protection and financial inclusion,” 2021.