

Mapping Financial Inclusion Through Financial Innovations in India: A Study of the Past Decade

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Abstract

Financial inclusion of the unbanked masses is a critical step that requires political will, bureaucratic support, and consistent efforts by the central bank. Financial inclusion is expected to unlock the significant untapped potential of the bottom-of-pyramid section of the economy. India has made remarkable strides in enhancing financial inclusion, with notable progress in the areas of access, usage, and quality. This study delves into the status of financial inclusion in India, backed by financial technology and innovations. The aim is to assess the access and usage of financial inclusion in India. To fulfil this objective the analysis has been carried out in four steps. The overall period of analysis ranges from 2010 to 2022. The results reveal that there has been phenomenal progress in terms of access and usage of financial services in the country in the last decade. The study also highlighted the key challenges attributed to financial inclusion in India categorised into socio-economic, geographical, and structural factors.

Keywords: Financial Inclusion, Financial Technology, Access, Usage, Financial Innovations

Introduction and Background

Financial inclusion is increasingly recognised worldwide as a crucial catalyst for economic growth and poverty reduction. India's pursuit of financial inclusion is deeply rooted in the Gandhian philosophy, specifically the concept of "Sarvodaya through Antyodaya" which emphasises the welfare of all by uplifting the most vulnerable (RBI, 2021). This approach underlines inclusiveness and equity,

extending beyond mere poverty alleviation. It seeks to provide equal opportunities to all segments of society, including the poor, women, farmers, small enterprises, and others. An evaluation of advancements made in the realm of financial inclusion in India reveals significant progress particularly in terms of access, usage, and quality.

Remarkable strides in ensuring banking services in the remotest areas are visible in India for promoting the utilisation of financial products. The evolution and widespread adoption of technology have importantly accelerated the expansion of digital financial services. The Jan Dhan, Aadhaar, and Mobile (JAM) ecosystem has played a pivotal role in transforming financial inclusion. The potential of leveraging the untapped opportunities at the bottom of the pyramid has attracted a diverse range of participants, including traditional banks and specialised financial entities such as payments banks, small finance banks, microfinance institutions (MFIs), and fintech companies.

Payment systems are widely recognised as the foundation of an economy. They are increasingly contributing to financial inclusion in the country towards ensuring economic benefits to the marginalised segments of society. India has gained international recognition for its state-of-the-art payment infrastructure and innovative products, driving the widespread adoption of digital payments. The introduction of quick payment systems like Immediate Payment Service (IMPS) and Unified Payment Interface (UPI) with 24/7 availability has enabled real-time transfers. UPI has revolutionised the payment landscape in India by facilitating payment transactions through smartphones. These have been instrumental in catalysing the shift towards digital payments.

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Against this backdrop, the current study attempts to explore the status of financial inclusion in India, backed by financial technology and innovations. The study is divided into *six* sections. The *current section* introduces the topic. Structure, objective, and methodology of the study are presented in *Section two*. The main objectives of the study are addressed in *sections three, four, and five*. Lastly, *section six* concludes the study.

Structure, Objectives, and Methodology

The study undertakes a comprehensive assessment of the status of financial inclusion in India on the basis of innovations and technology. The aim is to assess the access to and usage of financial inclusion in India. To fulfil this objective, the analysis has been carried out in four steps. In the *first step*, the study maps the status and progress of Financial Inclusion Plans (FIPs) implemented in India over the past decade. This has been done by examining variables like Number of Basic Savings Bank Deposit Accounts (BSBDAs), Total Deposits with respect to BSBDAs, Deposits with respect to BSBDAs through Business Correspondents (BCs), number of Kisan Credit Cards (KCCs) Accounts, Total Farm Credit under KCCs, Total Transactions through BCs-ICT Channels, and Total Amount Transacted through BCs-ICT Channels.

In the *second step*, an attempt has been made to analyse the access and usage of financial services in the country. This has been monitored in terms of geographical coverage and different categories of people. To trace the geographical coverage for financial inclusion, the variables taken are Total Number of Bank Branches (region-wise), Growth of Rural Bank Branches (bank group-wise), and Growth in Business Correspondent Outlets (in villages and urban areas). To review the access and usage of financial services by different categories of people, the variables under

consideration are deposits and credit account holders in formal financial institutions. The study has categorised people into four categories: gender, age, income level, and education.

In the *third step*, the development and adoption of digital technology in the banking sector have been examined with the help of indicators such as Value of Transaction and network of ATM and Point of Sale (POS). Value of Transactions have been measured in terms of National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Credit and Debit Cards, and Mobile Banking; while the expansion in the network of ATM and POS has been measured by Number of ATMs and Number of POS Terminals.

In the *fourth step*, the study tries to identify the key challenges to the adoption of digital technology in India in the process of enhancing financial inclusion.

The period of analysis ranges from 2010 to 2022. In the case of certain variables, the length of the time period might vary as per the availability of data. Secondary data has been used for analysis and has been sourced from various RBI publications and the Global Findex database of the World Bank.

Status and Progress of Financial Inclusion Plans in India

Banks were advised to compliment the central bank's efforts of fulfilling the nation's goal of complete financial inclusion in the country. Financial Inclusion Plans were implemented to ensure a systematic approach towards increasing the degree of financial inclusion in a sustainable manner. Table 1 throws light on the progress made in subsequent financial inclusion plans between 2010 and 2021.

Table 1: Progress in Financial Inclusion Plan

(in Cr)

Particulars	2010	2015	2019	2020	2021
No. of Basic Savings Bank Deposit Accounts (BSBDAs)	7.4	39.81	57.42	60.04	66.31
Total Deposits under BSBDAs	5,500	43,900	1,40,960	1,68,412	2,31,646
Deposits under BSBDAs through BCs	1,100	7,457	53,195	72,581	95,021
No. of KCC Accounts	2.4	4.25	4.91	4.75	4.73
Total Farm Credit under KCCs	1,24,000	4,38,229	6,68,044	6,39,069	6,93,596

Particulars	2010	2015	2019	2020	2021
Total number of transactions through the BCs ICT channel*	2.7	47.70	210.19	323.18	210.95
Total amount transacted through the BCs ICT channel*	700	85,980	5,91,347	8,70,643	6,62,211

*Value of these variables are for a specific year, while for all other variables, they are cumulative figures.

The Basic Savings Bank Deposit Accounts (BSBDAs) are designed to offer certain minimum facilities free of charge to the bank account holders. It provides a cost-effective option for the unbanked section of the society. The total number of BSBDAs was 7.4 crores in 2010, which grew multiple times to 66.31 crores by 2021, with a compound annual growth rate (CAGR) of 22.06%. Deposits under BSBDAs expanded from Rs. 5,500 crores to around Rs. 2,31,600 crores, with a CAGR of 40.5%. In 2014, the Government of India launched a flagship program of Pradhan Mantri Jan Dhan Yojana, which gave impetus to BSBDAs. There was an increment of around 26.5 crores in BSBDAs after 2015. By 2021 end, deposits under BSBDAs through BC model increased from Rs. 1100 crore to over Rs. 95,000 crore.

On the credit side, the number of Kisan Credit Cards (KCCs) holders increased throughout the financial inclusion plan period from 2.4 crore accounts to 4.73 crores, while the CAGR has been only 6.36%. Farm credit under KCCs has multiplied six times, from Rs. 1,24,000 crores in 2010 to more than Rs. 6,93,500 crores in 2021.

The number of transactions through ICT-BCs enabled channels as well as the amount transacted increased phenomenally over the analysis period from 2010 to 2021. The number of transactions through ICT-BCs channels has increased from 2.7 crores to as high as 211 crores, whereas the amount of transactions through ICT-BCs channels have escalated from Rs. 700 crores to a magnum of Rs. 6,62,211 crores.

Financial Inclusion: Access and Usage

The access and usage of financial services in the country have been monitored in terms of geographical coverage and different categories of people.

Geographical Coverage

Access to financial services is one of the critical elements of financial inclusion. It refers to the range of channels

available to customers for obtaining financial services. The geographical coverage has been assessed based on Number of Bank Branches and Business Correspondent Outlets.

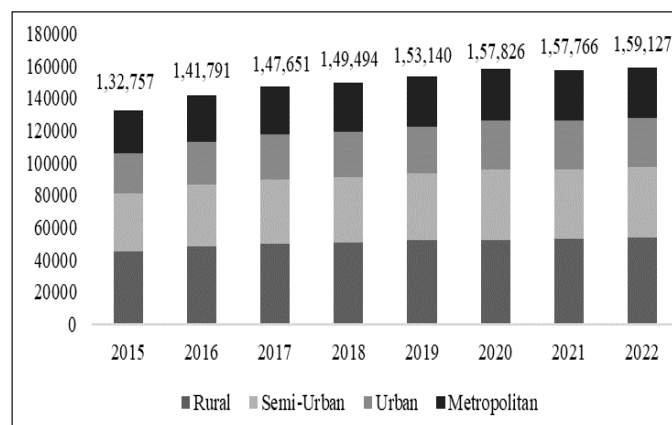


Chart 1: Geographical Coverage: Bank Branches

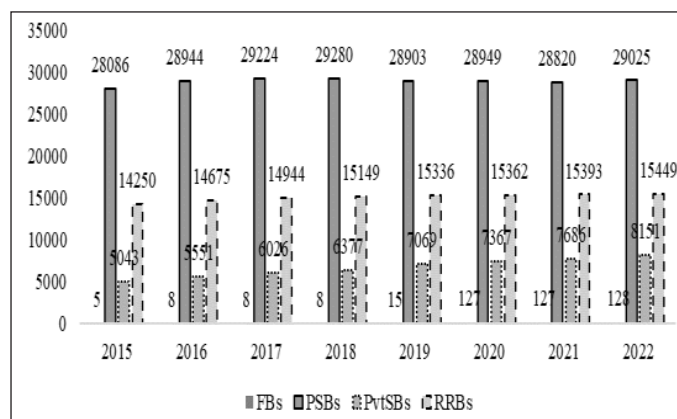


Chart 2: Geographical Coverage: Bank Branches in Rural Areas

During the analysis period, there has been a modest expansion in access by the way of conventional brick and mortar structure of bank branches. There has been an addition of 26,370 branches between 2015 and 2022. Similarly, total number of bank branches in rural areas reported a growth of 1.73%. Among the commercial banks, foreign banks (FBs) recorded the highest CAGR of 58% in their rural presence. On the other hand, rural

branches of public sector banks (PSBs) have registered a growth of only 0.5% during the period under review. However, PSBs continued to have the highest presence in rural areas.

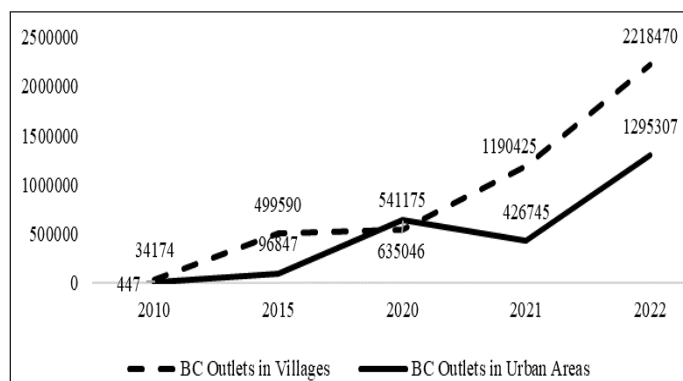


Chart 3: Geographical Coverage: BC Outlets

In order to ensure greater financial inclusion, banks were permitted to employ intermediaries while delivering banking services. The Business Correspondent (BC) Model was used by banks to reach the unbanked. The BC model has been a very successful model, over the years there has been a rise in access of banking services in rural areas, particularly in the unserved parts of the country. After 2010, there has been a tremendous increase in the number of BC outlets in villages, from a mere 34,000 in

2010 to more than 22 lakhs in 2022. A BC model is an extended arm of a bank that offers basic banking services. Traditionally, it was believed that BC model would primarily be operational only in villages. However, over the years, banks have begun to implement the BC model in urban areas as well. BC outlets in urban areas have also shown significant growth, with a CAGR of 94%.

Across Different Categories of People

Demographics significantly influence perceptions, especially with the older generation, educated individuals, working-class, and higher-income groups (Goel 2020). Researchers argue that most of the underprivileged and marginalised people are excluded from the formal banking system. These financially excluded groups are farmers, unorganised workers, women, artisans, self-employed people, and pensioners (Dev, 2006). Active participation of these marginalised people in the financial inclusion drive is crucial as it empowers them and gives them a sense of social security. The expansion of financial inclusion can improve the financial situation and standard of living of the underprivileged and poor (Srijanani, 2012). The examination of access and usage of financial services among the different groups of people is critical to measure the degree of financial inclusion in India (Table 2).

Table 2: Access and Usage of Financial Services Among Different Groups of People

Category	Variables	Deposit Account				Credit Account			
		2011	2014	2017	2021	2011	2014	2017	2021
Gender	Female (% age 15+)	26	43	77	78	7	6	6	10
	Male (% age 15+)	44	63	83	78	9	12	10	13
Age	Young adults (% age 15–24)	27	43	71	68	4	6	5	9
	Older adults (% age 25+)	38	57	83	81	9	10	9	13
Income	Income, poorest 40% (% age 15+)	27	44	77	78	7	7	6	11
	Income, richest 60% (% age 15+)	41	59	82	77	8	10	9	13
Education	Primary education or less (% age 15+)	31	43	75	76	8	7	7	10
	Secondary education or more (% age 15+)	59	64	85	81	7	11	10	16

Note: Accounts are taken into consideration only in formal financial institutions.

The Global Findex dataset makes it abundantly clear that the fundamental condition of financial inclusion (i.e., having a bank account) has been met to a greater extent. 80% of Indian adults now have access to formal banking systems. The government's PMJDY has made it easier for

underprivileged and marginalised people to open a bank account with a zero or minimum balance. As a result, India has made tremendous progress in reducing the gap between the financially included and the excluded.

There has been substantial progress in financial inclusion in India, yet more than half of the deposit accounts are inactive. Financial inclusion goes beyond simply opening bank accounts; it also involves using those accounts to save money and obtain credit. In the present study, the analysis focusses on the specific categories and offers insights into the trends in the data and emphasises on the discrepancies. The different groups of people are categorised into four categories, such as Gender, Age, Income, and Education.

In case of *gender*, the proportion of males and females having deposit and credit accounts has increased over time. In 2021, 78% of males and females had bank accounts, while only 10% of women and 13% of men had obtained credit from formal financial institutions. According to the data for the age category, the proportion of people having deposit and credit accounts has augmented over time for both young and older adults. From 27% of young adults having a deposit account in 2011, it increased to 68% in 2021. In the case of older individuals, more than 80% of people will have a deposit account by the end of the analysis period. In 2021, 9% of young adults and 13% of older people had credit accounts. The *income* category covers two groups, namely, the richest 60% income bracket and the poorest 40% income bracket. The data reveals that both groups have experienced growth in deposit accounts over the analysis period. In 2021, 78% of the poorest 40% of people and 77% of the richest 60% of people had deposit accounts. In the case of credit accounts, there has been a very limited expansion by both groups. The data on category by *education* examines the ownership of deposit and credit accounts based on the education level of individuals—individuals with primary education or less, and individuals with secondary education or more. Over the years, the less educated as well as the highly educated people have registered an increase in the ownership of deposit accounts. On the other hand, the credit accounts opened by people remained less than 20% in both categories.

Although significant efforts have been made by the government to enhance financial inclusion in India, it lacks in ensuring adequate access and usage of financial services among underserved and unserved populations. In case of usage of credit facilities from formal financial institutions, only 13% of Indian adults are found to be using credit facilities from the organised setup. This

number further declines in case of poor individuals, the female population, young adults, and primary or less educated population groups.

Technology advancement plays a crucial role in promoting financial inclusion. It has revolutionised the access and usage of financial services, particularly in remote rural areas. Technology helps in expanding access to financial services, facilitating digital payments, fostering alternative lending methods, enhancing financial education, utilising data-driven approaches, and facilitating innovative insurance and risk management solutions. By effectively harnessing technology; policymakers, financial institutions, and information technology companies can bridge the existing gap and ensure that more individuals and communities have access to the formal financial system and take its advantage.

In a world where high-speed broadband internet and financial services are not universal or affordable, fintech can democratise access to finance and bring the world closer to achieving financial inclusion (Appaya, 2021). Fintech has the potential to reduce expenses, improve accessibility, and increase efficiency. It can enable more customised financial services, thereby expanding the scope of financial inclusion. As per the World Bank database (2021), 1.2 billion adults that were previously unbanked have gained access to financial services, while only 1.7 billion adults have remained unbanked globally. Over the last decade, the unbanked population in the world has decreased by 35% because of an increase in mobile money accounts.

Financial Innovation in Banks: Expansion and Challenges

In the last ten years, India has made significant advancements in the digital banking space. The traditional Indian banking system has undergone significant changes with the introduction of new and innovative technologies. As a result of the rapid adoption of e-commerce and e-banking, the traditionally cash-based Indian economy has shifted to one that is less cash-dependent. Digital innovation has been reshaping the payment and settlement systems in India. The transition from traditional to digital banking has been gradual and remains ongoing in terms of the extent of digital banking services (Bhatt, Shaikh, & Patel). High penetration of mobile phones and widespread

availability of low cost internet have enabled an expansion in banking outreach, serving the unbanked in India.

In addition, the majority of Indian banks have launched their own mobile apps to offer easy banking services to their customers. Academic research shows that mobile banking and internet banking have increased the banking habits of people, fastened the financial transactions, and provided better financial services to customers with greater accuracy, reliability, and security (Alam, Patwary, & Rahim, 2013; Liao & Cheung, 2002). As such, both internet and mobile banking are popular channels of banking among Indians, especially the youth. In addition to, mobile and internet banking, other technological

innovations such as installation of micro-ATMs, debit and credit cards, and eWallets have aided in the expansion of digital finance in India. Besides, demonetisation has played a significant role in increasing the volume of digital transactions. Today, even the smallest of Indian cities have access to a variety of non-cash channels of payments such as Paytm, debit cards, credit cards, Google Pay (GPay), and PhonePe. Varied digital channels are available in the country today enabling digital payments by people on just the click of a button.

The adoption and development of digital technology in scheduled commercial banks has been examined in Table 3 for the time period 2015–2022.

Table 3: Development and Adoption of Digital Technology

Years	Value of Transaction (in Bn)					Number of	
	NEFT	RTGS	Credit Card	Debit Card	Mobile Banking	ATMs	POS
2015	12,649	1,48,363	174	2,091	203	1,85,484	11,37,920
2016	17,631	1,67,670	242	2,359	673	2,01,335	14,32,727
2017	25,388	1,85,625	357	2,637	1,807	2,08,477	27,76,949
2018	38,034	2,28,398	466	3,156	1,966	2,11,255	33,11,184
2019	34,993	2,40,035	573	3,408	4,975	2,06,202	40,68,954
2020	38,131	1,73,039	429	2,765	5,994	2,10,478	43,25,830
2021	41,955	2,03,915	629	2,797	10,337	2,13,766	45,93,265
2022	54,320	2,47,121	1,090	3,308	17,165	2,17,688	65,90,890

Note: All data reported in above table are as on 30th June.

It can be inferred from Table 3 that in the year 2015, the value of transactions through NEFT was over Rs. 12,600 billion, which increased to over Rs. 54,000 billion in 2022. Similarly, the amount transacted through RTGS surged from Rs. 1,48,363 billion in 2015 to Rs. 2,47,121 billion in 2022. Card culture was promoted by RBI in the early 2000s. Banks reported a CAGR of 26% and 6% in the value of transactions using credit cards and debit cards, respectively, for the period between 2015 and 2022. The value of transactions by way of mobile banking multiplied rapidly, recording a CAGR of 74% during the analysis period. The RBI encouraged banks to set up ATMs as an extended delivery channel. In 2022, the number of ATMs stood at over 2,17,600. Banks launched Point of Sale (POS) terminals at the physical store and at virtual sales points. A steep rise was observed in POS terminals from around 11,38,000 in 2015 to more than 69,90,000 in 2022.

India has a long way to go in pursuit of its dream of ‘Digital India’ as a substantial part of financial

transactions in the Indian market are still made in cash. Nonetheless, there is no doubt that the volume of digital transactions in the country has grown over time.

Despite the importance of technology and innovations, several issues need to be resolved to maximise the role and impact of technology on financial inclusion in India. The key challenges attributing to financial inclusion in India are socio-economic, geographical, and structural factors. Here are some key challenges to financial inclusion in India:

- **Limited Digital Infrastructure:** Despite notable improvements in digital infrastructure, a sizeable percentage of the Indian population still lacks access to reliable internet connectivity, smartphones, and other essential gadgets. The spread of fintech solutions is constrained by this digital divide, especially in rural and remote areas where financial inclusion is required the most. Banks

need to broaden their focus beyond fintech-enabled customer-centric strategies and models, recognising the crucial competitive advantage of timing in fintech adoption (Baporikar 2023). A multi-faceted approach should be adopted, involving various stakeholders in overcoming the challenge of digital infrastructure in India. It is essential to improve the basic infrastructure like roads, electricity, and internet connectivity in rural and remote areas. More bank branches need to be established, use of Business Correspondents and Business Facilitators should be promoted to expand banking services to rural areas.

- *Low Financial Literacy:* India still has a low level of financial literacy particularly among women, low-income communities, and marginalised people. As per the National Centre for Financial Education (2019) there is a need to conduct a Financial Literacy Awareness Programmes (FLAPs) targeted for the people who are newly inducted into the financial system. Adults, Farmers, School Children, Senior Citizens, Self Help Groups, Entrepreneurs, and the rural masses need to be imparted financial education and make them aware about the different modes of digital payments. The digital platforms, mobile apps, and interactive tools for financial education must be leveraged. A certain level of financial literacy is necessary to use fintech products and services efficiently.
- *Trust and Security Issues:* For the wide spread of fintech systems the fintech companies need to establish trust in common public. People are frequently deterred from using fintech solutions due to concerns about data security, privacy, and fraud protection. According to Sen (2021), data has become the new currency and fuel for digital enterprises. Data protection and privacy laws need to evolve so that the public interest is safeguarded and trust is retained.
- *Regulatory Concerns:* The rapidly evolving nature of fintech often outpaces the existing regulatory frameworks. It becomes crucial to find a balance between innovation and consumer protection. Policy and regulatory reforms are inevitable to promote financial inclusion. An empowering environment

needs to be created for innovative fintech solutions and digital financial services.

- *Last-Mile Access:* Even though fintech solutions have made significant progress in digitising financial services, still there is a need to bridge the last-mile access gap. This requires the extension of fintech services to remote areas. Fintech solutions need to ensure that the population with limited digital literacy and accessibility can easily access and use digital financial services. Financial inclusion encompasses not just banking products but also extends to other financial services like insurance and equity. By fostering a culture of savings among a significant portion of the rural population, financial inclusion expands the resource pool of the financial system and contributes uniquely to economic development (Sofi & Zamir, 2019).

In addition to the challenges mentioned earlier, there are obstacles related to the affordability and inclusivity of fintech solutions. Furthermore, collaboration between fintech companies and traditional financial institutions should be fostered to promote the impact of financial inclusion. Addressing these challenges requires a multi-stakeholder approach involving fintech companies, government organisations, regulators, and financial institutions. Through collaborative efforts, the challenges can be resolved, and the government can leverage fintech potential to promote complete financial inclusion in the country.

Conclusion

Statistical evidence reveals that individuals express satisfaction with digital banking services and anticipate dedicated channels for resolving grievances, thereby enhancing overall customer satisfaction, and contributing to the realisation of a digitally empowered India (Subrahmanyam et al.). The study explored the status of financial inclusion in India, backed by technology and innovations. The highlights from the study are:

The progress of Financial Inclusion Plans reveals that the Pradhan Mantri Jan Dhan Yojana and the Business Correspondent model have significantly contributed to the expansion of Basic Savings Bank Deposit Accounts,

Kisan Credit Card (KCC), farm credit under KCCs, and transactions carried out through ICT-BCs channels. The number of BC outlets has also witnessed a remarkable surge, rising from 34,000 in 2010 to over 22 lakhs in 2022, particularly benefiting rural areas.

The access and usage of financial services have also been examined across the different groups of people. It was found that there has been an increase in proportion of deposit accounts. In case of usage of credit facilities from formal financial institutions, it has been observed that only 13% of Indian adults are using credit facilities from the organised setup. Moreover, the number further declines with regard to poor individuals, females, young adults, and primary or less educated population groups.

There has been a significant increase in case of development and adoption of digital technology in India between 2015 and 2022. The value of transactions through NEFT and RTGS has reported substantial growth during the analysis period. People have adopted the card culture well, resulting in a notable CAGR for credit card and debit card transactions. Mobile banking usage also experienced a rapid expansion. In addition, the number of ATMs and POS terminals witnessed a steep rise throughout the analysis period.

The study also identified key challenges to financial inclusion in India, such as limited digital infrastructure, low financial literacy, trust and security concerns, regulatory issues, partial access to financial technology, and a struggle for affordable and inclusive financial services. Significant efforts have been made to enhance financial inclusion in India, still there is a need for more focused and goal oriented schemes to ensure adequate access to financial services and promote their usage among underserved and unserved populations.

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