

# "Assessing the Decadal Growth of Mobile Banking Services in Public and Private Sector Banks: Trends and Developments from 2013 to 2022"

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## **Abstract**

*Mobile Banking has enhanced financial accessibility, especially for rural populations. Mobile banking offers safe, quick, convenient and anytime financial transactions. Mobile Banking has reduced dependence on physical visits of Banks and promoted digital payments through the various programs under the financial inclusion drive. The main objective of the study was to analyze the growth of Mobile Banking services over the decade i.e. from 2013 to 2022. This research paper seeks to evaluate the growth of Public and Private Sector Banks in India by analyzing their Mobile Banking transactions over the period from 2013 to 2022. The paper further reflects that the growth of Mobile Banking transactions in both Public as well as in Private Sector Banks is similar in the terms of volume as well as in amount. Public Sector Banks have a higher average volume, but Private Sector Banks show more growth and consistency in Mobile Banking Services.*

**Keywords:** *Mobile Banking, Public Sector Banks, Private Sector Banks, Growth, RBI*

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## **I. Introduction**

The rapid advancement of digital technologies has revolutionized the financial services sector, with mobile banking emerging as a cornerstone of modern banking practices. Mobile banking enables customers to conduct financial transactions remotely via mobile devices, thus offering unparalleled convenience and accessibility. Over the last decade, this form of banking has become a crucial tool for both public and private sector banks in their efforts to provide seamless and efficient banking experiences. From 2013 to 2022, the banking landscape has experienced profound changes, influenced by the widespread use of smartphones, increased internet penetration, and the growing demand for digital financial solutions (Demirgüç-Kunt et al., 2018). The adoption of mobile banking services has been fuelled by the evolution of mobile technologies and the shift towards cashless economies. Studies have shown that both public and private sector banks have made significant strides in enhancing their mobile banking platforms. However, the growth trajectory differs between these sectors, with private sector banks demonstrating greater consistency and innovation in their mobile banking offerings (Kaur & Arora, 2020). Public sector banks, while maintaining a higher volume of mobile transactions, have been slower in adapting to the rapidly changing technological landscape. The compounded annual growth rates (CAGR) of mobile banking transactions in private sector banks have been consistently higher, reflecting their agility in adopting new technologies and meeting customer demands (Sharma & Singh, 2019).

The decadal growth of mobile banking from 2013 to 2022 can also be attributed to government-led financial inclusion initiatives, especially in countries like India, where schemes such as Digital India and the introduction of Aadhaar-enabled Payment Systems (AEPS) have significantly boosted the adoption of mobile banking (Kshetri, 2020). These initiatives have bridged the gap between the unbanked population and formal banking systems, thereby driving the expansion of mobile banking services in both rural and urban areas. The comparative analysis of public and private sector banks during this period highlights key trends in the development of mobile banking services. Public sector banks, though slow in innovation, have leveraged their extensive customer base to maintain a dominant position in terms of transaction volume. On the other hand, private sector banks, with their focus on cutting-edge technology and customer-centric services, have gained a competitive edge in terms of service quality and user satisfaction (Shaikh & Karjaluo, 2015). This study aims to assess the decadal growth of mobile banking services in both public and private sector banks from 2013 to 2022, identifying the trends and developments that have shaped the mobile banking landscape over the past decade.

### **1.1 Objectives of the Study**

- To analyse the growth trends in Mobile Banking services from 2013 to 2022.
- To compare the growth between Public and Private Sector Banks in terms of Mobile Banking transactions.

## **II. Review Of Literature**

The literature on mobile banking growth highlights significant transformations in the banking sector, driven by rapid technological advancements and consumer demand for convenient financial services. Demirgüç-Kunt et al. (2018), have assessed that mobile banking has played a crucial role in fostering the financial inclusion, especially in emerging markets, by offering cost-effective banking services to previously underserved populations. Studies by Sharma and Singh (2019) indicate that mobile banking's growth has been driven by smartphone penetration, increasing internet access, and the global shift toward cashless economies, with significant traction observed in India post the launch of initiatives like Digital India. Moreover, mobile banking has evolved from basic services such as balance inquiries to complex offerings, including fund transfers and digital wallets. Luo, Li, Zhang, and Shim (2010) argue that mobile banking adoption has been influenced by factors like ease of use, perceived utility, and security concerns. Another key factor identified by Shaikh and Karjaluo (2015) is consumer trust in the mobile banking platform, which influences adoption and usage rates. The period from 2013 to 2022 saw tremendous growth in mobile banking transactions globally, with both public and private banks enhancing their mobile platforms. While public sector banks showed higher volumes, private sector banks demonstrated superior growth rates and innovation in services offered (Kaur & Arora, 2020). Additionally, research by Gomber et al. (2018) emphasizes that the regulatory environment, particularly after the financial crises, played a pivotal role in shaping mobile banking's development, influencing factors like security protocols, financial literacy, and customer data protection. The surge in mobile banking transactions also aligned with the growth of mobile payment services and AEPS (Aadhaar-enabled Payment Systems) in countries like India, providing a further boost to financial inclusion initiatives (Kshetri, 2020). The literature consistently underscores that mobile banking's evolution has not only reshaped customer banking behaviors but also significantly contributed to the broader digital transformation of the financial services sector.

## **III. Research Methodology**

The methodology highlights how banks have adapted their services and technological strategies to drive mobile banking growth during this period.

### **3.1 Research Design**

Focus on mobile banking transactions across India, particularly emphasizing how these services have influenced financial inclusion in both urban and rural regions. Consideration of regulatory changes and technological advancements affecting Mobile Banking during the study period. Use of statistical tools to analyze transaction volumes, growth rates, and CAGR (Compounded Annual Growth Rate) of Mobile Banking services. Compare the growth between public and private sector banks to identify differences in adoption, consistency, and performance. Examination of year-on-year changes in transaction volumes, values, and user adoption rates. In the study the data from the years 2013 to 2022, as this period saw the emergence and growth of Mobile Banking Services .

### **3.2 Sources of Data**

To conduct the study only secondary data was used and is extracted from RBI's official Publications i.e. annual reports of RBI. Under the study amount as well as volume of Mobile Banking is considered. Data is collected for a decade i.e. 2013 to 2022.

### **3.2 Rationale of the study**

The rationale for studying the growth of Mobile Banking services from 2013 to 2022 is rooted in the rapid technological advancements and increased digital adoption during this period. From 2013 onward, India witnessed a surge in smartphone usage and internet penetration, making mobile banking a critical tool for financial inclusion, especially in rural areas. The introduction of the Mobile Banking revolutionized access to banking services, enabling secure, real-time transactions and financial inclusion for previously unbanked populations. Additionally, tracking this growth helps analyze the impact of government initiatives like Digital India and the Pradhan Mantri Jan Dhan Yojana on promoting a cashless economy. Studying this period allows for understanding trends, challenges, and the effectiveness of Mobile Banking in transforming the Indian financial landscape.

## **IV. Analysis and Discussion**

The analysis of mobile banking growth from 2013 to 2022 reveals significant progress fueled by technological advances, growing smartphone usage, and government initiatives promoting digital payments. Public sector banks showed higher transaction volumes, while private banks led in growth rates and consistency. This period marked a key shift toward digital financial inclusion, with mobile banking becoming a critical tool for expanding access to financial services, particularly in underserved regions. The steady rise in mobile banking transactions reshaped the financial landscape, reflecting the increasing preference for digital banking channels.

**4.1 Growth of Public & Private Sector Banks Based on Volume and Amount of Mobile Banking Transactions.**  
 For inclusive Growth of Mobile Banking as a tool of E-Banking services, there should be access to Mobile Banking services in India's remotest and most problematic areas.

**Table:1**  
**The Growth of Volume of Mobile Banking Transaction in Selected Banks**

Years	Public Sector Banks				Private Sector Banks			
	PNB	SBI	Total (PNB+SBI)	GR	HDFC	ICICI	Total (HDFC+ICICI)	GR
2013	237938	50433629	50671567		2021642	13574226	15595868	
2014	541480	77320242	77861722	53.60	1252189	3402685	4654874	-70.15
2015	2213610	123897882	126111492	61.97	28377379	59988137	88365516	1798.34
2016	5886052	226581067	232467119	84.33	192239043	117975654	310214697	251.06
2017	16069066	290785210	306854276	32.00	309115312	210495511	519610823	67.50
2018	40075284	844098813	884174097	188.14	255367436	366695409	622062845	19.72
2019	191111540	2558877683	2749989223	211.02	938674010	802251619	1740925629	179.86
2020	911830803	5025473932	5937304735	115.90	1718813036	1411105960	3129918996	79.78
2021	1947799132	10445398209	12393197341	108.73	3505200450	2507915468	6013115918	92.12
2022	3203185843	18789692557	21992878400	77.44	6572887229	4114356094	10687243323	77.73
CAGR	187.60%	93.06%	96.36%		145.60%	88.68%	106.58%	
Mean	631895073	3843255922	4475150997		1352394773	960776076.3	2313170849	
S.D.	1102082389.08	6210459304.93	7308874385.13		2140444378.68	1366990759.05	3503262260.71	
C.V.	174.41	161.59	163.32		158.27	142.28	151.45	

Source: RBI Reports

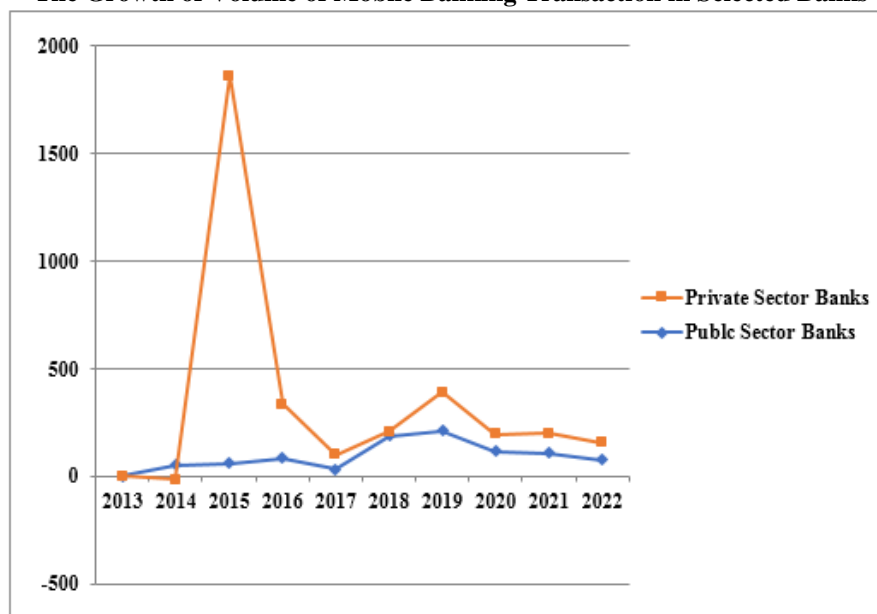
Mann-Whitney U- 9.00P.V 0.001

All stakeholders, like Govt. Regulating body and media can play a pivotal role in expanding Mobile Banking services. Customer trust, ease to use, and awareness are the main factors for the Growth of Mobile Banking services (Deshwal, 2015). Table 1 shows the volume of Mobile Banking transactions of Public and Private Sector Banks from 2013 to 2022. To analyze the Growth of Mobile Banking transactions in Public and Private Sector Banks following Null Hypothesis has been formulated.

**H<sub>0</sub>: The Growth of Mobile Banking Transactions in Public and Private Sector Banks is the Same.**

In 2014, Public Sector Banks achieved a growth rate of 211.02%, while Private Sector Banks secured the highest growth at 1798.34% in 2015. The lowest growth rates were 32% for Public Sector Banks and -70.15% for Private Sector Banks. SBI led among Public Sector Banks with 3.84 billion mobile banking transactions, while HDFC led in Private Sector Banks with 1.35 billion transactions. Overall, Public Sector Banks outperformed Private Sector Banks with an average of 4.47 billion transactions compared to 2.31 billion.

**Figure-1**  
**The Growth of Volume of Mobile Banking Transaction in Selected Banks**



PNB Bank shows a high Coefficient of Variation at 174.41% among Public Sector Banks, indicating significant variability and less consistency in mobile banking transactions compared to SBI. In the Private Sector, HDFC Bank leads with a Coefficient of Variation of 158.27%, reflecting more stability. Private Sector Banks overall demonstrate greater consistency and lower transaction variability than Public Sector Banks. The Compounded Annual Growth Rate (CAGR) is most favorable for PNB at 187.60% in Public Sector Banks, while HDFC leads in Private Sector Banks with a CAGR of 145.60%. Sector-wise, Private Banks generally show more favorable growth outcomes than Public Sector Banks.

The Mann-Whitney U test was applied to assess the Null Hypothesis regarding the growth of mobile banking transactions. The resulting p-value of 0.796 is greater than the significance level of 0.05, indicating that the Null Hypothesis is accepted. Therefore, there is no significant difference in the growth of mobile banking transactions between Public and Private Sector Banks.

Type of Hypothesis	Results
H <sub>0</sub> : The Growth of Mobile Banking transactions in Public and Private Sector Banks is the Same.	Accepted

Furthermore, the Growth of Mobile Banking transactions in Public and Private is similar.

**Table-2**

**The Growth of Mobile Banking Transaction in terms of amount across Selected Banks**

**Amount in Thousands**

Years	Public Sector Banks				Private Sector Banks			
	PNB	SBI	Total (PNB+SBI)	GR	HDFC	ICICI	Total (HDFC+ICICI)	GR
2013	1027964.83	32882063.04	33910027.87		30693748.05	44153075	74846823.05	
2014	9871526.52	88626642.14	98498168.66	190.47	40967884	19824078	60791962	-18.78
2015	14607296	444706530	459313820	366.32	779477384	737606235	1517083619	2395.53
2016	60769463	472064767	4781417140	940.99	1432603650	1838036891	3270640541	115.59
2017	122780457	3738350898	3861131355	-19.25	1726160804	4592997688	6319158492	93.21
2018	229158418.6	3471642856	3700801273	-4.13	2973352271	3268807103	6242159374	-1.22
2019	631298791.7	13930471120	14561769912	293.48	6652985432	5194914754	11847900186	89.80
2020	2100988238	16133166697	18234154935	25.22	9541296269	9063867863	18605164132	57.03
2021	4256381969	29423423682	33679805651	84.71	16467561156	15602698758	32070259914	72.31
2022	6306221792	46452572793	52758794585	56.63	25299614504	23780999849	49080614353	53.04
CAGR	163.55%	123.88%	126.29%		110.87%	101.13%	105.58%	
Mean	137331059	11843649096	13216959687		6494471310	6414390629	12908861940	
S.D.	2208812756.18	15361260872.60	17534591420.32		8427804852.33	7763035227.73	16157042596.92	
C.V.	160.81	129.70	132.67		129.71	121.03	125.16	

Source: RBI Reports

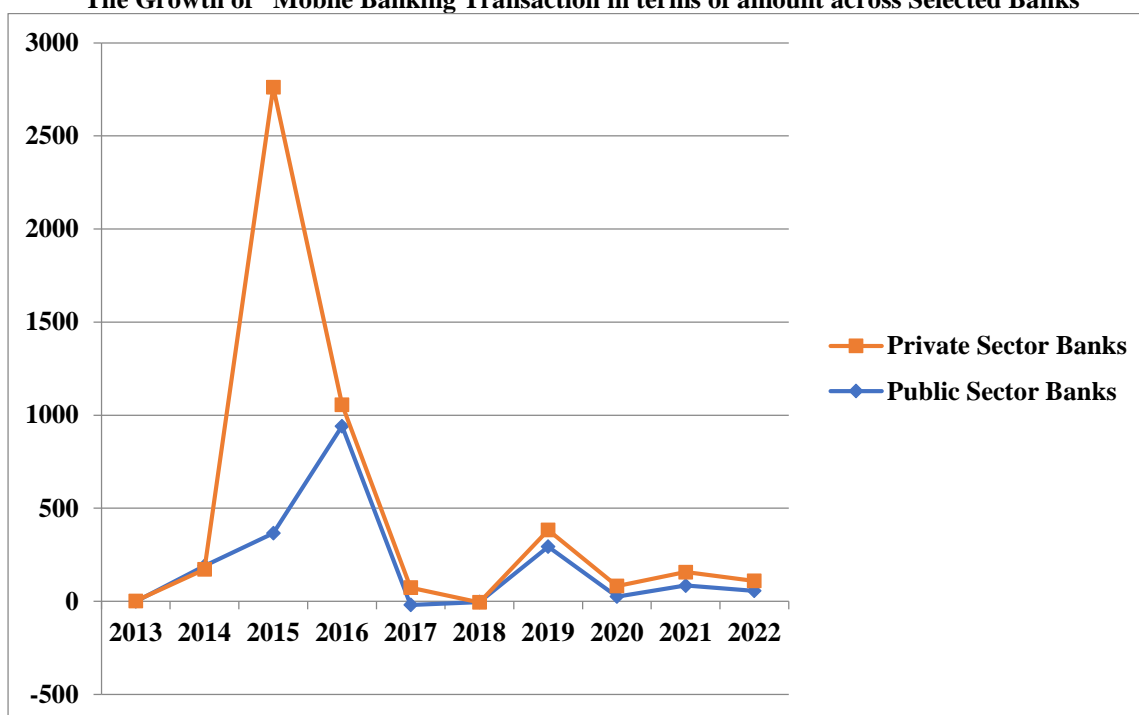
Mann-Whitney U- 9.00 P.V 0.001

Table 2 shows the number of mobile Banking transactions of the Public and Private Sector Banks from 2013 to 2022. The following Null Hypothesis has been formulated to analyze the Growth of mobile Banking transactions in Public and Private Sector Banks in a decade, i.e., 2013 to 2022.

**H<sub>0</sub>: The Growth of mobile Banking Transaction's amount in Public and Private Sector Banks is the Same.**

In 2016, Public and Private Sector Banks experienced their highest growth rates in mobile banking transactions, with Public Sector Banks achieving 940.99% growth and Private Sector Banks reaching 2395.53%. However, in 2017 and 2018, both sectors faced negative growth, with Public Sector Banks declining by -19.25% and Private Sector Banks by -1.22%. Public Sector Banks had their lowest growth of 28% in 2014, while Private Sector Banks saw the highest growth of 11507.05% in 2022.

**Figure-2**  
**The Growth of Mobile Banking Transaction in terms of amount across Selected Banks**



SBI led the Public Sector Banks in transaction amounts with an average of ₹11843649096 thousand, while HDFC Bank topped the Private Sector with ₹6494471310 thousand, followed by ICICI Bank. In terms of overall sector performance, Public Sector Banks slightly outperformed Private Sector Banks with a total transaction amount of ₹13216959687 thousand versus ₹12908861940 thousand, respectively.

The results indicate that PNB Bank, with a Coefficient of Variation at 160.84%, shows higher variability and lower consistency in transaction volumes compared to SBI within the Public Sector Banks. In contrast, HDFC Bank leads among Private Sector Banks, with a Coefficient of Variation at 129.77%, demonstrating more variability but overall better consistency in transaction amounts. Private Sector Banks, in general, display greater consistency and lower variability in mobile banking transactions compared to Public Sector Banks. Furthermore, PNB Bank exhibits the highest Compounded Annual Growth Rate (CAGR) at 163.55% among Public Sector Banks, while HDFC Bank achieves a satisfactory CAGR of 110.87% among Private Sector Banks. Sector-wise analysis shows that Public Sector Banks outperform Private Sector Banks in terms of CAGR.

The Mann-Whitney U test was conducted to evaluate the Null Hypothesis concerning the growth of mobile banking transaction amounts. The test yielded a p-value of 0.971, which exceeds the threshold of 0.05. As a result, the Null Hypothesis is accepted, indicating that there is no significant difference in the growth of mobile banking transaction amounts between Public and Private Sector Banks.

Type of Hypothesis	Results
H <sub>0</sub> : The Growth of mobile Banking transaction's amount in Public and Private Sector Banks is the same.	Accepted

Moreover, the Growth of the Mobile Banking transaction's amount in Public and Private is similar.

## V. Conclusion and Implications

The study indicates that both Public and Private Sector Banks in India have experienced substantial growth in mobile banking transactions between 2013 and 2022. Public Sector Banks showed higher average transaction volumes, while Private Sector Banks demonstrated greater consistency and higher growth in transaction amounts. The analysis of compounded annual growth rates (CAGR) further highlights that Private Sector Banks, particularly HDFC and ICICI, have outperformed their public counterparts in terms of consistent growth. The Mann-Whitney U test confirmed that the growth trends between the two sectors are statistically similar.

The results suggest that while both sectors have made strides in expanding mobile banking, Private Sector Banks have been more effective in maintaining steady growth. This implies a need for Public Sector Banks to focus on enhancing customer experience, consistency, and technological adoption. Stakeholders, including

government bodies and regulators, should prioritize increasing mobile banking access in underserved regions, especially to drive financial inclusion and reduce the urban-rural divide in digital banking services.

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