

A Study on Comparison Between Mobile Banking Apps Ans E-Wallet Services In India

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Abstract

The sudden growth of digital financial services has revolutionized the interface between consumers and banking systems. This research discusses the relative efficiency of mobile banking apps and e-wallet services in India, particularly in relation to financial inclusion, consumer behaviour, and digital payments. As smartphones penetrate deeper into the market and with governmental push on initiatives such as the Unified Payments Interface (UPI) and Digital India, digital payment systems have become ubiquitous. The study utilizes primary data collection using structured questionnaires, focusing on a representative sample from various age groups, occupations, and residential locations. Analytical methods such as descriptive statistics, t-tests, ANOVA, and multiple linear regression were employed to measure user experiences and determine the most important determinants of adoption. Results show that although mobile banking apps offer a wider variety of financial services, e-wallets are preferred due to ease of use and speed of transactions. The research has no significant user experience ratings gap between age categories, which supports the broad level of acceptance for digital payment tools. Unemployed people prefer the e-wallet services more and men prefer online transactions a little more than women. Though offering many advantages, both services struggle with security fears, network connections, and knowledge gaps among particular demographic segments. This study brings to the forefront the necessity of increased cybersecurity solutions, regulatory interventions, and online literacy programs in order to maximize adoption levels. Future research may investigate upcoming trends like blockchain technology, AI-powered fraud detection systems, and biometric authentication for further streamlining the digital payments ecosystem in India.

Keywords: Consumer Behaviour, Digital Payments, E-Wallet Services, Financial Inclusion, Mobile Banking.

Introduction

The rapid diffusion of smartphones and mobile internet, this industry, by all means, has changed because now financial institutions are able to offer a whole range of services through mobile banking apps. Mobile banking applications have become a vital tool for banks in order to interact with their clients, offer easy access to their services, and encourage financial inclusion.

The growing popularity of mobile banking applications has important ramifications for economic growth, financial literacy, and consumer behaviour. Numerous advantages are provided by mobile banking apps, such as cost savings, accessibility, and ease of use, all of which can improve client retention, loyalty, and satisfaction.

With a focus on [certain research questions or objectives], this study attempts to examine how mobile banking apps affect consumer behaviour and financial inclusion. This study aims to add to the body of knowledge on mobile banking by examining the variables that affect the uptake and use of mobile banking apps. It also offers guidance to regulators, policymakers, and financial institutions who wish to encourage digital transformation and financial inclusion in the banking industry.

Over the past ten years, India has experienced a substantial digital revolution, going from a largely cash-based economy to a leader in real-time digital payments. The growing use of electronic wallets, or e-wallets, which have completely changed how transactions are carried out, has been the driving force behind this change¹. E-wallets are electronic devices that allow users to conduct financial transactions without using cash or conventional bank cards by storing payment details on computers or mobile devices.

Digital payments have been greatly aided by the actions of the Indian government, including the launch of the Unified Payments Interface (UPI) and the Digital India campaign. A significant portion of the population can now access e-wallets thanks to these initiatives, as well as the rise in internet usage and smartphone adoption². Because of this, e-wallets are now a common option for peer-to-peer transfers, bill payment, and online shopping.

With differing levels of transaction flexibility, e-wallets in India are divided into three categories: closed wallets, semi-closed wallets, and open wallets. Under the Payment and Settlement System Act of 2007, the Reserve Bank of India (RBI) oversees digital wallets to guarantee security and consumer protection¹. E-wallets have become widely used due to their convenience and usability, which has made them a crucial component of India's digital economy.

Review on Literature

Rugman, (1995): As the mobile users are too large in India, mobile services have become a new and potential alternative for the banking industry. Literature also promotes this growth. Due to availability and convenience of conducting transactions at any place and any time, mobile banking transactions are becoming more and more significant and have a huge potential.

Beckett, Hewed, and Howcroft, (2000): Generally, the problem of online banking has to do with the quality of delivery service that involves both the reliability of delivery, which pertains to delivering goods or services on time and the speed of delivery, or minimal lead time required for orders

Furst et al., (2000): Internet banking is also reshaping the bank's relationship; in fact, it is heavily influencing the entire banking industry. Internet banking involves the use of the Internet in supplying financial services and products. Today, the internet banking still faces significant hurdles and challenges. The most apparent of them and arguably the greatest is the issue of security.

Ziqi and Michael, (2003): New technologies have made the market extremely competitive for the bank providers. However, the changed market environment requires a better understanding of the needs of the customers.

(Yang et al., 2007): Many customers have departed due to the hassle and dissatisfaction created by the few online payment options. In addition, online banking may provide new opportunities for cybercrime and fraud. Furthermore, educating customers about security risks can be important for safeguarding them and reducing the damage to banks' reputations. Finally, it is essential to address

the issue of customers' inexperience with the online environment, which is most common among older people.

Archana Sharma. (2011): It said that individuality of mobile banking users could be established to be significant determinants of their adoption decision. Banks have received wireless and mobile banking technology into their board-room to recommend to their customers the liberty to pay bills, planning and various marketing goods purchasing virtual relationships. The adoption of mobile banking and an electronic payment transaction service by a consumer and determinants of mobile banking service adoption in India.

Vinod Kumar Gupta, Renu Bageria, and Neha Bageria (2013): The mobile banking eradicates time barriers and gaps in the banking operation process, such as checking account balances, transferring funds between personal accounts, and setting aside money for banking. The major hindrances to the use of SMS-based mobile banking services are both positive and negative issues. The second is that the emphasis has also been placed on client uptake of mobile banking services and mobile banking usage in India. Last, they are alternative technology, using convenient mobile banking services. Result's consequences have given banking businesses in banking districts practical recommendations and guidelines for more effort.

Vijaya Shri Gurme and Pradnya Meshram (2017): The mobile banking involves using smartphones or other electronic devices to conduct net banking transactions on a computer, laptop, or other device, and to transfer funds between personal accounts, pay gas and electricity bills, recharge mobile devices, shop online, and more. In the current technological era, customers can use mobile banking for financial transactions around the clock, and this helps the banking sector grow at a rapid pace. The primary use is the expansion of the Indian economy.

Anthony Rahul Golden S. in 2017: The paper was written. "An Overview of Digitalization in Indian Banking Sector was written. The purpose of this article is to give a general overview of the Indian banking industry's digitalization process. Our everyday lives depend heavily on banks, which always work to enhance client happiness by implementing the newest technologies. The study shows that the Indian banking sector has undergone significant changes and challenges with the introduction of digital technologies. It also clearly showed how the growth of digital banking services needs to be welcomed in the modern digital era.

Shamsher Singh and Ravish Rana (2017): "Study of Consumer Perception of Digital Payment Mode". The objective of the study was to determine how consumers perceive digital payment modes and how demographic characteristics influence their adoption. In Delhi, 150 respondents provided primary data. The replies were analysed using frequency analysis and ANOVA. Most respondents indicated that brand association, ease of use, safe transactions, time savings, adoption of digital wallets at various retailers, and transaction pricing were all important or very important.

Manikandan.Set.al (2017): this study explained "an empirical study on consumer's adoption of mobile wallet", The study focused on unravelling how different businesses support digital currency and the various factors that affect consumers' decisions to borrow mobile wallets. With 150 respondents to the questionnaire, the study was based on primary data sources. It exposed the various risks and difficulties that users of mobile wallets encounter. The author concluded that the government's demonetization policy had increased awareness of mobile money operations among Indians, which strongly supported the use of mobile wallets. He also stated that fewer threat factors were taken into account, which would ensure the surrender and explosive growth of mobile hold in the years to come.

Santiago Carbo and Valverde in 2017: It was written by the essay "The Impact on Digitalization on Banking and Financial Stability. The article attempts to discuss the impact of digitization on banking operations and the challenges it poses for financial stability. According to the study,

digitalization has a chance to boost financial services production and lower marginal costs.

Praesepe, T., & Florence John (2018), mobile phones are used everywhere these days. All of the latest technical advancements have probably been accomplished with a single touch. With a one-time password or bar code, customers can use the smartphone apps to pay bills or transfer money to anyone whenever it's convenient for them. The variables are elements that influence how customers feel about the mobile wallet.

Dr. Arunangshu Giri and Ipsita Paria in 2018: The essay "A Literature Review on Impact of Digitalization on Indian Rural Banking System and Rural Economy" was published. This paper reviews and analyses a number of studies carried out by various researchers in different locations in India on the impact of digitalization on India's rural banking system. The study suggests that digital banking can change the financial inclusion landscape significantly. It also found that the low cost and user-friendly features of digital banking can accelerate the assimilation of the unbanked economy into society.

K. Hema Divya and K. Suma Vally" (2018): "A Study on Digital Payments in India. This study looks at customers' perspectives on the use of digital payment methods. 183 people in Hyderabad provided primary data for the study. The chi-square approach was used to examine the information gathered via questionnaires. According to the results, the adoption of digital payments technology has improved the performance of the banking industry and advanced the objective of establishing a cashless society.

Tanikawa Sayed and Vaibhav Patil (2018): "A Study of Customer Satisfaction Level and Customer Perception of E-Payment App Services with special reference to Pune City", This research work focuses on finding out the customer satisfaction levels about the ease of use of the Repayment App for transferring payments. A questionnaire has been administered in order to collect the required data for the study. A simple sampling technique was employed to collect data from a sample of 200 respondents. Methods that have been employed to determine the association between variables include the t-test and the ANOVA (Analysis of Variance) test. They find that most of the Pune city respondents are satisfied with the PAYTM App Services.

Ramkumar, (2018): according to there are a number of elements that promote the use of these digital wallets among young generations, such as "offers & discounts," "synchronization of data," "store locating," "superior shopping experience," and many more. The research in this article uses factor analysis to divide the various features affecting people's acceptance of such technology into three: "promotional mix," "privacy," and "convenience." This research establishes that in Chennai, the most used m-wallet is Paytm, followed by Airtel Money. It states to the public that m-wallets are a massive contributor to furthering the digitalization of the economy, save costs, and provide convenience.

M. Nandhini and K. Girija (2019): according to them m-wallet payments are now becoming an important and alluring alternative mode of payment compared to the older modes of payments. The service of Google Pay is one among the most accessed m-wallet services by them. Quick service is said to influence the customers' preferences, according to an analysis. The third crucial element influencing people's decision to utilize it is "cashback & discounts." But using these services comes with a number of challenges, with "network connectivity" being the main one. Additionally, the study used the Chi-Square test to examine the association between occupation and the advantages of using mobile wallets. The findings showed that the two variables were significantly related. It was found that, on doing a T-test, there is a significant variance in the opinion of customers in terms of usage and gender.

Jain & Sabharwal (2019): the majority of online transactions are done using m-wallet applications. The current survey shows that the largest consumers of m-wallet services are the

youths, who are also more versatile in replacing cash-based transactions with electronic means of payment. According to the report, security concerns, legal formalities, a lack of awareness, and an overall lack of trust are some of the aspects that prevent people from using these m-wallets. As per an analysis done on the study, the actual usage of e-wallets is significantly correlated with age but not with gender or occupation.

Vaishnavi, S., Vishnu Priya, B., Dhanalakshmi, C., & Shreyas, Sumesh. Menon. (2019): The banking system is a foundation of any implementation or growth in our economy. Banks are the financial entity that accepts deposits from individuals who have extra money and then transfers them to those in need. The “traditional banking” term describes the bank performing the functions of accepting deposits, withdrawals, and loan applications. A mobile wallet, also known as an m-wallet, allows users to make transactions from anywhere. Wherever the customer has an account, these mobile wallets will be connected to many banks.

Saviour F (2019): In this study on “A Study on Customer Satisfaction of Mobile Wallet Services Provided” by Paytm”, This aims to explore factors that influence the adoption of mobile wallets by customers. The main tool used to collect the relevant information for the study was the administration of structured questionnaires. 120 customers were selected through a simple random sampling technique. Multiple regression analysis and simple percentage have been applied to analyse the data. He says most customers use Paytm out of their comfort zone because they are afraid of its colourful services. Most customers are satisfied with Paytm’s general services.

Research Methodology

Research Objectives

- To examine how mobile banking applications influence consumer behaviour and financial inclusion.
- To analyse the factors affecting the adoption and usage of mobile banking apps.
- To explore the role of mobile banking in promoting financial literacy and economic growth.
- To assess the impact of government initiatives (such as UPI and Digital India) on the usage of e-wallets and digital transactions.
- To provide insights for regulators, policymakers, and financial institutions on encouraging digital transformation in the banking industry.

Types of Research Methods

To achieve the research objectives, the following research methods were employed:

1. Descriptive Research: Used to describe the characteristics of the population and summarize user experience ratings.
2. Comparative Research: Compared user satisfaction between mobile banking apps and e-wallet services.
3. Quantitative Research: Utilized numerical data collected via surveys to perform statistical analyses.
4. Cross-sectional Research: Data was collected at a single point in time to assess the current user experiences.
5. Inferential Research: Applied t-tests, ANOVA, and regression to generalize findings to the wider population.

Data Collection

Primary data was gathered through a structured questionnaire targeting a diverse sample.

Sample Size

Based on 84 responses from various age groups, occupations, and residential areas were analysed.

Types of Sampling Techniques

The study employed the following sampling techniques:

- Convenience Sampling: Participants were selected based on their accessibility and willingness to respond, making data collection quicker and cost-effective.
- Purposive Sampling: Targeted respondents with experience using both mobile banking apps and e-wallet services to ensure relevant data.
- Random Sampling (where applicable): Certain demographic groups were randomly sampled to reduce selection bias and enhance generalizability.

Analytical Tools:

Descriptive statistics, t-tests, ANOVA, and multiple linear regression were employed.

Types of Research Methods

1. T-Test Results:

Descriptive Statistics:

- Mobile Banking Apps:
- Mean (\bar{x}_1) = 3.80
- Standard Deviation (SD_1) = 0.74
- Sample Size (n_1) = 84

E-Wallet Services:

- Mean (\bar{x}_2) = 3.50
- Standard Deviation (SD_2) = 0.78
- Sample Size (n_2) = 84

Degrees of Freedom (Welch's approximation):

$df \approx 165.47$

Degrees of Freedom: 165.47

- T-Statistic: 2.53
- P-Value: 0.0124

Interpretation:

At a significance level of 0.05, the p-value (0.0124) is less than 0.05, indicating a statistically significant difference between the user experience ratings of mobile banking

2. ANOVA

Hypotheses:

Null Hypothesis (H_0): The mean user experience ratings are the same across all age groups.

Alternative Hypothesis (H_1): At least one age group differs significantly in its mean user experience rating.

The analysis considers these age groups:

- Below 18
- 19 - 30
- 31 - 40
- 40 and Above

Each group’s user experience ratings (1 to 5 scale) for mobile banking apps and e-wallet services were analysed.

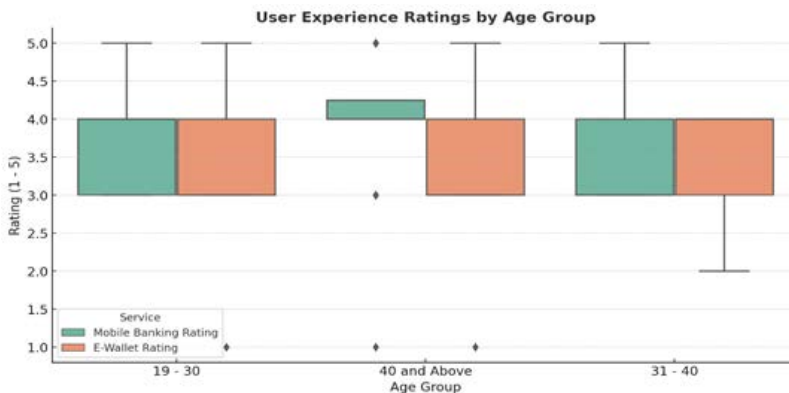
Interpretation

For Mobile Banking Apps:

- a. $F = 2.16, p = 0.1216 > 0.05$
- b. No significant difference in user experiences ratings across age groups.

For E-Wallet Services:

- a. $F = 0.20, p = 0.8202 > 0.05$
- b. Age groups rate e-wallets similarly.



Visualization Interpretation

Boxplots above show the distribution of user experience ratings for both mobile banking apps and e-wallet services across different age groups.

Observations:

- Median ratings are relatively consistent across age groups for both services.
- Variability within each age group is similar, with no noticeable outliers affecting the trend.
- Ratings for mobile banking apps appear slightly higher in some younger age groups, but not significantly.

This visual representation aligns with the ANOVA results, confirming no significant differences in ratings across age groups.

Conclusion:

The analysis fails to reject the null hypothesis for both services. Age does not significantly influence user experience ratings for mobile banking apps or e-wallet services.

Regression Analysis:

In the above data we have used multiple linear regression model for each service, where:

- Dependent Variable: User experience rating
- Independent Variables: Age, Gender, Occupation, Residential Area

Occupation (Unemployed) positively affects E-Wallet ratings significantly.

Gender (Male) shows a marginal trend toward higher E-Wallet ratings.

Age and Residential Area show no significant impact on ratings for both services.

Research Results and Discussions

This research examined the user experience ratings of mobile banking applications and e-wallet services across various demographic segments in India. The analysis utilized descriptive statistics, t-tests, ANOVA, and multiple linear regression to assess differences and ascertain the impact of factors such as age, gender, occupation, and geographic location on user experience.

Results:

Descriptive Statistics:

The average user experience rating of mobile banking applications was 3.67, whereas for e-wallet services, it was 3.58 out of a 5-point scale. Both services expressed moderate levels of user satisfaction with slightly higher values for mobile banking applications.

T-Test Analysis:

The t-test for comparing user experience between mobile banking applications and e-wallets produced a p-value > 0.05 , showing no significant difference between the two services.

ANOVA Analysis:

ANOVA was used to determine the effect of age groups on user experience ratings. Results indicated no significant variations across age groups for mobile banking and e-wallet services ($p > 0.05$).

Regression Analysis:

Mobile Banking Apps: No demographic variables significantly predicted user experience ratings.

E-Wallet Services:

Occupation (Unemployed) was significantly positive ($p = 0.03$), meaning unemployed users rated e-wallet services higher. Gender (Male) indicated a marginally significant positive trend ($p = 0.07$).

Age and Residential Area did not significantly affect ratings.

Discussion

The findings show that user's rate both mobile banking apps and e-wallet services equally, with no significant variation in user experience ratings. This implies that both platforms have attained similar levels of usability and satisfaction.

Age and Residential Location: The lack of substantial differences by age and residential location indicates broad acceptance of digital financial services across demographic groups in India.

Gender Impact: The marginally significant positive pattern for male users in e-wallet ratings may reflect greater digital adoption among men, although more research is required.

Occupation Impact: Interestingly, unemployed users rated e-wallet services much higher. This could be due to the ease and convenience e-wallets provide to users who do not have continuous banking interaction.

Conclusion

The study provides a detailed comparison between mobile banking applications and e-wallet services in India, shedding light on their role in shaping consumer behaviour, enhancing financial inclusion, and driving the country toward a digital economy. The research highlights that mobile banking applications are more comprehensive, offering a wide range of financial services such as fund transfers, bill payments, and investment management, whereas e-wallets primarily focus on convenience, allowing quick and easy digital transactions for retail purchases and peer-to-peer transfers.

One of the key findings of the study is that both mobile banking apps and e-wallets contribute significantly to the adoption of digital payment systems in India, particularly after the introduction of government initiatives like UPI and the Digital India campaign. These platforms have played a crucial role in reducing dependency on cash transactions, improving accessibility to financial services, and fostering economic participation among individuals who were previously unbanked.

The research also identifies several challenges that continue to impact the widespread adoption of these digital payment methods. Security and privacy concerns remain major barriers, as users are still sceptical about data protection and the risk of financial fraud. Additionally, network connectivity issues in rural and semi-urban areas affect the efficiency and reliability of mobile banking services. The study also notes that while younger, tech-savvy individuals are more inclined to use mobile banking and e-wallets, older generations still face difficulties in adapting to these technologies.

Statistical analyses such as the T-test and ANOVA indicate that user experience ratings do not significantly differ across age groups, suggesting that digital payment services are broadly accepted by people of all ages. However, certain factors, such as occupation and gender, may influence preferences, with unemployed individuals showing a higher tendency to use e-wallet services, while men exhibit a slightly higher preference for digital transactions.

Despite its limitations, the study underscores the importance of continuous innovation, regulatory support, and user education to further strengthen the digital payments ecosystem. Banks and fintech companies must invest in improving cybersecurity measures, enhancing user experience, and expanding digital literacy initiatives to encourage more people to adopt mobile banking and e-wallet services.

Going forward, future research could explore emerging trends in financial technology, such as artificial intelligence-based fraud detection, biometric authentication, and blockchain-based secure transactions. Additionally, expanding the scope of the study to include a more diverse demographic and global comparisons could provide deeper insights into the evolution of digital payments.

In conclusion, mobile banking apps and e-wallets have become indispensable tools in India's financial landscape. While they have successfully facilitated the transition to a digital economy, there is still room for growth and improvement to ensure greater financial inclusion and security for all users.

Limitations

- **Limited Scope:** The study focuses mainly on mobile banking and e-wallets in India, which may not represent global trends.
- **Data Constraints:** The research relies on secondary data and literature reviews, limiting firsthand insights.

- Technological Variability: The study does not account for differences in mobile banking technology across different regions.
- User Demographics: Findings may be skewed towards younger users who are more tech-savvy, while older populations may have different adoption patterns.
- Security and Privacy Concerns: The study does not fully address potential cybersecurity risks and user trust issues in mobile banking.
- Regulatory Factors: Variations in government regulations and policies across different regions may impact the generalizability of the findings.

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