

Analysing the efficiency of digital payment applications in Davangere District

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Abstract---In India the most widely adopted digital payment system is Unified Payment Interface (UPI), which enable the seamless and instant fund transfer through the mobile based applications. UPI services are offered in two ways i.e. bank specific applications and third party UPI applications. Both the apps are differing in design, service delivery and operational efficiency. There is the rapid growth in UPI usage, both the apps are experience the various challenges which influence the efficiency and overall performance of these applications. The main purpose is to compare the challenges faced by the apps, improvements required for both the apps and resolving mechanism of bank specific app and third party UPI app. The study is based on both primary and secondary data. Primary data were collected from 118 respondents using the structure questionnaire. Statistical tools such as percentage analysis, weighted average mean and chi-square test were used to analyse and interpret the data. The findings of the study reveals that both the bank specific and third party UPI apps face the challenges such as transaction failures, security concern, network issues, complex user interface and limited merchant acceptance. However, there is a significant difference was observed only in transaction failure between the two types of apps, while other problem dimensions showed no significant variation. The study also found a significant difference in the resolving mechanism adopted by users, whereas no significant difference was observed in the improvements required across both the app categories. The findings offered useful insights for banks, fintech firms and policymakers to enhance the efficiency, reliability and user satisfaction of UPI application especially in semi urban regions like Davangere District.

Keywords---Digital Payments, Third party Apps, Bank Specific Apps.

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INTRODUCTION

The rapid advancement of digital technology has significantly transformed the payment ecosystem in India, shifting it from cash-dominated transactions to digital and cashless modes of payment. Among various digital payment systems, the Unified Payments Interface (UPI) has emerged as a revolutionary platform that enables instant, secure, and low-cost fund transfers between bank accounts using mobile applications. The widespread adoption of smartphones, increased internet penetration, and supportive initiatives by the Government of India and the Reserve Bank of India have played a crucial role in accelerating the growth of UPI across urban and semi-urban regions.

UPI services in India are primarily offered through two categories of applications: bank-specific UPI apps developed by individual banks and third-party UPI apps developed by fintech companies in collaboration with banks. While bank-specific apps are directly integrated with core banking systems and are perceived to offer greater reliability and trust, third-party UPI apps are often recognized for their user-friendly interfaces, innovative features, and faster adaptability to customer needs. Despite operating on the same UPI infrastructure, differences in design, service quality, efficiency, and support mechanisms may influence users' preferences and experiences with these two types of applications.

Efficiency plays a vital role in determining the success and sustained usage of UPI applications. Factors such as transaction speed, frequency of transaction failures, network reliability, security measures, ease of navigation, and effectiveness of customer support significantly affect users' perceptions and satisfaction. Although UPI adoption has grown rapidly, users continue to face operational and technical challenges that may differ between bank-specific and third-party applications. Understanding these differences is essential for improving service delivery and enhancing user confidence in digital payment systems.

In this context, the present study focuses on a **comparative analysis of the efficiency level of bank-specific apps and third-party UPI apps in Davangere District**. Davangere, being a developing district with a mix of urban and semi-urban users, provides an appropriate setting to examine real-world usage patterns and challenges of UPI applications.

REVIEW OF LITERATURE

- Anupama Vohra, Vishal Kumar Laheri, H Dangi “ Issues and Challenges of UPI apps.” (2017). The study focused on highlighting the issues and challenges of UPI apps and also provide the suggestions to increase the usage of these UPI apps. The study based on the theoretical review and analysing the exiting literature. The study concluded that there is usability, positioning, legal and awareness issue are the major challenges of UPI and suggested to create a lot of awareness among the people to enhance its usage in the future.
- Yash Madwanna, Mayur Khadse, B.R, Chandavarkar “ Security Issues of UPI and Challenges: Case Study (2021). The paper focus on the theoretical framework of UPI such as its working and how it is different from the conventional cashless transactions. The study extended towards the discussing how the attackers can find the UPI loopholes in BHIM 1.0 and empty the victim's bank account. The study based on the secondary data. The study concluded that how UPI BHIM 2.0 updated over the BHIM 1.0 successfully in covering the security loopholes.
- G Sankararaman and S Suresh “ A study on UPI transactions in Chennai City.” Design (2021). The research focused on explore about the awareness of respondents on UPI, examine the purpose of using the UPI and also understand the problems faced while using the UPI. The study concluded that there is a significant association between the age of respondents and satisfaction level towards the usage of UPI and also there is a significant difference among the different categories of age group of respondents on frequency of usage of UPI, The research suggested that there should be the regulator to ensure the cyber security of UPI.

- Kashan Usmani “ Digital Payment in India: The Rise of UPI, Decline of cash and Emerging Challenges.”(2023) The research focused on the analysing the growth of digital payments focusing on UPI, examine the impact of digital payments on cash transactions and also identify the challenges faced by the users in adopting the digital payments. The primary and secondary data are used for the study. The study concluded that UPI became a most popular digital payment method but still it hampered with the issues like transaction failure, Cyber Security, low digital literacy in rural areas and poor internet infrastructure.
- Dr. Ritu Bhatia and Veena Shete (2024) “ Usage of UPI transactions and its Challenges- A study on Gen z and Millennials.” The study focused on identifying the most preferred digital payment methods among the Genz and Millenials and also to identify the challenges faced while using the UPI transactions. The primary data collected through the questionnaire method and interpreted using the descriptive and inferential statistics. The study concluded that comparatively Millennials tend to use the UPI more frequently than the Gen Z as they have greater financial responsibilities. The major challenges faced by the user while using the UPI apps are Security, operational issue and behavioural risks.
- Mr. Sachin Agarwal and Dr. Shalini Shrivastav “ The issue and concerns faced by the customer while using the UPI payment Methods.” (2025). The research goal is to identify the issue and concerns faced by the customer while using the UPI payment system and also to analyse the influence of demographic factors on the problems faced by the UPI users. The study used both the primary and secondary data. The descriptive statistics like mean, median and standard deviations are used to analyse the data and one way ANOVA used to test the hypothesis. The study concluded that the large portion of respondents are facing the major challenges like security measures, customer support and transaction failure. There is a significant difference in the problems faced by the user across the different demographic groups.

RESEARCH GAP

A review of the existing literature reveals that several studies have examined the usage pattern, challenges, security concerns, and demographic influences related to UPI transactions in India. While studies such as those by Dr. Ritu Bhatia and Veena Shete (2024) and G. Sankararaman and S. Suresh (2021) have explored demographic factors like age and generational differences in UPI usage, they are largely confined to specific regions or population segments and do not provide a comprehensive comparative analysis across diverse user groups and geographical contexts.

Most of the existing research primarily focuses on identifying challenges such as security issues, transaction failures, operational problems, and lack of awareness (Vohra et al., 2017; Usmani, 2023; Agarwal & Shrivastav, 2025). However, these studies mainly highlight the presence of issues rather than examining how these challenges influence user experience, satisfaction, and continued usage intention of UPI applications. Furthermore, a significant portion of the literature relies on either theoretical reviews or descriptive analysis, with limited application of advanced inferential techniques to understand causal relationships among variables.

Additionally, although security concerns have been widely discussed (Madwanna et al., 2021), there is limited empirical evidence evaluating users’ perceptions of improved security measures in updated UPI platforms and how these perceptions affect trust and adoption. Moreover, very few studies attempt a comparative evaluation of efficiency and user experience across different UPI platforms (bank-specific vs. third-party apps).

Hence, the present study aims to bridge these gaps by conducting a **comparative empirical assessment of the efficiency level of bank-specific UPI apps and third-party UPI apps in Davangere District**, thereby providing region-specific insights and contributing to a deeper

understanding of performance differences that can support policymakers, banks, and fintech service providers in improving UPI services.

OBJECTIVES

1. To analyze and compare the problems faced by the user while using bank specific apps and third party UPI apps in Davangere District.
2. To compare the resolving mechanism of bank specific apps and third-party UPI apps in Davangere District.
3. To compare the improvements required in the bank specific apps and third-party UPI apps in Davangere District.

HYPOTHESIS:

H01 –There is no significant difference between the problems faced by the user while using Bank specific apps and third-party UPI apps.

H11 –There is a significant difference between the problems faced by the user while using Bank specific apps and third-party UPI apps.

H02 – There is no significant difference in resolving mechanism of Bank specific apps and third party UPI apps

H12 –There is significant difference in resolving mechanism of Bank specific apps and third party UPI apps.

H03 –There is no significant difference in improvement required in Bank specific apps and third party UPI apps.

H13 –There is a significant difference in improvement required in Bank specific apps and third party UPI apps

METHODOLOGY

The study used both primary and secondary sources for its data collection. The survey method is used to collect the primary data. The convenience sampling technique has been used by distributing the Structured questionnaire to 118 respondents in Davangere District. Likert Scale tool has been used in questionnaire. The secondary data has been gathered from various websites and published research articles. The statistical tools like Percentage analysis, Weighted average mean has been used to analyze and interpret the data. Chi square test has been used to test the hypothesis.

ANALYSIS AND INTERPRETATION

Table No 01- Problems faced by the user while using Bank specific app

Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Mean
Transaction Failure	22	36	46	12	02	3.54
Security concern	38	42	22	09	07	3.81
Complex User interface	18	42	44	9	5	3.50
Limited Merchant acceptance	20	36	40	14	8	3.39
Network Issue	28	35	37	15	3	3.59
Overall weighted Mean						3.57

Source: Primary Data

Note: Due to multiple options by the respondents total percentage exceeds

Interpretation: The above analysis associated with the challenges faced by the user while using the bank specific apps was conducted using weighted mean across the five key variables.

Among the variables, Security concern recorded the highest weighted mean of 3.81 which indicates that user face a lot of security related issues such as fear of fraud, unauthorized transactions and data breach. Second key variable is network issue, its weighted mean is 3.59 which reflects the connectivity problems, server slow down, delay in the processing of transactions. The weighted mean of transaction failure is 3.54 such challenges discourage the usage of UPI applications. Complex user interface shows the moderate weighted mean of 3.50 user agree that design and usability of some UPI apps can be confusing to navigate. The lowest mean received by Limited Merchant acceptance i.e. 3.39 even though UPI acceptance is widespread, some of the respondents still face the situations where merchant do not support UPI based payments. The overall weighted mean of 3.57 indicates that the respondents generally agree that these challenges are present to a moderate extent in their UPI usage.

Table No -02 Problems faced by the user while using Third party UPI app

Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Mean
Transaction Failure	29	41	31	10	7	3.64
Security concern	17	51	36	11	3	3.58
Complex User interface	22	35	42	14	5	3.47
Limited Merchant acceptance	20	44	32	14	8	3.46
Network Issue	30	44	32	10	6	3.65
Overall weighted Mean						3.56

Source: Primary Data

Note: Due to multiple options by the respondents total percentage exceeds

Interpretation: The table shows that there is the highest rated challenges faced by the respondents while using the third party UPI app is the Network issue as its weighted mean is 3.65 which indicates that respondents are suffering from the unstable internet connectivity. The weighted mean of Transaction Failure is 3.64 which is close to the network issue. Respondents face the failed transactions while using the UPI apps. The user experience the moderate level of challenges towards Security Concern as its weighted mean is 3.58. so security remains as an important psychological and practical barrier. The weighted mean of Complex user interface is 3.47 whereas the Limited merchant acceptance is 3.46. The overall weighted mean is 3.56 indicates that the respondents agree that there are the challenges exists but there severity varies.

Table No-03 Resolving Mechanism while using Bank Specific App and third Party UPI app

Variables	Bank Specific App		Third Party UPI Apps	
	F	%	F	%
Contact Customer Support	63	53.38	45	38.14
Search Online for solution	10	8.47	09	7.63
Switch to different app	06	5.08	18	15.25
Try again Later	34	28.81	16	13.56
Other ways	05	4.24	30	25.42
TOTAL	118	100	118	100

Source: Primary data

Interpretation: The above analysis shows that the majority of the users (53.38%) choose to contact the customer support when they face the challenges while using the Bank specific apps which indicates that the respondents are primarily rely on the bank's official channels for the resolving their issues. A

substantial proportion of the user (28.81%) go for the Try again later option. They treat the problem as a temporary so they just postpone. Very less preference for the self help by searching the solution online (8.47%) and less respondents (5.08%) shift to a different app is the positive indicator to the banks.

The above analysis shows that the most preferred resolving mechanism used by the third party UPI app user is contacting the customer support(38.14%). A substantial portion of respondents (25.42%) relied on the other ways such as checking the transactions status with the beneficiary, looking for solutions on forums or social medial and checking the linked bank account directly. This high percentage reflects that the user often seek solution outside the app's formal channels. A notable (15.25%) of the respondents are willing to switch to the different apps. Only (13.56%) of the respondents choose to try again later option. And least preferred for searching online for a solution (7.63%) .

Table No-04 Improvements in Bank Specific apps

Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Mean
User Experience	48	50	15	2	3	4.17
Simplicity in Interface	33	55	25	5	0	3.98
Faster transactions	47	46	20	4	1	4.14
Customer support system	41	53	20	4	0	4.11
Security Measures	48	42	20	4	4	4.07
Overall weighted Mean						4.09

Source: Primary Data

Note: Due to multiple options by the respondents total percentage exceeds

Interpretation: The above table shows the improvements needed in the Bank specific app. The highest mean is for User experience i.e.4.17 which indicates that it the most critical are needed to improve. The high number of respondents who strongly agree and agree highlights a significant demand for a smoother, easier and better experience while interfacing this app. The second most critical improvement area is Faster transactions as its weighed mean score is 4.14 reflects the user demand for real time processing and minimal delay when dealing the financial transactions. The weighted mean score of Customer support system is 4.11 which means that there should be the user value accessible and efficient help within the app and should focus on the resolving issues of digital payments. 4.07 is the weighted score of Security measures indicates that there is a persistent concern about the safety of their financial data. The weighted mean score of simplicity in interface is 3.98 which is the lowest weighted mean. Overall weighted mean is 4.09 suggests that respondents on an average agree that all the above importance areas need to be improve in bank specific applications.

Table No-05 Improvements in Third party UPI apps

Variables	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Mean
User Experience	49	47	18	3	1	4.19
Simplicity in Interface	34	52	29	1	2	3.97
Faster transactions	44	51	20	2	1	4.14
Customer support system	49	40	22	6	1	4.10
Security Measures	46	48	17	5	2	4.11
Overall weighted Mean						4.10

Source: Primary Data

Note: Due to multiple options by the respondents total percentage exceeds

Interpretation: The above table shows the area of improvement needed in the Third Party UPI app. User Experience received the highest weighted mean i.e. 4.19 which is the most critical factors that user believe needs improvement in third party UPI apps. Users requirements are more seamless, enjoyable and efficient interaction flow for their daily transactions. The weighted mean for Faster transaction is 4.14 user expect the near instantaneous and highly reliable transaction completion. The weighted mean of Security and Customer support is 4.11 and 4.10 which is almost equally important. The user require assurance of robust data protection and fraud prevention and also effective support for failed transactions. Simplicity in interface is registered with the lowest mean score i.e.3.97 which means that interface design of third party UPI apps are generally considered as acceptable.

TESTING OF HYPOTHESIS

Table No-06 Problems faced by the Users while using the Bank Specific app and Third Party UPI app

Variables	χ^2	Critical χ^2 Value	Degree of Freedom	P value	Result
Transaction Failure	14.58	>9.488	4	$p \approx 0.0056$	Null Hypothesis Rejected
Security concern	7.167	<9.488	4	$p \approx 0.1272$	Null Hypothesis Accepted
Complex User interface	2.156	<9.488	4	$p \approx 0.7073$	Null Hypothesis Accepted
Limited Merchant acceptance	1.688	<9.488	4	$p \approx 0.7925$	Null Hypothesis Accepted
Network Issue	3.456	<9.488	4	$p \approx 0.4851$	Null Hypothesis Accepted

Interpretation: The above table analyse the problems faced by the user while using the Bank specific app and third party UPI app using the Chi-Square test of independence to compare the distribution of user experience for each problem faced across the two different type of apps. The test is performed with a significant level of $\alpha = 0.05$ and 4 degree of freedom, giving a critical χ^2 value of 9.488. The calculated chi square value of transaction failure is 14.58 which is more than the Critical χ^2 value 9.488 therefore the null hypothesis is rejected there is a significant difference between Bank specific app and third party UPI app. The chi square value of Security concern, complex user interface, limited merchant acceptance and network issue are less than the critical χ^2 value of 9.488 Here the Null hypothesis is accepted. There is no significant difference between the Bank specific app and Third party UPI app.

Table No-07 Resolving Mechanism used by the Users while using the Bank Specific app and Third Party UPI app

	χ^2	Critical χ^2 Value	Degree of Freedom	P value	Result
Resolving Mechanism	33.39	>9.488	4	$p \approx 0.001$	Null Hypothesis Rejected

Interpretation: The above analysis shows the comparison of resolving mechanism of Bank specific app and third party UPI app using the Chi-Square test of independence. The test is performed with a significant level of $\alpha = 0.05$ and 4 degree of freedom, giving a critical χ^2 value of 9.488 The calculated chi square (χ^2) value is 33.39 which is significantly greater than the critical χ^2 value. The corresponding p value is 0.001 which is much lower than the standard $\alpha = 0.05$. Hence the Null Hypothesis is rejected.

There is a significant statistical difference in the resolving mechanism adopted by the user of Bank specific app and Third party UPI app.

Table No- 08 Improvements needed in the Bank Specific app and Third Party UPI app

Variables	χ^2	Critical χ^2 Value	Degree of Freedom	P value	Result
User Experience	1.5758	<9.488	4	$p \approx 0.8131$	Null Hypothesis Accepted
Simplicity in Interface	5.0620	<9.488	4	$p \approx 0.281$	Null Hypothesis Accepted
Faster transactions	1.0233	<9.488	4	$p \approx 0.9062$	Null Hypothesis Accepted
Customer support system	4.0236	<9.488	4	$p \approx 0.4028$	Null Hypothesis Accepted
Security Measures	1.4636	<9.488	4	$p \approx 0.8331$	Null Hypothesis Accepted

Interpretation: The above table analyse the improvements needed in the Bank specific app and third party UPI app using the Chi-Square test of independence. The test is performed with a significant level of $\alpha = 0.05$ and 4 degree of freedom, giving a critical χ^2 value of 9.488 The calculated chi square value of every instance ranging from 1.0233 to 5.0620 was significantly less than the critical value and corresponding p value is greater than the 0.05 Hence in all the variables Null Hypothesis is accepted. This finding indicates that there is no statistically significant evidence to show that there is a improvements required in Bank Specific App and Third Party UPI app.

FINDINGS

- While this is the leading choice, the percentage is significantly lower than the 53.38% recorded for bank-specific apps. This suggests that users of Third-Party UPI apps are less dependent on direct customer service.
- Increased Willingness to Switch Apps A notable 15.25% of users choose to Switch to a different app. This percentage is significantly higher than the 5.08% recorded for bank-specific apps. This indicates a lower switching cost and less brand loyalty among Third-Party UPI app users. Since UPI is a common platform, users can easily transition to another app (e.g., from Google Pay to Phone Pe) to complete a transaction, treating the issue as app-specific rather than platform-specific.
- Low Frequency of "Try Again Later" Only 13.56% of users choose to Try again Later. This is much lower than the 28.81% for bank-specific apps. This difference suggests that UPI transactions are often time-sensitive, or users perceive the issues as more immediate and less likely to resolve themselves compared to traditional banking app issues
- Out of the five variables tested, **only transaction failure showed statistically significant difference** between Bank-specific and Third-party UPI apps. This suggests that users perceive **transaction failure issues differently** depending on the type of UPI app they use.
- For all other variables—Security Concern, Complex Interface, Merchant Acceptance, and Network Issues—there is **no significant difference** in the problems faced by users of Bank-specific and Third-party UPI apps.
- For all the variables such as user experience, simplicity in interface, faster transactions, customer support system and security measures there is no significant difference in the improvements required in the Bank specific app and third party UPI apps.
- There is a significant difference in the resolving mechanism adopted by the user while using the bank specific apps and third party UPI apps.

CONCLUSION

The present study examined and compared the efficiency level of bank-specific UPI apps and third-party UPI apps in Davangere District with a focus on problems faced by users, resolving mechanisms adopted, and improvements required. The findings indicate that users of both categories of UPI applications encounter common challenges such as transaction failures, security concerns, network issues, complex user interfaces, and limited merchant acceptance, highlighting that operational difficulties persist across the UPI ecosystem irrespective of the type of app used. The comparative analysis revealed that a significant difference exists only in the case of transaction failures between bank-specific and third-party UPI apps, suggesting variations in transaction processing or system integration. However, no significant difference was found with respect to security concerns, interface complexity, network issues, and merchant acceptance, implying that these issues are largely platform-related rather than app-specific. The study also established a significant difference in the resolving mechanisms adopted by users, where bank-specific app users predominantly rely on formal customer support channels, whereas third-party app users exhibit greater flexibility by switching apps or seeking alternative solutions.

Further, the analysis of improvements required showed no significant difference between bank-specific and third-party UPI apps, indicating that users across both platforms share similar expectations regarding enhanced user experience, faster transactions, effective customer support, simplified interfaces, and stronger security measures. This reflects a uniform demand for quality improvement across the UPI ecosystem. In conclusion, while both bank-specific and third-party UPI apps are efficient in facilitating digital transactions, targeted improvements in transaction reliability and customer support responsiveness are essential to strengthen user trust and satisfaction. The study contributes valuable region-specific insights and can assist banks, fintech companies, and policymakers in formulating strategies to enhance the overall efficiency and effectiveness of UPI services, particularly in semi-urban districts like Davangere.

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