

# An Analysis of the Different Payment Systems of Digital Banking

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**Abstract:** *Digital banking is a new concept and it uses different payment systems. The study is conducted to analyze the different payment systems of digital banking. For that purpose, the researchers selected BHIM, NEFT, NCTE, credit cards, and debit cards. The secondary data used for the study is collected from the reports of RBI, journals, and articles. Based on the hypothesis here used a t-test for the analysis and also used tables and charts. The study found that more transactions are carried through NEFT than IMPS. It was also discovered that there is no significant difference in usage of debit cards and credit cards and the usage of BHIM is showing an increasing trend. The study suggested that the applications like BHIM should be developed based on the opinion and convenience of common people, reduce the charge of IMPS and IMPS should provide services both online and offline.*

**Keywords:** BHIM, Digital banking, IMPS, NCTE, NEFT

## I. INTRODUCTION

In today's modern world digital innovation is growing day by day, one of the important sectors that adopt technology is banking. And in that, the digital payments have gained huge attention among the customers. Moreover, these digital payment system indicators function 24/7 hours and the transaction have been made easy and convenient. It helps to transfer the funds within a fraction of seconds across the world. The services of digital banking are not only for the same bank but it is also made available to the different banks through means of the settlement system and payment system. Then the payment system includes large value credit transfer-RTGS(Real-time gross settlement), credit transfer, debit transfer & direct debits, card payments, prepaid payment instruments, and paper-based instruments. The credit transfer includes AePS (Aadhaar enabled payment system (Fund transfer)), APBS (Aadhaar payment bridge system), ECS (Electronic clearing services), IMPS ( Immediate payment services), NACH (National Automated Clearing House), NEFT (National electronic fund transfer ) and UPI (Unified payment interface). The debit transfer & direct debits include BHIM (Bharat Interface For Money) Aadhaar pay, ECS (Electronic clearing services), NACH (National automated clearing house), and NETC (National electronic toll collection). Then the card payment includes credit cards and debit cards.

## II. OBJECTIVES

- To analyze the difference between the various digital payment indicators in India.
- To examine the relationship between the debit and credit transfer of the digital payment system.

### 2.1 HYPOTHESIS

#### Hypothesis 1

- Ho: There is no significant difference exist between the mean value of IMPS and NEFT.
- H1: There is a significant difference exist between the mean value of IMPS and NEFT.

#### Hypothesis 2

- Ho: There is no significant difference exist between the mean value debit cards and credit cards of the digital payment system.
- H1: There is a significant difference exist between the mean value of debit cards and credit cards in the digital payment system.

### III. REVIEW OF LITERATURE

(Revathi, 2019) examined the digital payment system's advantages and disadvantages. The researcher analysed both the primary as well as the secondary data in the study, and found that most people are now familiar with technology to the point where it changes their lifestyle. Businesses must therefore differentiate themselves in the digital arena by providing distinctive services. Security is still one of the most important services that banks can provide, so simple interfaces are ideal. Customers are becoming increasingly accustomed to mobile platforms, and internet platforms are being used by people of all ages. Because of these factors, digital platforms have undeniable influence.

(Kumar & Singh, 2019) The goal of this project is to investigate the many concepts, modes, trends, and challenges of digital banking in India. The study is descriptive in nature, and it is on the basis of the secondary data acquired from the RBI's official website. The data comes from the Reserve Bank of India (RBI), Mumbai, NITI ayog's Report on Trends and Progress of Banking in India and Report on Payment System Indicators for FY 2018-19. The survey concludes that digital banking offers both users and banks a better banking experience. The future banker, however, will undoubtedly be a digital banker.

(Hankumaran, n.d.) For the period 2007-08 to 2018-19, Payment System Indicators like the Systemically Important Financial Market Infrastructures (SIFMIs), Paper Clearing, Retail Electronic Clearing as well as the Card Payments were studied. ANOVA, mean, standard deviation, regression equation, and t-test were used to examine the indicators. Payment System Indicators, for example, have risen dramatically, according to the report. The study found that digital payment can help eliminate the need for paper clearing services in banking transactions. More government backing, as well as innovations, safety, and convenience from the players, are indicated as priorities.

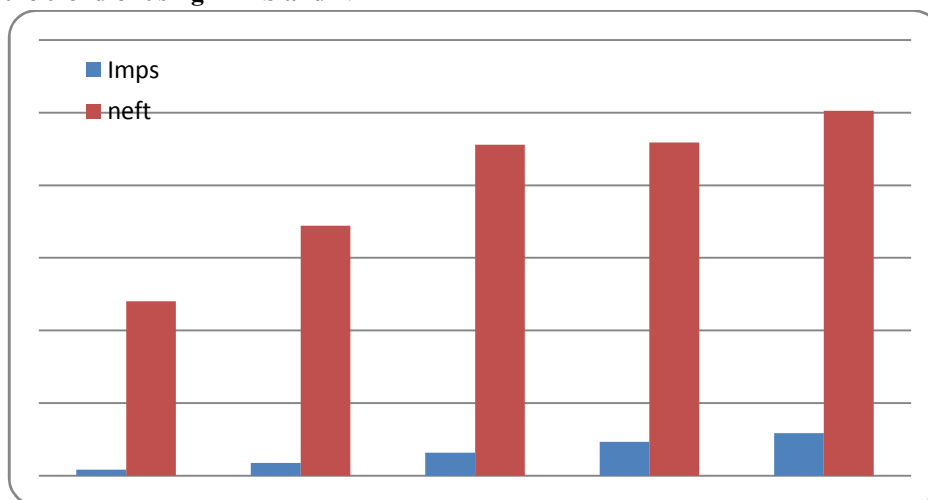
(Kolodiziev et al., 2021) investigates how economic digitalization, the rapid growth of electronic payments and e-commerce, and novel technology aimed at offering digital services have influenced the competitiveness of Ukrainian banks. The correlation as well as the regression dependence of the competitive position were determined by activity indicators of various banks on the level of competitive digitalization confirmed that the development of digital banking technology has a direct effect on the competitive position of personal deposits.

### IV. RESEARCH METHODOLOGY

Secondary data is used for the study. It has been collected from various sources like the internet, RBI reports, journals and articles. Based on the hypothesis fixed the independent t-test and charts and tables were used for analyzing the data. from the payment system of digital banking credit transfer, debit transfer, and card payments were selected for the study. From the above three categories, we randomly selected IMPS, NEFT, BHIM Aadhaar pay, NETC, credit cards, and credit cards.

### V. RESULT AND DISCUSSION

Chart 1 shows the trend of using IMPS and NEFT



Source: RBI Reports and the calculation were computed using Excel

Chart 1 shows the information related to IMPS and NEFT. IMPS shows an increasing trend till 2018-19. After that, there is a stable condition during 2019-20. Then finally in 2020-21 it again increases but NEFT shows an increasing trend from 2016-2021.

**Table 1 shows the t-test result**

t-Test: Two-Sample Assuming Unequal Variances		
	<i>IMPS</i>	<i>NEFT</i>
Mean	1634580	20019384
Variance	1.06E+12	2.86E+13
Observations	5	5
Hypothesized Mean Difference	0	
Df	4	
t Stat	-7.54637	
P(T<=t) one-tail	0.000826	
t Critical one-tail	2.131847	
P(T<=t) two-tail	0.001652	
t Critical two-tail	2.776445	

Source: RBI Reports and the calculation were computed using Excel

Table 1 shows the P-value is less than 0.05 and hence the null hypothesis is rejected and the alternative hypothesis is accepted which signifies that there exists a significant difference between IMPS and NEFT

**Table 2 shows the result of the t-test**

t-Test: Two-Sample Assuming Unequal Variances		
	<i>Debit Cards</i>	<i>Credit cards</i>
Mean	549751.4	550413.6
Variance	23629021197	24860763256
Observations	5	5
Hypothesized Mean Difference	0	
Df	8	
t Stat	-0.006724331	
P(T<=t) one-tail	0.49739973	
t Critical one-tail	1.859548038	
P(T<=t) two-tail	0.99479946	
t Critical two-tail	2.306004135	

Source: RBI Reports and the calculation were computed using Excel

Table 2 shows the P-value is greater than 0.05 and hence the alternative hypothesis is rejected and the null hypothesis is accepted which signifies that there is no significant difference exists between the mean value of debit and credit cards.



Chart 2 shows the trend in the usage of debit cards and credit cards.

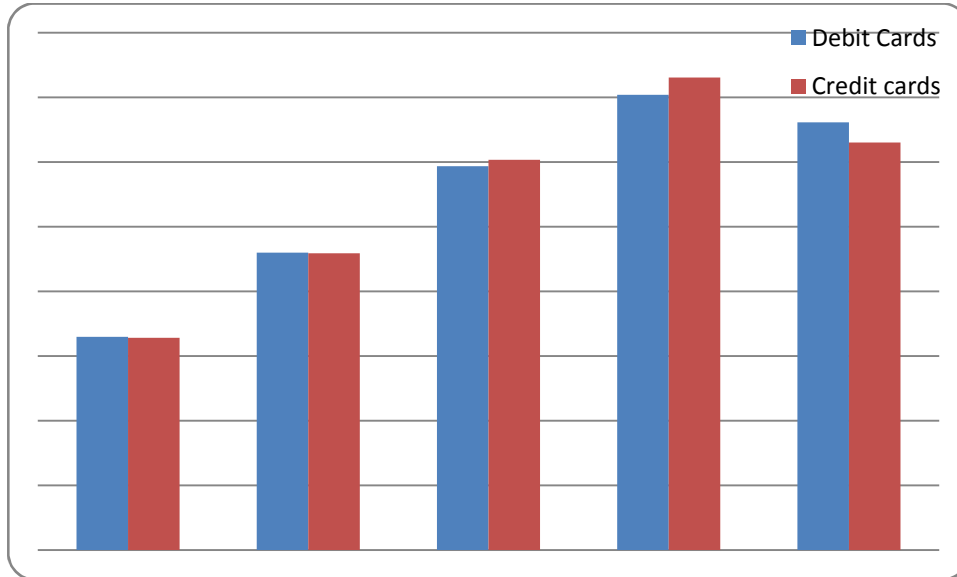


Chart 2 shows the usage of debit cards and credit cards from 2016-to 2021. It shows an increasing trend from 2016 to 2019 but in 2020-21 it shows a decreasing trend.

Chart 3 shows the trend of BHIM

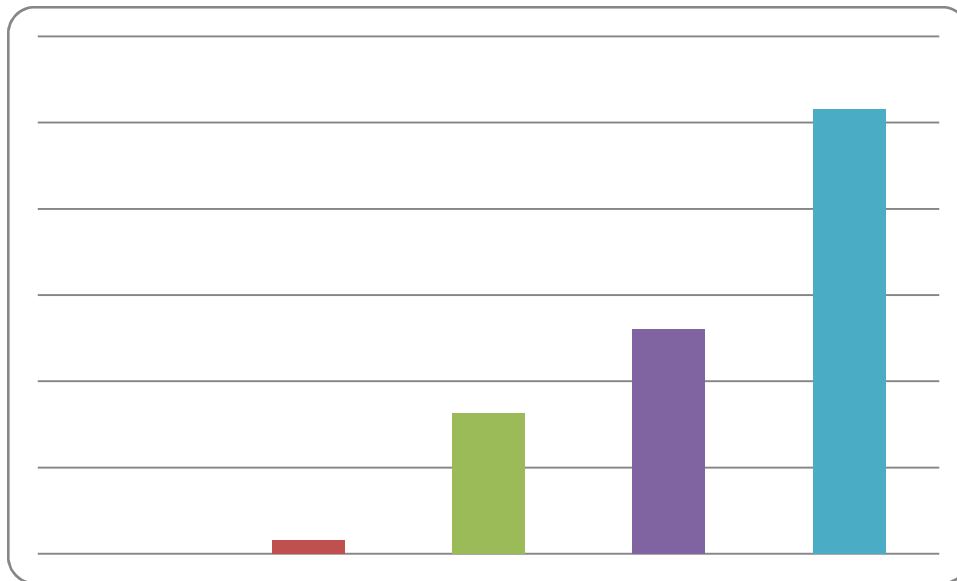


Chart 3 shows that there is an increase in usage of the BHIM mobile application.

VI. FINDINGS

- Both IMPS and NEFT provide 24\*7 service to transfer money from one bank to another. But from the study, it was discovered that there exists a difference in usage of the IMPS and NEFT.
- Both IMPS and NEFT show an increasing trend but more transactions are done through NEFT while comparing to IMPS.
- A debit card allows a user to spend their own money but a credit card allows you to borrow money from the issuer. But the study found that there is no difference in the usage of debit cards and credit cards.
- The study found that the debit and credit card usage shows an increasing trend till 2019-20. But in 2020-21 it goes down.

- It is observed that the customers are utilizing the service of the BHIM mobile application since 2017 itself. The BHIM is introduced in the year 2016 and the number of transactions through BHIM is increasing consistently.

#### **VII. SUGGESTIONS**

- The study found that there exists a difference in the usage of IMPS and NEFT. The number of transactions is high in NEFT and it may be because the NEFT provides services without any charge and it offers both online and offline services. If IMPS offers services both online and offline with a convenient charge or without any charge, the customer will be ready to use IMPS.
- There is no significant difference between using debit cards and credit cards. And also there is an increasing trend in the usage. Both the cards can be used But for safety, the users should use credit cards rather than debit cards while making purchases.
- BHIM mobile application is introduced in 2016 and from 2017 onwards there is an increasing trend in the utilization of the application. The concept of digital banking is more convenient for people, so these kinds of applications should be developed by considering the user's opinion.

#### **VIII. CONCLUSION**

The innovations in the banking sector have seen a major growth along with the support of a regulatory body like RBI. The Government of India aims to have a cashless economy and at the same time, it also aims to improve the services provided by the internet. So that people can access online banking services at an ease. The digital banking services like transaction of funds through mobile applications, internet banking, and so on and it is an added advantage to the professionals, elderly people who cannot visit the bank directly for availing of its services. The drawback of the paperless situation of traditional banking was replaced with the help of digital banking. The innovation in digital banking is grown in such a way that even the customer can pay their utility bills with the help of it. It also helps to prevent the circulation of black money since the government can track the transactions by digital banking technology.

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