

## Impact of Covid 19 on Digital Payment in India-With Special Reference to IMPS

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### Abstract

Digital payment comprises of a financial transaction between two or more persons through virtual or digital platform in place of physical transaction. It offers fund transfer through cell phones across the world round the clock. Users of this mode are offered benefit of fair recording of all monetary transactions on their fingertips. Even to lessen the spread of Covid-19, digital payments can support physical distancing, perform fund transfer and thus aid and ease the government to reach those in necessity. The present study aims to study usage of IMPS during Covid 19 as well as impact of Covid 19 on quantum of IMPS transactions since it broke out in India. The present study covers the period of 32 months i.e. 16 months of First and Second Wave of Covid 19 (April, 2020 to July, 2021) and 16 months prior to Covid 19 (December, 2018 to March, 2020). The sample of the existing study consists of all the member banks offering IMPS during the study period i.e. December, 2018 to July, 2021. The researchers have conducted a T-Test: Paired Two Sample for means to test the hypotheses of the present study. It is hypothesised for the study that there is no significant difference in the means of member banks offering IMPS, number of IMPS transactions and volume of IMPS transactions before and during Covid 19 in India. The Study found that there has been significant difference in the means of Number of Member Banks before and during Covid 19. The study also found that there has been significant difference in the means of Number of IMPS transactions before and during Covid 19. Significant difference in the means of volume of IMPS transactions before and during Covid 19 has also been observed. The study found that during Covid 19 pandemic in India, with the increase in Number of Member Banks offering IMPS, there has been increase in usage of IMPS which has been reflected by the Number of IMPS transactions and Volume of IMPS transactions.

**Keywords:** Digital Payment; IMPS; Covid 19.

## Introduction

The present world is the fastest moving digital world. In banking sector also, shift from physical banking to digital or virtual banking is also taking place at a very fast pace. People prefer to make digital transactions in general and one of the major rising methods of making payments called as Digital Payment in particular. Digital payment comprises of a financial transaction between two or more persons through virtual or digital platform in place of physical transaction. It offers fund transfer through cell phones across the world round the clock. Users of this mode are offered benefit of fair recording of all monetary transactions on their fingertips. Hence, focus should be on digital payments and infrastructure especially in rural India (Sharma & Mathur, 2021). The spread of smart phones, the accessibility of an online verifiable individuality, worldwide access to banking and the use of biometric devices in phones will proactively motivate digital systems for steering in a cashless society in India (Mohapatra, 2017).

Before 2010, with a view to transferring funds real time and 24X7X365 interbank was a foremost challenge confronted in Indian Banking Industry. Only National Electronic Funds Transfer (NEFT) and Real-Time Gross Settlement (RTGS) were available to users for fund transfer during banking hours. In 2010, A pilot study was undertaken by the National Payments Corporation of India with the selected Public and Private Banks in India by keeping the limitation of NEFT and RTGS in mind. That is how Immediate Payment Service (IMPS) was launched which delivers 24X7X365 interbank electronic fund transfer service accessed on several channels like Mobile, Internet, ATM, SMS. The objectives of introduction were to transfer fund in simpler, secured and complete range of mobile based banking services, to sub-serve RBI's goal of electronification of retail payments. It can be seen from the facts and figures that since its inception, IMPS has become popular and its volume has been increasing. It was effectively used in India since September, 2013 when number of Member Banks offering IMPS were 59 with 1.02 Mn number of IMPS transactions and in terms of Volume with Rs. 552.75 Cr of IMPS transactions. It has reached to 639 Member Banks with 349.76 Mn of IMPS transactions worth Rs 309054.12 Cr in July, 2021. It shows that the use of IMPS has increased significantly over a period of time even the number of Live Member Banks offering IMPS to their customers have increased significantly.

In India, cases of Covid 19 reported in great numbers in the month of April, 2020. As community

blowout of the virus increases, substitutes to physical banking and physical transfers of funds and exchanges are seeming to be more desirable. To lessen the spread of Covid-19, digital payments can support physical distancing, perform fund transfer and thus aid and ease the government to reach those in necessity (Ahmad et al., 2021). Even RBI has emphasised on the promotion of digital payments in general and IMPS in particular in the context of Covid 19 (Jain et al., 2020). It has resulted into changes like swing from personal banking towards virtual or digital banking (Litha, 2021). In times of Covid 19 pandemic, use of IMPS has accelerated to have safeguard against the pandemic. Almost from the end of the month of March, 2020 Covid cases in India have begun. The first wave was there in India during June 2020 to December 2020; while the second wave was there from March, 2021 to June 2021 and as of now i.e. in the month of July and August, 2021 on an average 45000 Covid cases are reported in India. Over and above Mask, Vaccination and Sanitizing; Social Distance i.e. avoidance of close contact is the key to safeguard against the pandemic and hence government emphasises on use of online or virtual or digital mode for banking. IMPS has been considered to be useful and user-friendly digital payment tool for fund transfer in the times of Covid 19 pandemic. It is also likely to have propensity to use digital or virtual banking even after the post pandemic phase, as novel consumption behaviour models are evolving (Baicu et al., 2020). Hence, the present study aims to study use of IMPS during Covid 19 as well as impact of Covid 19 on quantum of IMPS transactions since it broke out in India. The present study covers the period of 32 months i.e. 16 months of Covid 19 (April, 2020 to July, 2021) and 16 months prior to Covid 19 (December, 2018 to March, 2020). The sample of the existing study consists of all the member banks offering IMPS during the study period i.e. December, 2018 to July, 2021. The researchers have conducted a T-Test: Paired Two Sample for means to test the hypotheses of the present study. It is hypothesised for the study that there is no significant difference in the means of member banks offering IMPS, number of IMPS transactions and volume of IMPS transactions before and during Covid 19 in India. The study has been carried out as follows: the present section gives the introduction about the present research work. The second section discusses a literature review on research work carried out on impact of Covid on digital payment. The third section outlines the methodology of the present study. The fourth section discusses the result and discussion and the last part of the study outlines the conclusion.

### *Literature Review*

There has been significant increase in use of digital payments services through various applications in Indian towns and villages during pandemic COVID 19 as compared to use of digital payments before the happening pandemic Covid-19 (Gupta & Singhal, 2021). The usage of digital dealings and virtual fund transfer were stimulated during Covid 19 pandemic (Saha, 2021). Even the substantial effects of social distancing on digital dealings have been seen by each of deals' volumes and values (Alber, 2020). The overall digital payment dealings documented substantial evolution in terms of volume and value at CAGR of 24.11% and 15.84% respectively during the period 2012-2013 to 2018-2019 (Angamuthu, 2020).

Noteworthy impact on digital payment modes such as Debit/Credit cards, UPI, IMPS, NEFT and RTGS has been observed during the Covid 19 pandemic in India (Das et al., 2020). During Covid times from January 2020 onwards people in India were diverted to Digital Dealings as lockdown forced them to stay behind the doors (Sachdeva & Jain, 2020). During lockdown period, the banking sector has given services as online or tele-banking in Turkey also (Agan, 2020). Apparent risk and supposed usefulness directly exaggerated purpose to use e-wallets during Covid-19 outbreak. The consequence of government aid on the intention to use e-wallets has completely facilitated by apparent usefulness. There has been a variance between Indonesia and Malaysia in government aid and purpose to use e-wallets association. Covid-19 might drive consumers' purpose to use e-wallets (Aji et al., 2020).

From results of a paired sample t test, it has been observed that Covid-19 had significant impact on use of digital payments (Kaur & Walia, 2021). There is significant difference between the mode of payment while purchasing the product of the respondents before lockdown and during lockdown period as per t-test (Sudha et al., 2020). There has been significant impact of Covid-19 on digital payment system. There are many digital payment modes available in India, but the most of the customers prefer only few digital payment modes. Because they were not having enough information of all the available digital payment systems (Sowmya & Hebbar, 2020). Irrespective of various demographic factors such as gender, age, education, profession, and monthly income, people tend to use digital payment methods in times of Covid pandemic (Siby, 2021). Even the five independent variables such as perceived usefulness, perceived ease of use, perceived security, perceived health security and perceived benefits is better pre-

dicting the dependent variable intention to use e payment system in India particularly referring to the Covid-19 (Kaur et al., 2021). As far as consumer perception is concerned, there is no significant difference between education, profession, gender, age and income on the perception of digital payment methods in times of Covid pandemic in Ernakulam district of Kerala (Siby, 2021). It has affected fast-growing digital payments which are closely linked to the manufacturing, auto, retail, aviation and hospitality sectors. Shut shops, travel bans and reduced discretionary spends by consumers are further negatively impacting digital payments on this sector but overall, there has been increase in Digital payments in India during Covid 19 pandemic (Perwej, 2020). Covid-19 may have given a substantial drive in the endeavour to downgrade cash transactions, but not so far as to eliminate it completely but Covid-19 has been a silver lining, in many ways, for suitability of digital payments in India (Panwar et al., 2020).

However, Covid - 19 pandemic has transformed the entire way of living and influence thereof can be noticeable on digital payment system. Contactless fund transfer, security, quick clearances, consumer friendly Operating System and rewards can be some of the features which have endorsed the usage of digital payment system in India. Despite India being a cash preferred economy, security and nonexistence of infrastructure are of great concern, various modes of digital payments have categorically assisted in fund transfer without terror of getting infected people during Covid 19 (Anandan & Mouli, 2020). There has been quick upsurge in UPI Payments throughout Covid 19 lockdown, society equipped to use UPI as an alternative of cash and UPI payments facilitated to safeguard social distancing (Jawade & Suryavanshi, 2021). Even the Reserve Bank of India and the government insisted the people to shift to digital payment modes with a view to remain protected in Covid 19 pandemic. National Payments Corporation of India and other state governments have been confirming that further providers of crucial services have been on the digital platform. The government has also carried out drive on social media to stimulate the usage of online payments and dampen the usage of cash during Covid 19 (Nirmala & Parvathi, 2021). The way to protect us from virus can be to take alternative of digital payment which will allow the consumers to transfer fund for the goods and services without physically caring the currency. Even the keypads of diverse modes of fund transfer can be retrieved contactless. Such initiatives into digital payments to a sure degree will curtail the effect of the Covid-19 (Kaur & Kushwaha, 2021).

From the above review of empirical works, it is clear that during Covid 19 usage of modes of digital payments have increased significantly across the nation as well as worldwide. Most of the researchers have taken into account the first wave of the Covid 19 for studying the effect of Covid 19 on the digital payments. Some of the researchers have conducted analysis on the basis of the primary data about respondent's perception, preference about digital payments during Covid 19. Some authors have approached their research on Digital payments in different ways in varying levels of analysis. These different approaches helped in the emergence of more and more literature on the subject during the recent time. It gives an idea of extensive and diverse works on digital payments in India during the Covid 19 pandemic. It has been noticed that the studies on factors affecting digital payments provide divergent results relating to the study period. The main reason for the divergence in the results is the use of the different methods for the measurement of factors affecting digital payment.

*Research Problem:* The survey of the existing literature reveals that no specific work has been carried out to examine and ascertain impact of Covid 19 on IMPS in India. The present study is an attempt in this direction and therefore, aims to enrich the literature on the impact of Covid 19 pandemic on IMPS in India.

*Research Question:* The present study is an attempt to find the answer to the following research questions. Are there any increase in number of Live Banks offering IMPS, in number of IMPS transactions and in volume of IMPS transactions during the Covid 19 in India?

*Research Objectives:* The present study has been carried out with the following objectives:

- 1 To study usage of IMPS during Covid 19 and its impact on Number of Live Banks offering IMPS, Number of IMPS transactions and Volume of IMPS transactions.
- 2 To study interrelationship among number of Live Banks offering IMPS, in number of IMPS transactions and in volume of IMPS transactions during the Covid 19 pandemic.

## Methodology

*Geographical Coverage and Duration:* The existing study had geographical coverage of Indian Banking Sector. The study covers the period of 32 months i.e. 16 months of Covid 19 (April, 2020 to July, 2021) and 16 months prior to Covid 19 (December, 2018 to March, 2020). The duration of research study takes into account not only first wave of Covid in India but second wave also. The reason for the selection of the

duration of the present research is to study the impact of pandemic on IMPS.

*Sample and Sampling Techniques:* Looking at the objectives of the present study, there was a need to take a sample covering the Indian Banking Sector and henceforth a sample of the present study consists of all the member banks offering IMPS during the study period i.e. December, 2018 to July, 2021. It means the entire population has been taken as a sample for the present study.

*Data Collection:* The existing work was created on the secondary information composed from the website of the National Payments Corporation of India.

*Hypotheses of the Study:* The following hypotheses were formulated in this study:

$H_0$  = There is no significant difference in the means of Member Banks offering IMPS before and during Covid 19.

$H_1$  = There is significant difference in the means of Member Banks offering IMPS before and during Covid 19.

The above hypothesis is limited to the Number of Member Banks offering IMPS. To have better understanding and true picture, the previous hypothesis has been extended to the following hypothesis:

$H_0$  = There is no significant difference in the means of Number of IMPS transactions before and during Covid 19.

$H_1$  = There is significant difference in the means of Number of IMPS transactions before and during Covid 19.

The above hypothesis is limited to the Number of IMPS transactions only. To have clear idea about impact of pandemic on IMPS, the above hypothesis is further extended to the following hypothesis:

$H_0$  = There is no significant difference in the means of Volume of IMPS transactions before and during Covid 19.

$H_1$  = There is significant difference in the means of Volume of IMPS transactions before and during Covid 19.

*Research Design:* Founded on the Works Review, the present study begins with a basic data i.e., Number of Member Banks offering IMPS. To study the exact impact of the pandemic on IMPS, variables such as Number of IMPS transactions as well as Volume of IMPS transactions have been selected. It also covers study of interrelationship among number of Live Banks offering IMPS, in number of IMPS transactions

and in volume of IMPS transactions during the Covid 19 pandemic Thus, the present study gives a complete status of IMPS in Indian Banking Sector during the Covid 19.

*Hypothesis Testing:* To determine whether the means of the selected variables before Covid 19 and during Covid 19 are different or not, the researcher has conducted a T-Test: Paired Two Sample for means and hence the hypotheses of the study were verified by T-Test: Paired Two Sample for Means. To study interrelationship among number of Live Banks offering IMPS, in number of IMPS transactions and in volume of IMPS transactions during the Covid 19 pandemic, Correlation has also been used.

*Limitations:* The existing research work is based on secondary data, so the outcome of the study depends upon the accuracy of the secondary data. The terrestrial room was restricted to one of the digital payment modes i.e., IMPS only.

*Further Scope of Study:* The present study can further be extended by covering different modes of digital payment system prevailing in India.

## Result and Discussion

### t-Test: Paired Two Sample for Means of No of Member Banks

	No of Member Banks Before Covid 19	No of Member Banks During Covid 19
Mean	504.9375	613.5625
Variance	3882.463	637.7292
Observations	16	16
Pearson Correlation	0.913645	
Hypothesized Mean Difference	0	
Df	15	
t Stat	-10.7132	
P(T<=t) one-tail	0.00000000195586093313	
t Critical one-tail	1.75305	
P(T<=t) two-tail	0.00000000391172186626	
t Critical two-tail	2.13145	

As p-value is less than 0.05, Null hypothesis is rejected and alternate hypothesis is accepted. The variance amid the means of Number of Member Banks before and after Covid 19 is statistically significant. Hence, the sample selected provides enough evidence to conclude that the two-population means are different and hence there is significant difference in the means of Number of Member Banks before and during Covid 19. Specifically, the mean of Member Banks

during Covid 19 (613 banks) is greater than that of before Covid 19 (504 banks) hence it is said that during Covid 19 number of member banks has increased significantly. As number of member banks during Covid 19 has increased as compared to Number of Member Banks before Covid 19, it can be said that number of banks offering IMPS has increased significantly during the time of pandemic. To have a true picture, number of IMPS transactions during Covid 19 ought to be investigated.

### t-Test: Paired Two Sample for Means of Volume of IMPS Transaction (In Crore)

	Volume of IMPS Transaction (In Crore) before Covid 19	Volume of IMPS Transaction (In Crore) during Covid 19
Mean	185138.6	256262.8
Variance	5.49E+08	2.91E+09
Observations	16	16
Pearson Correlation	0.798832	
Hypothesized Mean Difference	0	
Df	15	
t Stat	-7.49608	
P(T<=t) one-tail	0.000000950376777168281	
t Critical one-tail	1.75305	
P(T<=t) two-tail	0.00000190075355433656	
t Critical two-tail	2.13145	

As p-value is less than 0.05, null hypothesis is rejected and alternate hypothesis is accepted. The variance amid the means of Number of IMPS transactions before and during Covid 19 is statistically significant. Hence, the sample selected provides enough evidence to conclude that the two-population means are different and hence there is significant difference in the means of Number of IMPS transactions before and during Covid 19. Specifically, the mean of number of IMPS transactions during Covid 19 (283.4019 Mn) is greater than that of before Covid 19 (205.2544 Mn) hence it is said that with the increase in member banks during Covid 19, number of IMPS transactions has also increased significantly. As number of IMPS transactions during Covid 19 has increased as compared to Number of IMPS transactions before Covid 19, it can be said that avoidance of physical banking or preference of virtual banking has increased significantly during the time of pandemic. To have a true picture, volume of IMPS transactions during Covid 19 ought to be investigated

**t-Test: Paired Two Sample for Means of Volume of IMPS Transaction (In Crore)**

	Volume of IMPS Transaction (In Crore) before Covid 19	Volume of IMPS Transaction (In Crore) during Covid 19
Mean	185138.6	256262.8
Variance	5.49E+08	2.91E+09
Observations	16	16
Pearson Correlation	0.798832	
Hypothesized Mean Difference	0	
Df	15	
t Stat	-7.49608	
P(T<=t) one-tail	0.000000950376777168281	
t Critical one-tail	1.75305	
P(T<=t) two-tail	0.00000190075355433656	
t Critical two-tail	2.13145	

As p-value is less than 0.05, null hypothesis is rejected and alternate hypothesis is accepted. The variance amid the means of volume of IMPS transactions before and after Covid 19 is statistically significant. Hence, the sample selected provides enough evidence to conclude that the two-population means are different and hence there is significant difference in the means of volume of IMPS transactions before and during Covid 19. Specifically, the mean of volume of IMPS transactions during Covid 19 (256262.8 Cr) is greater than that of before Covid 19 (185138.6 Cr) hence it is said that during Covid 19 volume of IMPS transactions has increased significantly. Increase in volume of IMPS transactions during Covid 19 shows that people preferred not to do physical banking during the time of pandemic.

	No. of Members Banks	No. of IMPS Transactions (In Mn)	Volume of IMPS Transactions (In Cr)
No of Bank Members	1		
No of IMPS Transactions (In Mn)	0.962129	1	
Volume of IMPS Transactions (In Cr)	0.974107	0.995945	1

It can be seen that Number of members banks and Number of IMPS transactions are positively correlated. The correlation coefficient shows that number of members banks and number of IMPS transactions are positively strongly related to each other. Increase in Member Banks has resulted into increase in Number of IMPS Transactions. Even Number of Member banks and Volume of IMPS transactions are also hav-

ing strong positive correlation. The correlation coefficient shows that number of members banks and volume of IMPS transactions are strongly related on positive side to each other. Increase in Member Banks has resulted into increase in volume of IMPS Transactions during the study period. Even number of IMPS transactions and volume of IMPS transactions are positively correlated. The correlation coefficient shows that number of IMPS transactions and volume of IMPS transactions are strongly related to each other. Increase in IMPS transactions has resulted into increase in volume of IMPS Transactions during the Covid 19.

*Findings, Conclusion and Recommendations*

The present study was conducted with an aim to study usage of IMPS during Covid 19 and its impact on Number of Live Banks offering IMPS, Number of IMPS transactions and Volume of IMPS transactions. It also aimed to study interrelationship among number of Live Banks offering IMPS, in number of IMPS transactions and in volume of IMPS transactions during the Covid 19 pandemic. The study has been carried out amid the coronavirus pandemic which has been prevailing not only in India, but in all over the world. As the study is based on the entire population, the result of the study is more likely to reflect the exact IMPS usage scenario of India during the Covid pandemic. Thus, the results of the study can be considered reliable at the point and can be useful to the policy makers.

The outcome of the study revealed that there has been significant difference in the means of Number of Member Banks before and during Covid 19. The study also found that there has been significant difference in the means of Number of IMPS transactions before and during Covid 19. Significant difference in the means of volume of IMPS transactions before and during Covid 19 has also been observed. Hence, it can be concluded that due to Covid 19 pandemic usage of IMPS has significantly increased.

The study also found that during Covid 19 number of live banks has increased and hence more banks have started offering IMPS to their customers during pandemic. Hence, it can be concluded that the banks have encouraged the customers to use IMPS with a view to avoid physical banking and maintain social distancing to safeguard customers against the pandemic in India. Even the customers themselves preferred virtual banking and maintain social distance to protect themselves and their family from the pandemic.

The study also found that number of members banks have strong positive relation with number of IMPS transactions as well as volume of IMPS trans-

actions. Hence, it can be concluded that during Covid 19 pandemic in India, with the increase in Number of Member Banks offering IMPS, there has been increase in usage of IMPS which has been reflected by the Number of IMPS transactions and Volume of IMPS transactions.

It can be said that during Covid 19, usage of IMPS has been increasing because it has made fund transfer simpler, safer and economical just with the cell number of the beneficiary as a result. The other reason for its increased usage is empowering the bank customers to use cell phone as a medium to access the account and thereby to transfer fund immediately. Thus, it has been building foundation for a complete range of cell-based banking service. Looking to the increasing usage of IMPS, it is recommended to resolve the bottlenecks in the adoption thereof by reducing security-related resistances, creating awareness among the users to use cell phones for the fund transfer through IMPS, reducing transaction charges on fund transfer and increasing the limit of the fund transfer through IMPS.

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