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**A PRE AND POST COVID-19 STUDY OF DIGITAL FINANCIAL
INCLUSION IN INDIA**

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Abstract

India has been dealing with the “COVID-19 pandemic” since 2020. In addition to affecting the nation's health infrastructure, this pandemic has also limited people's physical mobility because outside activities would enhance the likelihood of the contagious virus spreading. As a result, this epidemic has provided a chance for a country where financial transactions can be completed digitally via electronic means. In addition to protecting users from the virus, this might also increase the speed of “digital financial inclusion”, that is still in its infancy before this epidemic despite the government's unceasing efforts. So, the study discusses “The impact of the COVID-19 pandemic on digital payments” by collecting data from the financial years 2019–20 to 2021–22 by using trend analysis.

Keywords: Digital Financial Inclusion, Financial Inclusion, COVID-19, Digital Payment, Retail payment, Digital Application, UPI, IMPS, Mobile Banking, BHIM.



INTRODUCTION

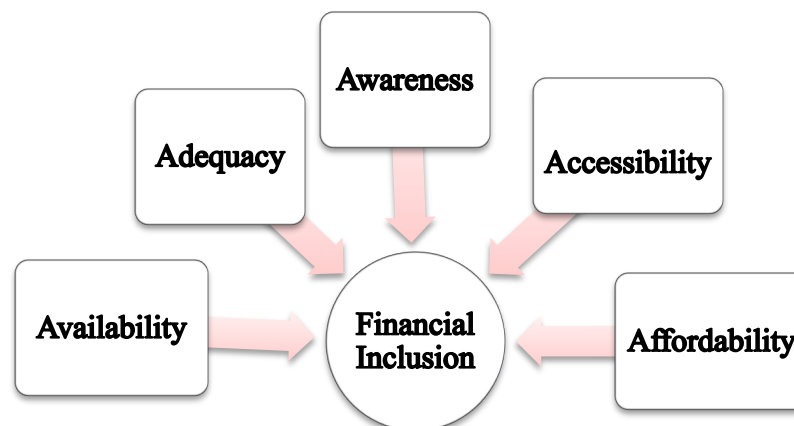
The financial part of the economy plays a key role in determining social growth and national economic prosperity. For this reason, a sound financial system is necessary for sustainable growth in developed countries as well as in developing and underdeveloped countries. We can achieve inclusive and equitable national growth through financial inclusion. “Financial inclusion refers to the provision of appropriate financial services to vulnerable groups, such as low-income groups and weaker sections, who lack timely and affordable access to even the most basic banking services.”

The Committee on Financial Inclusion, Chairman: Dr. C. Rangarajan, defines Financial Inclusion as “the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost.” As a result, financial inclusion enables underbanked and unbanked citizens to participate in the official financial

system, allowing them to profit from a range of financial products and services while also contributing to their country's overall economic growth.

Five A's can help to describe “financial inclusion” more precisely. The first is availability, which states that everyone should have access to financial services regardless of their financial status or credit limit; the second is Affordability so that everyone should be able to afford the cost of all financial services; and the third is Accessibility, which states that all financial services must be available to citizens living anywhere in the nation, including the most rural areas. It means that everyone, regardless of geographic location, should have access to low-cost savings, loans, insurance, and other financial services; fourth, there should be aware of the availability, application, and significance of various financial services; and, finally, adequacy—financial services ought to be sufficient to satisfy the needs of various groups. Lower-income populations, for example, should have access to loans in smaller amounts.

Figure 1: Five A's of Financial Inclusion



Source: Researcher's own creation

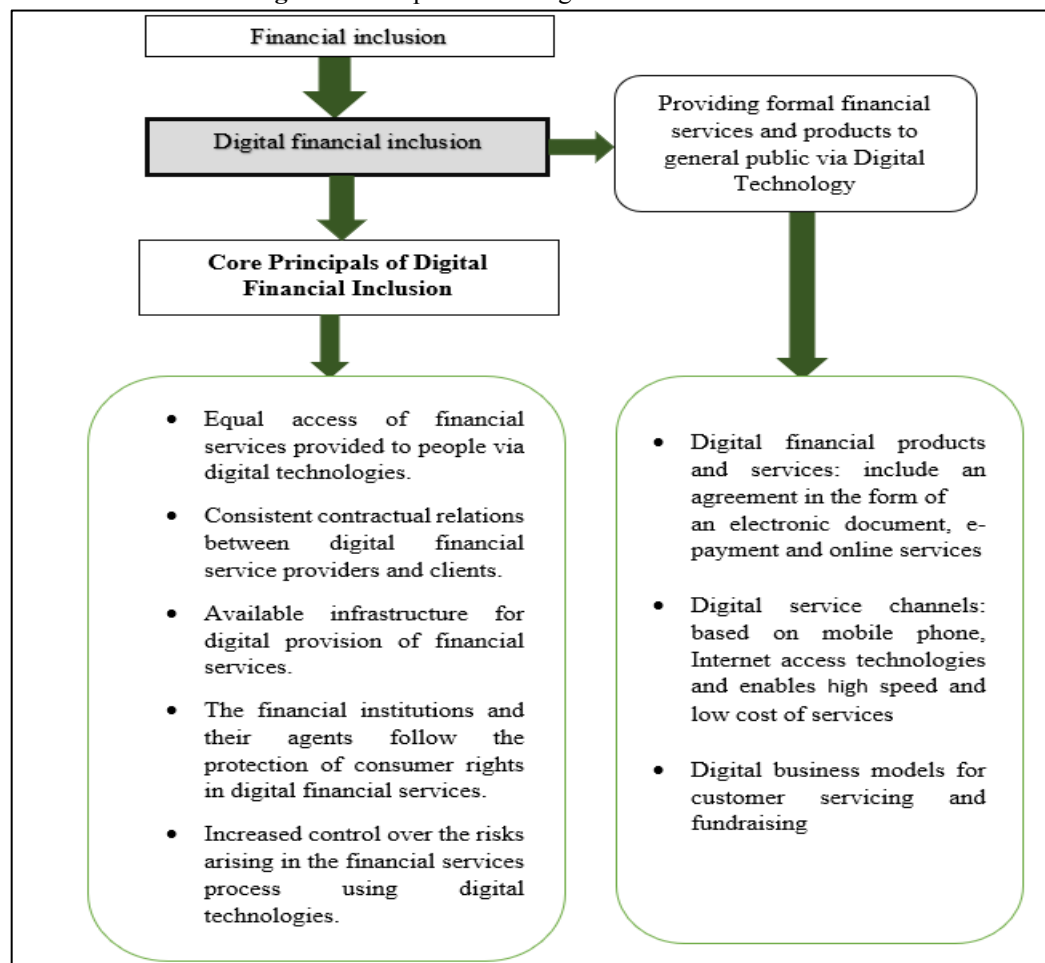
Digital Financial Inclusion is offering formal financial services at an economical cost to the digitally excluded and unbanked population. "Digital channels include the Internet, mobile phones both Smartphone and digital feature phones,

automated teller machines, point-of-sale terminals, and near field communication enabled devices, chips, and any other digital system." "Digital Financial Inclusion" is the digital implementation of financial inclusion. It is the virtual access

to and use of formal financial services by those who are financially excluded and vulnerable groups of society. Digital financial services will be provided at an inexpensive cost to both customers and providers. It must be according to the customer's needs and economical for the producer. In other words, we can say that "Digital Financial Inclusions is based on the basic principles of digital interaction between the service provider and consumer, use of different financial products and services digital channels, as well as customer service and fund-raising systems (Figure 2)".

According to the World Bank, "Digital Financial Inclusion involves the deployment of cost-saving digital means to reach currently financially excluded and underserved populations with a range of formal financial services suited to their needs that are responsibly delivered at a cost affordable to customers and sustainable for providers."

Figure 2: Components of Digital Financial Inclusion



Source: Authors' Compilation

A pivotal moment in our time was COVID-19. It has widely destroyed lives and livelihoods and continues to harm the global economy in several ways. Very few epidemics in history have been comparable to COVID-19, leaving policymakers without a model to help them deal with the issue. The epidemic is expected to have a lasting impact on how communities and economies operate. The epidemic has caused many structural alterations that have profoundly changed how we live and work. It forces people to maintain social distance, and the government also imposed a restricted lockdown to prevent the transmission of disease. The coronavirus pandemic is hitting global economies, but it has additionally seen a positive effect on digital finance. Financial technology is reducing the dependence on physical interaction on the need for cash. It provides a secure platform for Government and providers to reach very quickly and efficiently and also make it easy for the customer to get and receive payments to meet their daily needs. So, digital finance is evolving as an essential need for the world to meet financial challenges in such crises.

In the current study, we make a comparative study on how COVID-19 affected digital financial inclusion with reference to Pre and Post Pandemic. As we know, people in the country are facing lockdown due to the COVID-19 pandemic to avoid social assemblages and physical interchange. Due to this, people are moving from cash to cashless platforms to avoid the same. On the other hand, people have lost their jobs and are unable to maintain their bank accounts because all the production and manufacturing units are shut down to follow the norms of the government. So, the question arises whether the coronavirus boosted digital financial inclusion or not. Is the government achieving its complete financial inclusion with the help of digital financial inclusion during the pandemic?

Motivation

In addition to the manufacturing industry, the “COVID-19 pandemic” also had an impact on the services industry, including “hospitality, tours and travels, healthcare, retail, banks, hotels, real estate, education, health, IT, recreation, media, and others.” The government imposed a nationwide

lockdown and social distancing to avoid the spread of diseases. The decision to lockdown becomes painful for those people who have lost their jobs; due to this, they are unable to maintain their bank accounts. On the other hand, lockdown and social distancing pushed people to shift from cash transactions to cashless transactions, i.e., digital transactions. So, in this paper, we make an analytical study on how the “COVID-19 pandemic affected digital financial inclusion” by making a comparative study on Pre and Post-pandemic. The study discusses “the impact of the COVID-19 pandemic on digital payments” by collecting data from the financial years 2019–20 to 2021–22 to include both waves of the pandemic. The collected data is further divided into Pre and Post-COVID-19. India was struck by the pandemic in March 2020, resulting in a total lockdown of the whole nation and all economic activity was shut down to follow the social distance.

COVID-19 and Digital Financial Inclusion

Different economies all across the world have been severely damaged by the “COVID-19” pandemic's explosive growth. It has had an impact on every industry, most notably the “banking, healthcare, education, manufacturing, and IT industries.” The health sector was directly impacted, which in turn affected the nation's financial systems. The current pandemic crisis has hampered progress in nations like India, where the government has worked tirelessly to achieve 100percent financial inclusion to create sustainable and equitable growth. According to the UN secretary-general (April 2020), “The effect of the COVID-19 pandemic could reverse the limited progress that has been made on financial inclusion. The substantial gains in improving the level of financial inclusion made over the decades are in danger of being rolled back due to this COVID-19 pandemic.”

India has been dealing with the COVID-19 pandemic since 2020 when its people were initially placed under lockdown. In addition to affecting the nation's health infrastructure, this pandemic has also limited people's physical mobility because outside activities would enhance the likelihood of the contagious virus spreading. As a result, “this epidemic has provided a chance for the country where financial

transactions can be completed digitally via electronic means.” In addition to protecting users from the virus, this might also increase the speed of “digital financial inclusion”, which was still in its infancy before this epidemic despite the government's unceasing efforts.

The vast majority of people used to access financial services offline, such as through bank visits, ATM use, and in-person payments to institutions for a variety of reasons. Only a small portion of the country uses digital tools. However, the pandemic crisis has compelled the rest of the populace to use digital channels as well, from paying bills and shopping for food to sending money to family and friends, the majority of transactions now take place digitally. People are therefore switching from “traditional financial inclusion to digital financial inclusion” during the crisis.

LITERATURE REVIEW

Peterson Ozili (2020) the STUDY emphasized the effect of the “COVID-19 pandemic” in Nigeria. The researcher pointed out five ways in which COVID-19 adversely affects the economy of the country. One, the pandemic affected the borrowers' ability to repay their loans, which is not good for banks' earnings. Two, a sharp decline in oil prices due to low demand. Three, many factories are closed due to the pandemic, which affects the production as well as the supply chain of goods and services. Four, the Nigerian national budget is also adversely affected due to the decline in oil prices. Lastly, the Nigerian stock market was also affected by COVID-19. Besides this, Nigeria had an undeveloped digital economy, which impacted markets and industries in a bad way. Digital bank transactions, telephones, and internet services are among the services made available through digital channels in the event of a pandemic.

Peterson Ozili (2020) the study emphasized that the effects of the COVID-19 crisis are worse in developing countries than in developed countries. It affects the unbanked population of developing countries due to their poor health systems, undeveloped financial systems, and weak regulation and law system. In this article, researchers also suggested some policy solutions “to improve financial inclusion during the COVID-19 crisis.” Firstly, to provide

better payment services during crises. Secondly, to increase trust and cyber security in technology for financial transactions. Thirdly, to ensure that there is a continued circulation of money in the economy, Fourthly, the government must be encouraging digital remittances by reducing their costs. Fifthly, encourage people to keep enough money at all times during crises and, lastly, provide financial assistance to needy people as soon as possible. Furthermore, the researcher emphasized that the government, financial institutions, and other financial technology businesses must take the right and quick decision to assist poor and needy people.

Mostak Ahamed and Roxana Gutiérrez-Romero (2020) studied how financial inclusion helps to reduce the poverty during the COVID-19 pandemic by collecting data from “78 low and middle-income countries.” The study concluded that “financial inclusion” is very helpful in reducing poverty but it also increases inequality. Their study also analyzed that if the government not taking any proper measures then approximately 400 million people could fall into poverty due to COVID-19 situations. Further, the study also suggests that financial inclusion is very helpful in controlling the poverty hike to some extent. Financial inclusion can also play an important role in providing basic financial assistance and to face the pandemic storm smoothly. Due to the COVID-19 crisis, the financial institution may play an important role to keep the economy stable of any nation. The concerned authorities suggested implementing social distancing around the globe which pushed people to use more digital technology for their financial requirements such as mobile banking but the study find that approx. 60percent population of the world received government benefits in their account and less than 5percent of people received them through mobile phones.

Olaniyi Evans (2018) studied the relationship between “internet, Mobile phone and financial inclusion in Africa by collecting data from 44 African countries.” The study found that there is a favorable association between them. It means that “increased usage of internet and mobile have a positive effect on financial inclusion.” Similarly, there is a significant relationship between financial inclusion and

macroeconomic factors like “capital formation, primary enrollment, bank credit, broad money, population growth, remittance and agricultural value added.” While there is a negative relationship between the rate of interest and regulatory quality. The study observed that “internet and mobile phones can minimize the transaction cost and cost-efficient for rural people which may help to achieve financial inclusion completely.” Further, the study also finds that educated people use their accounts more frequently than uneducated people. Financial literacy is very important for the optimum use of financial infrastructure. Africa has a low literacy level in the world which may create a hindrance to achieving financial inclusion. So, financial literacy programs are an essential component for achieving financial inclusion.

Emmanuel Mogaji (2020) the study highlighted the “impact of the COVID-19 pandemic on the world economy.” The pandemic adversely affected the world, which caused many people to become unemployed and financially vulnerable. The study also suggests three support networks to provide financial assistance to the needy. Firstly, the government should provide financial support to individuals and industries in their country to recover from the adverse effects of this pandemic. Secondly, banks should provide financial support to their customers, especially in underbanked areas, to make them financially strong. Thirdly, individuals need to be connected to their social network of family and friends for financial support. The study further suggests that financial inclusion is an essential element for improving the living conditions of a nation's people.

Tonuchi Emmanuel Joseph (2020) studied how to boost mobile money services and their use during the COVID-19 period by collecting data from Nigeria. The study discloses “that Nigeria has low progress in mobile money adoption and usage compared to other East African countries.” It was also found from the study that in Nigeria there are above than 80 percent mobile penetration but mobile money penetration is less than 30 percent.” Financial technology companies like Quickteller and Opay are playing an important role in achieving complete financial inclusion by

targeting the unbanked population through mobile financial services without opening an account in a bank. Furthermore, the study revealed that there are four main issues facing the users, which are: “bad mobile connectivity; security; cost of services; and lack of a proper complaint resolution platform.” The problem of security is not only a concern for users but also for the provider due to unethical practices like money laundering. To build the citizens' faith, fintech firms and banks must collaborate with telecom service providers to guarantee a secure cellular network.

Priya Seetharaman (2020) observed that the COVID-19 crisis emphasized the need for businesses to adopt the digital way of delivering their products and services with minimum physical contact. Companies have to develop their capabilities to survive in the changed environment. They have to look into their product redesign, product and service delivery channels, etc. The researcher also observed in the study that the banking and media industries are least affected by the COVID-19 crisis because of their early adoption of digitalization. Banks have seen a positive increase in the use of online platforms for banking services and digital payments. The study suggested that industries may prevent them by digitalizing their product and services from the negative impact of the pandemic.

Alka Singh (2017) discussed the “role of technology in financial inclusion.” “Financial inclusion is the initiative of the government to cover the whole population of the country by providing them with basic financial products and services at a minimum cost.” To make it successful, many banking technologies have been introduced by banks such as “mobile banking, e-KYC, immediate payment system (IMPS), Aadhaar Enabled Payment System (AEPS), micro-ATM, Rupay debit card, National Unified USSD Platform (NUUP), etc.” Further, the researcher also highlighted the challenges faced by banks in the implementation of banking technology like connectivity, financial and technology illiteracy, lack of technology adoption, etc. The study also suggested that “technology is an important element in the implementation of financial inclusion to expand financial products and services to excluded groups of society.” So, banks and other financial institutions have to invest in

technology to provide financial services in an effective, transparent, and equitable way.

Shubhashis Gangopadhyay (2009) discussed how technology can help to implement financial inclusion in India. As per the study, 50 percent or more of the adult population of our nation is not included in the financial system. Most of them are aware of the various financial services, but only a few can take advantage of them due to the transaction cost of these services being too high for them, as well as the fact that financial illiteracy and fear are also the main reasons for financial exclusion. The researcher also suggested that information technology can play a vital role in reducing transaction costs. It can provide financial services at a minimum cost to everybody. Further, the study also revealed that in India only 7 percent of the total population is using electronic payments system. The cost of using electronic payment depends on the number of transactions. That means the larger the number of transactions, the lower the cost of each transaction will be. The study also suggested that both technology providers and regulators need to work together for a systematic system to provide a platform for secure and confidential transactions and to achieve complete financial inclusion.

Objective

- To analyze the progress of financial inclusion initiatives with special reference to digitalization during and post COVID 19.
- To make a comparative analysis on the impact of digital financial inclusion Pre and Post COVID-19 in India.
- To analyze the trend in the usage of digital payments since COVID-19

RESEARCH METHODOLOGY

The paper consists of a descriptive study on “digital financial inclusion and the impact of Pre and Post COVID-19 on it by using trend analysis.” The study is based on secondary data taken from various sources such as the Reserve Bank of India, the World Bank, CGAP and data from different websites of the government of India regarding financial inclusion, digital financial inclusion and COVID-19. The study also includes data from different articles, journals, relevant websites, and newspapers. It also considers the reports of different committees submitted to the government and financial regulatory bodies of India.

ANALYSIS AND INTERPRETATION

Progress of digital payment methods in Pre and Post Pandemic

Since the year 2020, when Indian citizens experienced a lockdown for the first time, the country has been fighting the COVID-19 pandemic. Along with harming the nation's healthcare system, this pandemic has also made it difficult for the population to move around freely. Activities outside are not permitted since they would raise the risk of the transmissible virus spreading. As a result, the nation is now more motivated than ever to conduct financial transactions online and through electronic methods. In addition to shielding users from the virus, this can hasten the development of “digital financial inclusion”, which was barely beginning before this pandemic despite the government's unceasing efforts. The progress of digital payment methods concerning Pre and Post-pandemics is depicted in Table 1.

Table 1: Annual turnover of payment systems

Item	Volume (lakh)			Value (lakh crore)		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
1	2	3	4	5	6	7
RTGS	1,507	1,592	2,078	1,311.56	1,056.00	1,286.58
AePS (Fund Transfers)	10	11	10	0.005	0.01	0.01
APBS	16,747	14,373	12,298	0.99	1.11	1.33
ECS Cr	18	0	0	0.05	0	0
IMPS	25,792	32,783	46,625	23.38	29.41	41.71
NACH Cr	11,100	16,465	18,730	10.37	12.17	12.77
NEFT	27,445	30,928	40,407	229.46	251.31	287.25
UPI	1,25,186	2,23,307	4,59,561	21.32	41.04	84.16
BHIM Aadhaar Pay	91	161	228	0.01	0.03	0.06
ECS Dr	1	0	0	0	0	0
NACH Dr	5,842	9,646	10,788	6.04	8.62	10.31
NETC (Linked to Bank Account)	93	650	1,207	0.002	0.01	0.02
Credit Cards	21,773	17,641	22,399	7.31	6.3	9.72
Debit Cards	50,611	40,146	39,387	7.04	6.61	7.3
Prepaid Payment Instruments	53,811	49,743	65,812	2.16	1.98	2.94
Paper-based Instruments	10,414	6,704	6,999	78.25	56.27	66.5
Total Payments	3,50,440	4,44,149	7,26,530	1,697.94	1,470.86	1,810.65
Total Retail Payments	3,48,933	4,42,557	7,24,451	386.38	414.86	524.07
Total Digital Payments	3,40,026	4,37,445	7,19,531	1,619.69	1,414.59	1,744.10

Source: RBI Annual Report 2021-22: Payment and Settlement Systems and Information Technology

Note:

1. Total payment includes RTGS, AePS, APBS, ECS Cr & Dr, IMPS, NACH Cr & Dr, NEFT, UPI, BHIM Aadhaar Pay, NETC (Linked to Bank Account), Debit & Credit Cards, Prepaid Payment Instruments and Paper-based Instruments
2. Total Retail Payment = Total Payment – RTGS
3. Total Digital Payment = Total Payment – Paper-based Instrument.
4. Only interbank and customer transactions are included in the RTGS system.
5. The statistics for credit and debit cards include both online and POS terminal payments.

Table 1 represents the annual data of the total payment system for FY 2019-20, 2020-21, and 2021-22 in terms of the number and value of the transactions. The volume and value of the total payment for the financial year 2019-20 were 3,50,440 lakh and 1,697.94 lakh crores, respectively, which was an increment of 44.2percent and 5.4percent from the previous year (RBI Annual Report,2020). The volume of transactions increased significantly in 2020-21 by 26.2percent to 4,44,149 lakhs, but the value of transactions fell by 13.4 percent to 1,470.86 lakh crores (RBI Annual Report,2021). The low level of economic activity nationwide brought on by the shutdown may be one of the causes of this drop. During FY 2021-22, the total payment recorded a fast growth of 63.6 percent and 23.1 percent in terms of no. and value of the transaction was 7,26,530 lakhs

and 1,810.65 lakh crores (RBI Annual Report, 2022), respectively.

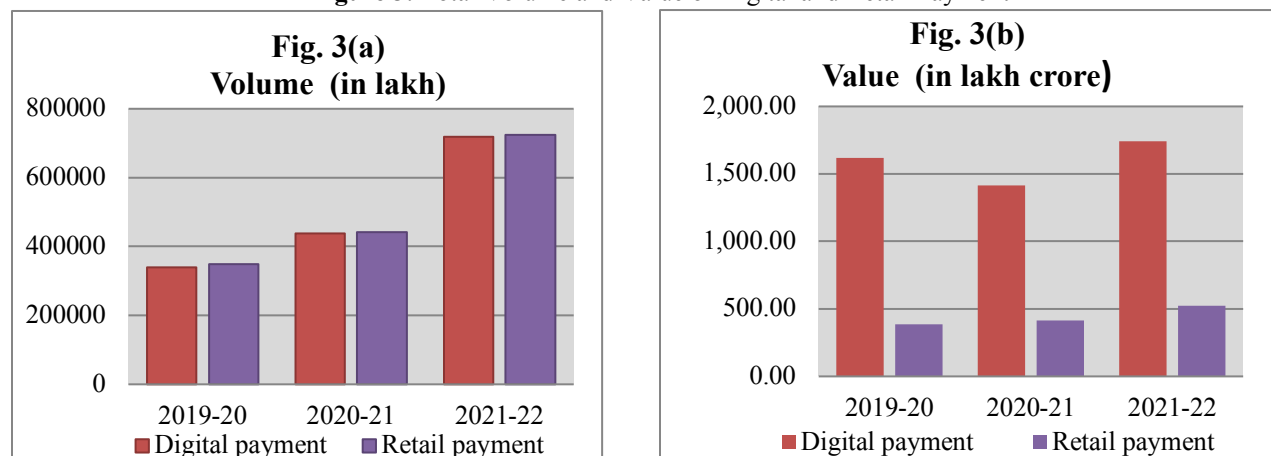
The pandemic had an impact on all payment methods, either favorably or unfavorably. As shown in table 1, NEFT, UPI, BHIM Aadhaar Pay, NACH, and IMPS increased in volume and value from 2019-20 to 2021-22 because, before the pandemic, most people used offline methods to access financial services, such as going to banks, using ATMs, and making personal visits to the institutions for various finance-related work. Few people in the country are using digital tools. However, due to the pandemic crisis, the majority of the populace is now compelled to use digital platforms to do everything from paying bills and buying groceries to sending money to friends and family. Initially, the prepaid payment instruments and paper-based instruments showed a decline in the number of transactions and their value during 2020-21, and after that, they increased in 2021-22. The main reasons behind this fluctuation may be the low economic activity and the lockdown to maintain social distance to avoid the transmission of COVID-19.

Compared to FY 2020-21 and 2019-20, there was a 19.0 percent and a 20.6 percent reduction in the volume of

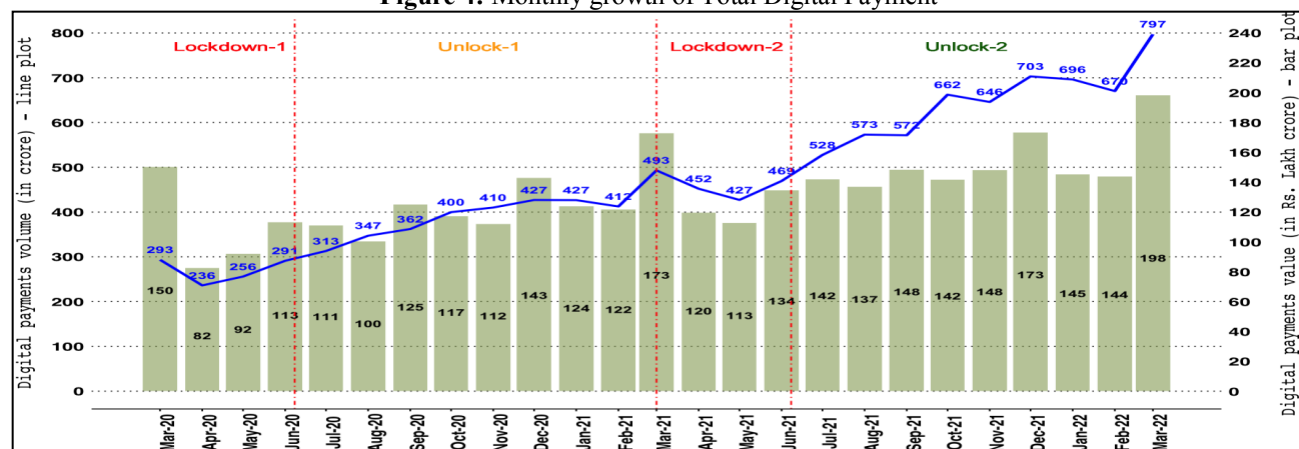
transactions using credit and debit cards, respectively. As a result, over the same time period, the value of debit card transactions declined by 5.9 percent and the value of credit card transactions decreased by 13.7 percent. Compared to the previous year, credit card transactions increased in volume and value by 27.0 percent and 54.3 percent (RBI Annual Report, 2021), respectively. During 2021–2022, the volume of debit card transactions fell by 1.9 percent, but the value of those transactions rose by 10.4 percent (RBI Annual Report, 2022).

The pandemic has encouraged the nation to go digital, leading to a rise in the usage of digital payment methods as shown in table 1. The volume and value of retail payment transactions show an upward trend from the financial year 2019-20 to 2021-22. The value of total digital payments declined in FY 2020-21 because of the low value of RTGS. However, the total value of digital payments is far greater than that of retail payments. It means that people are choosing more digital methods instead of cash payments. Figure 3 depicts total retail and digital payments, as well as their comparative volume and value of transactions.

Figure 3: Total Volume and Value of Digital and Retail Payment



Source: Researcher's own creation and data taken from Table 1

Figure 4: Monthly growth of Total Digital Payment

Source: Pictorial Representation of Trends in Payment System <https://rbi.org.in/Scripts/TrendsPSIUserView.aspx?Id=4>

As shown in figure 4, India has recently experienced a notable increase in digital transactions. The evolution of digital payment requires a stable policy, increased access to smartphones and the internet, and strong private sector involvement. When compared to other nations, India's payments ecosystem exhibits quick growth to reach the current stage in the shortest period of time. Figure 4's graphs show the increase in the number and value of digital payment transactions in India since March 2020. The volumes of digital payments are plotted left-hand side by line, and values are plotted on the right side by the bar from March 2020 to March 2022. In the first phase of the lockdown, April and May 2020 have the lowest volume and value of the transaction. From June 2020, it again started rising as they increased before the lockdown phase. Alike, the second lockdown implemented in May 2021 marked the lowest transaction in both terms. The shutdown of all economic activity due to the lockdown was the main reason behind the decline. The implementation of the lockdown to prevent the spreading of the virus boosted the digital payment system as clearly shown in the graph. The digital payment grows very fast in the unlock-2 phase, and at the end of FY 2021-22, it raises to 797 lakhs and 198 lakh crores in terms of volume and value of the transaction.

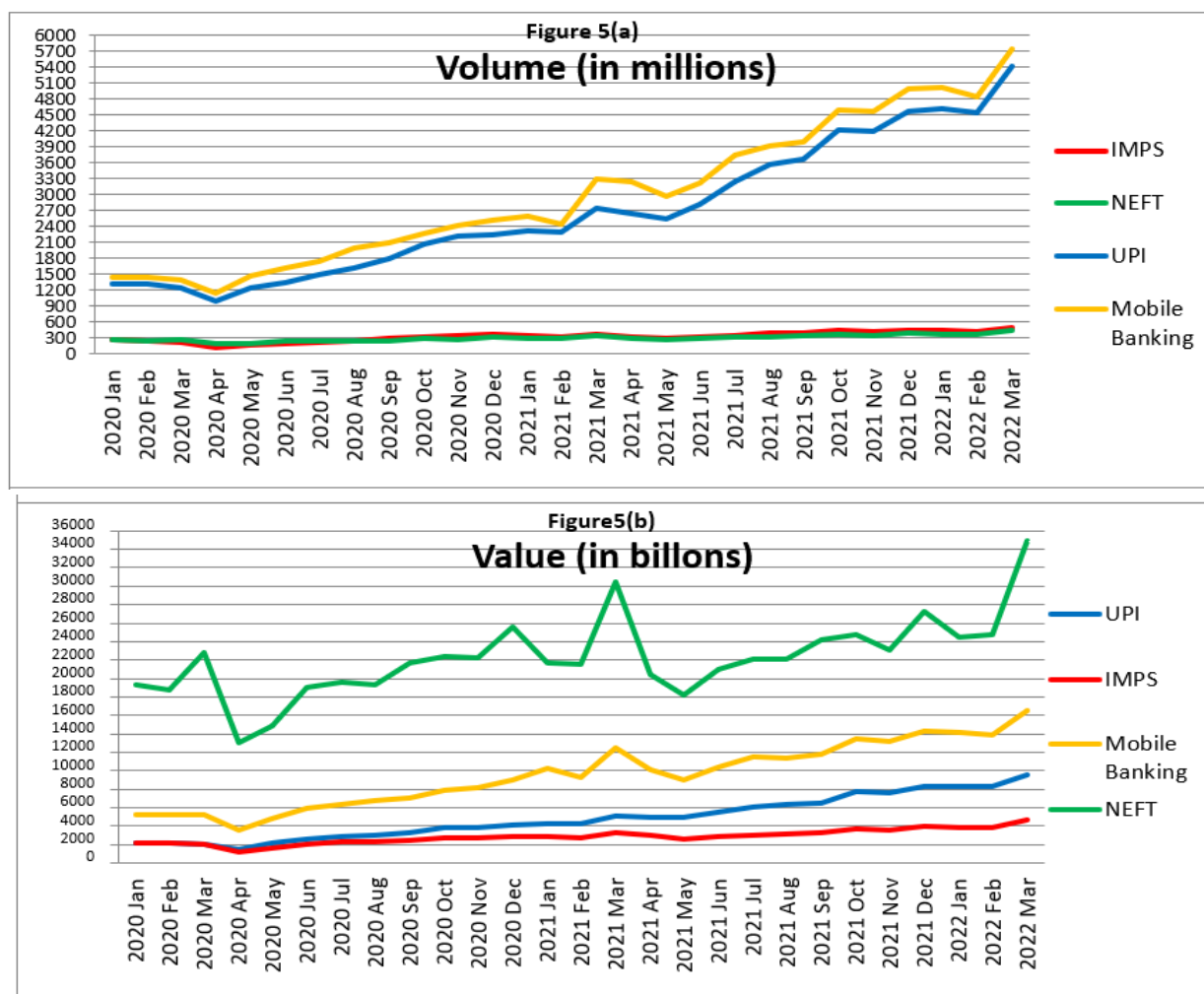
Comparative analysis of different digital payment instruments with the reference to Pre and Post COVID-19 outbreak

All payment systems have been more or less similarly impacted by the pandemic. The monthly progress of IMPS, NEFT, Mobile banking, and UPI in terms of the volume and value of transactions is represented in Figures 5(a) and 5(b). For making a comparative analysis, the data is taken from NPCI and RBI, from January 2020 to March 2022 to cover the Pre and Post-COVID-19 period. India was affected by the "first wave of the COVID-19 pandemic in March 2020", and by the second wave in April 2021. The NEFT, IMPS, UPI, and Mobile banking decreased from March 2020 to May 2020 and from April 2021 to May 2021. Figures 5(a) and 5(b) depict the decline of the NEFT, IMPS, UPI, and Mobile banking in terms of the transaction volume and value during the first and second phases of the lockdown. The low level of economic activity nationwide as a result of the lockdown, people losing their employment, experiencing reductions, or even depleting their savings are some of the potential causes of this drop. The people's priority was to protect themselves from disease and win the battle against the pandemic. So, this may have been the cause of the decline in the number and value of digital transactions.

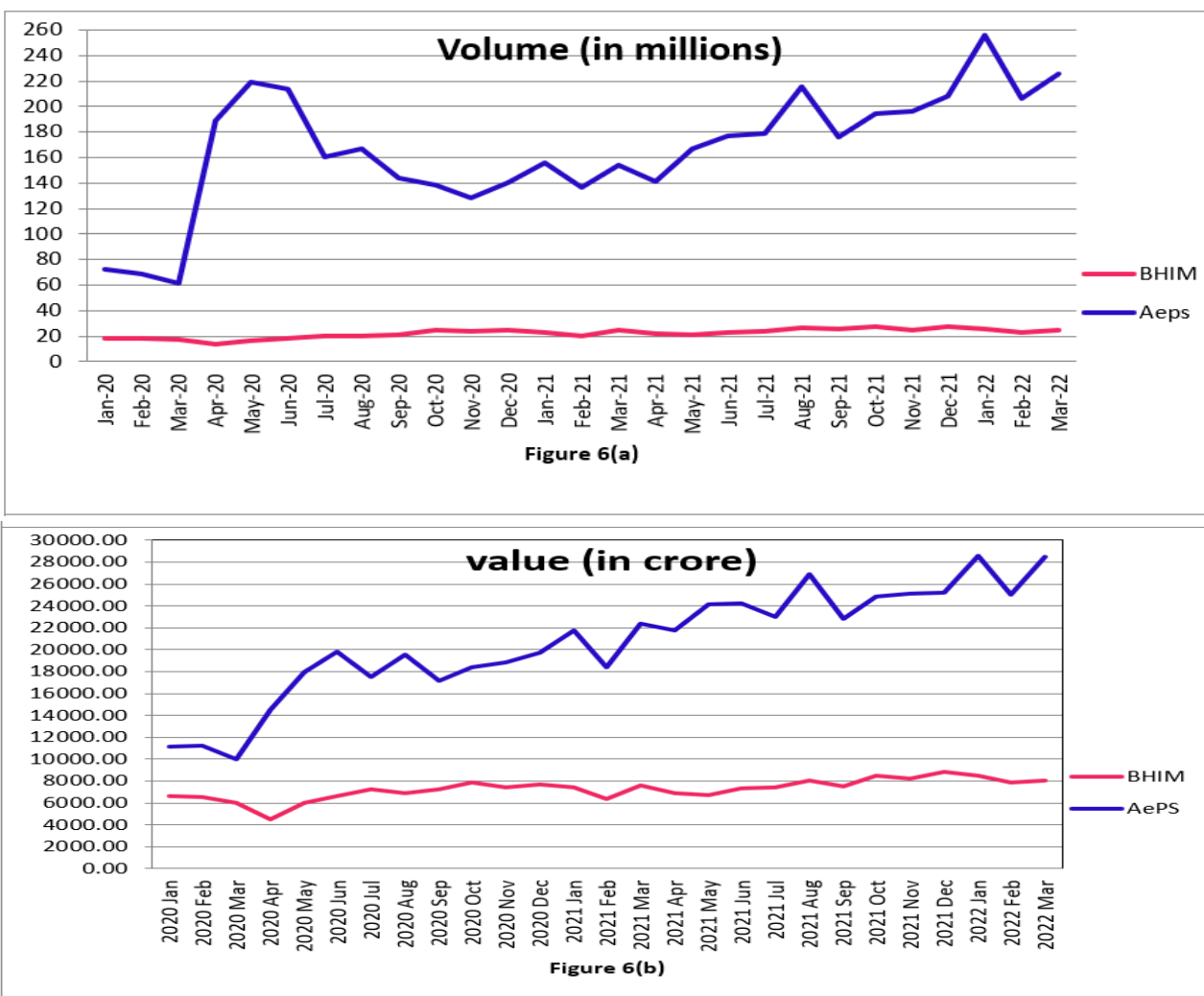
After the decline we see the graph started increasing from June 2020 and 2021 in Figures 5(a) and 5(b) same as it was before the implementation of the lockdown. Individually, mobile banking and NEFT has the highest graph line in term of volume and value respectively. The UPI payment is the

only digital payment method from figure 5 which is not so much affected by COVID-19. The UPI payment grows very fast and only 1st wave of COVID-19 adversely affects because of low income-activity .

Figure 5(a) and 5(b) Comparative analysis of NEFT, IMPS, UPI and Mobile Banking in terms of volume and value



Source: Researcher's own creation and data extracted from RBI and NPCI

Figure: 6(a) and 6(b) Comparative analysis of AePS and BHIM pay in in terms of volume and value

Source: Researcher's own creation and data extracted from NPCI <https://www.npci.org.in>

Figures 6 (a) and (b) represented the volume and value of “Bharat Interface for Money (BHIM) pay” and “Aadhaar Enabled Payment System (AePS).” The BHIM is a mobile app that makes payment simple quick and easy by using a Unified Payment Interface (UPI) using only a mobile number or UPI ID. The BHIM pay decreased from March 2020 to April 2020 and then start rising in the lockdown-1 phase and in lockdown-2 the BHIM pay was lowest in May 2021. The decline in no. and the value of transactions may

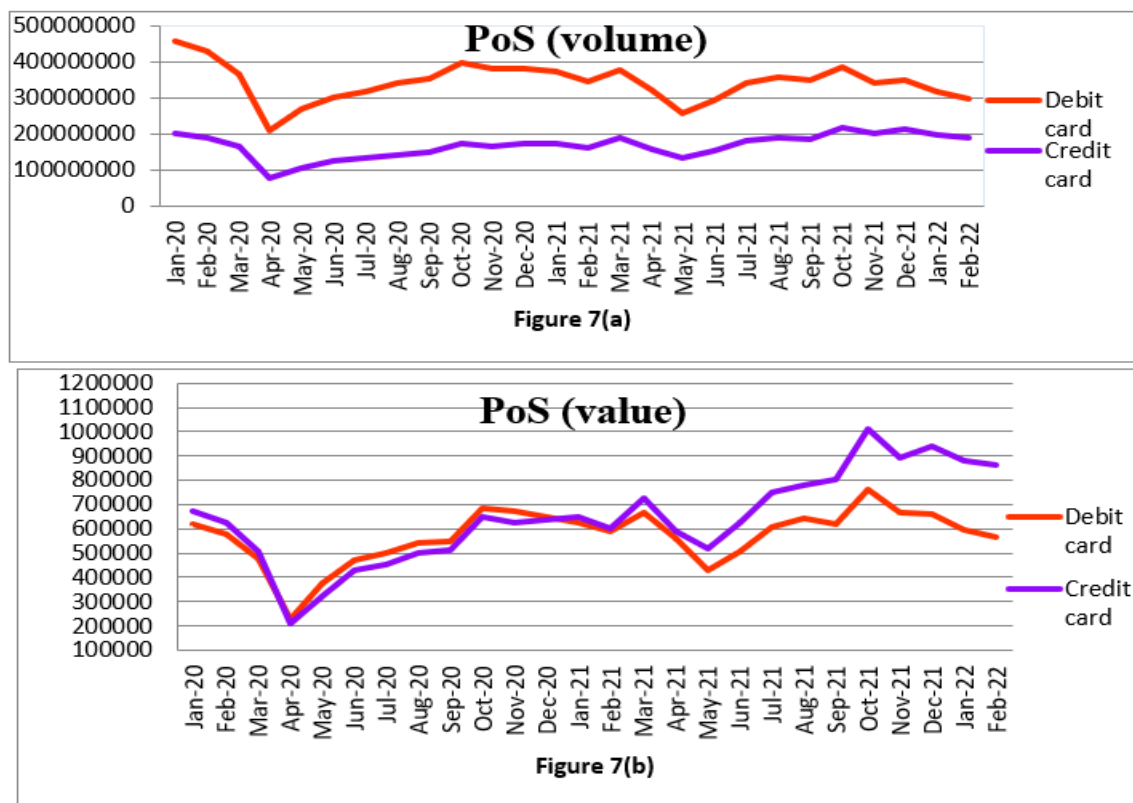
be due to the low economic activity restricted expenditure on essential products and services, unemployment, etc.

The AePS is a bank model which allows a person to avail basic banking facilities at PoS through any bank's business correspondent who uses Aadhaar authentication. All the payment mechanisms were affected in the lockdown period adversely but the only AePS is the digital payment methods which had a positive effect on both phases of the lockdown

as shown in figure 6(a) and (b). The Aadhaar Enabled Payment System decreased by 11.5percent and 10.78percent in terms of volume and value, respectively, on March 20, but in April 2020, the volume and value of transactions increased by 210.24percent and 44.99percent, respectively. During the pandemic, the government of India started sending money directly from Aadhaar-linked bank accounts

under the DBT scheme to the beneficiary's bank accounts to support their livelihoods affected by the pandemic. Ajay Prakash Sawhney, the Ministry of Electronic and Information Technology secretary, said, "Aadhaar-enabled DBT payments acted as a savior and increased from March 2020 to April 2021 by up to 140percent May 2021 saw an increase of more than 200percent from April 2020 levels."

Figure: 7(a) and 7(b) Comparative analysis of PoS of Debit Card and Credit Card in terms of volume and value



Source: Researcher's own creation and data extracted from RBI
<https://www.rbi.org.in/Scripts/ATMView.aspx>

Data on the number of transactions and the value of debit cards and credit cards used at the point of sale from January 2020 to February 2022 is illustrated in Figures 7(a) and (b). After the COVID-19 epidemic, fewer people used debit and credit cards. All retail outlets and shopping centers had to

close due to the lockdown, which resulted in a decrease in PoS payments. The debit card's lowest value transactions occurred in lockdown phases 1 and 2 in April and May, respectively. It succeeds in returning to its pre-COVID-19 level by the end of February 22. However, following the

lockdown-2 phase, the value of credit cards has increased quite quickly.

Analyses of the trend in the usage of digital payments since COVID 19

The lives of people have been severely restricted by COVID-19. Through the first few months of 2020, India will be under lockdown, which has changed how the country spends due to changes in lifestyle. While most household members in the top and middle segments were at home, those in the lowest segment had a tough time meeting their needs. People were experimenting with various ways of living, working, transacting, and learning about the applications of digital means of exchange. **According to the NCPI price report**, “36percent of households surveyed used digital payments for the first time during the lockdown.” In September 2021, the “Reserve Bank's Digital

Payments Index” increased to 304, illustrating the explosive rise of digital payments. Since the start of the epidemic, digital technology and smartphones have rapidly proliferated, with 77.7 crore wireless internet subscribers and an increase in the average daily mobile usage by Indian users from “3.7 hours in 2019 to 4.7 hours in 2021(fifth highest among the countries analyzed).” The growth of digital payment applications is expected to fuel the continued growth of the infrastructure for the digital financial system.

During the lockdown and post-lockdown phase, India adopted digital payment methods very fast. **As per the NPCI Price Report-2020**, the high-income as well as low-income people are using the digital mode of payment and 15percent of households in the middle and low-income groups like to adopt digital payment as depicted in Table 2.

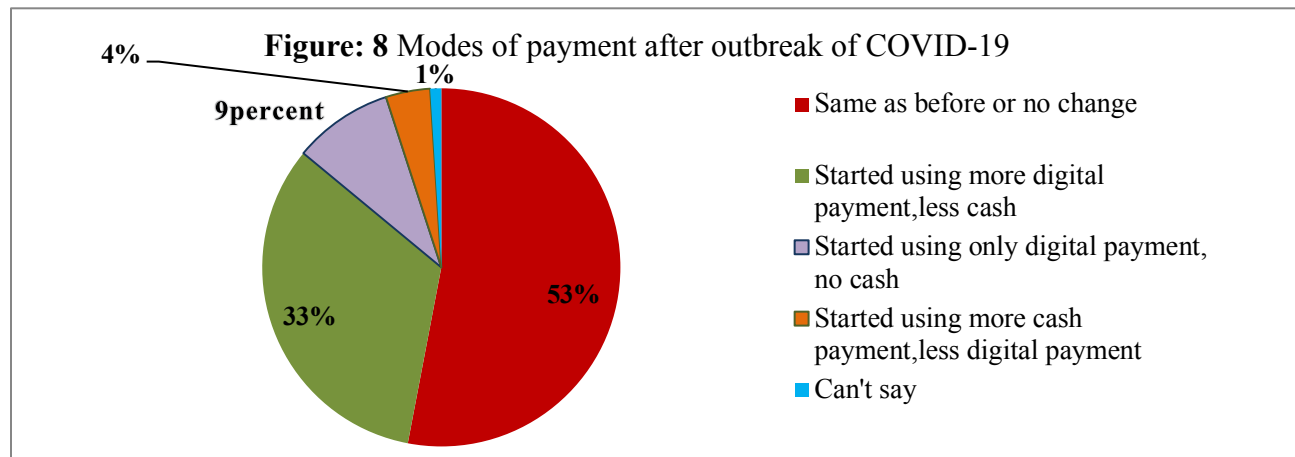
Table 2: Level of digital payment acceptance among Indian households

percent of household in each income groups who have...	Income groups			Total
	Bottom 40percent	Middle 40percent	Top 20percent	
Never used it	72	52	39	59
Used in the past but stopped	4	13	12	9
Use now	24	34	49	32
Never used but would like to use	16	14	9	14

Source: NPCI (2021) Digital Payment Adoption in Indis

There are 14 percent of households who never used any means of digital payment but want to use it in the future. Out of this, the highest percentage is from the bottom group. The reasons behind this may be the low literacy level and the complex nature of digital means. The local circle website carried out a survey on digital payment usage trends and

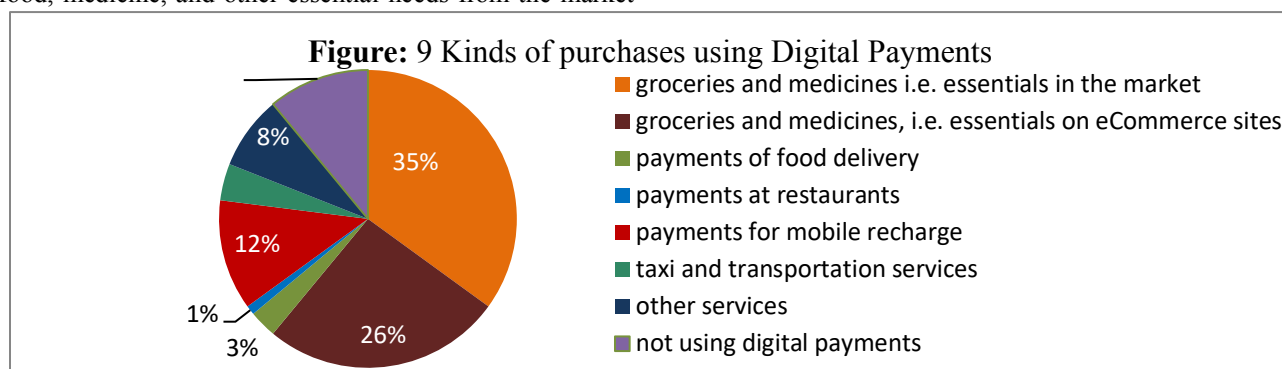
how the COVID-19 lockdown affected it. From “Tier 1, Tier 2, Tier 3, and Tier 4 cities in India,” more than 42000 responses have been collected, with 67percent of respondents being men and 33percent being women. Since the coronavirus outbreak, according to 42percent of the population, more digital transactions have been made.



Source: <https://www.localcircles.com/a/press/page/coronavirus-lockdown-digital-payments-survey#.Yy8UEnZBy3D>

Figure 8 represents the data on the mode of payments after the outbreak of COVID-19. 53percent of people do not affect their means of payment while 33percent prefer digital transactions as compared to cash transactions. 9percent of people choose digital payments only, and only 4percent of respondents said they used more cash payments after the coronavirus outbreak. These statistics also show that since the Coronavirus outbreak, 42percent of people have begun making more digital payments. Since the Coronavirus outbreak, the categories of purchases for which people utilize digital payments most frequently have been surveyed. 35 percent of respondents indicated they purchase food, medicine, and other essential needs from the market

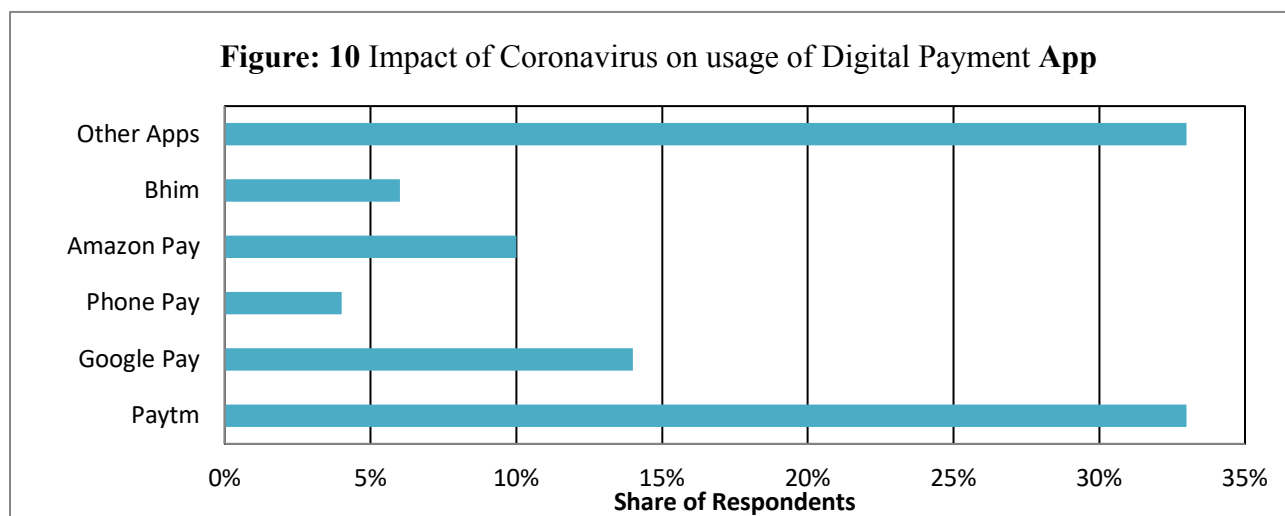
using the digital mode, while 26percent of respondents claimed they do it online. Three percent said they are paying for food delivery, 1 percent for dining out, 12 percent for mobile recharges, 4 percent for taxi and transportation services, and 8 percent indicated they have been paying for other services using digital methods. Only 11percent of respondents claimed they never used digital payments. During the lockdown time, as depicted in Figure 9, digital payments are mostly used to purchase essential needs from the market, & through e-commerce applications, and cell phone recharge.



Source: <https://www.localcircles.com/a/press/page/coronavirus-lockdown-digital-payments-survey#.Yy8UEnZBy3D>

“The National Payments Corporation of India” (NPCI) has been advising Indians to utilize more digital payment methods so that they don't even need to leave their homes to use an ATM, limit social interaction, and stop the COVID-19 virus from spreading. The use of digital payment systems like UPI, NEFT, IMPS, etc., instead of traditional payment methods like cash or cheques, was also advised in the RBI circular. Further, the data collected from the survey on how many people increased their usage of Digital Payment Apps

like Google Pay, Amazon Pay, Paytm, etc., 46percent of citizens said yes while 38percent said no. The number of people who uses digital payment apps is further distinguished by the percentage of usage of particular apps during the lockdown period of “COVID-19” (as depicted in Figure 10). Paytm was mentioned by 33percent of people, followed by Google Pay (14percent), PhonePe (4percent), Amazon Pay (10percent), Bhim (6percent) and 33 percent of people claimed to use other apps.



Source: <https://www.statista.com/statistics/1111087/india-coronavirus-impact-on-digital-payment-app-usage/>

CONCLUSION

COVID-19 is not just a pandemic that widely destroyed lives and livelihoods. This global crisis has various negative effects on the world economy. In addition to affecting the nation's health infrastructure, this pandemic has also limited people's physical mobility, making outside activities impossible because they raise the risk of spreading the deadly illness. Therefore, this epidemic has made it possible for a country where digital financial transactions can be made using electronic means. Despite the government's unceasing efforts, the process of digital financial inclusion was still in its early stages before this pandemic. It would not only shield consumers from the virus but would also hasten the process. The necessity for currency is becoming

less and less necessary for physical engagement. It offers a safe platform for the government and service providers to communicate quickly and effectively, as well as makes it simple for the customer to request and receive payments to satisfy their needs.

The adoption of digital payments was growing before the onset of the COVID-19 pandemic, but the pandemic has accelerated the shift, leading to a dramatic increase in contactless and online payments. The contactless nature of the digital modes – enabled by innovative technologies and regulatory flexibility – has given crores of Indians a choice to practice social distancing while making payments. Total digital payments have increased by 216percent and 10percent in terms of volume and value, respectively, for

March 2022 when compared to March 2019. On the other hand, usage of paper instruments has come down significantly during the same period, with its share in total retail payments registering a decline from 3.83percent to 0.88percent in terms of volume and from 19.62percent to 11.47percent in terms of value (Vision Documents RBI,2022). All the digital payment method i.e., NEFT, Mobile Banking, IMPS, UPI, BHIM pay, and Point of Sale shows a decline in both wave of coronavirus. The low level of economic activity nationwide as a result of the lockdown, people losing their employment, experiencing reductions, or even depleting their savings are some of the potential causes of this drop. The people's priority was to protect themselves from disease and win the battle against the pandemic. So, this may have been the cause of the decline in the number and value of digital transactions.

The only digital payment option that improved in both lockdown phases was the AePS. From March 2020 to April 2021, it rose to 140percent. From April 2020, it increased by more than 200 percent in May 2021. In the lockdown and post-lockdown period, India quickly embraced digital payment options. **According to the NPCI Price Report-2020**, 32percent of households utilize digital platforms for financial transactions, of which 49percent are from a high-income group of households, 34percent are from the middle-income group of families, and 24percent are from low-income households. 15percent of middle-class and low-income households prefer to use digital payments.

IMPLICATION AND RECOMMENDATION

Digital financial inclusion provides a secure system for people to make their financial transactions through digital mode. The adoption of digital payments was growing before the onset of the COVID-19 pandemic, but the pandemic has accelerated the shift, leading to a dramatic increase in contactless and online payments. The expansion of digital financial inclusion is beneficial to different stakeholders in the following ways:

- **To the society:** Digital Financial Inclusion provides various financial services over different types of digital

platforms such as Paytm, Gpay, Bhim UPI, etc.” People can avail of these services with one click by using electronic gadgets without visiting ATMs and bank branches for their financial needs. It will not only save time but also cost for both sides- customer and service provider.

- **To the policy maker:** The government establishes rules and regulations to ensure smooth and secure digital transactions on a wide range of online platforms, which positively impact several areas. For example, "Digital finance benefited financial and monetary system regulators because full-scale adoption of digital finance can significantly reduce the circulation of bad (or fake) money. It also promises to boost the gross domestic product (GDP) of the digitalized economies by providing convenient payment options."
- **To the service providers:** The adoption of digital payment methods expands the digital market, which is advantageous for digital businesses and service providers. The use of digital platforms and devices will accelerate as more individuals are connected to digital financial inclusion, ultimately benefiting fin-tech companies.

Here are some recommendations for various stakeholders, including "customers, companies, service providers, and policymakers to achieve comprehensive Digital financial inclusion," based on the findings of the study and the researcher's observations.

- The most important factor impacting the possibility of a change to a digital era is digital literacy and awareness. To achieve the vision of Digital India, sustained investment in higher education, financial literacy, and digital literacy is required. A family member with digital awareness can also encourage other members to use digital tools to advance digital financial inclusion.
- The government's post-pandemic income support served as a driving force behind digitalization. It is still up to these inexperienced and perhaps vulnerable

consumers to decide whether they value digital payments highly enough to alter their long-term payment patterns.

- A service provider needs to handle issues like authentication errors, transparency, and faith in the payment method, eliminating common misconceptions, and quick resolution of client complaints in the local tongue if you want to keep their trust. Old age people are unfamiliar with digital Apps. So, the service provider should also maintain their Apps, and websites in local languages to make them comfortable.
- The users should improve their digital safety and experience by not disclosing any “personal information as well as the password of debit card, internet banking, mobile banking and OTP (one-time-password) to anybody.”
- The demonstration and COVID-19 pandemic are unable to encourage all people towards a digital platform. Financial intermediaries and service providers should motivate those who are using formal financial platforms linked with a digital platform to avail of financial services.
- To promote online banking among the less educated and illiterate people, Government, and financial institutions should be aware of them and launch new schemes to encourage the adoption of the online method. They should also organize a campaign for the awareness and usage of digital transaction methods.

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