

Impact of COVID-19 on Digital Payments in India

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Abstract

Purpose: To understand whether the COVID-19 pandemic has any impact on use of banknotes for payment transactions and consequent impact on digital payments in India.

Methodology: The study was conducted by reviewing literature on COVID-19 and the action plans undertaken by Central Banks of countries. Survey of retailers customers was conducted on sample basis using questionnaire to understand their perspective on spread of COVID-19 through use of banknotes. The relationship of COVID-19 pandemic and the change (increase/ decrease) in the digital payment transactions of customers was studied.

Findings: There is no association between gender / age and the awareness of spread of COVID-19 through banknotes or its usage. The percentage of digital payment transactions have increased during COVID-19. However, there is a need to sensitize people about use of digital modes of payment considering the extent of awareness regarding the spread of COVID-19 through use of banknotes.

Research Implications: The outcome of the research would help in identifying the consequences of COVID-19 and people's move away from cash and may enable the financial institutions to understand whether adequate payment infrastructure exists to handle such situations in future.

Originality / Value: The study of impact of COVID-19 on the shift of customer preference from use of physical banknotes to digital currency has not been studied.

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I. INTRODUCTION

The world today is struggling with the COVID-19 pandemic which spreads primarily through droplets of saliva when an infected person coughs or sneezes. At this time, there are no specific vaccines or treatments for COVID-19. World Health Organization (WHO) states that COVID-19 can enter the body through eyes, nose or mouth. Hands touch many surfaces and can pick up viruses which can enter a person's body.

One of the many ways in which the COVID-19 can be transmitted from the affected person to others is through the use of banknotes. Though the impact of spread of COVID-19 through use of banknotes is not known, there exists a possibility of spread of COVID-19 through use of banknotes.

Considering this fact, the authors seek to understand the mitigation measures adopted by Central Banks, Governments and other entities and the impact of the same on the digital payments in India since Indian economy is still a cash dominant economy as compared to other developed or developing economies in the world.

According to High Level Committee on Deepening of Digital Payments (RBI C. o., 2019), currency in

circulation as a percentage of GDP in the year 2018-19 was 11% (INR 21,367 billion) in India. The number of cashless transactions per capita for the year 2017-18 was 13.15 and 2018-19 was 22.42 in India. As compared with this, the number of cashless transactions per capita in 2017 for other countries severely affected by COVID-19 were as follows (See Figure 1 below):

Figure 1: Number of cashless transactions per capita in countries severely affected by COVID-19

No. of cashless transactions per capita			
Country	2015	2016	2017
Singapore	727.9	759.0	782.4
Sweden	428.8	481.4	497.9
USA	420.9	442.6	473.6
Euro Area	156.9	172.6	186.8
Russia	99.5	132.8	178.5
Brazil	137.6	139.4	148.5
China	48.9	70.4	96.7
South Africa	68.7	78.0	79.2
Indonesia	23.4	28.4	34.0

Source: Report of the High Level Committee on Deepening of Digital Payments, 2019

Considering the above fact, it becomes evident that in an economy like India where there is a large percentage of population dependent on cash for making payment transactions, the possibility of spread of COVID-19 through banknotes becomes significant. Therefore, through this paper, the authors attempt to study of impact of COVID-19 on the digital payments in India.

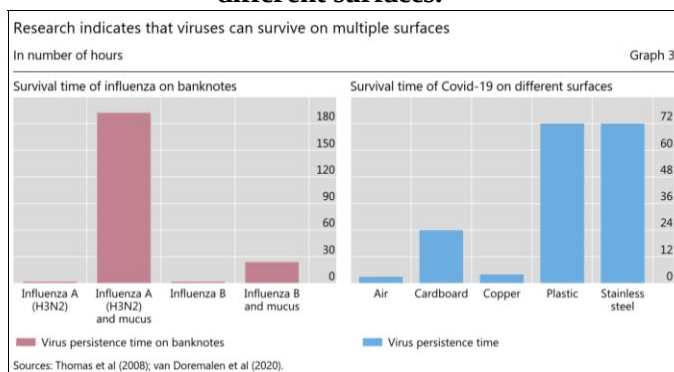
II. LITERATURE REVIEW

The literature review was conducted around the survival time of virus, bacteria and other pathogens on banknotes and other surfaces, preventive measures adopted to mitigate the risk of spread of COVID-19 through bank notes and the benefits and risks involved in digital payment transactions. The authors have also tried to draw parallels from the demonetization scenario to understand the impact of the same on digital payments. The findings of literature review are presented below:

A. Study of survival of virus, bacteria and other pathogens on banknotes and other surfaces

In order to find out the possibility of spread of COVID-19 through use of banknotes, the authors reviewed the literature on survival of virus, bacteria and other pathogens on various surfaces including the banknotes and the impact of the same on the human contamination. The COVID-19 virus can also survive on surfaces. A study by (Doremalen, 2020) finds that COVID-19 can persist for three hours in the air, 24 hours on cardboard and even longer on other hard surfaces which includes currency notes and coins, among other things. Similar study was conducted earlier by (Thomas, 2008) wherein the assessment of human influenza virus on banknotes was studied and it was observed that human rhinoviruses HRV2 and HRV37 viruses survived for several days on banknotes even without respiratory mucus. The persistence time of virus on banknotes and other surfaces is shown in figure 2 below.

Figure 2: COVID-19 persistence time (in hours) on different surfaces.



Similar studies were conducted wherein the possibility of spread of bacteria and other pathogens was studied. Research for bacterial contamination of Iraqi banknotes

in (Hammadi, 2020). Amongst the reasons identified for the possibility of contamination, few of them include the practice of counting banknotes by moistening arms with saliva or children putting money in their mouth etc. The same was also reflected in (Maron, 2017) wherein the possibility of dollars and cents being laden with bacteria and other pathogens through touch was studied. and may result into health hazards. All these researches led to common conclusion that touching infected cash can result in possibility of a health threat.

Having said that, there is no substantive evidence on the extent of spread of COVID-19 through use of banknotes as compared to other ways of transmission such as coughing or secretion of mucus. As per BIS Bulletin (BIS, 2020) on “COVID-19, cash, and the future of payments”, the probability of transmission via banknotes is low when compared with other frequently-touched objects. The Head of Germany’s Robert Koch Institute (RKI) for infectious diseases, Mr. Lothar Wieler, also indicates that the transmission through banknotes has no particular significance and that droplets from infected individuals pose a greater threat.

While there is lack of clarity on the spread of COVID-19 through banknotes, a clinical microbiologist at Columbia University Medical Center, stated that use of cards have more potential in transmission of COVID-19 than the use of cash (Whittier, 2020). The microbiologist also added the possibility of transmission through cards if the person handing over the card at the counter coughs while he has the card in his hand.

However, as mentioned earlier, there is no substantive evidence on extent of spread of COVID-19 through banknotes. In this regard, the WHO officials suggest that people should wash hands after handling currency notes. The Central Banks around the world have started taking various measures to prevent the spread of COVID-19 by adopting various measures which as described below:

B. Preventive measures adopted by Central Banks to mitigate the spread of COVID-19 through use of banknotes

Central Banks around the world have taken measures to prevent the spread of COVID-19 through the use of banknotes. The summary of the same has been presented in table 1 below:

Table 1: Preventive measures adopted by Central Banks to mitigate the spread of COVID-19 through banknotes.

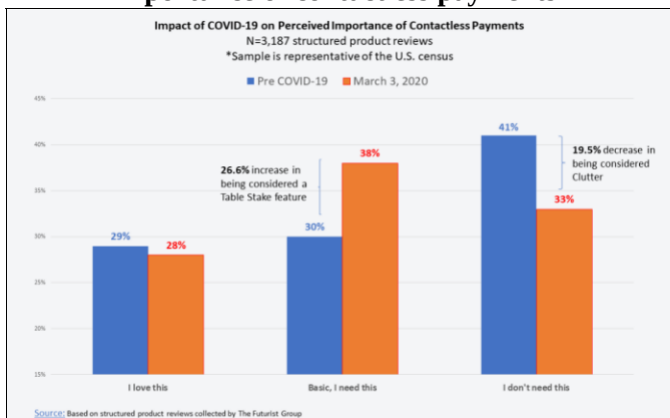
Preventive measures	Central Bank
Sterilizing banknotes	Bank of Canada (BoC, 2020) Bank of Korea (BoK, 2020)
Quarantine	Federal Reserve Bank (Schroeder,

banknotes	2020) People's Bank of China (Bloomberg, 2020) Central Bank of Hungary (BIS, 2020) Central Bank of Kuwait (BIS, 2020) National Bank of Georgia
Promote digital payments	Reserve Bank of India (RBI, 2020) National Bank of Georgia (BIS, 2020) Bank of Indonesia (BIS, 2020) African Central Banks (Bright, 2020)
Recommend hand hygiene	Reserve Bank of New Zealand (BIS, 2020)

Considering the mitigation measures, it is expected that COVID-19 may promote the use of contactless payments between customers and merchants. (Cocheo, 2020) suggests the use of digital payment systems and contactless payment methods such as “wave and pay” in order to avoid the risk COVID-19 infection.

Many of the Central Banks and financial institutions have started promoting the use of digital payment systems to over the risk of COVID-19 through use of banknotes. (PwC, 2020) in its report on role of retail during the COVID-19 crisis suggests that cashless transactions should be promoted by the financial institutions. In addition, many private players such as M-Pesa, a product of Safaricom company in Africa, are promoting digital transactions by fee-waivers on their mobile-money products in response to COVID-19 (Bright, 2020). A research by the Futurist Group suggests that 38% of people are evaluating contactless credit cards for payment transactions during COVID-19 as compared to 30% in pre-COVID-19 scenario (See Figure 3 below)

Figure 3: Impact of COVID-19 on perceived importance of contactless payments



Source: (FuturistGroup, 2020)

The Reserve Bank of India through its notification RBI/2019-20/172 dated 16th March 2020 has encouraged customers to use digital banking facilities as far as possible. As a result, there is expected to be an increase in the number of digital payment transactions in India. This paper, thereby seeks to identify whether COVID-19 has impacted the digital payment in India.

C. Parallels drawn from demonetization in India

As far the impact of COVID-19 on the use of digital payment transactions is considered, parallels can be drawn from the demonetization scenario wherein 86 per cent of the value of notes in circulation was taken out from the economy at one stroke in November 2016 (Chandrasekhar, 2017). As a result, it led to rise in the number of people resorting to use of digital payment methods (Kumar R. , 2020).

There are several studies on the impact of demonetization on the digital payment systems in India and as well the factors that impacted the adoption of the digital payment methods. It was identified that people who were adept with new technologies were resilient to use of digital payment methods during demonetization, whereas, people who relied largely on traditional modes of payment using cash were greatly impacted (Nanjundi K.K., 2019). Some of the hindrances to use of digital payment methods identified were as below (Chandrasekhar, 2017) (Mehta, 2016):

- Higher costs of digital payment
- Possibility of loss of privacy
- Fraud risk
- Identity theft and surveillance

It was also argued that India lacked adequate infrastructure in terms of banking and connectivity (Chandrasekhar, 2017). Despite this and the others issues and risks foreseen by people, several studies (Nielsen, 2016) (Sreejith R. K., 2019) (Sivathanu, 2019) indicate increase in the digital payment methods such as IMPS (Immediate Payment Service), UPI (Unified Payment Interface) and use of digital wallets post demonetization. The studies indicate a specific and particular increase in the use of mobile wallets (Aggarwal, 2019) and payment applications such as BHIM by the customers (Thirupathi, 2019).

Another important fact that was studied was: Whether the supply of banknotes post demonetization resulted in reversal in the use of digital payment methods. It was identified that the increase in supply of currency notes post demonetization did not result in complete reversal in the customer preference towards use of digital payment methods (Subrahmanya Kumar N., 2018). Similar study was conducted by (Moses Jayakumar, 2019) by building a conceptual model to study the

factors that influenced the willingness of Indians to continue with digital payment methods post demonetization. It was identified that though there was an overall positive impact of demonetization on the adoption of digital payment methods, the main reason for people not continuing with digital payment methods was the risk of privacy. However, contrary view was observed in (Pal, 2018) wherein the study suggested that the digital payment adoption increased in shopkeepers in Mumbai and Bengaluru in immediately following the crisis but fell after new banknotes became available. It can be concluded that through effective policy shifts, consumer preferences can be altered and the Indian economy could become a less cash economy (Subrahmanya Kumar N., 2018). However, the journey to follow is expected to a tough one (Bhatnagar, 2017).

D. Benefits of digital payment systems

There are number of digital payment methods available in India such as debit / credit card, use of mobile wallets or payment banks such as Paytm, internet banking etc. Various features are provided by each of these payment methods. People prefer using the digital payment methods to the benefits that the foresee in doing a digital payment transaction. The usage of these methods is also linked to the features associated with these payment methods. customers.

Based on the review conducted by the authors, various factors impacting the customer payment preferences towards digital payment methods were determined in table 2 below:

Table 2: Features of digital payment modes

Payment method	Features	Papers
Debit and credit card	Safety Incentives for customers Credit facility	(Foscht, 2010) (King, 2005)
Mobile wallets / payment banks	Ease of use Security and trust Loyalty benefits Cashbacks and schemes Discounts Freebies	(Gupta, 2020) (Chawla, 2019) (Singh, 2017) (Mittal, 2017)
Internet banking	Service Performance Customer Care Quality Information Quality	(Vinayek, 2011)

It was further identified that following payment apps are popularly used in India namely, Google Pay, PhonePe

and Paytm (Gupta, 2020) (Tamilselvi, 2019) due to the ease of use, cashbacks and schemes and security provided by these players.

E. Risks perceived in the use of digital payment systems

While there are multiple benefits of digital payments, there are certain risks associated with the same. Some of the risks perceived by the people in the use of digital payment methods that may hinder them for doing digital payments include (See table 3 below):

Table 3: Risks associated to digital payments

Perceived Risks	Papers
Transaction security	(Zink, 2020), (Bagla, 2018),
Fraud risk	(Vinitha, 2017), (Singh, 2017)
Lack of trust	(Yang, 2015), (Kim, 2010),
Technology uncertainty	(Abrazhevich, 2001)
Lack of convenience	
High transaction costs	

As a result of the risks perceived in digital payment transactions, the promotion and adoption of the digital payment systems becomes a challenge. This issue becomes crucial while reaching to the unbanked masses or people are not technologically savvy. A study conducted on farmers in Haryana indicates that though the farmers have bank accounts and are provided with card facility, they do not prefer to do digital transactions due to lack of functional literacy and adequate infrastructure (Kumar S. J., 2018). Similarly, the need to create an awareness of non-cash transactions was identified with regards to the use of payment systems such as POS and prepaid instruments (Ananth, 2019).

In order to educate the masses and promote the digital payment systems, the Indian government has started Vittiya Sakharata Abhiyaan (VISAKA) and outreach campaigns like DigiDhan Abhiyan. The acceptance and non-acceptance of digital modes of payment in light of steps taken by the government have been studied in (Parameshwar, 2020).

Summary

The number of digital payment transactions in India has seen a considerable growth as compared to post demonetization scenario. Considering the growth in the number of digital payment transactions, it can be said that while the switch to digital payments during the demonetization period was sudden, the current shift (3 years post demonetization) appears to be more gradual and permanent (Kumar R. , 2020).

Considering the growth pattern in digital payment systems, the authors seeks to understand the impact of

COVID-19 on the digital payment systems and the issues faced by the respondents while making digital payments.

III. METHODOLOGY

The study of the customer awareness about the spread of COVID-19 through use of banknotes and the impact of the pandemic on the use of digital payment transactions was conducted using a primary survey research through sampling technique. The respondents were a group of people falling in various age buckets ranging from 18 years to 69 years staying in Tier 1 / 2 cities in India.

A well-structured questionnaire was framed and circulated to 400 people with the use of random sampling technique. Out of above, 368 people filled the questionnaire. The conclusions of the survey are drawn by studying various factors customer awareness, use of digital payment systems / applications for payment of day-to-day retail transactions.

IV. HYPOTHESIS

The null hypothesis is as follows:

- There is no association between gender and awareness of spread of COVID-19 through banknotes
- There is no association between age and awareness of spread of COVID-19 through banknotes
- There is no association between gender and usage of banknotes
- The number of digital payment transactions in India prior to COVID-19 is equal to number of payment transactions during COVID-19.

V. HYPOTHESIS TESTING AND FINDINGS

We conducted our study on 368 respondents. The sample consisted of 235 males and 118 females. The data about the sample respondents is presented in table 4 below:

Table 4: Composition of sample

Age group (years)	Gender		Total
	Male	Female	
18-25	55	64	119
26-40	128	60	188
41-60	48	9	57
61-70	4	-	4
Total	235	133	368

The responses received indicate that the average number of payment transactions in a week per person has reduced from approx. 17 transactions before lockdown to 12 transactions after lockdown.

Tests related to Hypothesis 1: Association between gender and awareness of spread of COVID-19 through banknotes

The respondents were questioned on whether they believe that COVID-19 can be transmitted due to handling of banknotes or coins. The following responses were received from the participants (See Figure 4 below):

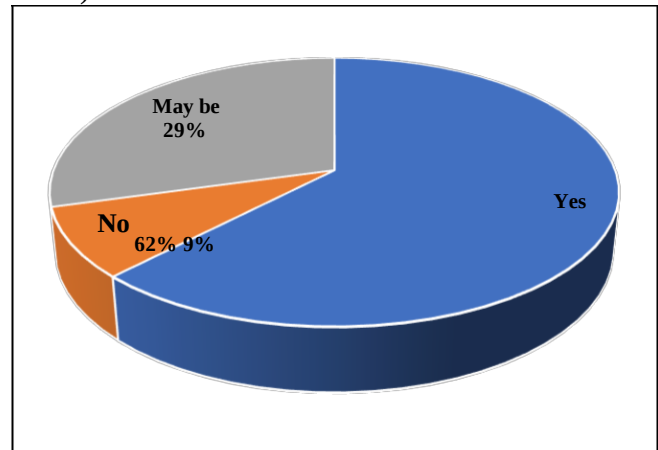


Figure 4: Awareness about spread of COVID-19

The figure above reflects that around 38% people do not believe in spread of COVID-19 through use of banknotes or are not sure or aware about the same. As a result, there is a need to take measures and make the people aware about the spread of COVID-19 through use of banknotes or coins which passes through multiple hands.

Using the data received, the degree of association between the gender and awareness about spread of COVID-19 through banknotes was calculated using the chi-square test and the p-values. The results of the same are shown in table 5 below:

Table 5: Results of statistical test to find the association in gender and awareness of spread of COVID-19

Gender * Awareness [count, row %, column %, total %].

Gender	Awareness			Total
	Aware	Not aware	Not sure	
Male	143.00 60.85% 62.45% 38.86%	18.00 7.66% 58.06% 4.89%	74.00 31.49% 68.52% 20.11%	235.00 100.00% 63.86% 63.86%
Female	86.00 64.66% 37.55% 23.37%	13.00 9.77% 41.94% 3.53%	34.00 25.56% 31.48% 9.24%	133.00 100.00% 36.14% 36.14%
Total	229.00 62.23% 100.00% 62.23%	31.00 8.42% 100.00% 8.42%	108.00 29.35% 100.00% 29.35%	368.00 100.00% 100.00% 100.00%

Chi-square tests.

<i>Statistic</i>	<i>Value</i>	<i>df</i>	<i>Asymp. Sig. (2-tailed)</i>
Pearson Chi-Square	1.67	2	.435
Likelihood Ratio	1.68	2	.433
Linear-by-Linear Association	.99	1	.319
N of Valid Cases	368		

The p-values are more than 0.05 which indicates that the null hypothesis is accepted and that there is no association in gender and awareness of spread of COVID-19 through use of banknotes.

Tests related to Hypothesis 2: Association between age and awareness of spread of COVID-19 through banknotes

The respondents were asked to specify their age and questioned on whether they believe that COVID-19 can be transmitted due to handling of banknotes or coins. In order to find the association between age and awareness of spread of COVID-19 through banknotes, chi square test was used. The results derived from responses received are shown in table 6 below:

Table 6: Results of statistical test to find the association in age and awareness of spread of COVID-19

AgeGroup * Awareness [count, row %, column %, total %].				
AgeGroup	Awareness			Total
	Aware	Not aware	Not sure	
18 to 25 years	70.00	10.00	39.00	119.00
	58.82%	8.40%	32.77%	100.00%
	30.57%	32.26%	36.11%	32.34%
	19.02%	2.72%	10.60%	32.34%
26 to 40 years	128.00	16.00	44.00	188.00
	68.09%	8.51%	23.40%	100.00%
	55.90%	51.61%	40.74%	51.09%
	34.78%	4.35%	11.96%	51.09%
41 to 60 years	30.00	4.00	23.00	57.00
	52.63%	7.02%	40.35%	100.00%
	13.10%	12.90%	21.30%	15.49%
	8.15%	1.09%	6.25%	15.49%
61 to 70 years	1.00	1.00	2.00	4.00
	25.00%	25.00%	50.00%	100.00%
	.44%	3.23%	1.85%	1.09%
	.27%	.27%	.54%	1.09%
Total	229.00	31.00	108.00	368.00
	62.23%	8.42%	29.35%	100.00%
	100.00%	100.00%	100.00%	100.00%
	62.23%	8.42%	29.35%	100.00%

Chi-square tests.

<i>Statistic</i>	<i>Value</i>	<i>df</i>	<i>Asymp. Sig. (2-tailed)</i>
Pearson Chi-Square	10.10	6	.120
Likelihood Ratio	9.74	6	.136
Linear-by-Linear Association	.46	1	.500
N of Valid Cases	368		

The p-values are more than 0.05 which indicates that the null hypothesis is accepted and that there is no association in age and awareness of spread of COVID-19 through use of banknotes.

Tests related to Hypothesis 3: Usage of banknotes between male and female

In order to understand whether there is a difference in usage of banknotes by males and females, the respondents were asked to select the average number of transactions made using cash prior to COVID-19 and during COVID-19. The average number of cash transactions during a week were as below (See table 7 below):

Table 7: Average number of transactions in a week prior to and during COVID-19

Gender	Average number of transactions in a week	
	Before COVID-19	After COVID-19
Male	3.22	1.81
Female	3.74	1.76
Total	3.41	1.79

In order to find the association between gender and percentage change in use of cash transactions, independent sample t-test was used. The results of the test are provided in table 8 below:

Table 8: Results of statistical test to find association between gender and usage of banknotes

Group Statistics					
	Gender	N	Mean	Std. Deviation	S.E. Mean
PercentageReduction	Male	235	.33	.95	.06
	Female	133	.43	.61	.05

Independent Samples Test						
		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2-tailed)
PercentageReduction	Equal variances assumed	2.34	.127	-1.12	366.00	.265
	Equal variances not assumed			-1.25	360.16	.211

The p-values are more than 0.05 which indicates that the null hypothesis is accepted and that there is no difference in percentage change in usage of banknotes between male and female.

Findings related first time users of digital payment modes

The respondents were asked whether they used digital payment methods such as banking or payment applications or payment wallets for the first time during the outbreak of COVID-19 or they were already using the digital payment modes or still continue not to use digital payment modes. The following responses were gathered (See table 9 below).

Table 9: Summary of usage of digital payment modes

Gender & age group	Used for 1 st time	Used prior to COVID-19	Did not use prior to & during COVID-19	Total
Male	40	187	8	235

18-25	20%	22%	63%	23%
26-40	50%	57%	25%	54%
41-60	28%	19%	13%	20%
61-70	3%	2%	0%	2%
Female	29	90	14	133
18-25	41%	46%	79%	48%
26-40	55%	47%	14%	45%
41-60	3%	8%	7%	7%
Total	69	277	22	368

The analysis of the responses suggests that out of total respondents, 19% respondents (count: 69) used digital payment methods for the first time during the outbreak of COVID-19. Out of these respondents, 67% respondents believe that COVID-19 could spread through use of banknotes, whereas 23% are not aware / sure that COVID-19 could spread through use of banknotes. Overall, 68% used the digital payment mode to prevent possibility of spread of COVID-19 due to handling of cash whereas 26% used digital payment mode to conserve cash or due to inability to withdraw cash from ATM during lock down period.

Tests related to Hypothesis 4: Number of digital payment transactions in India prior to and during COVID-19

The respondents were asked about use of various payment methods such as cash, credit / debit card, banking applications such as internet banking (NEFT / IMPS), BHIM UPI, Wallets (GooglePay, Paytm, PhonePe). They were required to select the payment method used by them for payment transactions made before and during COVID-19. From the responses received, the composition of payment transactions made were categorized into:

- Cash transactions
- Debit / Credit card transactions
- Digital transactions using banking application or wallets or payment applications

In order to find out the association between number of payment transactions prior to and during COVID-19, paired sample t-test was used. The results of the same are provided in table 10 below:

Table 10: Paired sample t-test to understand the difference between number of transactions before and after COVID-19.

Pairs: Before and during COVID-19	Paired Differences			T value	Degrees of freedom	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Pair 1: Cash	1.62	2.73	0.14	11.37	367	0
Pair 2: Debit / Credit Card	1.1	2.67	0.14	7.86	367	0
Pair 3: PhonePe	0.19	1.72	0.09	2.12	367	0.035
Pair 4: Paytm	0.66	2.56	0.13	4.93	367	0
Pair 5: GooglePay	0.72	2.63	0.14	5.27	367	0
Pair 6: BHIM	0.31	1.98	0.1	3.02	367	0.003
Pair 7: Banking Applications	0.28	1.98	0.1	2.71	367	0.007
Pair 8: All Digital transactions (including Cards)	3.27	9.49	0.49	6.61	367	0
Pair 9: All Digital transactions (excluding Cards)	2.17	8.21	0.43	5.08	367	0

The p-values for all the payment methods are less than 0.05 which indicates that null hypothesis is rejected. Thus, it can be said that the number of transactions before and during COVID-19 are not equal. Further, the composition of payment transactions using various payment methods prior to and during COVID-19 are provided in table 11 below:

Table 11: Composition of payment methods used

Method	Prior to COVID-19	During COVID-19
Cash	20.38%	15.14%
Card	21.26%	20.78%
Digital transactions	58.36%	64.08%

The percentage change in transactions reflected in figure 5 below clearly indicates that there has been an upward trend in the digital payment transactions and a reduction in the number of transactions done using cash.

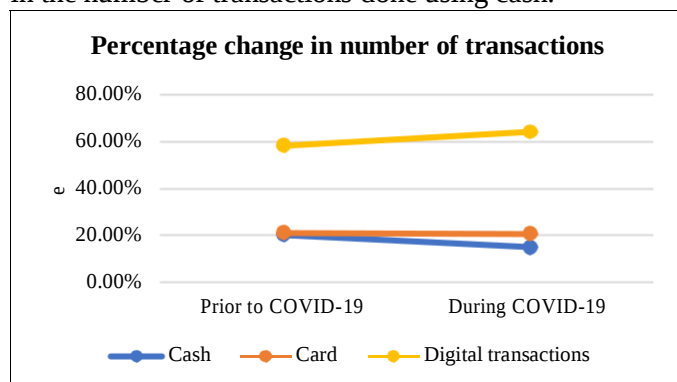


Figure 5: Percentage change in number of transactions (Prior to & during COVID-19)

Analysis of digital payment service providers

The respondents were asked to provide details of digital payment services used during lockdown period, if any along-with the reasons thereof. On analysis of the responses, it was observed that 57% of the respondents (count: 211 out of 368) did not use BHIM app developed by the National Payments Corporation of India. Only, 28% respondents found BHIM app easy to use.

As far as private sector is concerned, PhonePe, Paytm and GooglePay dominate the market share. Out of the total respondents, the percentage of respondents who found the apps easy to use was as follows:

- PhonePe : 28%
- Google Pay: 52%
- Paytm: 35%

Further, these private payment service providers are famous for cashbacks and rewards. However, banks own applications saw rise in usage from 11% prior to COVID-19 to 13% during COVID-19, despite offering lesser rewards / offers as compared to private payment service providers. Such increase of 2% was the highest as compared with any other mode of payment available. One of the reasons for this increase is the perceived safety of transactions and privacy of data as compared to private players.

Sanitization of banknotes

Considering the risk of spread of COVID-19 through use of banknotes, many Central Banks such as People's Bank of China, Bank of Canada, Bank of Korea have started sanitizing / sterilizing the banknotes. The banknotes are sanitized with the use of ultraviolet rays or heat treatment and also quarantined before they are distributed again. The process of sanitizing banknotes is not being resorted to in India, however, as per the

secondary sources, trials are being conducted to sanitize the banknotes through portable UV devices in India.

In this connection, the respondents were asked whether they would use the banknotes if the same were sanitized. However, there was a mixed response from the respondents as to the acceptance of banknotes post sanitization or sterilization. The summary of the responses is presented in table 12 below:

Table 12: Willingness of respondents to use banknotes post sanitization

Perception of respondent	Willingness to use banknotes post sanitization			Total
	Yes	No	Not sure	
Believe in spread of COVID-19 through banknotes	105	118	6	229
Do not believe in spread of COVID-19 through banknotes	15	16	-	31
Not sure / aware about the spread through banknotes	61	44	3	108
Grand Total	181	178	9	368

Respondents have also expressed the concern of infestation of banknotes with COVID-19 virus post sanitization. As a result, they do not find it to be a feasible option. Further, respondents have also specified that due to non-acceptance of digital payments by small merchants, hawkers and vegetable vendors, they are not left with any other option than to use physical banknote. This throws a light on the fact that the digital payment methods are not used or perceived to be beneficial by all the merchants or service providers. There still remains a section of society who is not well comfortable in doing digital payment transactions. The same is also evident from that fact that out of 368 respondents, 5% (count: 14) have never used / done any payment transaction using digital mode of payment.

As a result, the RBI's move towards promotion of digital payment transactions and removal of transaction fees for digital payment transactions such as NEFT, IMPS should be welcomed. Further, the cyber security and compliance requirements introduced can be a savior to many who feel vulnerable to cyber-attack or data thefts.

VI. CONCLUSION

The study of all the above factors indicate that there is a need to sensitize people about the spread of COVID-19

through use of banknotes and also promote the use of digital payment systems between people of all gender and age.

RBI is promoting the use of digital payments by providing benefits to people or removal of transactions fees. It is also noticed that people have started using digital payment methods due to the COVID-19 to avoid touching the objects that pass hands and also due to ease of use. However, there is still some section of the society who does not use digital payment methods and they could be targeted by the authorities and explained the importance of digital payment transactions.

Expected benefits of the study

This study is expected to have the following benefits:

- Increased digital payment transactions thereby reducing the use of cash / banknotes which could be one of the ways of spread of COVID-19
- Help the businesses and customers to understand the multiple payment options available
- The study can be used by RBI or financial institutions to take banking and digital payment transactions to the masses.

Practical application

The results of the study can be applied by the payment service providers such as banks, card companies, wallet service providers to promote the use of digital payment transactions and thereby help in reducing the spread of COVID-19 or any other pandemic. They may also come up with offers / schemes to attract the people who do not use digital modes of payment. Government can promote the use of digital payment methods by broadcasting educational videos, advertising the benefits of digital payment methods and guiding the people about the same (Tamilselvi, 2019).

Scope and Limitations

- a. The study would be based on random sampling method instead of census method
- b. The respondents are from Tier 1 or 2 cities. Hence, the findings may not give overall view of people's perceptions and preferences.

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