Pandemic Effect on Adoption of Digital Payments in India

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Abstract— The study examines the factors that determined the use and adoption of digital payments since the introduction of Demonetisation and during the pandemic of Covid-19. The data collected were from the 253 survey responses. The reliability and validity of the data were assessed using the Kolmogorov-Smirnov test, and the Cronbach Alpha which showed that the data were not normally distributed but the questionnaire was reliable after deleting some items. Therefore, nonparametric tests like the Mann-Whitney U-test, and Kruskal-Wallis tests were used. It is found that gender does not play a major role in adoption of digital payment systems. However, age does play a role, and the study showed havinga tendency to stick to cash payments as the age bracket increases.

Keywords: Digital Payment, Demonetisation, Digital Adoption, Pandemic, Perceived Value

I. INTRODUCTION

The demonetization of the Rs. 500 and Rs. 1,000 notes were announced by the Narendra Modi-led government in 2016. To stop the flow of black money, this action was taken. Due to the severe cash scarcity that had occurred during the demonetisation, there was an increase in digital use in the months that followed. The primary justification for withdrawing the high-denominator notes which are no longer in use was that the federal government and its departments were increasingly promoting digital use.

Digital transactions have many advantages, including the fact that users do not need to wait in lines in a bank for hours or days to complete 5-to-6-page documents. Hence, as digital payment methods became more widely known and its awareness increased with the restriction of paper currency, more people progressively migrated to them.

Entrepreneurs around the country took on the challenge of improving the experience of obtaining credit, and as a result, many lending applications now provide access to loans in a variety of formats, including buy now pay later, scan and pay, and direct bank transfer. The pandemic's heavy reliance on technology also aided in hastening the digitization process.

The purpose of this study is to look at the elements that affected people's attitudes regarding adopting digital payments after demonetisation and during the pandemic of Covid-19.

The remainder of the study is structured as: reviewing the most recent work on the adoption of digital payments in Section 2. Sections 3 and 4 discusses the research approach and analysis. Section 5 covers the conclusion and limitation depicting some potential future research applications.

II. LITERATURE REVIEW:

There have been various studies depicting the rise of adoption of Digital payments, and how it can lead to a near cashless society in the future.

1) Ahmed and Sur (2021), investigated the attitude toward adopting digital payment systems and found that the respondents are significantly influenced by convenience (which includes perceived usefulness and perceived ease of use), perceived self-efficacy, the demonetization effect, trust, performance expectations, and the pandemic effect. Sivathanu (2017), has investigated several factors, such as performance expectations, effort expectations, social influence, facilitative conditions, hedonic motivation, habit, usage barriers, value barriers, risk barriers, conventional obstacles, and image barriers. The results suggest that behavioural intention (BI) and innovation resistance (IR) have an impact on how often digital payment systems are used. Jain, Thakur & Dash (2019) stated that while demonetization was successful in creating a cashless system to combat corruption, but was unsuccessful due to leading economic disruption. Jain(2018) investigated how demonetization affects various age groups and payment methods. It was recommended that banks must introduce unique digital promotion initiatives for consumers for digital India adoption especially for people between the ages of 45 and 70. Jacolin, Massil and Noah (2021), stated that the informal sector's size is negatively impacted by the implementation of mobile financial services. Prakash (2019), observed that for adoption of digitalization, there is a need of concurrent infrastructure development in the country. Raj and Aithal (2018), analyses the impact of the various digital action plans on India's Balance of Payment industry. It was found that the socioeconomically disadvantaged have greatly benefited from India's digital initiatives. Avula (2017) stated that while the move to a cashless India will have a number of benefits, more education is still needed to persuade the vast majority of Indians to engage in cashless transactions. Bai, Quayson, Sarkis (2021) combines a review of the literature and first-hand knowledge to offer COVID-19 pandemic digitalization lessons for MSE sustainability. It is discovered that digital payments, particularly mobile money, should be a crucial digital transformation goal for MSEs from the standpoint of technology for social benefit. To adopt digital transformation for business continuity and sustainable production and consumption, institutions must support MSE resources and capabilities. Nithin, Jijin and Baiju (2019) stated that demonetization did little to progress digital payments in India and instead appears to have had a net negative impact on digitalization. Instead, rather than implementing premature reform measures like demonetization, it advises further improvements in

infrastructure and the regulatory framework for the development of digital transactions. Reddy and Nikitha (2019) stated that the country's economy and how people interact with one another have both been significantly impacted by demonetization. The economy has been impacted, and the cashless economy now has the upper hand. Additionally, it made people learn new skills and get used to using technology daily.

2) Jonker, Cruijsen, Bijlsma, Bolt (2022) stated that compared to other external shocks, the impact of the pandemic on payment behaviour has been relatively large in magnitude. Compared to before the pandemic, the gap between the share of people preferring to pay with cash and the share of Point Of Sale transactions actually paid in cash has decreased. Cash was used more frequently before, but the cumulative effect of both the lockdowns resulted in a shift to cashless modes of payment. Santosa, Taufik, Prabowo, Rahmawati (2021) observed that UTAUT (Unifed Theory of Acceptance Technology) indicators positively affect user satisfaction. User satisfaction positively affects inertia. Overall satisfaction and inertia positively affect continuance intention. Therefore, digital payment companies and banks with digital services can expand their target market beyond Millennials and pay more attention to the older generation like baby boomers and X generation.
3) Ahmed and Sur's (2021) study had studied the rural MSME's reasons for adopting digital services and not taken urban sector into consideration. Further, Sivathanu (2017) has not taken into account some key concepts like perceived value, trust, and loyalty. This study aims to fill the gaps by considering the perception of the respondents for switching to digital payments including demographic moderating variables such as gender, occupation, income, and educational level using both the constructs and factors in the Ahmed and Sur (2021) on the general public, and Sivathanu (2017) work on the general public.

III. Methodology

A. Data Collection:

This study used the data collected through an online survey questionnaire distribution. To collect the data, the questionnaire was distributed via email, social media and messaging applications like WhatsApp and Instagram apps. The respondents were from various backgrounds and across states, in order to acquire a diverse perspective on payment methods used by them.

Initial surveys were distributed online to 300 respondents in the month of May and June 2022. The responses from the 253 surveys were received and the same is used for the subsequent data analysis.

B. Measures:

The population's data was collected using a five-point Likert scale. Linguistic characteristics are used to rank the respondents' intentions for the adoption of payment methods used, from strongly disagree to highly agree. In order to turn string variables into numeric ones during the data analysis process, these linguistic variables are given a value and a label.

C. Pilot survey:

The pilot test comprises of 30 participants since this sample size is adequate to identify any problems with the form, structure, or comprehension of the distributed questionnaire. Overall satisfaction with the survey's design was found in the pilot survey using the Cronbach Alpha test.

Reliability has been tested using the Cronbach alpha value (α). Based on the analysed result of the normality test (Table 2) 'Kolmogorov-Smirnov', it is evident that the data are not normally distributed. So, nonparametric tests like Mann-Whitney and Kruskal-Wallis tests were used to measure the relationship between two or more categorical variables.

Variables	Statistic	df	Sigma
Perceived Value	.354	253	.000
Functional Value	.350	253	.000
Social Value			
Trust	.345	253	.000
Usage Barrier	.247	253	.000
Value Barrier	.213	253	.000
Risk Barrier	.303	253	.000
Image Barrier	.217	253	.000
Innovation Resistance	.32	253	.000
Actual Usage	.328	253	.000
Stickiness To Cash Payments	.281	253	.000
Performance Expectancy	.249	253	.000
Effort Expectancy	.240	253	.000
Social Influence	.272	253	.000
Facilitating Condition	.309	253	.000
Hedonic Motivation	.32	253	.000
Habit	.307	253	.000

Table 1: Kolmogorov-Smirnov
Source: Primary data

IV. Analysis and Discussion

A. Respondents Demographic Profile:

The demographic background of the respondents consists of 130 (51.4 percent) females and 123 (48.6 percent) males (Figure 1). Many of them were in their 20s to 30s (56.9 percent) as was to be expected. This is since the questionnaires were circulated using technological means, including social media, emails, and messaging applications like WhatsApp and Instagram apps, making this age group the most accessible (Figure 2). Majority of the respondents have a bachelor's degree (71.9 percent), while only 27.30 percent have a master's degree (Figure 3). Many respondents are within the income range of 0–3 lakhs (Figure 4).

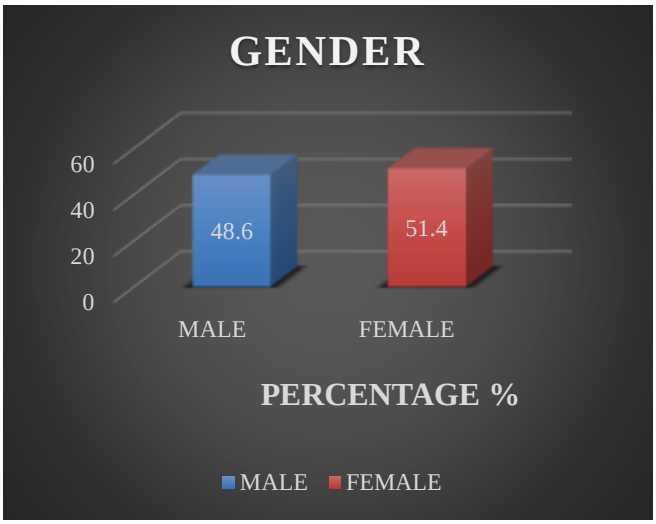

Fig. 1: Gender
Source: Primary data

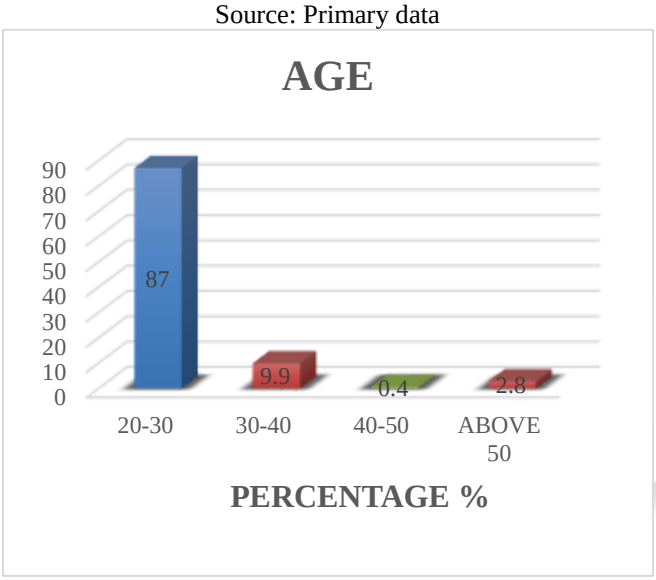

Fig. 2: Age
Source: Primary data

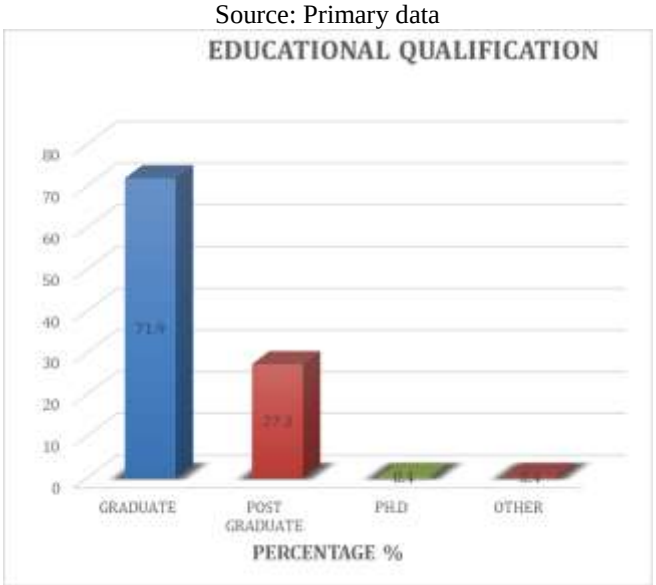

Fig. 3: Educational Qualification
Source: Primary data

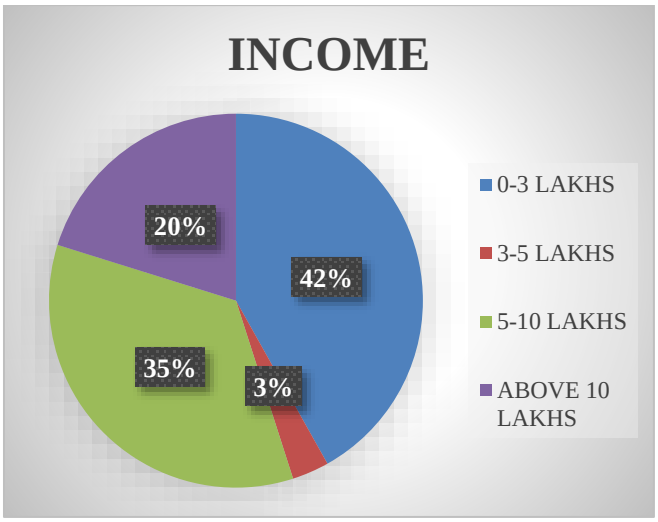

Fig. 4: Income
Source: Primary data

B. INTERPRETATION:

Table 2 shows that the research model based on Cronbach Alpha exhibits high reliability (Hinkin's, 1998). And the data are not normally distributed on the basis of analysis based on the p-value of Kolmogorov-Smirnov test.

VARIABLES	Items	CA	Kolmogorov-Smirnov Sig.
1.PERCEIVED VALUE Functional Value Social Value	 4 3	 .615 .846	 <.001 <.001
2. Trust	4	.857	<.001
3. Usage Barrier	4	.950	<.001
4. Value Barrier	3	.872	<.001
5. Risk Barrier	4	.955	<.001
6. Image Barrier	3	.959	<.001
7. Innovation Resistance	3	.939	<.001
8. Actual Usage	3	.795	<.001
9. Stickiness to use cash payments	3	.883	<.001
10. Performance Expectancy	3	.811	<.001
11. Effort Expectancy	3	.925	<.001
12. Social Influence	4	.833	<.001
13. Facilitating Condition	4	.783	<.001
14. Hedonic Motivation	3	.808	<.001
15. Habit	4	.803	<.001

Table 2: Normality Test Results
Source: Primary data. Note: CA=Cronbach Alpha

Questions	Asymp. Sig. (2-tailed)	Chi Square	df
Is digital payments helpful?	.000	25.207	3
Is digital payments necessary?	.000	24.070	3

Are you able to save time when using digital payments services?	.000	18.483	3
Do you perceive that you make a good impression on others when using digital payments	.002	14.794	3
Do you feel accepted by others when using digital payments	.013	10.828	3
Do you trust the ability of digital payment systems to protect your privacy?	.016	10.350	3
Do you trust the ability of digital payment systems to not lead to transaction fraud?	.043	8.171	3
Is risk associated with digital payment systems low?	.012	10.881	3

Table 3: Age vs Variables
Source: Primary

	AGE	MEAN RANK
Functional Value	20-30	130.97
	30-40	121.20
	40-50	86.12
	ABOVE 50	20.5
Social Value	20-30	132.32
	30-40	99.19
	40-50	67.5
	ABOVE 50	67.5
Trust	20-30	129.96
	30-40	120.28
	40-50	75.00
	ABOVE 50	65.45

Table 4: Age vs Variables Mean Rank
Source: Primary

From Table 3 and Table 4, it can be inferred that the people who fall in the age bracket of 20-30 find Functional Value in usage of Digital Payments. This age group is followed by people who fall in the bracket of 30-40 and 40-50 subsequently. A similar trend is observed in the case of the other 2 variables, that is, Social Value and Trust.

Questions	Asymp. Sig. (2-tailed)	Chi Square	df
When I use Digital payment systems, I am doubtful of wrongly tapping the bill information	.028	9.064	3

Table 5: Educational Qualification vs Variable
Source: Primary

From Table 5 and 6, it shows that respondents who fall in the Educational Qualification bracket of Postgraduate find Functional Value to use Digital Payments. This group is followed by people who fall in the bracket of Graduate and Others subsequently. A similar trend is observed in the case of the other 2 variables, that is, Social Value and Trust.

	Educational Qualification	Mean Rank
Risk Barrier	Graduate	129.70
	Postgraduate	136.42
	Phd	52.00
	Others	111.00

Table 6: Educational Qualification vs Variable Mean Rank
Source: Primary

From Table 7 and 8, it shows that the respondents having a family income of 0-3 Lakhs per annum find Functional Value in using Digital Payments which is followed by 5-10 Lakh, and 3-5 Lakh per annum income group. A similar trend is observed in the case of the other 3 variables, that is, Social Value, Trust, and Risk Barrier.

Questions	Asymp. Sig. (2-tailed)	Chi Square	df
Is digital payments necessary?	.008	11.759	3
Are you able to save time when using digital payments services?	.025	9.328	3
Do you perceive that you make a good impression on others when using digital payments	.014	10.548	3
Do you trust the ability of digital payment systems to protect your privacy?	.000	1.855	3
Do you trust the ability of digital payment systems to not lead to transaction fraud?	.033	2.903	3
When I use Digital payment systems, I am doubtful of wrongly tapping the bill information	.049	7.882	3
I have insecurity while using the digital payment system regarding the loss of PIN codes which might reach wrong hands	.056	7.546	3
I am fearful while using digital payment systems, as the third-party might get access to my account information	.010	11.367	3

Table 7: Family Income vs Variables
Source: Primary

	Family Income	Mean Rank
Functional Value	0-3	134.77
	3-5	104.37
	5-10	129.90
	ABOVE 10	109.37
Social Value	0-3	138.88
	3-5	146.63
	5-10	124.02
	ABOVE 10	104.37
Trust	0-3	142.71
	3-5	84.87

	5-10	115.07
	ABOVE 10	121.53
Risk Barrier	0-3	124.21
	3-5	191.40
	5-10	126.93
	ABOVE 10	122.81

Table 8: Family Income vs Variables Mean Rank
Source: Primary

From Table 8, Kruskal- Wallis's test gives out an interesting observation as the Age and Family income of the individual affects the decision to adopt Digital Payments as mode of payment. Whereas irrespective of the demographic variables', Usage Barrier, Value Barrier, Image Barrier, Innovation Resistance, Stickiness to use Cash payments, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Condition and Habit have the same effect on the samples as the sigma value for these are more than 0.05 as can be observed from Table 1.

V. CONCLUSION:

India's Demonetisation can be seen as a component of a larger strategy to encourage alternative payment methods and transition the nation to a cashless society. By doing this, the economic benefits to the nation including those from financing terrorists, dealing in the black market, and using counterfeit money are minimized. Demonetization should have resulted in; first, it decreased the amount of money in circulation and put pressure on the economy; second, it sparked the development of alternative digital payment mechanisms. The government employed it as a strategy to drive the change towards digital transaction transformation yet, majority of the population started adopting the digital payments during the pandemic.

It is observed from the series of tests conducted that the majority of the respondents trust the digital payment systems (56.9 percent). This can be because the majority of the respondents are from the age bracket of 20-30 (87 percent) as their digital awareness is much higher than the other age brackets. Yet, the hesitant can still be found using digital payments (51.3%) due to insecurity with regard to loss of PIN codes while using these modes of payment. It was also found that gender does not play a role in adoption of digital payment systems. It can be concluded that, the age group of 20-30 are comfortable using digital payment modes in comparison to the other age brackets. During the pandemic, the other age groups of 30-40, 40-50, 50 and above, are coping up with digital payment modes, even though trust factor is less as compared to the age group between 20-30 years.

Major limitation of the research would be that a huge proportion of the responses were collected from college students who are either pursuing a master's degree or bachelor's degree. Future researchers can concentrate more on other age brackets and take into consideration digital awareness and financial literacy of the respondents as one of the key constructs. Further, there can be more factors outside those investigated in this study, such as emotional value or conventional barriers. Future researchers are advised to gather data from larger samples (more than 253) for generalisation to understand how the pandemic has altered the mode of payment across India.

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