

Digital Payment System in India : A Feat Towards Cashless Economy

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Abstract: *Government of India has taken an initiative of cashless economy after demonetization, with an aim to bring transparency in the transactions and eliminating black money from the nation. The term digital payment means paying money to other person with the help of internet instead of paper money. It is observed that there is a tremendous use of mobile and internet in India which reflects in the growth of digital payment gateways in India. Digital payment reduces the risk related to cash such as corruption, robbery, carry and storage of cash and also cost of production on paper money. Banks have played a major role in the digital payment by providing digital instruments like debit card, credit card, internet banking, mobile banking, UPI, IMPS, BHIM App etc. Till now, major part of the society is using digital payment mode for their payments, but still many people scared to use digital payment methods due to low internet connectivity, risk associated with online payment and additional charges over the digital transaction. The present paper focuses on of adaptation level of digital payments and settlement measures by customers in India from financial year 2013-14 to 2108-19.*

Keywords: Digital Payment, Internet, Electronic, Bank, Transactions

I. INTRODUCTION

Honorable Prime Minister Shri Narendra Modi launched digital India campaign on 2nd July 2015 to make India digitally empowered economy. Under digital India program the main emphasis is on enabling every citizen digitally literate and making them capable to perform financial transactions through digital modes. To make this vision into reality NPCI has launched various new modes of payment and settlement system. Under the "Payment and Settlement system Act, 2007", RBI and Indian Bank association setup NPCI (National Payment Corporation of India) for establishing strong and vigorous payment and settlement infrastructure in the country. The main objective of NPCI is to bring innovations in retail payment system with the advent of technology to achieve efficacious operations and extending the area of payment system. At initial stage 10 banks such as SBI, PNB, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI bank, HDFC bank, Citi bank and HSBC were the promoters of NPCI. In 2016, the membership was increased to 56 banks¹.

Various modes of Digital payment and settlement systems:

Real Time Gross Settlement (RTGS): is the continuous process of settling payment on an individual order basis without netting debits with credits across the books of a central bank. RTGS system is required for high value transaction which needs immediately clearing².

Electronic Clearing Services (ECS): is an electronic mode of funds transfer from one bank to another, which is used by institution for making payments such as distribution of dividend, interest, salary, and pension & also be used to pay bills etc. and can be used for the debit or credit purchase also³.

National Electronic Fund Transfer (NEFT): is an electronic fund transfer maintained by RBI. It enables to transfer fund between any two NEFT enabled bank accounts on one to- one basis through electronic channels. Unlike RTGS, NEFT settles fund transfer in hourly batches with 23 settlements occurring between 00: 30 hours to 00:00 hours.

From Dec16, 2019, there would be 48 half-hourly batches occurring between 00: 30 hours to 00:00 hours every day regardless of a holiday or otherwise⁴.

Immediately Mobile Payment Service (IMPS): offers on instant payment inter-bank electronic fund transfer system through mobile phone over 24 X 7 across India⁵.

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National Automated Clearing House (NACH): is a centralized web based program to enable interbank high volume electronic transactions for different organization like Banks, financial institutions, companies and government. It would be used for high volume transactions related to distribution of subsidies, salaries, pensions & interest and also for collection bills like electricity, water & for mutual funds and insurance premium collection also etc].

Credit Card: It is a payment card which enable card holder to pay a merchant for goods and services for which card holder promises to pay to card issuer with the amount borrowed plus other agreed charges.

Debit Cards: It is a plastic payment card that facilitates to withdraw funds from card holder bank account. It can also be used instead of cash when making purchase.

Unified Payment Interface (UPI): is developed for smart phone user which allows them to transfer their money through internet facility between bank accounts. It is developed by NPCI. UPI is regulated by RBI. For example: Bharat interface for money (BHIM) is an app that allows simple easy and quick payment transaction using UPI1.

Prepaid Payment Instrument (PPI): can be used only for the purchase of goods and services up to limit of Rs 10,000/-. Customer can load or reload such PPIs from a bank account to its bills. The loading or unloading of such PPI will be only from a bank account. For example: Paytm, Mobikwik, Phonepe and Amazon pay etc6.

II. LITERATURE REVIEW

Dr. C Dhanalakshmi (Nov, 2018), found that government initiative of cashless economy seems healthy over the last couple of years. He explained about "India's Citizen Environment & Consumer Economy (ICE) survey" which explains that 99% of household have bank accounts but Bank instruments are not used by them and this is only because of poor financial literacy in the country and they want to carry payments only through cash. Researcher explained different types of digital payment methods available in India like cards, UPI, Mobile

Wallets, Internet banking, Mobile banking, BHIM etc. His study concluded that there was a gradual decline in the usage of paper clearing transactions from June to September 2018 and mobile usage were high during that period. He concluded that in coming years, there will be a sharp and unexpected rise in the number of digital payment transactions in India7.

K. Suma Vally and Dr. K. Hema Divya (May, 2018), explained in their study that demonetization resulted into higher level for adaptation of digital payment by the Indian citizens. They elaborated about different digital infrastructures available to the customers like BHIM app, mobile banking, net banking, debit and credit cards etc. Researcher studied that whether there is any impact of income, age and education etc. on digital payment usage or not. They adopted questionnaire method to collect the data. For analysis of data, chi square test has been used and the result shows that performance of banking sector have improved after development of technology and use of digital payment8.

Arpita and Mr. Rathore (April, 2018), found out impact and importance of digital payment in India. In the article they explained about Internet and Mobile Association of India (IAMAI) and Kantar Indian Market Research Bureau (IMRB) report in which they explained that out of 918 million rural population 186 million populations are using internet. They also explained different schemes which motivate customers to use digital payment methods such as Lucky Grahak Yojana for customers and Digi Dhan Vyapar Yojana for the traders. The main objective was to find out impact of digital payment in India, understand consequences of digital system and adaptation of technology by the people. The researcher found out different problems such as poor internet connectivity especially in higher altitude areas, short electric supply in rural areas and security & safety associated with online transactions. In order to overcome these problems, they suggested government should focus on literacy, internet connectivity, cybercrime and lastly banking sector should take initiative in the training policy for the customers to adopt digital methods for their payment9.

Mrunal Chetanbhai Joshi, (Oct, 2017) has conducted a study; he found that there is a remarkable growth of digital payment in volume and value both. He explained that government of India took initiative to develop different modes of payment for the customers. In the study, he made comparison of new mode of digital payment system with the older ones. In analysis, he used secondary data published by government of India and applied cross-tabulation, trend percentage analysis, line and bar chart to explain his findings. He concluded that there is a positive growth in last 3 years i.e. from 2015-16, 2016-17, and 2017-18 (up to July 2017). People are adopting new modes of payment like BHIM, UPI, and NACH etc. This initiative of government will certainly facilitate development of economy at higher growth rate in future10.

RESEARCH GAP

From the literature available it has been observed that very less study has been conducted in the recent years related to Digital Payment & Settlement mechanism adopted in the country. Therefore, the study has been designed on “**Digital Payment System in India: A Feat towards Cashless Economy**” to study the status of digital payment and settlement measures adopted from 2013-2014 to 2018-19.

III. METHODOLOGY

In the present study descriptive research design is used. For the research paper secondary data published by RBI is used to know about the present position of digital payment and settlement indicators. Scope of the study is limited from 2013-14 to 2018-19. To draw meaningful inferences from the data cross tabulation, trend percentage and bar chart have been used.

Objective

To study the trend in digital payment and settlement measures adopted by different institutions in India both in terms of value and volume of transactions from 2013-14 to 2018-19.

IV. ANALYSIS & INTERPRETATIONS

Table-1: Digital Payment and settlement Indicators Volume of Transactions (In Millions)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Real Time Gross Settlement (RTGS)	81.1	92.8	98.3	107.8	124.4	136.6
Electronic Clearing Services (ECS)	345.4	341.3	263.8	18.9	7.6	6.3
National Electronic Fund Transfer (NEFT)	661	927.5	1252.9	1622.1	1009.8	1752.9
Immediate Payment Service (IMPS)	15.4	78.4	220.8	506.7	915.2	5353.4
National Automated Clearing House (NACH)	86.5	340.2	1404.1	2057.3	2503.3	3035.2
Credit Cards	509.1	615.1	785.7	1087.1	1405.2	1762.6
Debit Cards	619.1	808.1	1173.6	2399.3	3343.4	4414.3
Prepaid Payment Instruments (PPIs)	133.9	314.5	748	1963.7	3459	4604.3

(Source: www.rbi.org.in)

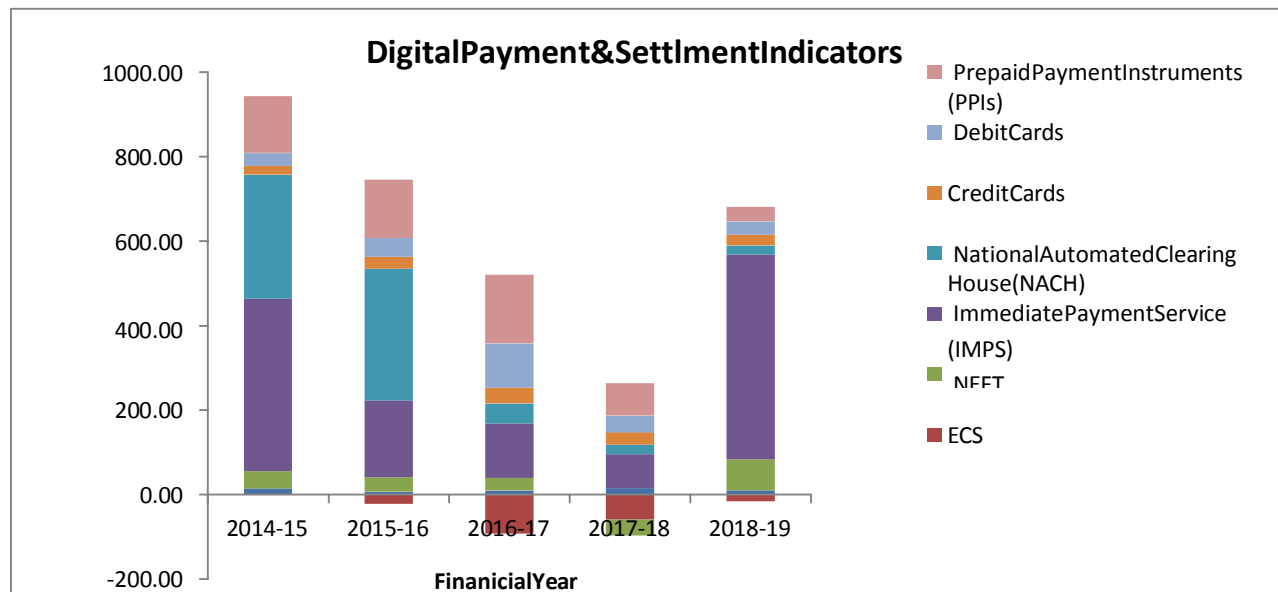
Table-1 depicts volume of transactions (In millions) done over digital payment and settlement platforms from financial year 2013-14 to 2018-19. Measures used for digital payment and their settlement are RTGs, ECS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs.

Table-2: Trends in Payment and settlement Indicators Volume of Transactions (In Percentage)

	2014-15	2015-16	2016-17	2017-18	2018-19
Real Time Gross Settlement (RTGS)	14.43	5.93	9.66	15.40	9.81
Electronic Clearing Services (ECS)	-1.19	-22.71	-92.84	-59.79	-17.11
National Electronic Fund Transfer (NEFT)	40.32	35.08	29.47	-37.75	73.59
Immediate Payment Service (IMPS)	409.09	181.63	129.48	80.62	484.94
National Automated Clearing House (NACH)	293.29	312.73	46.52	21.68	21.25
Credit Cards	20.82	27.74	38.36	29.26	25.43
Debit Cards	30.53	45.23	104.44	39.35	32.03
Prepaid Payment Instruments (PPIs)	134.88	137.84	162.53	76.15	33.11

(Source: Author Compilation)

Table-2 shows volume of transactions in percentage calculated as compare to previous year regarding digital payment and settlement measures from financial year 2014-15 to 2018-19. RTGS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs all have shown increased usage of digital mode of payment adopted. Only ECS has shown negative percentage increased during every year in tenure of 05 years. NEFT also has negative growth rate in 2017-18 with 37.75%. IMPS, NACH and PPIs have shown higher in growth rate over the years as compare to RTGS, NEFT and Debit & Credit cards.



(Source: Author Compilation) Chart-1

Chart-1 depicts the percentage increased in volume of transactions in digital payment and settlement measures from financial year 2014-15 to 2018-19. All the changes in rate of growth whether negative or positive regarding volume of transactions with respect to digital payment and their settlement regarding RTGS, ECS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs have been clearly shown in the chart.

Table-4: Payment and settlement Indicators Value of Transactions (Rs in Billions)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Real Time Gross Settlement (RTGS)	734,252.40	754,032	824,578	981,904	1,167,125	1,356,882
Electronic Clearing Services (ECS)	3,760.20	3,759	2,711	183	125	144.95
National Electronic Fund Transfer (NEFT)	43,785.50	59,804	83,273	120,040	172,229	227,936
Immediate Payment Service (IMPS)	95.80	582	1,622	4,116	8,925	15,903
National Automated Clearing House (NACH)	214.8	1,221	3,802	7,916	10,736	14,762
Credit Cards	1,539.9	1,899	2,407	3,284	4,590	6,033
Debit Cards	954.1	1,213	1,589	3,299	4,601	5,935
Prepaid Payment Instruments (PPIs)	82.4	213	488	838	1,416	2,129

(Source: www.rbi.org.in)

Table-4 depicts value of transactions (In billions) done over digital payment and settlement platforms from financial year 2013-14 to 2018-19. Measures used for digital payment and their settlement are RTGS, ECS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs.

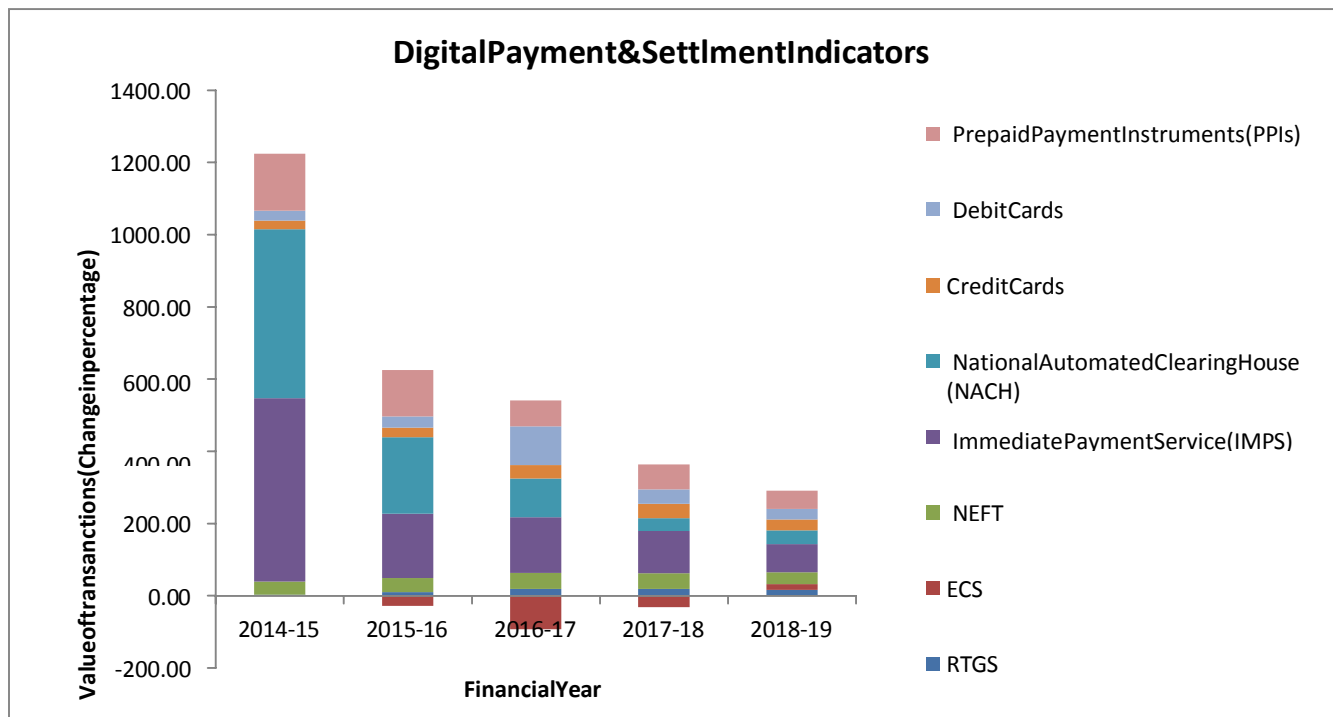
Table-5: Trends in Payment and Settlement Indicators Value of Transactions (In percentage)

	2014-15	2015-16	2016-17	2017-18	2018-19
Real Time Gross Settlement (RTGS)	2.69	9.36	19.08	18.86	16.26
Electronic Clearing Services (ECS)	-0.03	-27.88	-93.25	-31.69	15.96
National Electronic Fund Transfer (NEFT)	36.58	39.24	44.15	43.48	32.34
Immediate Payment Service (IMPS)	507.52	178.69	153.76	116.84	78.18
National Automated Clearing House (NACH)	468.44	211.38	108.21	35.62	37.50
Credit Cards	23.32	26.75	36.44	39.77	31.44
Debit Cards	27.14	31.00	107.61	39.47	28.99

PrepaidPaymentInstruments(PPIs)	158.50	129.11	71.72	68.97	50.35
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(Source:AuthorCompilation)

Table-5 shows value of transactions in percentage calculated in comparison to previous year regarding digital payment and settlement measures from financial year 2014-15 to 2018-19. RTGS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs all have shown increased usage of digital mode of payment adopted. Only ECS has shown negative percentage increased during 2014-15, 2015-16, 2016-17 & 2017-18 in tenure of 05 years but in 2018-19 it also shows an increase of 15% in value of transactions. IMPS, NACH and PPIs have also shown significant growth in value of transactions over the years.



(Source:AuthorCompilation)

Honorable Prime Minister Shri Narendra Modi launched digital India campaign on 2nd July 2015 to make India digitally empowered economy. Under digital India program the main emphasis is on enabling every citizen digitally literate and making them capable to perform financial transactions through digital modes. To make this vision into reality NPCI has launched various new modes of payment and settlement system. Under the "Payment and Settlement system Act, 2007", RBI and Indian Bank association setup NPCI (National Payment Corporation of India) for establishing strong and vigorous payment and settlement infrastructure in the country. The main objective of NPCI is to bring innovations in retail payment system with the advent of technology to achieve efficacious operations and extending the area of payment system. At initial stage 10 banks such as SBI, PNB, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI bank, HDFC bank, Citi bank and HSBC were the promoters of NPCI. In 2016, the membership was increased to 56 banks

Chart-2 shows the percentage increased in value of transactions regarding digital payment and settlement measures from financial year 2014-15 to 2018-19. All the changes in rate of growth in value of transactions whether negative or positive with respect to digital payment and their settlement regarding RTGS, ECS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs have been presented in the chart effectively.

VI. CONCLUSION

On the basis of data analysis it is inferred that initiatives taken by Govt. of India, RBI and NPCI to make India digitally empowered and independent have seems successful. Because, different measures adopted with respect to digital payment

and their settlement regarding RTGs, ECS, NEFT, IMPS, NACH, Debit & Credit cards and PPIs have shown significant increase in terms of both value and volume of transactions over 2014- 15 to 2018-19. It means people of the country are adapting these innovative ways of payments with the advent of technology which saves cost, time, energy and efforts, for example India has saved Rupees 131 billion by paying LPG subsidy directly into consumer bank account. It also brings transparency and security in transactions, at village level social security payment is directly paid through smart cards which reduces bribes demand by 47%, thus reduces corruption also. Digital payment also facilitates financial inclusion by advancing more access to financial services including saving accounts & insurance products.

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