



# INDIA'S PROGRESS TOWARDS CASHLESS ECONOMY: RECENT TRENDS AND CHALLENGES

Balram Kasana,

Assistant Professor

Department of Economics,

Government PG College Viratnagar, Kotputli-Behror (Raj.), India 303102

**Abstract:** The Reserve Bank of India has implemented several cashless transaction or payment systems from time to time to check corruption, black money and money laundering in the country. Which includes paper based instruments like cheque, demand draft etc. and online payment settlement systems like ECS Credit, RECS, ECS Debit, EFT, NEFT, RTGS etc. After the achievements made by India in the field of information technology after 2000, internet based online transactions have been started by mobile banking, ATM or point of sale machines, UPI etc. The number of paper based transactions was 12067 lakhs in the year 2016-17 which has come down to 6999 lakhs in 2021-22. Similarly, there has also been a decline in the value of paper-based transactions. On the contrary, card payments and retail electronic clearing like ECS Debit, ECS Credit, NEFT, IMPS, NACH, UPI etc. have increased both in terms of percentage and value of total transactions. But at the same time the cash to GDP ratio in the Indian economy has also increased to 14.7%. Along with this, the number of fraud cases in online transactions is also increasing continuously and the amount involved has almost doubled from 2018-19 to 2020-21. The conclusion is that with the expansion of the economy, the number and value of cashless transactions have increased but at the same time the cash-to-GDP ratio has also increased, indicating that India is moving towards a cashless economy along with economic growth but the rate of progress is slow. In order to reduce the increasing number of frauds in online transactions along with the progress towards cashless economy, there is a need to promote strong online payment system and financial literacy among the people; so that the economic loss to the people can be reduced and online transactions can also be made popular.

**Index Terms :** Cashless economy, Digital transactions, Cashless transaction challenges.

## 1. INTRODUCTION

The Indian economy, which has become the fifth largest economy according to IMF data, has achieved the highest rate of economic growth among the world's major economies in 2021- 22 and now only the United States, China, Japan and Germany's GDP is higher than that of India. With this rapid economic development of the country, socio-economic structural changes have also been witnessed in the country. A related change is the increase in the number of cashless transactions in the country and their monetary value. Because the increase in the volume of cashless transactions leads to a fall in transaction costs and makes transactions more accessible, safe and quick which in turn promotes faster economic growth and financial inclusion in the country. This makes it easy for RBI to promote savings and investment in the country. In the presented research paper, during the years 2017-18 to 2021-22, the number of transactions done by various instruments of transactions such as settlement through CCIL, RTGS, IMPS, ECS, NACH, UPI, Debit Card, Credit Card, paper based instrument and the changes in their monetary value have been analysed. Apart from this, the existing challenges in the progress of cashless transactions in the country have also been analysed.

## 2. RESEARCH METHODOLOGY AND DATA SOURCES

The presented research paper analyses the progress made towards cashless economy in India during the years 2017-18 to 2021-22. For this, the data released by RBI in the Annual Progress Report 2020 and 2022 has been used. Apart from this, in the context of frauds in online transactions, the report released by RBI and the data provided in the reply in the Parliament, Asian Development Bank, IMF, World Bank and the data of the reports published in various newspapers have been included for analysis. The progress towards cashless economy is measured on the basis of percentage growth in paper based cashless payment and online payment modes and their ratio to GDP during the reference period.

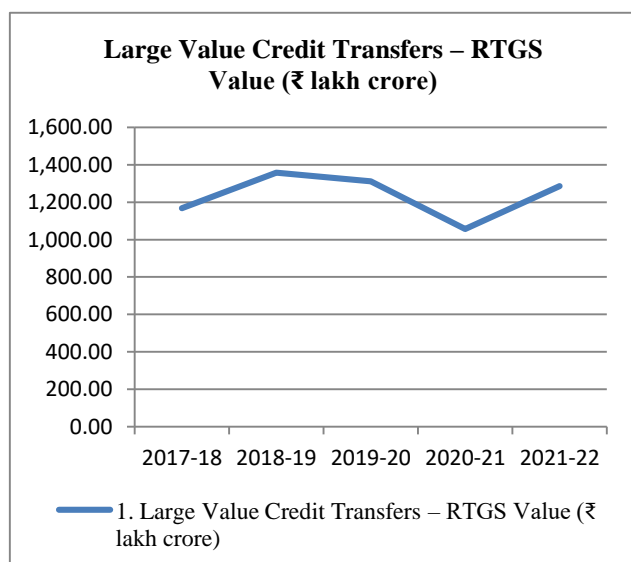
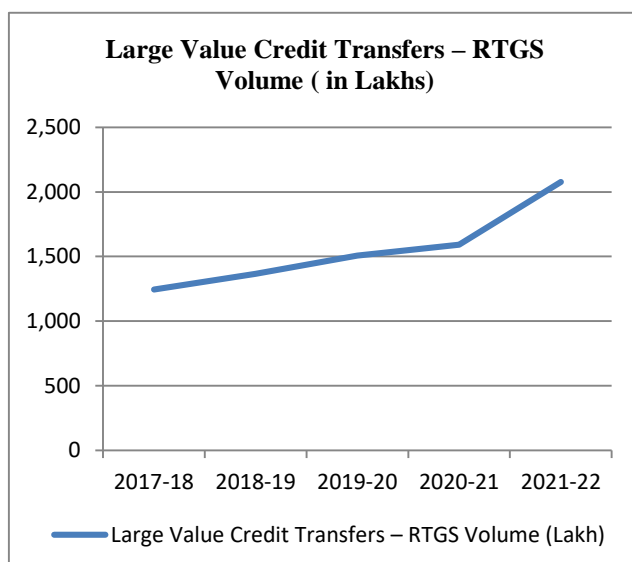
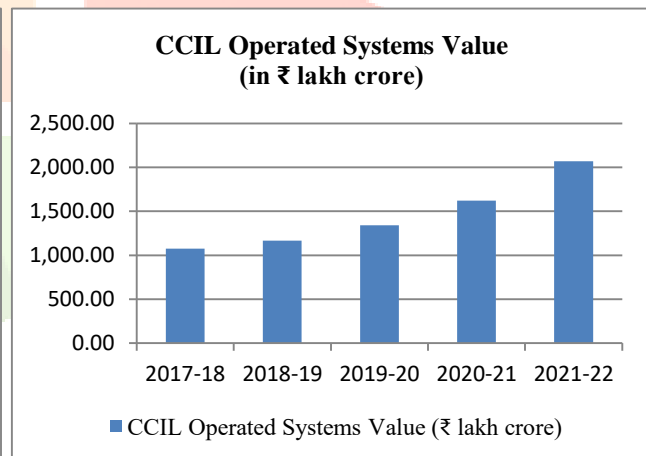
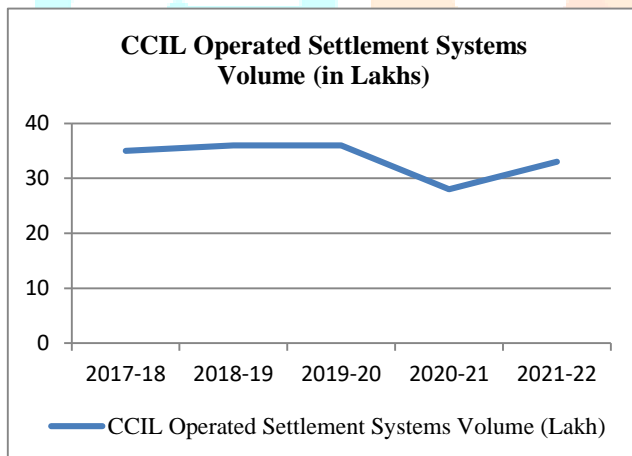
## 3. TRENDS IN CASHLESS TRANSACTIONS IN THE INDIAN ECONOMY

### 3.1 Payment through settlement systems operated by CCIL:

The Clearing Corporation of India Limited was established in 2001 to provide an institutional platform for clearing and settlement to banks, financial institutions and primary dealers for transactions in government securities, money market instruments, foreign exchange and other related products. Through the process of innovation, CCIL eliminates the credit risk through contracts with both the transacting parties. Thus CCIL provides Guaranteed Settlement Services. The number of payments made through the systems operated by CCIL has come down from 35 lakh in 2017-18 to 33 lakh in 2021-22. But the monetary value of transactions done through this system has doubled from ₹ 1074.80 lakh crore to ₹ 2068.73 lakh crore in the same period.

### 3.2 Payment through RTGS:

Real Time Gross Settlement (RTGS) was launched by the Reserve Bank of India in the year 2004 which provides the facility of instant transfer of large amount of money. At present its minimum limit is two lakh rupees and the maximum limit varies from bank to bank. In the year 2017-18, 1244 lakh transactions were done by RTGS which increased to 2078 lakh in 2021-22, which is 67% higher. But there has not been much increase in the monetary value of transactions through RTGS. It has increased from ₹ 1167.12 lakh crore to ₹ 1286.58 lakh crore with a mere 10% increase in the same period.



### 3.3 Aadhar Enabled Payment System (AEPS):

Aadhar Enabled Payment System (AEPS) is a new payment system based on aadhar authentication launched by the National Payment Corporation of India in November 2010 to promote financial inclusion, through which account holders can do activities like cash deposit, cash withdrawal, mini statement, fund transfer etc. through their biometric data authentication by visiting micro ATMs or bank correspondents (BCs). Given India's vast rural population and lack of financial literacy, this tool becomes very useful and important. The number of fund transfers done by AEPS has increased from 6 lakh in 2017-18 to 11 lakh in 2018-19 but again to decline to 10 lakh in 2021-22. The monetary value of the transactions done through it is also continuously decreasing after the year 2018-19.

### 3.4 Aadhar Payment Bridge System (APBS):

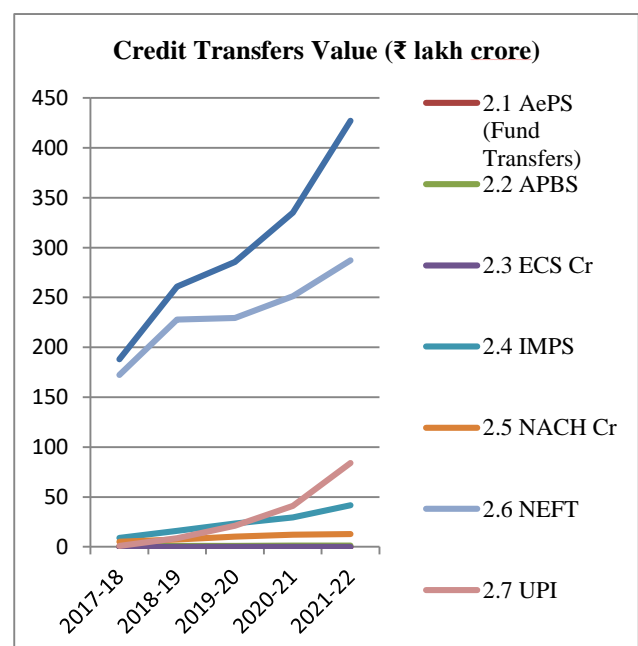
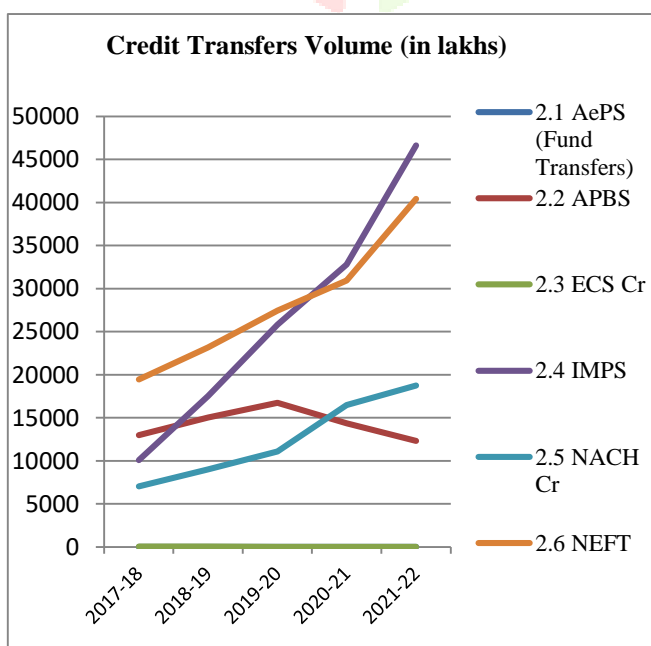
Aadhar Payment Bridge System (APBS) is an innovation launched by National Payments Corporation of India in order to prevent corruption, leakages and unnecessary delays in government assistance and through it government transfers grants and benefits to beneficiaries of social welfare schemes directly into their Aadhar-linked accounts under Direct Benefit Transfer (DBT) scheme. The number of transactions done through APBS has increased from 12980 lakhs in 2017-18 to a peak of 16745 lakhs in 2019-20 and then decreased steadily to 12298 lakhs in 2021-22. Thus, the number of transactions through APBS increased by 29% from 2017-18 to 2019-20 while it decreased by 27% during 2019-20 to 2021-22. The monetary value of transactions done through APBS has increased continuously during 2017-18 to 2021-20 and it has increased from ₹ 56 thousand crore to ₹ 133 thousand crore, showing a growth of 137%.

### 3.5 Immediate Payment Service (IMPS):

Immediate Payment Service (IMPS) is an inter-bank electronic fund transfer service launched by National Payments Corporation of India on 22 November 2010 in line with RBI's objective of digitization of retail payments which provides instant real time fund transfer facility through mobile, internet, ATM and SMS throughout 24x7. The number of transactions done through IMPS has increased from 10098 lakh in 2017-18 to 46625 lakh in 2021-22, which is more than 4 times. The monetary value of transactions done through IMPS has increased more than 5 times from ₹ 8.92 lakh crore to ₹ 41.71 lakh crore in the same period.

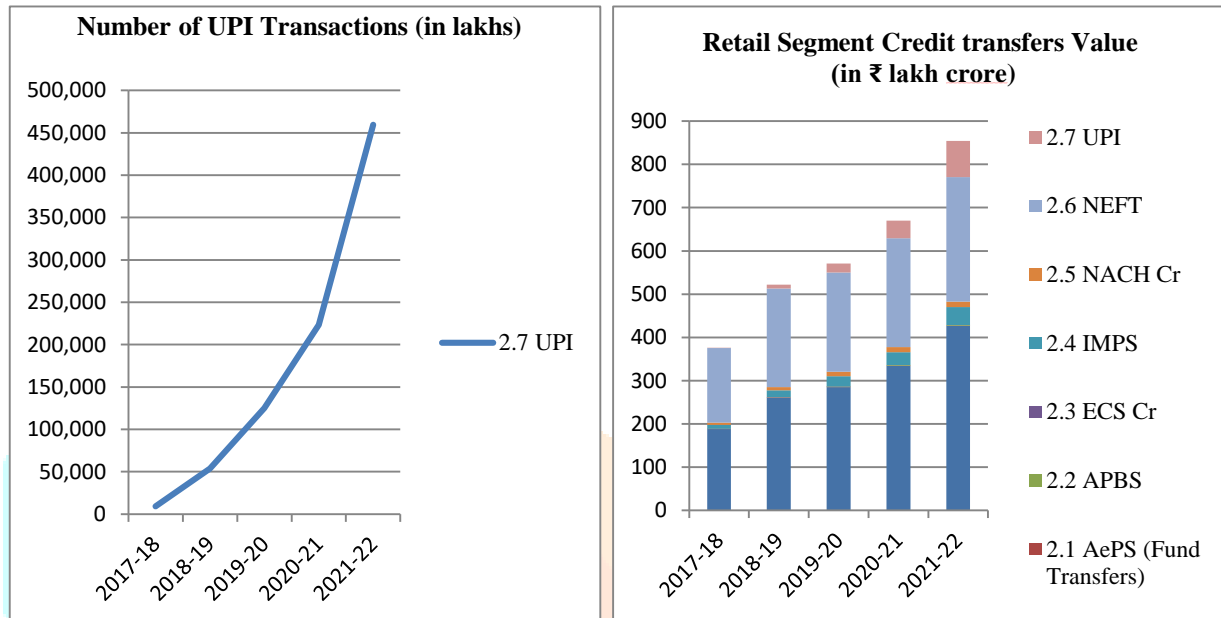
### 3.6 National Electronic Fund Transfer (NEFT):

National Electronic Fund Transfer (NEFT) is an electronic fund transfer system launched by the Reserve Bank of India in November 2005 to facilitate individuals to transfer funds through their accounts or through branch and settlement is done in half-hourly batches. From the year 2019, RBI has started NEFT 24X7. The number of transactions done through NEFT was 19464 lakh in the year 2017-18 which has doubled to 40407 lakh in 2021-22. Similarly, the monetary value of transactions done through NEFT has increased by one and a half times from ₹ 172.23 lakh crore to ₹ 287.25 lakh crore in the same period.



### 3.7 UPI Payment:

Unified Payments Interface (UPI) is a mobile application based payment system, launched by National Payments Corporation of India in April 2016 to integrate multiple accounts of a bank and enable fund transfer and merchant payments through accounts. Through this, payments can be made on the basis of peer to peer payment receipt request. The UPI ID of the consumer is used at the time of UPI transaction, in which card number, account number and IFSC information is not required to be given. It is a more secure, cost effective and 24x7 payment service. In the retail sector, there has been a tremendous growth in transactions through UPI. The number of UPI transactions in 2017-18 was 9152 lakhs, which has increased to 459561 lakhs in 2021-22. The number of UPI transactions has increased 50 times in this time period. There has also been an exponential growth in the monetary value of UPI transactions, from ₹ 1.09 lakh crore to ₹ 84.16 lakh crore in the same period, representing an 84-fold increase.



### 3.8 BHIM Aadhar Pay:

BHIM Aadhar Pay is an aadhar based payment receipt system available to merchants wherein a customer can pay for his purchases directly from his Aadhar enabled bank account to the merchant's Aadhar linked bank account through biometric data authentication. The number of transactions done through BHIM Aadhar Pay has also increased by 11.4 times during 2017-18 to 2021-22 to reach 228 lakh in 2021-22. The monetary value of payments received through this system has seen a 6-fold increase in the same period.

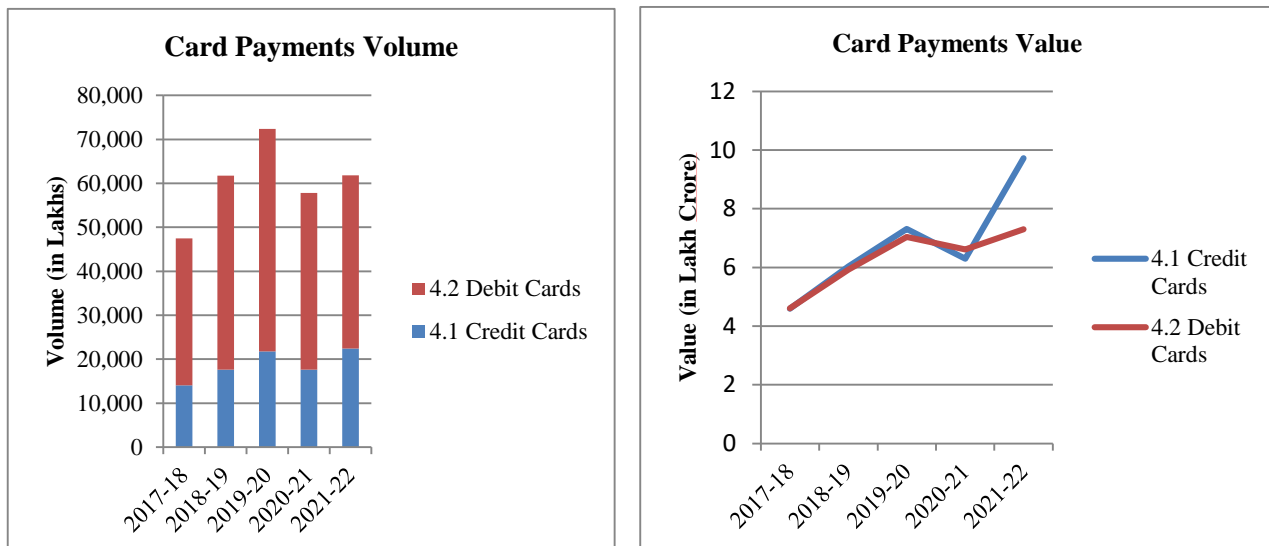
### 3.9 National Electronic Toll Collection (NETC):

National Electronic Toll Collection (NETC) is a direct, cashless and instant toll payment system which works collects the toll amount through Radio Frequency Identification (RFID) technology from the consumer's RFID FASTag-linked prepaid or savings or current bank account. The system was launched in 2014 as a pilot project on the Golden Quadrilateral Highway between Ahmedabad and Mumbai and was subsequently expanded in a phased manner [1]. In October 2019, it was announced to implement this system on all national highways of the country from 1 December 2019. The number of payments made through NETC has increased from 15 lakh in 2017-18 to 1207 lakh in 2021-22, showing an 80-fold increase. The monetary value of payments received through this system has also increased rapidly.

### 3.10 Payments by Card:

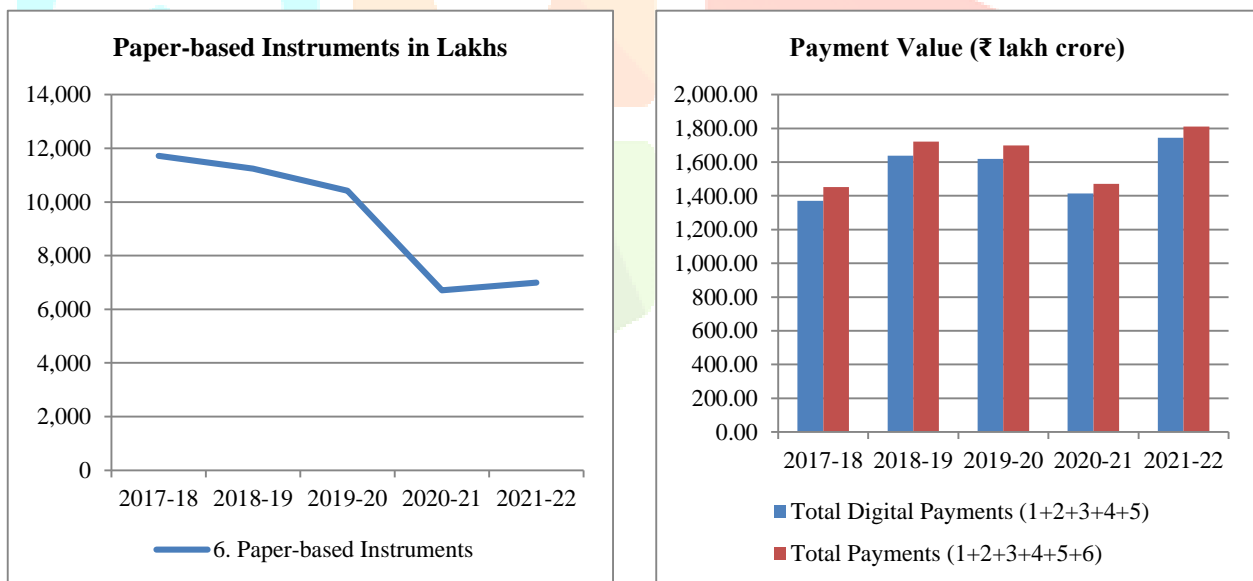
The number of transactions done through credit and debit cards increased from 47486 lakhs in the year 2017-18 to 72384 lakhs in 2019-20 and then came down to 61786 lakhs in 2021-22, which represents an overall increase of 30%. The proportion of credit card transactions to total card transactions increased from 30% to 36%, while the proportion of total transactions through debit cards declined from 70% to 64% during the same period. The number of transactions done by debit cards has increased by 18% while the number of transactions done by credit cards has registered a growth of 59% during the period. The monetary value of transactions done through cards increased from ₹ 9.19 lakh crore to ₹ 17.02 lakh crore, with an increase of 85% during the same period. Debit cards and credit cards both accounted for 50% of the monetary value of transactions done through cards during 2017-18, which has increased to about 46% for debit cards and about 53% for credit cards during 2021-22. Thus, not only has the number

of credit card transactions increased over the reference period, but the monetary value of credit card transactions has also shown significant growth.



### 3.11 Prepaid Payment Instruments (PPI)

Prepaid Payment Instruments (PPI) is a payment instrument that facilitates purchase of goods and services, transfer of funds, etc. by value or amount of money stored in these instruments. This mainly includes wallets issued by various non-banking financial companies and banks that can be used for digital payments. The number of transactions done through PPIs has almost doubled from 34591 lakhs in the year 2017-18 to 65812 lakhs and the monetary value of transactions done through PPIs has also doubled in the same period.



### 3.12 Paper Based Instruments

Paper based payment instruments include cheques, demand drafts, bankers cheques, refund orders, warrants etc. All these are the instruments of traditional cashless payment system whose use has been steadily decreasing in this era of information technology. The number of transactions done through paper based instruments has come down by 40% from 11713 lakhs in the year 2017-18 to 6999 lakhs in 2021-22. The monetary value of transactions done through paper-based instruments also declined from ₹ 81.93 lakh crore to ₹ 66.5 lakh crore in the same period. There has been a decline of 19% in this. The percentage of payments made through paper based instruments in the total number of retail payments has come down from 7% in 2017-18 to 1% in 2021-22. Similarly, the share of paper based instruments in the monetary value of total retail payments has come down from 29% in 2017-18 to 12.68% in 2021-22.



### 3.13 NACH Credit and Debit

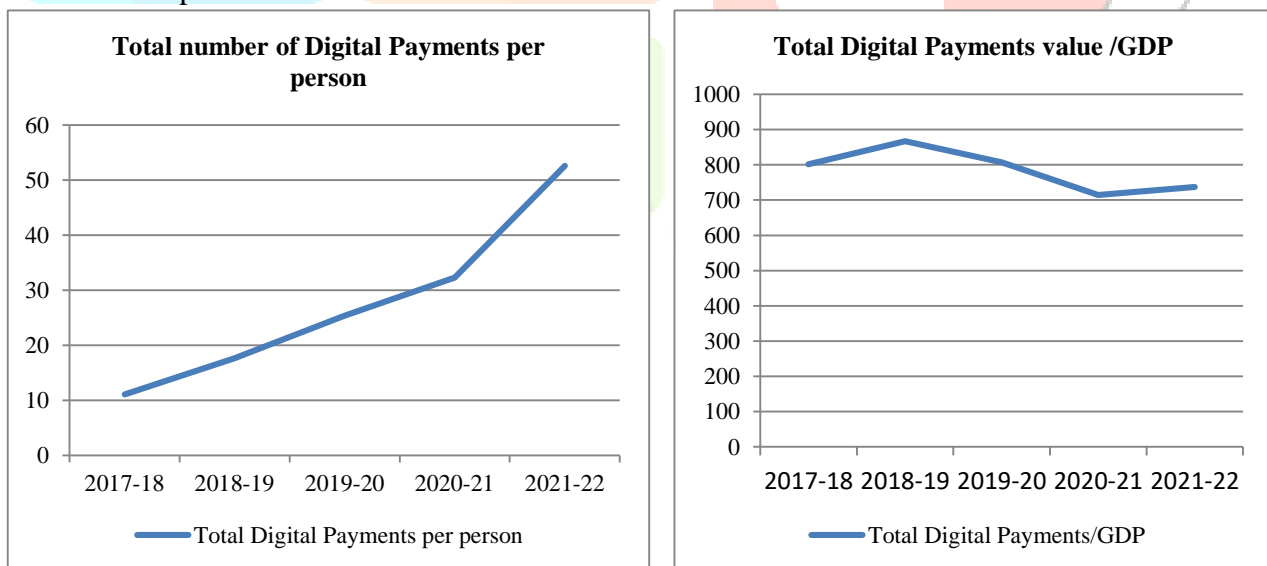
National Automated Clearing House (NACH) is a centralized web based payment solution launched by National Payment Corporation of India to enable banks, corporate companies, government and other financial institutions to carry out large and periodic financial transactions with ease. Through this facility, corporate companies can easily make dividend and salary payments, government subsidies and pension payments. This system provides facility to collect water bills, electricity bills, telephone bills, EMI, mutual fund investment payments etc. by banks and financial institutions. The number of both credit and debit transactions done by NACH has increased significantly during the reference period. The number of NACH credit transactions increased from 7031 lakh in 2017-18 to 18730 lakh in 2021-22, showing a growth of more than two and a half times. During this period, the monetary value of transactions has increased from ₹ 5.21 lakh crore to ₹ 12.77 lakh crore. The number of NACH debit transactions and their monetary value has increased almost 3 times in the same period.

### 3.14 ECS Credit and Debit

Electronic Clearing System (ECS) is an electronic system for making payments or receiving payments for bulk and frequent transactions. It is a system similar to NACH but older and less efficient than it. Activation of mandate in ECS takes 30 days and presentation and settlement of mandate takes 3 to 4 days. In contrast, the activation time for NACH mandate is 10 days and the presentation and settlement time is 24 hours. Due to the advance features of NACH, there has been a steady decline in the number of transactions and the monetary value of transactions done through the ECS Credit and Debit system. The number of transactions done through ECS credit has come down from 61 lakh in 2017-18 to less than 1 lakh in 2021-22. Similarly, in the same period, the monetary value of the transactions done through ECS credit has decreased from ₹ 12 thousand crores to less than ₹ 5 thousand crores. The number of transactions done through ECS Debit and their monetary value also declined sharply in the same period.

### 3.15 Total Digital Payments

The percentage of digital payments as a percentage of the total number of cashless payments made in the economy has increased from 93% in 2017-18 to 99% in 2021-22. The ratio of monetary value of digital payments as a proportion of total payments increased from 94.35% in 2017-18 to 96.32% in 2021-22 over the same period.



### 3.16 Ratio of monetary value of cashless transactions to GDP

To find out the ratio of monetary value of cashless transactions to GDP, the estimates of GDP at current prices as presented in the Annual Report by RBI have been used. The ratio of monetary value of total cashless transaction to GDP was 849% in the year 2017-18 which increased to 910% in 2018-19 and then decreased continuously in subsequent years to 765% in 2021-22. The ratio of monetary value of total digital payments to GDP has also declined from 801% to 737% during this period and has shown a decline at a compound annual growth rate of 4.25% from 2018-19 to 2021-22. The ratio of monetary value of total cashless payments made by the retail sector to GDP increased from 166% in 2017-18 to 221% in 2021-22, with a compound annual growth rate of 5.86%.

### 3.17 Number of cashless transactions per person

The total number of cashless transactions done in a year is divided by the estimated total population for the year to arrive at the number of cashless transactions per capita. The population used for this has been obtained from the Annual Report issued by RBI. The number of per capita digital transactions was 11 in the year 2017-18, which has steadily increased to about 52 transactions per capita in 2021-22. In this, the number of per capita cashless transactions in the retail sector increased from about 12 to about 53 transactions per capita in the same period, representing a 4.5 times increase.

It is clear from the above analysis that there is a significant increase in the number of cashless transactions per capita but the monetary value of cashless transactions as a proportion of GDP is decreasing, which shows that the monetary value of cashless transactions has increased slowly compared to the growth of GDP.

## 4. CHALLENGES IN CASHLESS ECONOMY

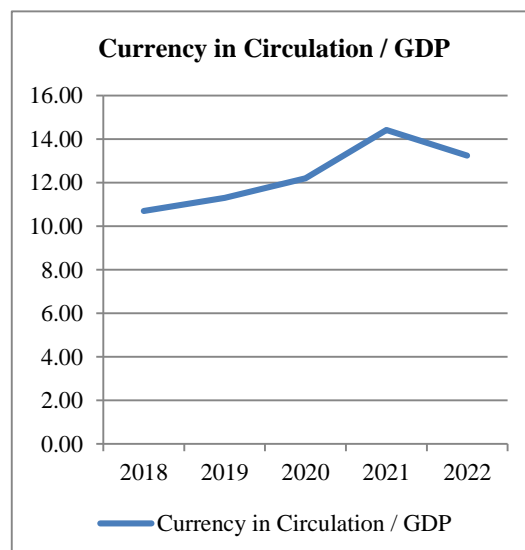
### 4.1 Increase in cases of fraud in the banking system

According to the data released by RBI, in 2018-19, the number of fraud cases of more than one lakh rupees in the banking system was 6798, which increased to 8703 in 2019 and decreased to 7363 cases in 2020-21. There has been a decline in the number of frauds committed in Public Sector Banks and Foreign Sector Banks, Financial Institutions, Small Finance Banks during the period under reference. In public sector banks, 3704 fraud cases were registered in 2018-19 which was 54.5% of the total fraud cases, it decreased to 2903 cases in 2020-21 which was 39.4% of the total cases. Similarly, the percentage of foreign banks in fraud cases has decreased from 11.2% to 7.1% during the same period. On the contrary, the number of fraud cases in private sector banks has increased from 2149 to 3710, which has increased from 31.6% to 50.4% of total fraud cases respectively.

The amount involved in these fraud cases occurring in the banking sector was ₹ 71534 crore in 2018-19, which has increased to ₹ 138422 crore in 2020-21. The share of public sector banks as a proportion of this fraud amount has declined from 89.8% in 2018-19 to 59.2% in 2020-21, though the absolute amount of money involved in frauds has increased. In private sector banks, the amount of frauds has increased from ₹ 5809 crore to ₹ 46335 crore in the same period, which has increased from 8.1% to 33.5% in the ratio of total fraud amount. The monetary value of frauds perpetrated in private sector banks has increased at a compound annual growth rate of 100% per annum during this period. Similarly, the amount of fraud in foreign banks has increased from ₹ 955 crore to ₹ 3315 crore and in financial institutions this amount has increased from ₹ 553 crore to ₹ 6840 crore. The absolute amount of frauds perpetrated in the banking sector has almost doubled during 2018-19 to 2020-21.

### 4.2 Increase in the ratio of the amount of currency in circulation to GDP

The ratio of monetary value of the currency in circulation (notes and coins issued by the RBI) to GDP increased from 10.70% in 2018 to 14.41% in 2021, though it has come down to 13.24% in 2022. It is also worth mentioning here that the supply of new currency notes was 2500 crore notes in the year 2017-18, which increased to 2919 crore notes in 2018-19 and then decreased continuously to 2225 crore notes in 2021-22. Thus, the increase in the ratio of monetary value of the currency in circulation to GDP despite the decline in the supply of new currency notes by the RBI is indicative of the declining popularity of cashless transactions in the economy.



### 4.3 Low level of literacy as well as digital literacy

According to the World Bank, only 74% of people aged 15 and above in India were literate in 2018, the ratio was 66% for the women in the same year. According to the data released by the National Sample Survey Office, the total literacy rate of India in the year 2022 was 77.7% whereas in the same year the literacy rate of women was recorded 70.3%. Still 30% women are illiterate and they cannot take active participation towards cashless digital transactions driven through advanced information technology and technology based mobile and internet.

Similarly, according to data from the fifth round of the National Family Health Survey conducted in 22 states and union territories, it was found that 60% of women in 12 states and union territories have never used the Internet. The percentage of males using the Internet is higher than that of females.

According to the India Inequality Report 2022 released by Oxfam India, 31% of the rural population and 67% of the urban population use the Internet. Of the country's poorest 20% households, only 2.7% of households have access to computers and 8.9% of households have access to internet facilities. Along with this, by the end of 2021, 61% of men and 31% of women in the country had mobiles. This digital divide is also acting as a barrier in progress towards digital transactions.

### 4.4 Low level of financial literacy

According to a case study by the Asian Development Bank in 2022, only 27% of adults and only 24% of women in India meet the minimum level of financial literacy as defined by the RBI. According to the survey conducted by RBI in this regard, the proportion of adults with financial literacy has increased from 20% to 27.18% during the year 2013 to 2019. In 2019, 29% males and 21% of females met the minimum level of financial literacy. Only 33% of adults in urban areas and 24% of adults in rural areas met the minimum level of financial literacy. Financial literacy was 37% and 45% among the salaried people employed in the private and government sectors, respectively, while the ratio was 31% among the self-employed in agriculture and non-agriculture activities. This proportion was 16% and 13% for housekeepers and agricultural workers, respectively, the lowest financial literacy groups.

Thus a large population of rural areas especially women and agricultural labourers are deprived of financial literacy which undoubtedly hinder the progress towards cashless economy.

## 5. CONCLUSION

During the year 2018 to 2022, the number of cashless transactions done in the Indian economy has increased continuously to 7.26 lakh crores and the number of retail payment transactions has also increased. The number of digital transactions has increased while the number of paper based cashless transactions has declined. There has been an unprecedented increase in the average number of cashless transactions per capita. But the ratio of monetary value of cashless transactions to GDP has come down and at the same time, the ratio of monetary value of cash in circulation to GDP has gone up. Thus the number and monetary value of digital transactions out of total cashless transactions in the country have increased in absolute terms but the growth in it is slower than the growth in GDP. The low level of literacy in India, lack of digital literacy, poor state of financial literacy, rising frauds in the banking sector and rise in cases of online frauds are significant challenges in this direction. To resolve these problems, programs are being run by the RBI for financial literacy of consumers and to promote digital literacy by the Ministry of Electronics and Information Technology (MEITY), Government of India.

## REFERENCES:

- [1] Joshi, Bharavi & Bhagat, Kajal & Desai, Hetakshi & Patel, Malvik & Parmar, Jekishan. (2017). A Comparative Study of Toll Collection Systems in India. International Journal of Engineering Research and Development. 13. 68-71. (PDF) A Comparative Study of Toll Collection Systems in India (researchgate.net)
- [2] Annual Report of the RBI for the Year 2019-20 and 2021-22 Part II Section IX Reserve Bank of India - Annual Report of the RBI
- [3] Blow to Digital India! Cash to GDP ratio peaks at 14.7% - BusinessToday
- [4] Digital Literacy Ministry of Electronics & IT- <https://pib.gov.in/pressreleasepage.aspx?prid=1812277>
- [5] Drivers of Digital Payments: A Cross Country Study 2019 by RBI Reserve Bank of India - RBI Bulletin
- [6] Handbook of Statistics on the Indian Economy, 2021-22 by RBI Reserve Bank of India - Handbook of Statistics on Indian Economy (rbi.org.in)



- [7] In India, Financial Literacy Programs Are Lifting Families Out of Debt and Fueling New Prosperity | Asian Development Bank (adb.org)
- [8] India becomes 5th largest economy in world: A perspective – ThePrint – ANIFeed
- [9] India Inequality Report 2022: Digital Divide | Oxfam India
- [10] Key Indicators of Household Social Consumption on Education In India NSS 75TH Round (JULY 2017- JUNE 2018) Ministry of Statistics & Programme Implementation Government of India Key Indicators of Household Social Consumption on Education In India NSS 75TH Round (JULY 2017- JUNE 2018) (pib.gov.in)
- [11] Literacy rate, adult total (% of people ages 15 and above) - India | Data (worldbank.org)
- [12] National Family Health Survey 2019-21 (NFHS-5) by the Ministry of Health and Family Welfare, Government of India National Family Health Survey (NFHS-5) (rchiips.org)
- [13] National Strategy for Financial Education: 2020-2025 report by RBI Reserve Bank of India - Reports (rbi.org.in)
- [14] Over 22,700 online transaction fraud cases reported in India till December: Govt | Latest News India - Hindustan Times
- [15] RBI Annual Report: Number of frauds in private banks up 21% in FY21 | The Financial Express

