

## 7. Digitalization of Currency System

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**Abstract:**

*In my paper, I would like to focus on digitalization of currency system. There are many new inclusions in this field of e\_currency during Covid-19 and post Covid-19 pandemic which has a great effect on the future of digital currency. In India, there were around 3.4 crore customers who were actively using digital channels in 2019-20 but the scenario has changed after the pandemic and now almost 7.9 crores customers are using the digital channels in 2020-2021. Introduction of few new sections in the Income Tax Acts have made this digitalization mandatory. No individual or business is permitted to accept more than Rs. 2 lakhs in cash in a single day from another individual or organisation, according to Section 269 of the Income Tax Act. According to Section 269SU, all companies with a yearly revenue of at least Rs. 50 crores are required to accept digital payments, while Section 269SS forbids taxpayers from taking or receiving loans, deposits, or payments of more than Rs. 20,000 in cash. In my paper, I am going to find out the expanse and impact of digital currency system in rural, urban and semi-urban India during post pandemic condition.*

**Keywords:**

*digitalization, e\_currency, Income Tax acts.*

**7.1 Introduction:**

Digital usage has increased drastically across every field as a result of the COVID-19 outbreak. The digitization has changed the life of the people. Post pandemic, India has seen exponential growth in the field of electronic payments. Huge smartphone penetration and increasing speed of internet in urban, semi-urban (using ethernet cables) and even in rural areas has accelerated the use of digital payments in the country within this short span. Furthermore, this transformation has significantly accelerated and made possible due to flagship government initiative of Digital India which sought to make India a digitally advanced economy.

The digital representation of value is known as digital money. With this gaining popularity of digital payment systems, India has taken initiative to launch digital currency. Finance Minister Nirmala Sitharaman has proposed, the digital rupee, also known as CBDC as a part of Budget 2022. On October 7, 2022, the Reserve Bank of India released a concept note on Central Bank Digital Currency (CBDC), which is currently in the testing stage. The public or private sectors may issue CBDC, which is essentially an electronic version of cash that can be stored and traded using the internet or a mobile application. Some forms have a fixed face value that can be redeemed for cash.

They are commonly referred to as e-money and are fully backed by extremely safe and liquid assets. The RBI's CBDC is interchangeable one for one with fiat money. It must be acknowledged by all people, corporations, and governmental entities as a form of payment, legal tender, and safe store of value.

Core digital industries like information technology & business process management, electronic communication services, and electronics manufacturing are expected to see their gross domestic product (GDP) approximately doubling to US dollars 355--435 billion by 2025 as a consequence of the government's increased emphasis on fostering a digitized economy.

## **7.2 Objective:**

- Exploring Evolutionary Stages of Currency System
- Looking into the concept of Digital Currency
- Studying the growth and adoptability of Electronic Payment Systems in India
- Learning about the use of different digital payment apps in pre and post pandemic eras in India.
- Examining how different age groups in India's rural, semi-urban, and metropolitan areas use digital payment systems.
- Researching the future of Digital Currency and Digital Payment System in India

## **7.3 Literature Review:**

Any form of payment that can only be made online is considered digital money, also referred to as digital currency. People can instantly transfer money between their bank accounts utilising a digital payment system by using their mobile device, computer, POS (Point of Sale), wireless mobile data, or SWIFT (Society for the Worldwide Interbank Financial Telecommunication). *Digital currency and digital payment systems, both are aimed to improve efficiency and convenience in the process of settlement. The person who contributed to developing the first version of the bitcoin software and published the paper in 2008 that made cryptocurrencies popular was Satoshi Nakamoto. Digitalization has revolutionized money and payments systems* (MK Brunnermeier, 2019).

There would be no settlement risk because the time zone difference would no longer be relevant, according to Archit Gupta, the CEO of Clear. According to Vinshu Gupta, Director, Nonceblox Blockchain Studio, digital currency has the ability to increase global trade, enhance financial inclusion, and alter how we spend, save, and do business in ways we most likely haven't yet begun to completely comprehend. The current financial system in India, which encompasses securities, transactions, etc., has been replaced by its matching electronic version, with the exception of currency notes, according to Archit Gupta, CEO of Clear Tax. Money's emergence as a social technology of account through digitization (given by Micháel Peneder, 2022). According to M Ferrári, M Mehl and L Straccá, Digital money from the central bank in an open economy. Technology has given consumers access to a huge variety of payment methods, which makes it easier for them to complete transactions (Somán in 2001; Pulina in 2011; Somán in 2001, 2003; Srivastáva & Raghurir in 2008).

According to earlier research (Dewán & Chen, 2005; Kreyer et al. in 2003), mobile payment applications are usually treated favourably by consumers. By enabling flexible payment additions and expediting exchanges, digital wallet payments give more ease to consumers (according to Liu & Zhuo in 2012).

The use of digital wallets as a means of payment is influenced by a variety of criteria, including trust, ease of use, the ability to replace cash-based payments, and many more (Padáshetty & SV in 2013). However, the initial uptake of mobile payments has not been as quick or extensive as anticipated (BIS in 2004). In her research paper titled "Adoption of Digital Wallet by Consumers," Dr. Hem Shwetá Rathòre, examined the variables that affect consumer adoption of digital wallet as well as the risks and difficulties associated with its use. She came to the conclusion that consumers are adopting digital wallet primarily because it is convenient and simple to use, and that in the coming years, it will become more widely accepted.

#### **7.4 Evolutionary Stages of Currency System:**

Many types of money existed at various points throughout history. Although it now also exists in ethereal forms, money originally only existed in tangible forms. As economies developed over time, different types of money grew increasingly popular as they assisted in the expansion of the economy in addition to meeting the need for a medium of trade.

##### **7.4.1 Barter System:**

Prior to the invention of money, societies relied on barter to exchange commodities and services. Users of a barter system trade goods and services for other goods and services without using any medium of exchange. An example of a barter system would be between a trader who specialises in species and a farmer who specialises in growing crops. The two people would decide how much species to exchange for crops according to their individual requirements. Trading was difficult since both sides had to genuinely want what the other has to offer.

##### **7.4.2 Commodity Currency:**

Bartering system was becoming difficult for trade, thus several everyday items gradually began to serve as money. A commodity that serves as money is an economic good. Throughout history, commodities such as cocoa beans, tea, tobacco, salt, and seashells were used as currency.

##### **7.4.3 Metallic Currency:**

Societies and economies discovered more efficient techniques to enable commerce and transaction as they developed. Instead of using commodity money, people instead used metals like gold, silver, and copper. Coinage was later developed to standardize and certify metallic money. As paper money was replaced by coins made of metal, each type of coin was given a certain value. Coins made payments simple because they were portable as well.

#### **7.4.4 Paper Currency:**

It is known that the changeover to paper began in many locations around the world and under various conditions. In several American states, residents were permitted to print their own money. In addition, the state issued notes known as anticipated tax notes that were used for paying salaries as well as for making purchases of supplies and other expenses. Paper money in other parts of the world was secured by gold or silver. The Continental Congresses in America during the Revolutionary War used fiat paper money known as Continental dollars. A form of money known as "fiat money" is one that is sustained solely by official decree and without any tangible backing, such as gold or silver.

#### **7.4.5 Electronic Currency:**

With the advent of electronic money, money has assumed an intangible shape in today's economy. Electronically stored money is money that can be accessed by devices to perform transactions. Without using paper money, money can be moved between parties using other services like electronic transfers.

#### **7.4.6 Concept of Digital Currency:**

In 1983, American cryptographer David Chaum proposed a system of electronic payments. The similarities to modern cryptocurrencies are astounding. He imagined a token currency that could be safely and discretely transmitted between persons. A few years later, Chaum launched DigiCash to implement his idea by developing the first electronic payment system based on cryptography, named e\_Cash. Despite ceasing operations in 1998, certain of DigiCash's algorithms and encryption tools had a big influence on the development of digital currencies in the following years. The idea of digital money was initially put forth in the 1983 research paper "Blind Signatures for Untraceable Payments" by David Chaum. In 2009, Bitcoin, the first decentralized cryptocurrency, was first made available as open-source software. Bitcoin was created in January 2009 by Satoshi Nakamoto, an unidentified programmer. The alias Satoshi Nakamoto is used to identify the Bitcoin creator(s). The public is unaware of Satoshi Nakamoto's identity. At the conclusion of one of the first significant public probes, Dorian Nakamoto was identified as the creator of Bitcoin, but he continues to deny the claim. Before Bitcoin, there were other cryptocurrencies, but they didn't gain much popularity.

#### **7.5 Growth and Adoptability of Electronic Payment Systems in India:**

The digital payments era started in India in the early 90's and now it has become an essential part of our life. The history of digital payment is quite recent in India, making its development all the more remarkable. The mid of 90s saw the introduction of online/digital payments. In 1994, the Stanford Federal Credit Union became the first company to make an online payment system available to its customers. Industrial Credit and Investment Corporation of India (ICICI) introduced India's first online payment system to its customers in 1996 as part of its online banking services in their retail branches. Bill Desk was the first payment aggregator in the country which was founded in 2000 and it made digital payments easier for the e-commerce customers.

Though, debit cards were introduced a little earlier but in 2000, debit cards were started becoming popular. The banks started giving debit cards to their customers thus popularizing the online banking system. Also, credit cards were getting popular among the people in the 2000s. Customers also started taking the facilities of debit and credit cards and also understand the benefits of these cards. The National Electronic Money Transfer (NEFT) was introduced in 2005, making digital operations like fund transfers much easier. The National Payments Corporation of India (NPCI) was established in 2008-09 to oversee the retail payment systems, in India. Around 2010, we had several payment systems such as Magnetic Ink Character Recognition (MICR), Electronic Clearing System (ECS), NEFT and Real Time Gross Settlement (RTGS) in addition to Debit and credit cards. In the next few years, NPCI rolled out several other digital payment options such as Rupay, Aadhaar Payment Bridge System (APBS), National Financial Switch (NFS), BBPS etc. At present, digital payments come in many modes and forms in India like: Debit/credit cards, transfer using online banking through IMPS, NEFT, RTGS, mobile wallets, digital payment apps (Paytm, PhonePe and Google Pay etc.), the Unified Payments Interface (UPI) service, BHIM-UPI, NACH, AePS, NETC, PPI and others.

Digital payment systems became more adoptive due to imposition of some restrictions by the government. Indian government has put restrictions on cash transactions through the insertion of various new section in Income Tax Act such as Section 269, which restricts a person individual or company to accept a sum of Rs. 2 lakhs or more in cash from another individual or company in a particular day or for a particular transaction. Section 269SU, where it has been made mandatory for all businesses with an annual turnover of Rs. 50 crore or more to accept digital payments and Sec. 269SS which restricts a taxpayer from taking or accepting loans or deposits of an amount of more than Rs. 20,000 in cash. So, the companies are forced to adopt various non-cash methods for making the transactions and the usage of debit cards, credit cards, UPI-BHIM, RTGS, IMPS, NEFT and other non-cash modes became popular in India. Now-a-days, maximum companies in India are transacting through various online modes for making payments to their suppliers and for receiving payments from the customers. Banks also provide various online platforms to their clients both corporate as well as retail and they ensure security. For the introduction of various online methods of payments, less people tend to visit banks for different operations. Most of the banking transactions can be done through internets and it can be done 24 hours. It helps in increasing the business globally.

### **7.5.1 Use of Different Digital Payment Apps in Pre and Post Pandemic Eras in India:**

Pandemic has a great impact on the digital payment system of India. The volume has climbed over 50% after pandemic. In cities and big towns, all big and most of the mid to small scale commercial traders are now offering various online modes of payment to their customers such as debit and credit cards, UPI-BHIM, PhonePe, Paytm, GPay etc. This helps the customers to make the payments easily and also the customers are not required to carry a huge amount of hard cash for shopping. It increases the customers' buying capacity as his buying limit is not restricted to the cash in his hand and also the usage of credit card facilitates them to defer their actual payments. Digital payment apps such as PhonePe, Paytm, Google Pay etc. helps all category of customers to make online payments as these

methods are very user friendly and also not required to carry any type of cards. A smart phone is the only requirement to use these platforms. This in turn increasing the turnover of the traders. Use of RTGS, NEFT and IMPS is making the bulk payment easy and hustle free. The online payment systems help in developing various digital shopping platforms which is behind the steady growth of e\_commerce in India.

Post pandemic digitalization has a great impact on small towns and rural areas too. With the openings of a greater number of bank branches in semi-urban areas, the digital banking and payment systems are gaining popularity among people in these areas.

The network service providers are also playing a vital role in providing uninterrupted internet services to various parts of India which increases the use of smart phones. Various educational drives in rural areas make people aware about the online payment systems and its benefits to farmers, fishermen, small scale businessmen etc.

Pandemic has taught them with digitalization only they can connect with people of various sectors of their interest without meeting them physically and this way they can flourish their business.

A comparative study has shown a sharp increase in number of registered and active users of various digital payment apps in post pandemic phase.

**Table 7.1: Comparative Study of Use of Digital Payment Systems in India in Pre-Pandemic and Post-Pandemic Eras**

No.	Digital Wallets	Owned by	Register users (approx.)	Register users (approx.)
			Pre – Pandemic	Post - Pandemic
1.	Paytm	One97 Communications	Registered Users-80 million  Daily Transactions-2 million	Registered Users-330 million  Daily Transactions- 3 million  Daily Active Users - 25 million
2.	Google Pay (GPay)	Google	Registered Users-67 million	Registered Users-150 million
3.	PhonePe	Flipkart/ Walmart	Registered Users-100 million	Registered Users-350 million

No.	Digital Wallets	Owned by	Register users (approx.)	Register users (approx.)
			Pre – Pandemic	Post - Pandemic
				Monthly Transactions- 2.5 billion Daily Active Users – 87 million
4.	Mobikwik	One MobiKwik Systems Private Limited	Registered Users- 55 million	Registered Users- 108 million
5.	The Bharat Interface for Money (BHIM)	The National Payments Corporation of India (NPCI)	Registered Users- 12.5 million	Registered Users- 16 million

With a market share of 47.8%, PhonePe dominates the payment app industry, followed by Google Pay (33.6%), Paytm (13.2%) and others (5.4%) as per survey made in 2023.

### 7.5.2 Adoption of Digital Payment Systems by Different Age Group of Rural, Semi-Urban and Urban India:

Digital illiteracy among GST customers and traders, which has a direct impact on the acceptance of digital products, hinders the adoption of DFS (Digital Financial Services) in rural and semi urban areas. DFS uptake in rural and semi-urban areas is hampered despite government efforts to create an integrated digital infrastructure. Individuals in these areas favour cash transactions over cashless transactions because they believe in cash transactions and do not trust electronic transactions.

However, as per a report by Nielsen report in 2022, rural India has a 20% higher internet presence than urban India. Remote areas of our nation now have access to the Internet because of the extensive use of smartphones, UPI [Unified Payments Interface], and government initiatives like the Pradhan Mantri Gramin Digital Saksharta Abhiyan. Linking bank accounts with mobile numbers and Aadhar, enabling the Public Financial Management System (PFMS) in the District Panchayats and adopting digital payment systems at ration stores and fertilizer stores are forcing the rural mass to adopt digitalization. Pandemic has pushed them more towards adoption of digital currency systems. But this adoption varies with different age-groups and also with different regions.

### 7.6 Research Methodology:

A survey has been conducted with 10 people of different age-group of Kolkata (urban), Durgapur (semi-urban) and Kanutia village, Birbhum district (rural). Random sampling mode was preferred for the survey. Few digital payment modes were selected for ease of

inquiry and understanding of general people. People of different age groups of different areas are asked randomly about their preferred mode of transaction in everyday life for various activities. They have been given enough independence to speak about their preferred mode and the reason why they are preferring the same. The findings were noted as per the discussions with them.

### 7.7 Findings and Discussion:

**Table 7.1: The Findings of The Survey**

Zones	Payment modes	Age -Group		
		41-60	21-40	Below 20
<b>Kolkata (urban)</b>	Cash	30%	10%	30%
	Debit/ Credit Card	30%	20%	-
	Fund transfer through IMPS, NEFT, RTGS	20%	30%	-
	PhonePe, Paytm and Google Pay	20%	40%	70%
<b>Durgapur (semi-urban)</b>	Cash	60%	40%	80%
	Debit/ Credit Card	10%	20%	-
	Fund transfer through IMPS, NEFT, RTGS	20%	30%	-
	PhonePe, Paytm and Google Pay	10%	10%	20%
<b>Kanutia village (rural)</b>	Cash	90%	50%	90%
	Debit/ Credit Card	-	-	-
	Fund transfer through IMPS, NEFT, RTGS	10%	30%	-
	PhonePe, Paytm and Google Pay	-	20%	10%

The survey reflects that

#### **In Kolkata (urban area):**

- A. In the age group below 20, maximum college goers are having their own smart handsets with various digital payment apps installed either linked with their parent’s account or with their own account or using e\_wallets refilled by their parents from time. After this pandemic, even the school goers are having their own smart phones and they are using e\_wallets in maximum cases for their localised purchases. Around 30% of the population is also preferring cash.
- B. In the age group 21-40, again the popularity of digital payment apps is little more than that of fund transfer. It is observed that people upto 30 years of age are still continuing their habit of using these apps, but a little more mature people are using online fund transfer through IMPS, NEFT, RTGS etc. for making bulk payment, business dealings, payment of loan EMI, payment of credit card, foreign exchange remittances etc. They find this registered mode more trustworthy. Use of debit/ credit card is moderately popular and use of cash is very less popular with this age group.



- C. In the age group 41-60, the use of debit/credit card and cash are more than that of other modes. Particularly, people above 50-55, do not have the patience of registering different accounts for making online fund transfer again they are also not very comfortable with bar code scanning so that do have much preference towards using digital payment apps. They most use Electronic Clearance Service (ECS) for their periodic payments. However, people of age group 41-50 years, use almost all the modes as per their requirements and convenience.

**In Durgapur (semi-urban area):**

- A. In semi-urban area, for the age group below 20, the scenario is not same as the urban localities. This is not because they are lacking digital literacy instead have fewer options to use the digital platform yet. That's why almost 80% of the population is still dependent on cash. Most of the local shops have started taking PhonePe, Paytm and Google Pay but still they prefer to take cash. Age group around 20 is mostly settling the problem of change through PhonePe, Paytm and Google Pay etc. among GST friends.
- B. Again, among GST age group 21-40 years, cash and online fund transfer is mostly popular as in the semi-urban area (surveyed for this paper) to date the digital payment apps are not widely accepted. Even most of the ticket booking counters of Volvo, SBSTC, NBATC bus services in Durgapur are not accepting PhonePe, Paytm or Google Pay. About 30% of the population prefer online fund transfer for their periodic payments. Credit cards are mostly used by the people of age group around 35-40 for their purchases.
- C. The age group of 41-60, is mostly finding cash as most convenient mode of transaction. Use of cards and digital payment apps are not very much acceptable for them. People around 55-60 are not very much comfortable in using cards for online or offline shopping as they find this mode less secured. Few of them are also not using smart phone so no question of using PhonePe, Paytm or Google Pay etc. The age group around 45 use online fund transfer in most of cases for periodic payments.

**In Kanutia village (rural area):**

- A. In rural area, the age group below 20 is mostly dependent on cash as this age group doesn't have smart phone due to poverty and they have very poor digital literacy. There was almost no online education conducted from school during pandemic. Only 10% population of this age group (mostly around 20) is using digital payment apps (recently started).
- B. The age group 21-40 years are mostly having smart phone after the development of internet facilities in rural areas. The State Government and Central Government are taking many initiatives not only to educate the rural people knowledge-wise, but also to make them digitally-literate. For some schemes of government like: Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), the small and marginal farmers (having combined holding of upto 2 hectares of land, barring some exclusions) must have their own bank accounts, where they are getting financial assistance from the government to manage the expenses related to agriculture and its other allied activities. This is to promote Direct Benefit Transfer (DBT). This in turn, making them aware of using on-line fund transfer through NEFT, IMPS etc. Use of digital payment apps are also gaining popularity in this particular age group because of using smart phones.

- C. The age group 41-60 years is majorly using cash for all their transactions as most of them are not having smart phones and don't know about digital payment system. People around 55-60 years of age are less interested to know all these things. Very few literate people around the age group of 45 are using digital fund transfer now a days.

### **7.8 Conclusion:**

The use of digital currency has sped up the payment process and eliminated the need for extensive data entry. There is no longer a need to carry cards around or wait in line at ATM. Digital payments also guarantee thorough transaction verification and authenticity, which is one of their many benefits.

Using OTPs and cross-verification is another way to increase the security of digital payments, which helps reduce fraud. Digital wallets are becoming more popular among Indians as they allow people to save their bank information, credit and debit card information, allowing them to conduct financial transactions at any time, and streamline the payment process by centralizing their cards and information.

Customers have the possibility to obtain frequent cashback bonuses, awards, and discount coupons from banks or digital wallets that give rewards and discounts for digital payments. Digital currency has some other benefits in compare to its physical counter parts. Since CBDC is digital in nature, there is no way to physically hurt, burn, or tear it.

There is no possibility of losing them, unlike actual notes. Compared to actual forms of currency, they last longer. In contrast to cryptocurrencies like Bitcoin, Ethereum, etc., CBDC is less volatile because it is governed by the Central Government. These help the RBI in lowering the cost of issuing currency and conducting transactions.

The necessity for interbank settlement has eliminated by this digital money. They make it possible to do worldwide business without trouble and without using any middlemen. The ability to track transactions made with the Digital Rupee is helping the retail customers and MSMEs demonstrate their creditworthiness.

### **7.9 Challenges:**

With the gaining popularity of online payment modes, people have to be very careful and cautious while using these types of online services. There are many frauds taking place on digital platforms. Fraudsters are misusing the data to cheat the common people. People should never share their passwords, OTP with any strangers over phone or messages.

People need to share their personal financial information on digital platforms which can be exploited by the cybercriminals using malware and other software. However, blockchain, multi-factor authentication, cloud computing, anti-phish, anti-malware protection, and secure biometrics are certain next generation technologies are used to make fintech platform and digital payment system more stable and secured. Digital currency, CBDC is still in the experimental stage which needs stable infrastructure, excellent privacy and security management to make it globally acceptable.

### **7.10 Future Scope:**

By examining digital currency and payment systems in India, the study significantly advances financial research. There are still bags of need for research and experimental work into the safety and security challenges for its successful implementation, nevertheless, given the relevance of the field of study and the constantly growing opportunity sets. The relationship between different demographic factors including income level, academic attainment, kind of employment, marital status, etc., could be further investigated in-depth. With digitalization of currency and payment systems, the farmers may easily get all their allotted funds from government to their bank accounts directly (few schemes have already implemented) thereby reducing the chances of malpractice by various intermediaries and agents in between. Also, if the farmers use the online facility for collecting their sale proceeds, they can eliminate the syndicators and middleman thereby increasing the chance of getting fair rates for their products. The buyers will also be benefited by getting the products at cheaper price. All these are leaving further scope of study as to how the whole system can be modified to reduce corruption from every layer and making our nation proud.

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