

E-RUPEE (e₹) IN INDIA: A PARADIGM SHIFT OR A PASSING FAD?

Abstract

Cash or paper currency has been considered as the only medium of exchange for a longer period of time in India until Demonetization came into existence during 2016 when Government of India totally banned the old paper currencies of ₹ 500 and ₹ 1000 notes. Though it was a very tough decision for a country like India, where 90% of the transactions are made in cash, India came up strong to adhered with new technology. Within a very short period, India adopted digitalised mode of payment by phenomenal increase in ownership of smart phones and presence of user-friendly payment modes like, UPI payments system applications (Paytm, Phone pe, G-pay, etc). With the rise of electronic payments and innovations in the financial sector has highlighted the lacking of the existing payments system. CBDC (Central Bank Digital Currency) is a form of digital currency which is controlled by the country's central bank (RBI) and backed by the Government. Digital currency has a potential to bring revolutionary shift in the economy and uplift the monetary infrastructure of global economy. As per the reports of the Atlantic Council, 11 nations have already launched CBDC in pilot survey or in fully functional form. India also launched e₹ on 1st November, 2022 which marked a new milestone in digital payment. CBDC is an electronic version of physical rupee which has been backed by blockchain technology. The objective of this research is to highlight how India is adopting this new digital currency system, its overall impact in the Indian economy, its advantages and disadvantages. This paper also tries to explore the global trends in digital currencies in selected countries and tries to examine the implications of digital currency for India

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through SWOT Analysis. The paper mainly focuses on secondary data and it is descriptive in nature. It shows an analytical study which is based on the information that has been collected from many sources like research articles, several government bulletins, media reports and so on. The major findings of this study are to see whether introduction of digital currency or e-Rupee (₹) in India paved the way for future ready and also to see whether making digital payments becomes more secured and also free from counterfeiting.

Keywords: e-Rupee (₹), RBI, Central Bank Digital Currency (CBDC), Block chain Technology, UPI, SWOT Analysis.

I. INTRODUCTION

From the beginning of the 21st Century, India is emerging as the fastest growing economy in the world. In this modern world of digitalisation, where more or less everything can be controlled with the help of digitalisation, creativity and innovation is something which is required to be updated regularly to keep up with the pace with other nations. In August 2022, the Reserve Bank of India (RBI) announced that a digital rupee will be introduced in phases beginning with wholesale businesses in the 2022 to 2023 financial year. The India Central Bank Digital Currency (CBDC) is being developed for both retail and wholesale use simultaneously. However, the Reserve Bank of India rolls out the digital currency for wholesale businesses first. The main motivations for issuing a CBDC in India basically focuses on four objectives, namely, (i) the Reserve Bank of India (RBI)'s desire to join other central banks that have issued a CBDC, (ii) the significant growth in digital transactions in India, (iii) the threat posed by private digital currencies, and (iii) the presence of a well-functioning and developed payment system in India. With the introduction of Central Bank Digital Currency (CBDC) in the form of e-Rupee (₹) in India, it has launched as a pilot project in the wholesale segments on 1st November, 2022 and for retail segments from 1st December, 2022. The first pilot phase for rolling out of retail e-Rupee (₹) has been started from Mumbai, New Delhi, Bengaluru and Bhubaneswar. Digital Currency or e-Rupee (₹) is nothing but a look-a-like of a paper currency but it is to be kept in a digital wallet just like our physical currency kept in our wallet. It has been backed by Blockchain Technology which reduces the cost of managing and distributing physical cash and is also considered as one of the most secured mediums of payment. E-Rupee is also a government-supported alternative to private digital currencies. During the pandemic period, digital payment system was one of the best alternative payment mechanisms in the absence of physical currencies. In 2022, United Payment Interface (UPI) enabled nearly 7,404 crores of transactions i.e., 2,347 transactions per second. The total value reached approximately to Rs 125.95 lakh crores. E-Rupee (₹) aims to provide a simple, convenient and an easy mode of payment system that can be used by all sections of the society at large. Just like for using UPI interface, we require a minimum internet connection, but for using digital e-Rupee (₹), internet connectivity is not required. Even for payment or for receiving from UPIs like Phone Pe, G-Pay, Paytm, etc. the UPI id or mobile phone number must be associated with bank account number and the amount has been received or paid directly from the bank account. But CBDC's e-Rupee (₹) also removes this burden of bank account transfer system. It will be just like payment through wallet but in digital manner. By promoting digital payment system, it is expected that e-Rupee (₹) helps in using of physical cash in the economy. It is also expected that once, e-Rupee (₹) rolls out in every corner of the country, physical cash will sooner become an antique. Tokens of e-Rupee (₹) have been distributed by the State Bank of India, ICICI Bank, Yes Bank and IDFC First Bank during the first phase. The second phase where e-Rupee (₹) will start its functioning from Gangtok, Ahmedabad, Guwahati, Hyderabad, Indore, Kochi, Lucknow, Shimla and Patna as per the reports of Reserve Bank of India (RBI). Bank of Baroda, Union Bank of India, HDFC Bank Ltd. and Kotak Mahindra Bank will also join during this phase. Gradually, it will extend to many locations and to many users. The basic aim of RBI is to make all the people of India accustomed with e-Rupee (₹).

II. LITERATURE REVIEW

Studies have been conducted for this evolution and impact of digital currency round the world where India has also taken initiative in this area. Some of the studies done in this field are being summarized below:

Lamba, Jain (2021) has come up with their survey that E-Rupee is an advanced payment wallet launched by the government for predetermined usage only. They are planning to bring E-rupee in vouchers that can be used by banks, MSME, healthcare sectors for making transactions. The E-Rupee will provide benefits to the people by giving them security, free them from carrying physical currencies, safe custody to personal data, real-time transactions, direct usage for customers and will be in flexibility with time whenever required. **Kumar (2021)** has highlighted from the study that the use of Digital currency will not only guide RBI in minimizing the operational cost of managing the cash, but will also be helpful in building a foundation of cashless society and strengthening the digital economy efficiently. **Adgaonkar (2022)** has mentioned in his study that the Digital rupee will open the doors for their citizens to use this currency freely in our expanding digital frugality and get updated with this new system. **Ducrée (2022)** focused on discussing the cryptos and blockchain facilities. He said that cryptocurrency and blockchain technology were introduced more formally by Satoshi Nakamoto, the original Bitcoin founder, in the year 2008. **Kandalkar&Khanzode (2023)** have put their focus on the revolutionary impact that digital currency will be having on the Indian monetary system in near future. Their study points out that this invention should be having an improved framework with full privacy, user protection and anti-money laundering standards for adapting this technology. This study is backed by the authenticity, efficiency and security of the currency as they include Distributed Ledger technology and based upon a permissioned blockchain. According to **Haque& Shoib (2023)**, India is a cash-based society where people are mostly habituated with the use of physical currency. So, it will be a challenge of adoption for the country as people may not easily accept this form of payment. In order to make this method a success, the merchants have to accept it readily, different education and awareness campaigns has to be provided for the acceptance by general public. The government should spread boost up peoples' mind and make sure that they get educated and aware about the pros and cons of using E-rupee. E-rupee should be an innovative catalyst helping in growth and security for the country. **Ozili (2023)** showed in his study that people having interest in Cryptocurrency also showing interest in CBDC. The way digital currency will bring benefits, it will also be having risks which are to be properly evaluated. India will need legal requirements for setting up Digital currency for betterment of monetary system of India. Studies need to be conducted more to see how digital currency helps in growth in certain sectors of economy and explore issues relating to design and use-case for India.

III. OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To understand the concept of e-Rupee (₹) of India.
2. To find out whether e-Rupee (₹) can be an alternative medium of exchange.
3. To predict the prospects of e-Rupee (₹) in the Indian Economy.

IV. RESEARCH METHODOLOGY

This research is based on the objectives stated above. It is a descriptive study based on facts and figures which has already been provided by different governmental and non-governmental (backed by Central Authority) organisations. In order to conduct a thorough analysis of the topic, secondary data sources were explored. For this approach, a variety of reviews from several websites, journals, articles, and publications were used. Examining the data was made easier through newspaper reports and circulars from several national and international organisations, RBI bulletins, etc.

V. RESEARCH GAP

This paper seeks to put emphasis on the concept of e-Rupee (₹) of India as well as it also highlights whether this token-based digital currency can be used as an alternative medium of exchange just like cash. This paper also tries to explore the prospects of e-Rupee (₹) in the Indian Economy. In this regard, there are various aspects besides this which we have not been able to explore, such as, area or zonal wise awareness campaigns conducted by RBI, it's utility, sturdiness, security features in comparison with private decentralized assets like crypto currencies, viz-a-viz bitcoins, Ethereum, etc. With the release of the second phase of e-Rupee (₹), this concept will take a good shape with new growth, opportunities and perspectives which are the restraints that we have not been able to incorporate into our study.

VI. THEORETICAL FRAMEWORK

Concepts: CBDC is a digital form of currency issued by the central bank of the country. The term e-Rupee is termed by the RBI for digital sovereign currency. It is a legal tender issued by a central bank backed by RBI in digital form. It will be an added option to the already available forms of physical currency. Currently, the RBI is issuing paper currency. CBDC will be the digital currency issued by the RBI, with many differences in the way it works and circulates throughout the nation. The fintech department of RBI has issued a 'Concept Note' that explains the objectives, choices, benefits, and risks of issuing a CBDC in India. It further illustrates the key considerations such as, technology, design choices, possible uses and so on. It examines the implications of the introduction of the e-Rupee on the banking system, monetary policy, and financial stability and analyses privacy issues. RBI clearly mentioned that both Person to Person (P2P) and Person to Merchant (P2M) transactions are allowed. In India, RBI will follow the hybrid model is a mixture of both direct and indirect model that specifies that RBI or the central authority will issue and maintain all ledger transactions in their own hand, while, on the other hand, verification and recording transactions will be maintained by a decentralised network while dealing with CBDC. A sovereign digital currency like the e-rupee(₹) could take things to the next level. CBDC systems run on the blockchain, bypassing the costs of managing and distributing physical cash. This makes CBDC transaction costs as cheapest across the globe. Moreover, as it is maintained digitally, it works 24x7 around the clock, all year around, ensuring real-time transactions.

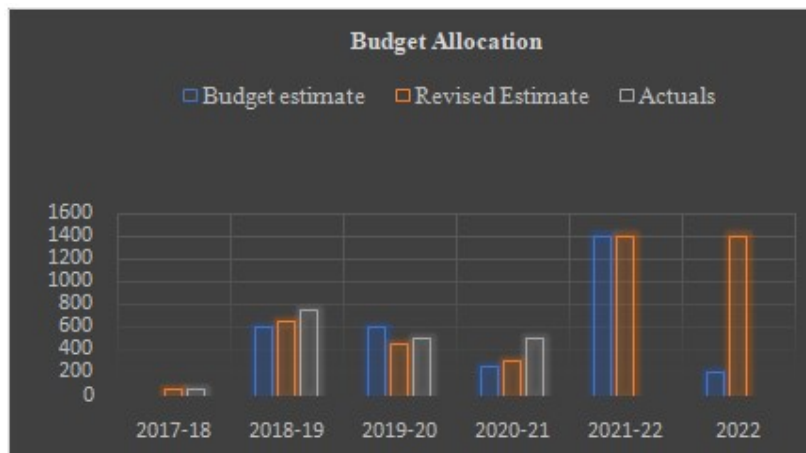
Few merits of e-Rupee (₹) may be explained in the following manner:

- e-Rupee (₹) facilitates faster transactions without involvement of any intermediaries.

- It eliminates counterfeit risks by using a digital token that cannot be replicated.
- This concept will be beneficial for a good section of people who don't have access to apps, cards and online/mobile banking.
- e-Rupee (₹) provides contactless transaction anywhere and at any time and doesn't require KYC upgradation.
- It counters illegal activities and tax evasion. Few demerits of e-Rupee (₹) may be explained in the following manner:
- e-Rupee (₹) being a digital currency, may be prone to cyberattack like hacking, malware, etc.
- It is based on server quality, hence if RBI server anyhow trips, the whole system of digital currency will become standstill.
- e-Rupee (₹) won't be able to provide the benefit of earning interest on savings or investment unlike cash.
- Since KYC upgradation is not needed here, e-Rupee (₹) may get exposed to fraud.
- There is also a chance of losing privacy, as RBI monitoring the e-Rupee (₹) movements, government will be able to monitor us.

VII. ANALYSIS AND DISCUSSIONS

Taking forward the digitization effort, RBI introduced the e-Rupee (₹) concept in phases with pilot launches of Digital Rupee in wholesale and retail markets. The e-Rupee (₹) is the digital replica of physical currency where there is no intermediary included and people can get easy facility of payments even without having access to internet and smart phones. The acceptance level of digital e-Rupee (₹) has subsequently grown over the years as noticed from the RBI reports. Though a large section of the society uses cash as preferred mode of payment but gradually having knowledge and faster use of the digital payments, many of them have shifted their base. The launch of this e-rupee is a milestone. It is a token-based system where a digital token by RBI and anybody holding the token would be assumed owning them backed by the blockchain technology, this e-Rupee (₹) presents more secured and government supported alternate to physical currency. Digital e-Rupee (₹) is introduced keeping in mind the same trust level and safety among public in albeit digital form.



(Source: India Budget Expenditure Profile)
Figure 1: Budget Allocation for Digital Payments (in ₹ crore)

Like other nations, India also has taken the initiative in making digital payments applicable among the citizens to make payments easily and safely. The figure represents the budgetary allocation for this payment system to make it reachable to every individual. The five-year graph shows that the highest allocation for the digital payments have been made in the year 2021-22 representing the gradual growth in subsequent years.

Table 1: Growth of Digital Payments in Transaction Volume

Year	Transaction Volume (in lakhs)	Growth
2017-18	1,57,606	---
2018-19	2,32,602	48%
2019-20	3,41,240	47%
2020-21	4,37,118	28%

(Source:<https://www.dartconsulting.co.in/market-news/growing-digital-payment-in-india-and-its-benefits-types-of-digital-payments-in-india/>)

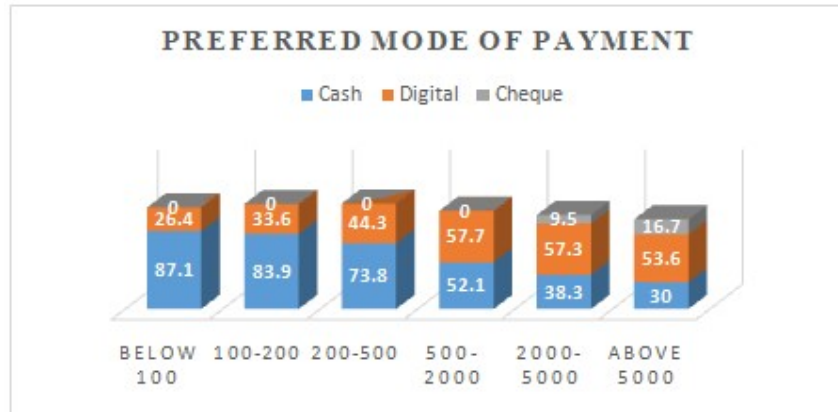
As per RBI reports, it has been inferred that Indian Digital Payments market reached to 4,37,118 lakhs in 2020-21 which in value counts to the ₹14,14,85,173 crores in 2020-21 from the ₹2,85,61,200 crores of 2017-18, jumping to a growth of 495%.



(Source:<https://www.dartconsulting.co.in/market-news/growing-digital-payment-in-india-and-its-benefits-types-of-digital-payments-in-india/>)

Figure 2: Volume of Digital Payment in India 2022-26 (in lakhs)

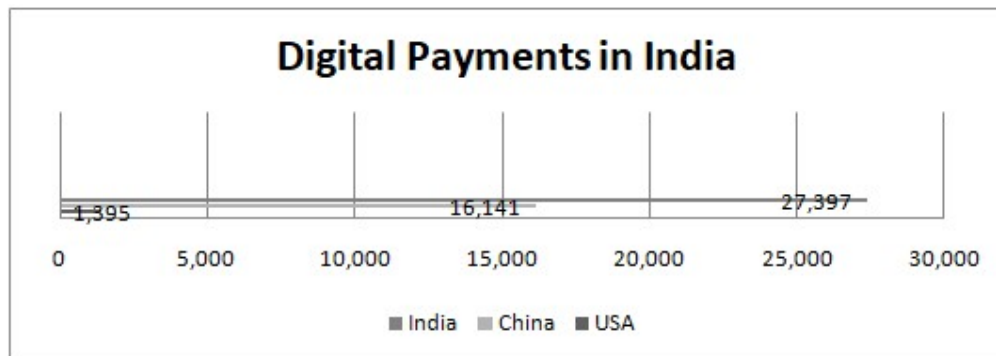
There has been a significant growth in Digital Payment in India with considerably more increase since the pandemic. In order to make easy access of payments by staying indoors, some of the online platforms have limited cash payments to avoid physical contact. Hence digital payments have increased its volume with betterment of economy, having considerable growth of 35% and from here, a prediction can be made that by 2026 the volume would reach to even 19,60,052 lakhs.



(Source: <https://blog.forumias.com/digital-rupee-advantages-and-challenges/>)

Figure 3: Use of Preferred Payment Mode

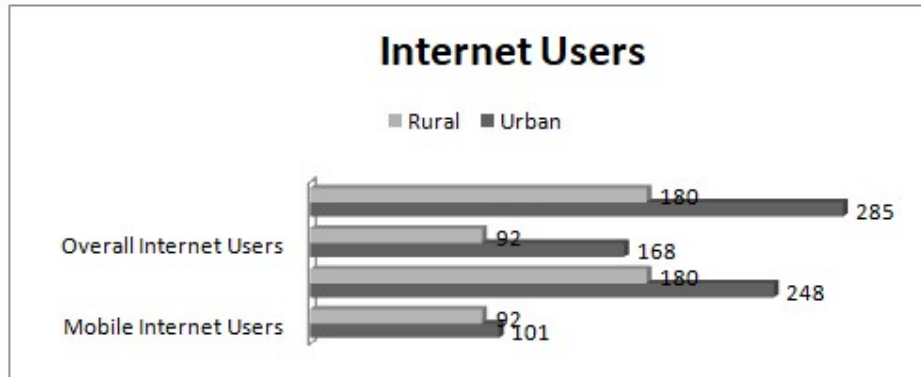
The use of physical cash is almost on the wane with growing facility of using online method for payment. In a survey in April, 2021, it has been noticed that people are preferring digital payment for maximum transaction above ₹ 5000. Digital rupee will be making online payments more secure and risk free and capture a wide section of our society into boosting up this digital economy of ours.



(Source: RBI Annual Report, ACI Worldwide Report 2021)

Figure 4: Digital Payments in India with Comparison with China & USA (in millions of transactions)

Pandemic in the form of Covid 19 being a stepping stone for India. Digital payments have made their way into the country at large in race with giant countries like China & USA, is swelling its path to about 25.5 billion real-time transactions in 2020, which counts to about 71.7% share of all the payments in India by 2025.



(Source :<https://timesofindia.indiatimes.com/modi-government/graphics/the-making-of-digital-india/infographicshow/58700923.cms?from=mdr>)

Figure 5: Internet Usage in India for Digital Payments

With the gradual growth of e-Rupee (e₹) in the country, citizens mainly from the urban areas are getting to get hands on use of digital rupee 24*7, faster and at any time. As per the reports from different sources, the graphical representation above indicates that the overall internet users are gradually increasing over the years. Rural people being not so much educated and having less access to mobile phones than urban areas face issues with the use of digital payment. The overall uses of digital currency in metro cities shows 33.7% and in non-metro counts to 66.3 %, representing non metro people using internet more than metro cities.

SWOT Analysis of e-Rupee (e₹)

SWOT Analysis of e-Rupee (e₹) can be explained in Table 2 below:

Table 2: SWOT Analysis of e-Rupee (e₹)

Strengths	Weakness
<ul style="list-style-type: none"> ✓ e-Rupee (e₹) provides transparency, convenience and flexible monetary policy. ✓ It promotes financial inclusion. ✓ It enables faster transactions and at a lower cost also. ✓ It has easy accessibility at anytime and anywhere 24*7. 	<ul style="list-style-type: none"> ✓ The use of digital rupee is totally based on technology and network, if any part collapses the whole system will get freeze. ✓ It might intimidate non-tech savvy users. ✓ Some users might find security issues compared to transacting in cash.

Opportunities:	Threats:
<ul style="list-style-type: none"> ✓ e-Rupee (₹) facilitates usage without internet and smart phones making it financially inclusive. ✓ It has provision for currency traceability. ✓ Since intermediaries are not involved here, the process of making payments will be much faster, at a lower cost and will provide transparency to the users. 	<ul style="list-style-type: none"> ✓ There is a risk factor for privacy since no verification documents will be required. ✓ There can be a chance of breach of security at any time, so people inclined towards cash usage may not find it beneficial to use it. ✓ Trades in digital currency may lead to high price swings.

(Source: Author's Compilation)

VIII. SUMMARY OF THE FINDINGS

Objective-wise findings of the study are summarized in Table 3 below:

Table 3: Summary of the Findings

Objectives	Methodology	Findings
1. To understand the concept of e-Rupee (₹) of India.	Descriptive method from existing literature.	Discuss the concepts of CBDC and e-Rupee (₹) with proper explanations that are useful for transaction purposes. It also further illustrates what model India will be followed while adopting digital currency.
2. To find out whether e-Rupee (₹) can be an alternative medium of exchange.	Descriptive method from existing literature.	Elucidates the usefulness of e-Rupee (₹) by means of its pros and cons of implementing and also further explains its sturdiness, security backed by blockchain technology and also easy to use without internet facilities.
3. To predict the prospects of e-Rupee (₹) in the Indian Economy.	Descriptive analysis by means of observations and collected data.	Elucidates lucidly with the help of different charts, where allocation of budgets, growth of digital payments in the last few years in terms of transactions, volumes of digital payments done and expected to be made in the near future, mode of usage while

		making payment, etc. have made. With the help of these discussions, it predicts the future of digital currency in India and its impact in the Indian Economy in coming years.
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(Source: Author’s Compilation)

IX. CONCLUSION

India, largest populated nations in the globe adopted e-Rupee (₹) in their early stage of digitalization. It not only boosts the economy of our nation but also strengthen the banking system. The first big sign is that, India didn’t introduce e-Rupee (₹) directly across every part of the country, rather it introduces in a phase wise manner on the basis of the success in different cities where e-Rupee (₹) has been implemented. This paper explores the conception of e-Rupee in India in brief. It also elucidates, that in the coming future, e-Rupee (₹) can be used as a useful alternative medium of exchange in place of physical money. It even shows the glimpses, how digital currency will create an impact in the Indian economy in the near future. CBDC also help the RBI in not only reducing the operational cost of managing the cash, it helps RBI in attaining financial inclusion and also strengthen the foundation of cashless society. As e-Rupee (₹) is still in the growth stage, the existence is not known to many people, as they have still in doubts regarding its operations, usefulness & security. So, the idea of e-Rupee (₹) is relatively fresh among most of the people. So, it is very important for RBI to make people aware about digital currency and also to make a clear distinction that it is not as same as UPI Payment mechanism like, Paytm, Phone Pe, G-Pay, etc. It has to be noted that, policymakers must carefully assess the potential of the e-Rupee (₹) in India while taking into account its effects on the macroeconomy and liquidity, banking systems, and money markets. Hopefully, this initiative will open up more discussion on the best course of action.

X. LIMITATIONS AND FUTURE SCOPE OF THE STUDY

Every research has its own limitations. While going through the depth of this research, we find that as this is the new area of research, we couldn’t get any proper data or information from different verified sources from where we can analyse our work. Although, with minimum resource and with a handful of information we tried to explain the topic lucidly to the people at large, so that, at least they could generate thoughts or idea about e-rupee (₹) introduction and its functions in India. The research work which we have conducted could have been extended further if e-Rupee (₹) launched in India after proper awareness campaigns by RBI, not as an experimental work, like a pilot project in few cities, but as a whole. As e-Rupee (₹) launched only its 1st phase in few cities on December 1, 2022 and it is planning for its 2nd phase roll out with the help of further few banks and few cities, it is difficult to predict the major changes it will bring in our society and in the Indian economy in the coming era or even to predict whether they will be just like a passing fad. So, it is evident that, as e-Rupee (₹) is still in its growth stage, lot of changes will be coming for its further development, like it’s security, in the near future. We can now only at this point of

time make predictions or speculations regarding its impact in the Indian Economy in the near future or whether it will be a big boost to use as an alternative to cash.

The present study focused on the conceptual part of e-Rupee, its pros and cons as well as whether people are aware about this digital currency or not. There is a scope of studying the perception of people regarding digital currency's impact among the people in their daily lifestyle. It is seen that during and after the pandemic people are accustomed with the uses of UPI payment mechanism, it is also expected that if e-Rupee (₹) rolls out properly in every corner of our country with proper awareness campaigns conducted by RBI, then, in the years to come, people will use this as an alternative to cash. As it is relatively newer area, so most of the things have been explained with the information provided by RBI bulletins, news media, newspaper reports, articles and a handful of established journals. Mostly has been discussed on the basis of different countries implementation of CBDC. So, in the near future, similar kind of study could be conducted considering with some statistical data.

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