American Scholarly Journal for Scientific Research (ASJSR)
https://asjsr.org/ Volume 2025, Issue 1004

Money Goes Digital: Analysing the Effects of Digital Currencies on Traditional Financial Systems

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Date: December 20, 2025

Abstract

Digital currencies are changing the way people store, transfer, and understand money. In India, this change is especially important because the country already has one of the world's most advanced digital payment systems through UPI. However, digital payments and digital currencies are not the same. This paper analyses two major forms of digital currency: the Reserve Bank of India's central bank digital currency, the e₹, and private crypto assets such as Bitcoin, Ethereum, and stablecoins. The paper studies how these digital currencies affect banks, payment systems, regulation, privacy, financial inclusion, and consumer safety. It argues that digital currencies are unlikely to completely replace traditional financial systems in India. Instead, they are pushing banks, governments, and payment companies to modernize. For young users, the safest path is financial literacy, careful use of UPI, and gradual understanding of the e₹ as it develops.

Keywords: digital currency, CBDC, digital rupee, e₹, UPI, cryptocurrency, banks, financial systems, India, blockchain

1. Introduction

Money is usually thought of as something simple: coins, notes, bank balances, or the amount shown in a mobile wallet. However, money is also a system of trust. People accept money because they believe others will accept it too. Banks, governments, payment companies, and financial regulators all help maintain this trust. For many years, this system was built around physical cash, bank deposits, cheques, cards, and later online banking. Today, digital currencies are forcing this traditional system to change.

Digital currencies are not just "money on a phone." They represent a deeper shift in how money is created, transferred, stored, tracked, and controlled. In India, this subject has become especially relevant because the country has already experienced a major digital payments revolution through UPI. UPI has made instant bank-to-bank payments common for everyday activities such as paying for food, booking rides, shopping, or transferring money to friends.

According to NPCI, UPI processed around 20 billion transactions in August 2025 alone, showing how deeply digital payments have entered Indian life (NPCI, 2025).

However, UPI and digital currency are not the same. UPI is a payment system. It allows money to move quickly between bank accounts. A central bank digital currency, such as India's e₹, is a form of money issued directly by the Reserve Bank of India. Private cryptocurrencies, such as Bitcoin and Ethereum, are different again because they are not issued by a central bank. They are usually based on blockchain technology and operate outside the traditional banking system, although exchanges and users still interact with regulations.

This paper analyses how digital currencies affect traditional financial systems, with India as the main case study. It focuses on two broad categories: public digital money, represented by the RBI's digital rupee, and private crypto assets, represented by cryptocurrencies and stablecoins. The central argument is that digital currencies will not destroy the existing financial system in India. Instead, they will pressure banks, payment companies, and regulators to become faster, safer, more transparent, and more technologically advanced.

Research Question

How are digital currencies, especially India's e₹ and private crypto assets, affecting traditional financial systems such as banks, payment networks, regulation, privacy, and consumer safety?

2. Literature Review / Background

Digital currency can be divided into two main categories.

The first category is **central bank digital currency**, also called **CBDC**. A CBDC is digital money created and issued by a country's central bank. In India, this is known as the **digital rupee** or **e₹**. It is issued by the Reserve Bank of India, so it has government and central bank backing, just like physical cash. The RBI started the retail e₹ pilot in December 2022 to test how digital cash could work in daily life. The e₹ is designed to be similar to cash, but in electronic form. In the future, it may support useful features such as offline payments, where people can pay even without internet, and programmability, where money can be used for a specific purpose such as subsidies or scholarships.

The second category is **private cryptocurrency**. This includes Bitcoin, Ethereum, and stablecoins. These are not issued by the government or any central bank. Most cryptocurrencies are based on blockchain technology, which records transactions digitally. However, their prices can change very quickly, making them risky. Because of this, they are usually treated more like high-risk digital assets than normal money.

Traditional financial systems include banks, payment companies, central banks, regulators, and investment markets. These institutions help people save, borrow, invest, make payments, and stay protected from fraud.

Digital currencies challenge this system because they change how money is moved, stored, controlled, and regulated. They do not completely replace traditional finance, but they push it to become faster, safer, and more digital.

3. Objectives

The main objectives of this research paper are:

1. To understand the difference between UPI, e₹, and private cryptocurrencies.
2. To analyse how digital currencies affect banks and deposits.
3. To study how digital currencies influence payment systems and financial technology.
4. To examine the risks of private crypto assets.
5. To understand India's regulatory approach toward digital currencies.
6. To analyse whether digital currencies can improve financial inclusion.
7. To explore the future role of the e₹ in India's financial system.

4. Hypothesis

Digital currencies will not completely replace traditional financial systems in India. Instead, they will force banks, payment companies, and regulators to modernize by improving speed, transparency, security, inclusion, and digital infrastructure.

5. Methodology

This research paper uses a **secondary research method**, which means that the information has been collected from existing sources instead of conducting a new survey or experiment. The study is based on official reports, government websites, financial institutions, regulatory updates, and research articles related to digital currencies.

The paper mainly focuses on **India** as a case study because India already has a strong digital payment system through UPI and is also testing its own central bank digital currency, the **e₹**. The research compares UPI, the digital rupee, private cryptocurrencies, and traditional banking systems to understand how each one works.

This method helps in analyzing the benefits, risks, and future impact of digital currencies on banks, payment companies, consumers, and regulators. Since digital currency is still developing, secondary research is useful for studying current trends and official policy directions.

The research compares:

- UPI as a payment system
- e₹ as central bank digital money
- Private cryptocurrencies as digital assets
- Traditional banks and financial institutions

6. Data Analysis & Findings

6.1 UPI and e₹ Are Not the Same

UPI and the e₹ are both part of India's digital financial system, but they are not the same thing. UPI, or Unified Payments Interface, is a **payment system** that helps people transfer money instantly from one bank account to another. For example, when someone scans a QR code at a shop or sends money to a friend, UPI is simply moving money from their bank account to another person's bank account.

The e₹, or digital rupee, is different because it is not just a payment method. It is a **form of digital money issued by the Reserve Bank of India**. This means it has the backing of the central bank, just like physical cash. In simple terms, UPI is the road on which money travels, while the e₹ is the money itself in digital form. This difference is important because it shows that India is not only improving payment systems but also experimenting with the future form of money.

6.2. Digital Currencies Put Pressure on Banks

Digital currencies can affect traditional banks because banks depend heavily on deposits. When people keep money in savings accounts or current accounts, banks use a part of those deposits to provide loans to businesses, students, home buyers, and other customers. This lending activity is one of the main ways banks earn income and support economic growth.

However, if people start keeping large amounts of money in e₹ wallets instead of bank accounts, banks may lose some deposits. This could reduce the amount of money available for lending. If banks have fewer deposits, they may have to depend on other sources of funding, which could increase their costs.

At the same time, this risk can be controlled through careful design. For example, the RBI can place limits on how much e₹ a person can hold in a wallet. The e₹ can also be made non-interest-bearing, meaning people would not earn interest on it. This would encourage people to continue using bank accounts for savings while using e₹ mainly for payments.

6.3. Payment Companies Will Need to Adapt

Digital currencies may also change the role of payment companies and fintech platforms. Today, many people use apps connected to UPI for everyday payments. These apps have become popular because they are fast, convenient, and easy to use. They have also made digital payments common among small businesses, shopkeepers, students, and families.

With the rise of the e₹, payment companies may need to update their systems so that they can support CBDC-based payments. In the future, users may expect their payment apps to handle both UPI transactions and digital rupee transactions. This means fintech companies will have to invest in new technology, stronger security systems, better wallet features, and easier user interfaces.

Rather than disappearing, payment companies are likely to evolve. Their role may shift from only enabling bank-to-bank transfers to also supporting digital currency wallets, offline payments, programmable payments, and secure digital money services. This shows that digital currencies will not remove payment companies but will push them to innovate.

6.4. Programmability Can Improve Government Transfers

One of the most useful features of the e₹ is the possibility of programmability. Programmable money means that money can be designed to be used for a specific purpose or under specific conditions. For example, a government scholarship could be programmed so that it is used only for education-related expenses. Similarly, subsidies could be sent directly to citizens and used only for the intended purpose.

This can make government transfers faster, more transparent, and more efficient. In a country like India, where welfare schemes, scholarships, pensions, and subsidies reach millions of people, programmable payments could reduce delays and leakages. It could also create better audit trails, helping the government track whether funds are reaching the correct beneficiaries.

For example, an attendance-linked student stipend could be released automatically when a student meets certain attendance requirements. A farmer subsidy could be transferred directly and used for approved agricultural needs. While this system is still developing, it shows how the e₹ could improve public finance. However, it must be used carefully so that programmability does not become too restrictive or reduce people's freedom to use money.

6.5. Private Crypto Assets Are Risky

Private cryptocurrencies such as Bitcoin, Ethereum, and stablecoins are very different from the e₹. They are not issued by the RBI or any central bank. Their value often depends on demand, speculation, market confidence, and global crypto trends. Because of this, crypto prices can rise quickly but also fall sharply within a short period of time.

This makes private crypto assets risky, especially for inexperienced users. A person may buy crypto thinking it will increase in value, but the price can suddenly crash. Unlike bank deposits, crypto assets are not protected in the same way by traditional banking rules.

Another major risk is that blockchain transactions are usually irreversible. If a user sends crypto to the wrong wallet address, it may not be possible to get it back. Similarly, if someone falls for a scam, fake investment scheme, phishing link, or fraudulent crypto platform, recovery can be extremely difficult.

Crypto also creates a custody problem. If users store crypto themselves, they must protect their private keys or seed phrases. If they lose them, they may lose access forever. If they store crypto on an exchange, they must trust the exchange. Therefore, private crypto is not simply “digital money”; it is a high-risk digital asset that requires strong knowledge and caution.

6.6. Regulation Is Becoming Stricter

India has not completely banned private crypto assets, but it has made their use more regulated and costly. The government has introduced a 30% tax on gains from virtual digital assets. In addition, TDS rules apply to certain crypto transactions. These rules make crypto trading more traceable and reduce casual speculation.

Crypto service providers are also subject to anti-money laundering rules. This means crypto exchanges and platforms must follow KYC requirements, report suspicious transactions, and comply with financial regulations. These steps are important because crypto can otherwise be misused for illegal transfers, tax evasion, fraud, or money laundering.

This stricter regulation shows that India is taking a cautious approach. The government is not treating crypto like normal money. Instead, it is treating it as a risky digital asset that needs monitoring. This protects the traditional financial system from sudden instability and helps ensure that digital innovation does not come at the cost of consumer safety.

Overall, regulation is becoming stricter because digital currencies are powerful tools. If properly managed, they can improve the financial system. But without regulation, they can also create fraud, confusion, and financial risk.

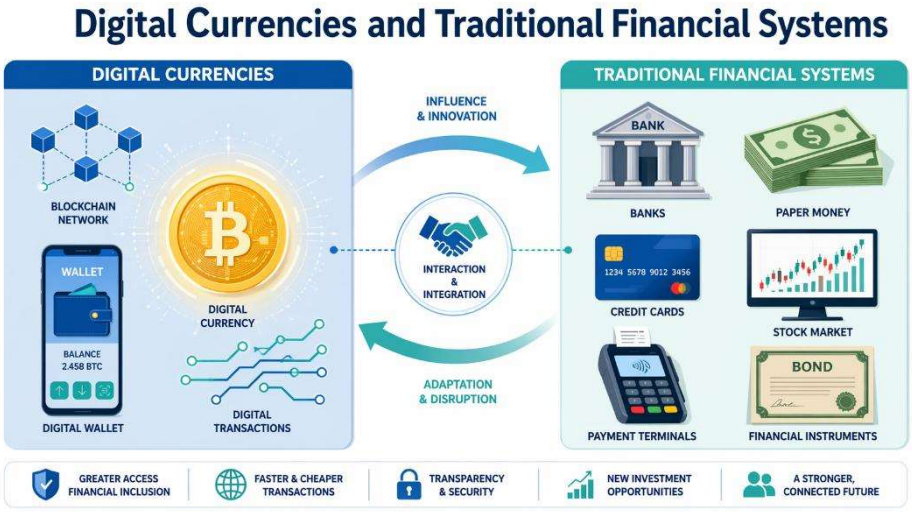

Figure 1: Digital currencies are reshaping traditional financial systems by influencing payments, banking, investment, security, and financial inclusion.

7. Discussion

Digital currencies are changing finance, but they are not replacing the entire financial system. Banks still remain important because they provide essential services such as deposits, loans, customer support, credit creation, and financial stability. People still depend on banks for savings accounts, education loans, home loans, business loans, and secure money management. Payment systems like UPI are already highly efficient in India, so the e₹ will need to offer additional value beyond simple digital payments. Its possible advantages may include offline payments, programmability, and the safety of being backed directly by the central bank.

Private crypto is more complicated. It is innovative because it uses blockchain technology and allows people to transfer digital assets without depending fully on traditional banks. However, it is also risky because crypto prices can rise and fall very quickly. Crypto can be useful for understanding blockchain, decentralization, and the future of digital assets, but it is not yet suitable as a stable everyday currency for most people. In India, crypto is mainly treated as a high-risk asset rather than legal tender, especially because of taxation rules and regulatory concerns.

The most likely future is a mixed financial system where different forms of money and payment methods exist together. Cash, UPI, bank deposits, debit and credit cards, e₹, and regulated digital assets may all have their own roles. People may use UPI for daily payments, banks for savings and loans, e₹ for specific digital-cash functions, and crypto only as a risky investment or technology-based asset. Therefore, the traditional financial system will survive, but it will become more digital, faster, more secure, and more technology-driven.

8. Case Study

India's Digital Rupee: The e₹

India's digital rupee, also known as the e₹, is a central bank digital currency issued by the Reserve Bank of India. It represents a new form of public money because it is digital but still backed by the central bank, just like physical cash. The retail pilot of the e₹ began in December 2022, and since then, the RBI has been testing how digital central bank money can work in everyday transactions.

India is an important case study because it already has UPI, one of the most successful digital payment systems in the world. UPI has made digital transactions extremely common, from paying street vendors to transferring money between friends. Because of this, the e₹ does not need to replace UPI immediately. Instead, it can work alongside UPI and offer features that normal payment systems may not provide.

The main difference is that UPI moves money between bank accounts, while the e₹ itself is digital money. This means that when a person uses UPI, they are using bank money. But when a person uses e₹, they are using digital central bank money. In this way, the e₹ is closer to cash, except that it exists electronically.

The e₹ may become useful in areas where regular digital payments face limitations. For example, offline payments could help people make transactions in places with poor internet connectivity. This could benefit rural areas, small merchants, and users who do not always have stable mobile data. The e₹ may also be useful for government schemes, scholarships, subsidies, and welfare payments because it can potentially be programmed for specific purposes.

Another important feature of the e₹ is that it may improve transparency in public finance. If government benefits are sent through a digital rupee system, there may be better tracking and fewer delays. This can help reduce leakage and ensure that funds reach the correct people.

However, the e₹ also brings challenges. Banks may worry that if people keep too much money in e₹ wallets, they may reduce their bank deposits. This could affect the ability of banks to lend money. Privacy is another concern because digital money can leave transaction records. Therefore, the RBI will need to balance innovation with consumer protection, privacy, and financial stability.

Overall, India's digital rupee shows that digital currency does not have to destroy traditional finance. Instead, it can modernize the system. The e₹ can exist alongside cash, UPI, bank deposits, and other payment methods, creating a more flexible and future-ready financial system.

9. Limitations

This research has some limitations.

First, the e₹ is still in the pilot stage, so its long-term impact cannot be fully measured yet.

Second, digital currency technology is changing quickly. New regulations, features, or risks may emerge in the future.

Third, crypto markets are highly volatile, so their role in the financial system may change depending on government policy and public trust.

Fourth, the paper focuses mainly on India and may not fully apply to countries with different banking systems or digital infrastructure.

10. Conclusion

Digital currencies are one of the most important developments in modern finance. They challenge traditional systems by making payments faster, changing how people store value, raising questions about privacy, and forcing banks and regulators to adapt. In India, the impact is especially interesting because the country already has a powerful digital payments system through UPI.

The digital rupee, or e₹, is not simply another payment app. It is central bank money in digital form. It could support offline payments, programmable transfers, and more efficient public finance. At the same time, it must be designed carefully so that it does not weaken bank deposits or create new forms of surveillance.

Private cryptocurrencies are different. They are innovative but risky. They can operate outside traditional banking structures, but they face problems of volatility, scams, taxation, regulation, and irreversible transactions. India's cautious approach reflects these concerns.

11. Recommendations / Future Scope

1. **Increase financial literacy among young people** so they understand the difference between UPI, e₹, bank deposits, and crypto.
2. **Strengthen consumer protection** against scams, phishing, fake crypto schemes, and digital fraud.
3. **Develop clear regulations** for private crypto assets so users understand the risks and legal responsibilities.
4. **Expand e₹ pilots carefully** before mass adoption.

5. **Improve offline digital payment systems** so rural and low-connectivity areas can benefit.
6. **Protect user privacy** while still preventing illegal financial activity.
7. **Encourage banks and fintech companies** to innovate safely around CBDC-based services.

References

Bidder, R., Jackson, T., & Rottner, M. (2025). *CBDC and banks: Disintermediating fast and slow*. Bank for International Settlements Working Paper No. 1280.

Bitcoin.org. (n.d.). *Some things you need to know*.

CERT-In. (2024). *Advisory on cryptocurrency scams and phishing tactics*.

CoinDCX. (2022). *Okto / CoinDCX Terms of Service*.

Government of India, Income-tax Department. (2022a). *Section 115BBH—Tax on income from virtual digital assets*.

Government of India, Income-tax Department. (2022b). *Section 194S—TDS on transfer of virtual digital assets*.

International Monetary Fund. (2024). *Central bank digital currencies and financial stability*.

National Payments Corporation of India. (2025). *UPI product statistics: Monthly metrics*.

Press Information Bureau / FIU-IND. (2023). *FIU-IND issues show-cause notices to offshore VDA SPs; VDAs brought under PMLA in March 2023*.

Press Information Bureau / FIU-IND. (2025). *FIU-IND imposes monetary penalty on Bybit for PMLA violations*.

Reserve Bank of India. (2014). *Opening of bank accounts in the names of minors—Guidelines*.

Reserve Bank of India. (2025). *Digital Rupee: Frequently asked questions*.

WazirX. (2024). *Terms of use: Age eligibility and KYC obligations*.