

# Digital currency's Influence on the Traditional Monetary System

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**Abstract.** This study explores the effect of China's Digital Currency Electronic Payment (DCEP), or digital yuan, on the traditional financial system. As one of the pioneering major economies to launch a Central Bank Digital Currency (CBDC), China's initiative offers a valuable opportunity to examine the potential impacts of CBDCs on monetary policy, the banking sector, and financial inclusion. This study uses secondary data analysis and case studies from key pilot cities such as Shenzhen, Suzhou, and Chengdu to assess the impact of the digital yuan's rollout. The results indicate that the digital yuan strengthens the People's Bank of China's (PBOC) capacity to implement more accurate and timely monetary interventions, while simultaneously posing challenges to traditional banking models. Privacy concerns emerge as a significant barrier to broader adoption, particularly with the potential for increased government surveillance. This paper adds to the academic discussion on CBDCs and provides valuable insights for financial institutions and policymakers. Although the digital yuan shows promising potential in modernizing China's financial system, addressing privacy concerns and ensuring widespread adoption across both urban and rural areas remain essential for its success.

**Keywords:** Digital Yuan, Central Bank Digital Currency (CBDC), Financial Policy, Banking Disruption, Financial Inclusion.

## 1. Introduction

China is currently leading a global financial revolution with the rapid development and implementation of its Central Bank Digital Currency (CBDC), known as the Digital Currency Electronic Payment (DCEP) or the digital yuan. Led by the People's Bank of China (PBOC), this initiative represents a significant shift in the country's monetary landscape as it embraces a digital economy. The digital yuan aims to modernize China's financial infrastructure, providing a state-backed alternative to private digital payment systems like Alipay and WeChat Pay. This transition enables the government to regain control over monetary flows, thereby strengthening financial stability and improving the effectiveness of monetary policy. The digital currency circulates through a dual-tier system, with the PBOC issuing it to commercial banks, which then distribute it to the public, ensuring controlled and efficient circulation of digital currency [1].

The motivations for introducing the digital yuan are varied and significant. The primary goal is to enhance the efficiency of China's monetary system while reducing its dependency on physical cash and private payment platforms. With mobile payment services already dominating China's economy, the digital yuan offers an official, regulated currency that removes the need for intermediaries in financial transactions. This system not only strengthens government control over financial transactions but also facilitates faster, more transparent payments across the economy. The real-time data generated by the digital yuan further allows the central bank to intervene more directly in the economy, making monetary policy adjustments more precise and timelier. Moreover, the digital yuan serves as an instrument to increase financial inclusion, especially for underserved populations in rural areas who may be excluded from accessing conventional banking services [2].

However, the digital yuan's implementation also brings challenges, particularly for China's traditional banking sector. As the digital currency bypasses many of the functions typically handled by commercial banks, these institutions face the potential loss of a significant part of their business model. Banks, which have historically relied on deposits and transaction fees, must now find new ways to adapt to a system where the central bank directly handles a greater portion of the currency

circulation. These changes could significantly impact their profitability, especially in areas like payment services and lending. As a result, commercial banks must innovate and collaborate with fintech companies to remain competitive in an increasingly digital financial landscape [3].

The gap in existing research, which this study seeks to address, lies in the lack of empirical analysis regarding the real-world implications of China's digital yuan, particularly its effect on banking practices and monetary policy. While the theoretical aspects of CBDCs have been well explored, there is limited research focused on how the digital yuan directly impacts the operational structures of China's financial institutions. Understanding these effects is crucial not only for China's policymakers but also for other countries considering the adoption of CBDCs. This gap highlights the need for more in-depth, practical research on the subject [4].

The significance of this research goes beyond academic relevance. As one of the first major economies to introduce a CBDC, China's experience with the digital yuan offers a potential model for other nations aiming to modernize their monetary systems. By examining the challenges and opportunities associated with the digital yuan, this study provides valuable insights for financial institutions, regulators, and policymakers globally. Additionally, it investigates the potential of the digital yuan to transform global financial systems, particularly in the areas of international trade and the global use of the renminbi (RMB) [5].

The main objectives of this study are threefold: (1) to assess the impact of the digital yuan on China's traditional monetary system, focusing on its influence on banking operations, monetary policy, and financial stability; (2) to examine the challenges and opportunities that commercial banks face in adapting to the digital yuan; and (3) to analyze the role of the digital yuan in the internationalization of the Chinese renminbi, particularly its potential to compete with the dominance of the US dollar in global finance. This paper seeks to provide insights into how China's adoption of digital currency may shape both domestic and international financial systems.

The paper is organized as follows: the next section presents a literature review that explores existing research on CBDCs, with a focus on China's digital yuan and its possible effects on the banking sector. The methodology section follows, detailing the data collection and analysis techniques used in this study. The findings are discussed in the analysis and discussion section, where the effects of the digital yuan on China's financial system are explored. Finally, the conclusion summarizes the main findings, highlights their broader implications for the global economy, and suggests directions for future research.

## **2. Literature Review**

### **2.1. The Emergence of Central Bank Digital Currencies**

In recent years, Central Bank Digital Currencies (CBDCs) have emerged as a significant innovation in the financial sector. These government-backed digital currencies provide an alternative to traditional physical currencies, with the goal of improving the efficiency of financial transactions. China's digital yuan, officially known as the Digital Currency Electronic Payment (DCEP), is one of the most advanced and extensively studied CBDC implementations in the world. CBDCs are primarily aimed at providing secure, state-controlled digital alternatives to private cryptocurrencies and traditional money, enabling faster and more transparent payments. By integrating digital currencies into national economies, Central banks have the potential to improve payment systems, lower transaction costs, and increase financial transparency, creating a more accessible and secure financial ecosystem for consumers and businesses alike [6][7].

### **2.2. China's Digital Yuan and Its Impact on Monetary Policy**

The digital yuan has significant implications for China's monetary policy framework. As a fully government-controlled currency, it provides the People's Bank of China (PBOC) with enhanced capabilities to manage economic flows in real-time. The digital yuan facilitates precise tracking of money within the economy, enabling the central bank to implement more targeted monetary policies.

According to Chan (2023) [8], this real-time data gives central banks the ability to directly influence money supply and inflation, a marked improvement over traditional policy tools such as interest rate adjustments. By allowing for real-time tracking and management, the digital yuan enhances the PBOC's ability to respond to economic fluctuations more quickly and effectively. In particular, it is seen as a tool for improving macroeconomic stability, helping to mitigate economic volatility and better manage inflation and deflation [4].

### **2.3. Transformation of the Banking Sector**

The launch of the digital yuan is reshaping the role of commercial banks in China. Traditionally, banks have served as intermediaries, facilitating transactions between individuals and businesses. However, with the advent of CBDCs like the digital yuan, the central bank directly oversees much of the currency circulation, bypassing banks in some cases. This shift poses significant challenges for commercial banks, particularly in terms of their traditional revenue streams, such as transaction fees and deposit-based income. According to Yingyun (2022) [3], the increasing adoption of the digital yuan by consumers and businesses may lead to a reduction in banks' transaction-based services. Additionally, Zhang (2025) [2] argues that, to stay competitive, commercial banks might need to improve their digital services, potentially through collaborations with fintech companies to integrate digital yuan features into their banking offerings. In the long term, banks will need to innovate and develop hybrid models to effectively compete in this increasingly digital financial ecosystem.

### **2.4. Financial Inclusion**

One of the most promising aspects of the digital yuan is its potential to enhance financial inclusion, especially in rural and underserved regions. Financial services in these areas are often limited, with many individuals lacking access to traditional banking infrastructure. The digital yuan offers an efficient way to provide these populations with access to digital payments and banking services through mobile devices, which are more widely accessible than physical banking facilities, promoting greater economic equality and reducing financial exclusion. Xiong et al. (2024) [9] suggests that the digital yuan has the potential to bridge the gap between urban and rural populations, providing greater access to the formal financial system. This is especially significant for China's extensive rural population, which has traditionally been excluded from digital payment systems such as Alipay and WeChat Pay. By offering a means for a wider demographic to engage with formal financial services, the digital yuan could enhance economic opportunities for these underserved communities, fostering greater economic equality and addressing financial exclusion.

### **2.5. Privacy and Surveillance Issues**

Despite the advantages of the digital yuan, it raises concerns related to privacy and surveillance. Unlike decentralized cryptocurrencies, which are designed to offer privacy, the digital yuan is fully centralized, meaning that the government has access to all transaction data. Anosov (2022) [10] points out that this centralization raises concerns about over-surveillance and the potential misuse of personal financial data. While the government argues that this system will provide enhanced security and prevent illegal activities, such as money laundering and fraud, it also presents challenges regarding consumer privacy. This could limit the widespread adoption of the digital yuan, especially among citizens who value their financial privacy. Addressing these concerns will be crucial for building trust in the system and ensuring its long-term success, as public resistance to surveillance may hinder the transition to a fully digital economy.

### **2.6. Global Implications and the Renminbi's Internationalization**

The digital yuan also holds important implications for the global expansion of the Chinese currency, the renminbi (RMB). As China's economy continues to expand, the digital yuan may serve as a crucial tool in boosting the RMB's position as a global currency, especially in facilitating cross-border transactions. Ji et al. (2021) [5] suggest that the digital yuan could reduce dependence on

traditional international payment systems like SWIFT, enabling faster, more cost-effective cross-border payments. This would be especially beneficial for China and its trade partners in Asia, where the country's economic influence is already substantial. However, Peruffo et al. (2023) [11] caution that significant geopolitical challenges exist, as many countries may resist adopting the digital yuan due to the established dominance of the US dollar in global trade and concerns over the potential loss of financial sovereignty. While the digital yuan has the potential to reshape global trade, its internationalization will likely face resistance from both economic and political factors.

### 2.7. Challenges to Successful Implementation

While the digital yuan presents many advantages, its implementation is not without challenges. Financial institutions must comply with a complex regulatory framework that includes Know Your Customer (KYC) and Anti-Money Laundering (AML) standards [12]. These regulations are essential for preventing illegal activities but also pose significant challenges for financial institutions as they integrate digital currency into their operations. Additionally, the technology required to support the digital yuan—such as blockchain systems and secure digital wallets—presents technical difficulties that need to be resolved for the system to scale effectively. Overcoming these challenges will require significant investment in both infrastructure and regulatory systems to ensure that the digital yuan can be deployed securely and efficiently.

In conclusion, the literature on the digital yuan offers a comprehensive view of its potential to reshape China's financial system, improve monetary policy, and promote financial inclusion. However, as with any major innovation, there are challenges to its widespread adoption, particularly in terms of privacy concerns, regulatory hurdles, and resistance to the internationalization of the renminbi. While the digital yuan offers several promising benefits, its implementation must address these challenges to ensure its success in both the domestic and global financial markets. The ongoing development and deployment of China's digital currency will provide valuable lessons for other countries considering similar digital currency initiatives and will play a crucial role in the future of global financial systems.

## 3. Research Methodology

This research utilizes a case study approach to investigate the effects of China's digital yuan on its traditional monetary system. The study focuses on key pilot cities, including Shenzhen, Suzhou, and Chengdu, where the digital yuan has been implemented. These cities are at the forefront of the digital currency's adoption, providing valuable real-world data on the challenges faced during implementation and the operational effects on local economies and the banking sector.

Data for this study was collected from a range of reputable secondary sources, including academic journals, government reports, and publications from financial institutions. The materials specifically address the digital yuan's impact, offering a broad understanding of how it is reshaping monetary policy, financial inclusion, and banking practices. Important sources include scholarly articles like *China: An International Journal and Finance and Credit* [6], alongside official publications from the People's Bank of China and other regulatory bodies [4]. These sources provide a comprehensive view on the integration of the digital yuan and its ongoing impact on the economy and financial system.

The data is analyzed using qualitative research methods, particularly thematic coding, to identify recurring patterns and themes in the collected information. These themes focus on the impact of the digital yuan on areas such as monetary policy, banking system disruptions, and privacy concerns. Thematic coding enables the researcher to organize and interpret large volumes of qualitative data, identifying the key effects and challenges related to the digital yuan's adoption. In addition to qualitative analysis, descriptive statistical methods will be applied to assess the overall trends in the digital yuan's usage, such as its adoption rates, transaction volumes, and the economic implications for the banking sector. Graphs and pie charts will also be used to visually present these trends and illustrate the distribution of digital yuan adoption across various sectors. These visualizations will

help to clarify the extent of the digital yuan's influence on the economy and banking industry, providing a clear and concise representation of its integration into China's financial system.

## 4. Analysis and Discussion

The analysis of the data reveals several key themes concerning the adoption of China's digital yuan. These themes highlight its impact on monetary policy, the banking system, privacy concerns, adoption rates, and cross-border transactions. The findings are based on thematic coding of qualitative data, as well as descriptive statistics to analyze trends and assess the digital yuan's growing influence across various sectors of the economy.

### 4.1. Impact on Monetary Policy

One of the most significant findings is the positive effect of the digital yuan on the effectiveness of China's monetary policy. The digital currency allows the People's Bank of China (PBOC) to track money flows in real time, offering greater precision in managing inflation, controlling money supply, and ensuring economic stability. The ability to intervene more quickly and with greater accuracy is a major advantage. The descriptive analysis in Table 1 showed that, with real-time insights into the economy, the central bank is able to adjust monetary policies more efficiently than through traditional methods. The implementation of the digital yuan, as noted in the analysis, has allowed China to strengthen its ability to respond to fluctuations in the economy, making its monetary policy more responsive to immediate needs.

### 4.2. Banking System Disruptions

The digital yuan has led to notable disruptions in China's traditional banking system. With the central bank playing a more direct role in currency circulation, commercial banks are facing challenges to their traditional revenue streams, including deposit-based income and transaction fees. Descriptive analysis in Table 1 revealed that the traditional intermediary function of banks has been weakened as the digital yuan bypasses the need for these intermediaries in certain types of transactions. This has affected bank revenues and profitability, particularly in sectors that relied heavily on transaction fees. The analysis also indicated that banks are adjusting by incorporating the digital yuan into their service offerings and collaborating with fintech companies to remain competitive. This disruption is significant, and commercial banks must continue to innovate to adapt to the digital economy.

**Table 1.** Key themes and Descriptive Analysis

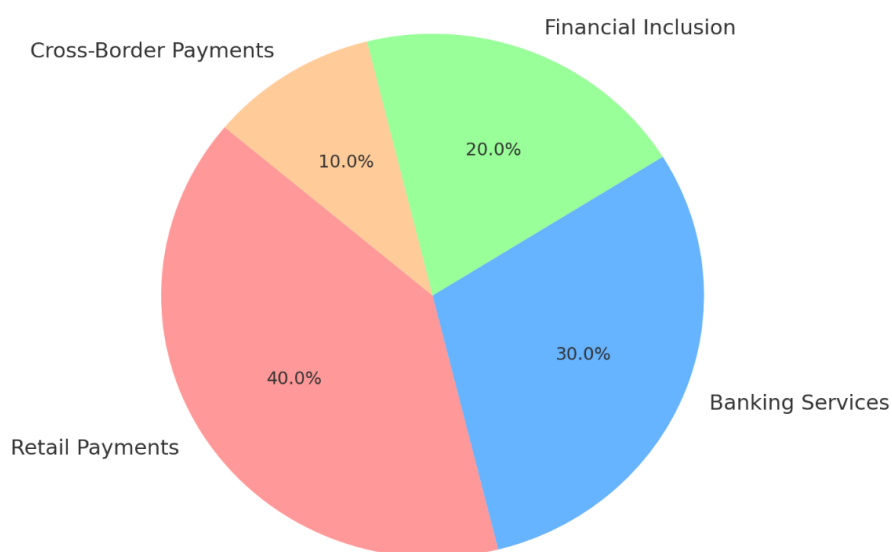
Key Themes	Descriptive Analysis
Monetary Policy Impact	Increased precision in monetary interventions due to real-time tracking of money flow. Helps manage inflation, money supply, and stability.
Banking System Disruptions	Commercial banks face disruption as the digital yuan bypasses some traditional functions, reducing deposits and transaction-based revenue. Banks are innovating.
Privacy Concerns	Privacy concerns arise as the government can track all transactions, raising issues of surveillance and potential resistance to adoption.
Adoption Rates	Significant growth in digital yuan adoption, especially in urban areas. Increased use in mobile and online transactions. Rapid uptake in pilot cities.
Cross-Border Transactions	Digital yuan increasingly used in cross-border transactions, signaling potential for RMB internationalization and reduced reliance on SWIFT.

### 4.3. Privacy Concerns

Privacy concerns have become a major challenge in the adoption of the digital yuan. As a centralized currency, it allows the government to monitor all transactions, which raises issues regarding individual privacy and the potential for increased surveillance. The descriptive analysis in Table 1 revealed that while the government claims that the system is secure, many individuals worry about the implications of having their financial activities monitored. These privacy concerns are particularly prevalent among those who value financial autonomy and freedom from government oversight. The descriptive analysis in Table 1 confirmed that while adoption rates are increasing in urban areas, privacy concerns remain a major barrier to more widespread use, especially in rural regions where there is less awareness of the benefits and safeguards of the digital yuan.

### 4.4. Adoption Rates

The adoption of the digital yuan has been significant, especially in urban areas. The data shows that digital yuan transactions are increasingly used in mobile and online payments, particularly in retail and financial services sectors. Descriptive analysis (Table 1) and pie chart in figure 1 indicate a clear trend of rapid adoption, especially in pilot cities such as Shenzhen and Suzhou. However, adoption in rural areas remains slower, and the analysis suggests that more efforts will be required to expand the reach of the digital yuan nationwide. While adoption rates are high in sectors like retail payments, the analysis shows that there is still a gap in broader national adoption, particularly in less developed regions. Addressing this disparity will be essential for ensuring the success of the digital yuan in the long term.



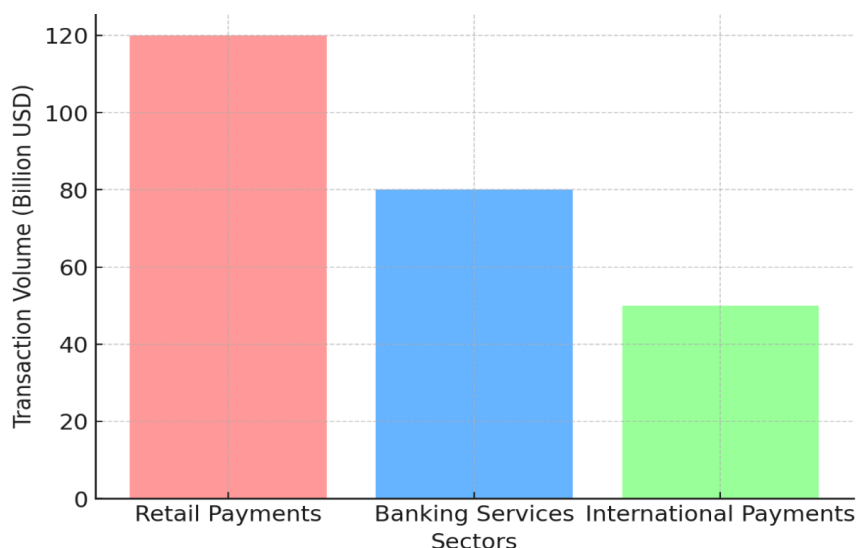
**Fig.1** Distribution of Digital Yuan Transaction Adoption Across Sectors

### 4.5. Cross-Border Transactions

The digital yuan shows significant potential for enhancing cross-border transactions. The analysis indicates a rising use of the digital yuan in international trade, which may reduce dependence on traditional systems such as SWIFT. As China continues to strengthen its global trade ties, the digital yuan offers a more efficient and secure method for conducting cross-border transactions. Its increasing use in international payments supports the notion that it could play a pivotal role in advancing the internationalization of the Chinese renminbi (RMB). The bar graph in Figure 2, illustrating the volumes of digital yuan transactions, further demonstrates its growing role in global financial transactions, highlighting its increasing significance in the international financial landscape.

In summary, the digital yuan is having a transformative effect on China's monetary policy and financial system. By enhancing the People's Bank of China's (PBOC) ability to oversee and manage

economic activities, it brings substantial advantages in terms of policy precision and efficiency. However, concerns regarding privacy still present a significant hurdle to its broader adoption. While the digital yuan is experiencing rapid growth, especially in urban areas, further efforts are needed to increase its reach in rural regions. Additionally, its growing use in cross-border transactions signals its expanding influence on international finance, reinforcing its potential to shape both China's financial landscape and the global economy.



**Fig.2** Digital Yuan Transaction Volumes Across Sectors

## 5. Conclusion

The launch of the digital yuan represents a significant shift in China's monetary system and overall financial landscape. This research has explored its impact on several areas, including monetary policy, the banking sector, privacy concerns, adoption rates, and cross-border transactions. It has been observed that the digital yuan enhances the People's Bank of China's (PBOC) ability to monitor and control economic activity with greater precision, facilitating more effective policy interventions. At the same time, it has introduced significant disruptions in the traditional banking sector, particularly in the roles commercial banks play as intermediaries in financial transactions. Despite these advantages, privacy issues remain a significant challenge, as the ability to track every transaction raises concerns about surveillance and data security.

From a theoretical perspective, this study adds to the expanding body of research on Central Bank Digital Currencies (CBDCs). It offers important insights into how digital currencies, especially government-backed ones like the digital yuan, can impact national economic policies, monetary control, and traditional banking structures. The findings also shed light on the wider implications of digital currency adoption in major economies and contribute to the ongoing academic debate about the future role of digital currencies in the global financial system.

From a managerial perspective, this research highlights practical recommendations for financial institutions, especially commercial banks. To adapt to the digital yuan's growing presence, banks must integrate digital currency services into their operations and work collaboratively with fintech companies to stay competitive. Additionally, addressing the concerns related to privacy is crucial for building public trust and ensuring the widespread adoption of the digital yuan. Policymakers must also strike a balance by creating regulations that promote the digital yuan's growth while safeguarding individuals' privacy. Ensuring that the digital yuan reaches rural areas is essential for achieving its full potential as a nationwide currency.

Despite the insights provided, there are several limitations to this study. The study depends on secondary data, which may not fully reflect the real-time developments of the ongoing digital yuan implementation. Furthermore, the study primarily focuses on pilot cities, and the nationwide impact

of the digital yuan remains an area of future research. As technological, regulatory, and adoption landscapes evolve, continued research is necessary to evaluate the long-term effects and challenges of the digital yuan on China's financial system and global markets.

In conclusion, the digital yuan is a powerful tool that holds the potential to reshape China's financial landscape, enhance monetary policy effectiveness, and contribute to global financial markets. However, addressing privacy concerns, ensuring broad adoption, and overcoming banking system disruptions will be key to its long-term success.

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