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Research on the Impact and Policies of the Central Bank's Digital Currency on Economic Development

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Abstract: *At present, with the vigorous development of digital technology, digital technology is increasingly integrated into various fields of economic and social development, and the central bank's digital currency has emerged as the times require. The paper analyzes the contribution of the central bank's digital currency to economic growth, and also discusses the challenges that the central bank's digital currency brings to economic development. Finally, given the existing challenges, the article puts forward corresponding policy suggestions.*

Keywords: *digital currency, economic development, policies*

1. Introduction

Money is the basic medium of exchange for goods and services. After entering the modern society, banknotes have gradually become the main form of legal tender. At present, with the vigorous development of digital technology, digital technology is increasingly integrated into various fields of economic and social development, which has also had a profound impact on currency. Central banks or monetary authorities in many countries and regions are actively exploring the digitization of legal tender, and central bank digital currencies have been born one after another. In December 2014, the Central Bank of Ecuador launched the "Electronic Currency System", which was officially put into operation in February 2015, marking the birth of Central Bank Digital Currency (CBDC). Since then, countries such as Venezuela, Sweden, and Norway have successively piloted the issuance of central bank digital currencies. Since 2020, China has successively piloted the issuance of central bank digital currency (Digital Currency Electronic Payment, DCEP) in Shenzhen, Beijing and other places. At present, the digital renminbi pilot scenarios widely cover life payment, catering services, transportation, shopping consumption, government services and other fields. The number of digital renminbi users has increased significantly, and the transaction scale has grown rapidly.

Undoubtedly, from its basic characteristics, digital currency will improve payment efficiency, save people the time and effort required for payment, and reduce paper money issuance costs and printing costs. However, it is also obvious that after the introduction of the central bank's digital currency, the potential "financial disintermediation" issue needs to be considered seriously. For countries like China that mainly rely on indirect financing, the potential adverse effects are also self-evident. So, what changes will digital currency bring to the economy and society? What are the main advantages and disadvantages? What kind of targeted countermeasures can be taken to address the existing disadvantages? This is the main content discussed in this article.

2. Contribution of digital currency to economic development

2.1 Reduce transaction costs and improve payment efficiency

All cash payment scenarios can be paid with digital currency, which brings great convenience to transaction activities. Compared with banknotes, digital currency not only has payment efficiency advantages, but also has transaction cost advantages compared with mobile payment and bank transfer remittance. The latter two have certain transaction costs. Digital currency can realize payment without relying on bank accounts, and it can also be used for dual offline payment, that is, payment can be completed even when leaving the network. In addition, the potential advantages of digital currency for cross-border payment are also great. In the future, digital currency can complete currency exchange simultaneously during transaction payment, avoiding cumbersome currency exchange, which will

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greatly reduce the cost of cross-border payment and promote international trade. These will bring down transaction costs and promote economic growth.

For investment, digital currency also has a strong positive effect. Some people believe that the introduction of the central bank's digital currency will reduce financial friction, weaken the monopoly position of commercial banks, and improve the efficiency of the financial market. It will not only benefit consumers, but also reduce investment distortion caused by monopoly, and ultimately increase investment in the real economy and promote economic growth. . The main reason is that competitive pressure forces banks to pay higher deposit rates, which will reduce bank profits but increase the public's willingness to save, thereby expanding the total amount of loans and investments.

For example, Keister & Sanches [3]found that central bank digital currency can help alleviate financial frictions that prevent investment from reaching an effective level, but it will also compete with commercial banks for deposits and increase financing costs for commercial banks. Therefore, the central bank should weigh the impact of these two opposing forces when setting the central bank digital currency interest rate. Andolfatto[1]found that when the bank has a monopoly position, the introduction of the central bank's digital currency has no negative impact on the total amount of bank loans, and in some cases, it even has a beneficial impact. The reason is that competitive pressure leads to an increase in the monopoly deposit rate set by banks, which reduces bank profits, expands savings, and ultimately increases total lending. Chiu et al. [2] examined the situation of the banking industry under the Cournot market competition structure. The study found that if the interest rate of the central bank's digital currency is low, the competitive pressure forces the commercial banks under the Cournot market competition to increase the deposit interest rate. This increases demand for deposits, which ultimately increases total lending and increases investment, driving economic growth.

In addition, digital currency directly affects the implementation efficiency of monetary policy. On the one hand, digital currency will save the manufacturing and transportation costs of banknotes, including the design, printing, transportation, access, identification, sorting, return, destruction, and anti-counterfeiting and anti-counterfeiting of banknotes. Second, digital currency can shorten the transmission path of monetary policy, and can also be targeted at specific targets to achieve specific policy goals. For example, if the general public has digital currency accounts, the central bank can easily implement "helicopter money", which will greatly shorten the transmission path of monetary policy and enhance the effectiveness of monetary policy. In addition, the interest rate of the central bank's digital currency can be negative, which can solve the problem of the zero lower bound of the traditional monetary policy and expand monetary policy tools.

2.2 Reduce tax evasion and tax evasion, improve tax collection efficiency

Government taxation will be greatly facilitated by the vigorous promotion of digital currency, especially personal income tax. Because of the complete anonymity of banknote payments, it is difficult for taxation agencies to discover hidden income. Digital currency has the characteristics of full controllability and traceable capital flow. Once it is widely promoted, it will become more difficult to hide income, the difficulty of obtaining evidence will be reduced, and the collection of personal income tax will become more transparent, which will promote highly transparent tax-related information and make "Tax evasion, tax evasion, tax evasion" and other behaviors have nowhere to hide, which will greatly improve the efficiency of tax collection and help achieve tax fairness.

For example, if someone goes to a restaurant to pay in cash and does not ask for an invoice from the merchant, it will be difficult for the tax authorities to trace the income of the merchant, thus creating room for tax evasion. If digital currency is used for payment, the merchant's income can be clearly checked, and the feasibility of tax evasion will be much smaller. If someone has part-time income in addition to the main business, the current main business income will be taxed, but the part-time income may not be monitored and it is difficult to tax, and if the digital currency is used, the part-time income can be monitored yes, all income is taxable.

2.3 Reduce corruption and improve business environment

Official corruption is a chronic disease that governments of all countries, especially developing countries, need to face. Governing corruption is a difficult problem and a pain point for all countries. Paper currency is the main carrier of corruption and the most common way of transferring benefits. Banknotes are anonymous and are not easy to be discovered by supervisory agencies, and it is quite difficult to investigate and collect evidence. If paper currency is replaced by digital currency, the

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anonymity of currency will be greatly reduced, fund transfers will be recorded in the background, and the chance of corruption through currency will be greatly reduced. This has a great deterrent effect on potential corrupt elements. Therefore, digital currency can have a strong potential in curbing corruption and cracking down on crimes committed by officials. In addition, in the process of distributing many people's livelihood funds, digital currency can be used to achieve fixed points to people, and the relevant funds can be directly distributed to digital wallets, completely removing the intermediate links, thereby eliminating the possibility of false claims, interception and embezzlement.

2.4 Reduce the underground economy and promote the above-ground economy

The underground economy exists to varying degrees around the world, including legal or gray area economic activities, and some completely illegal economic activities. In the world, especially in developing countries, the underground economy occupies a considerable proportion of social and economic life. The most basic characteristics of the underground economy are the lack of government supervision and tax evasion, which will lead to the loss of tax revenue. Decrease the government's tax base and exacerbate the inequality of income distribution. Moreover, because the underground economy does not pay taxes, it will form a cost advantage over the above-ground economy, which will drive economic resources from above-ground to underground, worsen the development prospects of the above-ground economy, and further reduce the national tax base, forming a vicious circle. In addition, many of the underground economy is illegal pornography, gambling and drug activities, which is not conducive to long-term economic growth and endangers social stability. The existence of the underground economy has a certain social system foundation, but from a technical perspective, the exchange of the underground economy must require a trading medium. Due to the complete anonymity of paper money, it has naturally become the main trading medium of the underground economy. Once digital currency replaces banknotes on a large scale, the underground economy will face the problem of lack of trading medium, which is equivalent to the lack of key infrastructure, and its scale will inevitably be greatly reduced.

3. The challenge of digital currency to economic development

3.1 Increase bank competition and increase loan interest rates

Regarding the potential impact of the central bank's digital currency on the real economy, some people believe that the introduction of the central bank's digital currency will lead to "financial disintermediation" and have a negative impact on economic growth. Specifically, as a payment tool, the central bank's digital currency will compete with commercial bank deposits for funds, forming a savings diversion effect, increasing the financial pressure and financing costs of commercial banks. In other words, the introduction of the central bank's digital currency will reduce the liquidity premium of commercial bank deposits, forcing banks to raise deposit rates, and ultimately raise bank loan rates, leading to investment compression and economic downturn.

Households and businesses can choose physical currency, digital currency and commercial bank deposits as payment methods to meet different payment needs. The central bank allows households and non-bank companies to directly open digital currency deposit accounts in banks or other financial institutions to meet daily payment needs. On the one hand, the central bank's digital currency can replace cash, increase the exchange efficiency of cash commodities, and promote production. On the other hand, the introduction of the central bank's digital currency will reduce the liquidity premium of commercial bank deposits, create a basis for commercial bank deposits, increase bank deposit and loan interest rates, and have an adverse impact on economic growth.

The emergence of digital currency will indeed cause commercial banks to lose part of their cheap and stable sources of deposit funds. Before the birth of digital currency, transactions using physical currency (banknotes and coins) required traders to complete face-to-face. For transactions that cannot be completed face-to-face, traders must rely on banks or payment platforms. With this advantage, commercial bank deposits as a payment tool will generate a liquidity premium, that is, the interest rate on commercial bank deposits will be lower than the actual interest rate, because depositors are willing to accept low yields on commercial bank deposits out of payment needs. However, after the emergence of digital currency, this situation will change significantly, because digital currency can replace the payment function of commercial bank deposits in non-face-to-face transactions, and has a substitution relationship with each other. In addition, in terms of investment security, digital currencies are also

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better than commercial bank deposits. The reason is that currency is a liability endorsed by the central bank with the credit of the government. It has unlimited legal compensation and generally does not have the risk of default; while commercial bank deposits have certain risks. If the bank has solvency problems or even goes bankrupt, depositors may not be able to Recover the funds in full, or even lose everything.

Overall, the central bank's digital currency will cause the public to transfer funds out of the bank and choose to hold the central bank's digital currency, resulting in a decline in commercial bank deposits and investment. The reason is that the liquidity premium created by banks is the basic condition for residents to accept low interest rates. Now that residents can fully adopt digital currency, it will inevitably crowd out bank demand deposits, which forces banks to raise demand deposit rates. Of course, this has certain direct benefits for depositors, but it will cause operating pressure on banks. In the end, banks will pass on part of their operating pressure to lenders, increasing the cost of loans to society, which will inhibit investment and reduce room for economic growth. In addition, when the operating pressure of banks increases, they may choose high-risk and high-yield investment projects, and banks are directly connected, and risks are easily spread, which will increase the systemic risk of the entire banking industry.

3.2 Increase the tax burden of small and micro enterprises and low-income earners

With the use of digital currencies, the possibility of concealing income decreases due to the greatly reduced anonymity of payments. This increases the actual tax burden, especially the actual tax burden of market entities such as small and micro enterprises and individual industrial and commercial households, and will also increase the tax burden of low-income groups. In particular, with the support of the Internet platform, the gig economy has risen, and its employment risks are relatively high, and the work is unstable. Excessive tax rates should not be imposed on low- and middle-income groups. With the reduction of banknotes, the actual tax burden will inevitably increase, and the excessively high tax burden will cause a greater loss of welfare for the marginally employed population.

3.3 There is a "backfire effect" that encourages corruption

If the social soil and institutional basis of corruption are not eradicated, even if digital currency completely eliminates paper money, corruption will not disappear. It is also possible that things will go against each other, because the rent-seeking costs faced by corrupt elements will increase, and they will inevitably demand higher bribes to make up for the risks they bear. This may in turn increase the growth of corruption and form a "backfire effect." In other words, after the adoption of digital currency, for corrupt elements, the cost of engaging in corrupt behavior will increase, and they will require higher corruption benefits, which will instead form a larger scale of corruption. At this time, anonymous physical assets will become the new main carrier of corruption activities, and precious metals such as gold and silver, as well as antique cultural relics, calligraphy and paintings without real names will also become important corrupt trading tools.

4. Suggestions to address the challenges of central bank digital currency

4.1 Support the innovative development of financial intermediaries

In the process of digital currency gradually replacing paper currency, financial intermediaries bear the brunt. The development of financial intermediaries plays a strong and fundamental role in economic development. If it is difficult for financial institutions to make profits, loan interest rates will inevitably rise, which will eventually restrain the growth of the real economy. Reduce the tax burden on financial institutions. Deregulation, regulation itself means taxation. For profit or survival, some financial institutions may take risks and engage in high-risk and high-yield credit activities, exacerbating systemic financial risks. Especially in the vast majority of developing countries, the proportion of direct financing is relatively low, and the level of social credit development and the level of rule of law are still relatively low, which cannot support the direct financing system.

4.2 Reduce tax rate and optimize tax system

As digital currency replaces banknotes, the transparency of income information increases, which helps to increase taxation on some high-income earners to increase tax revenue and narrow the income

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gap. But at the same time, for low-income groups and some flexible employment groups, their tax burden is also increasing, which will inhibit their labor supply and reduce their real disposable income, which may in turn increase income inequality. Moreover, for the disadvantaged as a group, their bargaining power in the economy is weak, and there will be a certain degree of tax shifting, which further exacerbates inequality. Therefore, when the digital currency brings about the transparency of taxation information, the tax system should be optimized, the threshold of personal income tax should be increased, the tax burden of low-income groups should be reduced, and part-time jobs with low income should be exempted from taxation, and then Increase their employment opportunities and ensure income growth.

4.3 Strengthen power supervision and institutional anti-corruption

The emergence of corruption requires a social and institutional hotbed that breeds corruption. Digital currency only stays at the palliative level for the governance of corruption, and is powerless to cure the root cause. As far as the great corruption and evils investigated and dealt with, cash is only a part of it, the stolen money and stolen goods exist in the form of foreign currencies, precious metals, valuable commodities and real estate. If the system is not restrained, corrupt elements can use these methods to continue to corrupt. Therefore, the relevant systems should be reformed and corruption should be cured from the source in order to play the role of digital currency in anti-corruption and eradicate its potential "backfire effect".

5. Conclusion

This paper focuses on the impact of central bank digital currencies on economic development. It is found that, on the one hand, central bank digital currency can help improve payment efficiency, promote investment, increase the tax base and reduce corruption, which can boost economic growth; on the other hand, central bank digital currency may have adverse effects on financial institutions, increase the effective tax burden on micro and small market players and low-income groups, and create a backfire effect on corruption, which can have a hindering effect on economic development. Finally, this paper proposes targeted countermeasures to address the existing challenges.

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