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Problems and Prospects of Cryptocurrency Usage in China and Cambodia

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ABSTRACT

The transformation of the digital economy has been constantly evolving in the society of the 4.0 industrial revolution, particularly under the governmental policies of developed countries. One of the most popular tools in digital economy activities is cryptocurrency, which has led to a rise in digital awareness among people who are more inclined to live their lives electronically and digitally. The **aim** of this study is to explore the problems and prospects associated with the usage of cryptocurrency and identify ways to address these issues using the governmental roadmap in China and Cambodia. The **methods** employed in this study include descriptive, explanatory, and comparative analyses. The **results** demonstrate that the adoption of cryptocurrency presents both opportunities and threats to the Chinese and Cambodian economies. These opportunities and threats need to be carefully considered and balanced by policymakers and stakeholders. The **conclusion** drawn from the study is that there is still no official acceptance and recognition of cryptocurrency by the Chinese and Cambodian governments. This is primarily due to the fact that the risks and challenges associated with cryptocurrencies are deemed to be greater than the foreseeable opportunities, making them difficult to manage effectively.

Keywords: cryptocurrency; blockchain; bitcoin; digital transformation; central bank digital currency; regulation; China; Cambodia

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Проблемы и перспективы использования криптовалют в Китае и Камбодже

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АННОТАЦИЯ

Трансформация цифровой экономики постоянно развивается в обществе промышленной революции 4.0, особенно в рамках государственной политики развитых стран. Одним из самых популярных инструментов в сфере цифровой экономики является криптовалюта, которая привела к росту осведомленности о цифровых технологиях среди людей, более склонных к электронному и цифровому образу жизни. **Целью** данного исследования является изучение проблем и перспектив, связанных с использованием криптовалюты, и определение путей решения этих проблем с использованием правительственной дорожной карты в Китае и Камбодже. **Методы**, использованные в данном исследовании, включают описательный, объяснительный и сравнительный анализ. **Результаты** подтверждают, что внедрение криптовалют представляет как возможности, так и угрозы для экономик Китая и Камбоджи. Эти возможности и угрозы должны быть тщательно рассмотрены и сбалансированы директивными органами и заинтересованными сторонами. **Вывод**, сделанный из исследования, заключается в том, что до сих пор нет официального принятия и признания криптовалюты китайским и камбоджийским правительствами. В первую очередь это связано с тем фактом, что риски и проблемы, связанные с криптовалютами, считаются более значительными, чем прогнозируемые возможности.

Ключевые слова: криптовалюта; блокчейн; биткоин; цифровая трансформация; цифровая валюта центрального банка; регулирование; Китай; Камбоджа

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Introduction

The world financial system has developed quickly in the era of the digital economy, which refers to advances in science and technology that have been creating new business models, changing the production process, consumption, and distribution of goods and services, as well as gradually changing the way we work to expand the digital product base and digital services, to modernize production, and increase productivity and economic efficiency in response to technological advances [1]. Because of the adaptation of the digital economy, new risks and opportunities have continuously existed in modern society.

Another trend in the growth of the digital economy has been known as the creation of cryptocurrencies, which are decentralized digital assets that use cryptography for secure financial transactions, control the creation of additional units, and verify the transfer of assets [2]. Following the rapid evolution of global scientific and technological advances, cryptocurrency relies on a variety of technologies to function. Blockchain, the underlying technology that powers cryptocurrencies, offers a distributed and decentralized environment for Bitcoin and other upcoming cryptocurrency transactions. The blockchain is maintained by a network of computers, called nodes, that work together to validate and add new blocks to the chain. Each node has a copy of the blockchain, and they work together to ensure that the blockchain is consistent across all nodes. This decentralized approach makes it difficult for any one entity to manipulate the blockchain, thus ensuring the integrity and security of the network [3]. Cryptography is used to secure transactions and control the creation of new units of cryptocurrency. With the use of cryptography, there is no need for a bank, credit card company, government, or other third party to be present during the transaction. Cryptography uses mathematical algorithms to encrypt and decrypt data, ensuring that only authorized parties can access and manipulate the blockchain [4].

Additionally, consensus mechanisms are fundamental components of blockchain technology that enable decentralized networks to reach agreement on the state of the system. In the context of cryptocurrencies, consensus mechanisms play a crucial role in ensuring the validity and security of transactions. Consensus mechanisms such as proof of work (PoW), proof of stake (PoS), delegated proof of stake (DPoS), proof of authority (PoA) and proof of elapsed time (PoET) are employed in the cryptocurrency space, each with its own trade-offs in terms of security, scalability, decentralization, and energy efficiency [5].

Although several powerful countries across the globe have adopted cryptocurrency recognition in their digital economies, China and Cambodia have considered its usage risky, and the predictable challenges are higher than the opportunities.

The research objectives of this study are as follows:

- To reveal how cryptocurrency proceeds in the context of the 4.0 industrial revolution.
- To review the experience of cryptocurrency recognition and restriction in some countries.
- To identify the prospects and problems of cryptocurrency usage in China and Cambodia.
- To propose several approaches to the Chinese and Cambodian governments in solving and managing the problems of cryptocurrency.

Literature review

Cryptocurrency usage refers to the adoption and utilization of digital currencies as a medium of exchange, store of value, or investment asset. As demonstrated by present practice, more and more businesses are using cryptocurrencies in their operations. Investments in system development and the distribution of digital currency items are growing constantly [6]. However, there are various viewpoints on how they affect the economy.

One viewpoint suggests that cryptocurrencies have the potential to disrupt traditional financial systems and bring about positive changes in the economy. Proponents argue that cryptocurrencies offer several advantages over traditional fiat currencies. Firstly, they provide a decentralized and transparent system that eliminates the need for intermediaries such as banks, reducing transaction costs and increasing efficiency. This could lead to greater financial inclusion, especially in developing countries where access to banking services is limited. Cryptocurrencies offer faster and cheaper cross-border transactions, potentially boosting international trade and economic growth [7].

Furthermore, they can foster innovation and entrepreneurship by providing a platform for decentralized applications (DApps) and smart contracts. These technologies enable the creation of new business models and economic systems, potentially leading to job creation and economic development. Cryptocurrencies can empower individuals by giving them control over their own financial assets and data, reducing their reliance on centralized authorities [8].

The economic effects of cryptocurrencies are a subject of concern for some skeptics, on the other hand. Their instability and speculative character are their two main worries. The price of cryptocurrencies is subject to fluctuations, which might be driven more by market speculation than by underlying economic realities. This volatility raises concerns about financial stability and investor protection. Critics state that overly speculative behavior in cryptocurrency markets might result in price bubbles and subsequent collapses, which could possibly cause serious economic disruptions [9].

Another issue is the facilitation of illegal activities such as money laundering and fraud via cryptocurrency. It is challenging to identify and control illicit behavior due to the pseudonymous nature of transactions. Critics contend that this anonymity can encourage illegal activity and combat efforts to stop the financing of terrorism and money laundering.

Additionally, investor confidence and the possibility of fraud are questioned by the absence of governmental control and consumer protection in the digital currency market [10]. Also, cryptocurrencies may pose a threat to monetary policy and the central banks' ability to control the economy. The decentralized nature of cryptocurrencies means that they are not subject to traditional monetary policies, such as interest rate adjustments or quantitative easing. This lack of control could limit central banks' ability to manage inflation, stabilize the economy, and respond to financial crises. It is crucial to remember that the impacts of cryptocurrencies on the economy continue to evolve, and their long-term outcomes are yet unknown. Regulatory agencies and governments from all around the world are debating how to handle the opportunities as well as challenges that cryptocurrencies deliver [11].

The vast majority of people are unaware that encrypted money exists. It is hard to dismiss digital money, notwithstanding its relatively limited usage. Individual nations still accept cryptocurrencies as a form of payment today. It is then feasible to transfer it to bank accounts and electronic payment systems [12].

Cryptocurrency regulations in the United States are, for instance, complex and vary from state to state. However, the country has seen significant adoption of cryptocurrencies, with numerous businesses accepting digital currencies as payment, allowing users to make purchases using their digital wallets. The U.S. Securities and Exchange Commission (SEC) has been actively involved in regulating ICOs and cracking down on fraudulent activities in the crypto space. Furthermore, cryptocurrencies have become an attractive investment option for individuals and institutions in the US. The potential for high returns has attracted many investors to enter the market. Cryptocurrency exchanges provide platforms for buying, selling, and trading various digital assets. These exchanges operate under regulatory frameworks established by government agencies like the SEC and the Financial Crimes Enforcement Network (FinCEN). The US government has recognized the importance of regulating cryptocurrencies to ensure consumer protection and prevent illicit activities such as money laundering and fraud. As a result, several regulatory measures have been implemented to govern cryptocurrency usage in the country. For instance, exchanges are required to comply with Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations. Additionally, the Internal Revenue Service (IRS) treats cryptocur-

rencies as property for tax purposes. This means that individuals who hold or transact with cryptocurrencies are required to report their gains or losses during tax filings. Failure to comply with these regulations can result in penalties or legal consequences. Despite regulatory efforts, cryptocurrency usage in the US has faced challenges due to its association with illicit activities and concerns over price volatility. The anonymous nature of transactions has raised concerns about money laundering and terrorist financing. However, advancements in blockchain analytics have improved the ability to track and trace illicit transactions, making it harder for criminals to exploit cryptocurrencies [13].

One of the nations that is most accepting of cryptocurrencies is commonly recognized as being Japan. The Japanese government approved Bitcoin as a legitimate payment mechanism in April 2017, which significantly increased the usage of cryptocurrencies in that nation. Regulations have been put in place by Japan's Financial Services Agency (FSA) to protect investor safety and the security of cryptocurrency exchanges. In addition, Japan has a thriving cryptocurrency ecosystem with a wide range of companies that accept cryptocurrencies as payment. The Japanese government has taken a supportive stance towards cryptocurrency adoption, with several government-backed initiatives aimed at promoting the use of digital assets. For example, the government has launched a pilot program to test the use of cryptocurrencies in social welfare programs and has also established a council to explore the potential uses of blockchain technology in various industries. Despite the growth in cryptocurrency adoption, there are still several challenges and concerns facing the industry in Japan. These include concerns about security and hacking, as well as the need for greater consumer protection and education [14].

Switzerland has emerged as a global hub for blockchain technology and digital currencies. One of the primary uses of cryptocurrencies in Switzerland is as a means of payment. Many businesses, particularly in the tech and tourism sectors, accept cryptocurrencies as a form of payment for goods and services. The acceptance has been facilitated by the country's favorable regulatory environment, which provides clarity and legal certainty for businesses dealing with digital currencies. Switzerland has also witnessed a surge in cryptocurrency startups and blockchain companies establishing their presence in the country. The Swiss government has actively supported these ventures through initiatives such as the "Crypto Valley" in Zug, which has become a prominent global blockchain hub. This ecosystem fosters innovation and collaboration among entrepreneurs, investors, and researchers in the cryptocurrency space. Switzerland is known for its strong tradition of financial privacy and security. Cryptocurrencies offer an additional layer of anonymity for individuals seeking to protect their financial transactions. Swiss residents can use cryptocurrencies to safeguard their wealth and maintain confidentiality. Switzerland has seen an increase in Initial Coin Offerings (ICOs), which are fundraising events where companies issue tokens or coins to raise capital. The country's regulatory framework provides guidelines for conducting ICOs while ensuring investor protection. This has attracted numerous ICO projects to Switzerland, making it one of the leading destinations for token sales [15].

As of January 1, 2021, Russia implemented a law that regulates the circulation of digital assets and currencies, including cryptocurrencies. The law defines digital financial assets as property rights in electronic form, including monetary claims, the possibility of exercising rights under negotiable securities, access rights to the results of intellectual activity, and the right to participate in investment funds. It also outlines the requirements for issuing digital financial assets and sets forth rules for conducting transactions with them. Additionally, the law introduces the concept of "mining" as the process of creating digital financial assets by verifying transactions in a distributed ledger. It specifies that mining activities are not considered entrepreneurial activities but are subject to taxation. Furthermore, the law addresses cryptocurrency exchanges by requiring them to be registered with the Russian government and comply with AML and counter-terrorism financing (CTF) regulations. In 2022, the Central Bank of the Russian Federation officially started recognizing cryptocurrencies, including unsecured cryptocurrencies and Stablecoins, as digital currencies under Russian law [16].

Nonetheless, not all countries have embraced this digital form of currency. There are several

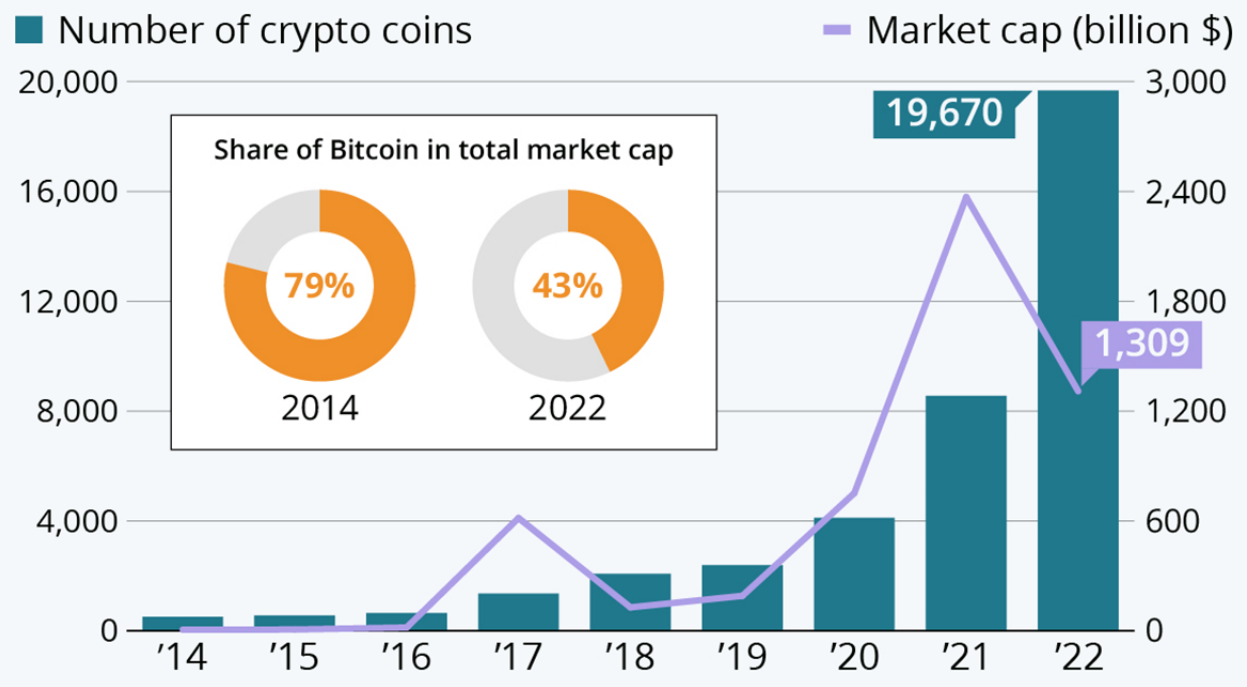

Fig. 1. **Total number of cryptocurrencies and overall market capitalization**

Source: The Evolution of the Crypto Economy, Statista Infographics, 2022. URL: https://www.statista.com/chart/27561/evolution-of-the-crypto-economy

reasons why certain countries have chosen not to accept or regulate cryptocurrencies within their borders. A country that has been cautious about embracing cryptocurrencies is India. The Reserve Bank of India (RBI) issued a circular in 2018 prohibiting banks from dealing with individuals or businesses involved in cryptocurrencies. This move was motivated by concerns over money laundering, consumer protection, and the potential impact on the country's fiat currency. However, the Indian Supreme Court overturned the RBI's ban in March 2020, allowing individuals and businesses to once again engage in cryptocurrency transactions [17]. Other countries that have expressed reservations or implemented restrictions on cryptocurrencies include Bolivia, Ecuador, Bangladesh, Nepal, and Algeria. These countries have either banned cryptocurrencies outright or have issued warnings to their citizens about the risks involved in using them.[1]

Over the past 10 years, blockchain-based cryptocurrencies have grown in popularity and attention with the fast development of blockchain technology. More than 7,000 cryptocurrencies have an active market worth of more than $300 billion as of the second quarter of 2020 [18]. The evolution of the cryptocurrency sector has been turbulent, with both significant advancements and setbacks since the inception of Bitcoin back in 2009. *Fig. 1* shows that the number of virtual currencies has increased dramatically in the last several years, from a few hundred at the end of 2014 to about 20,000 at the end of May 2022. The fact that generating a new cryptocurrency only requires a few clicks and costs nothing can be partially blamed for this explosion, which has been observed in the last three years. However, although their quantity is growing nearly at an exponential rate, their worth is not. Cryptocurrencies are still considered high-risk investments due to their enormous changes and annualized volatility, which frequently exceeds 100%. Following the surge of the previous year and the all-time high of $3 trillion in November 2021, market capitalization has dropped by about 50% to a level in 2022 of about $1.3 trillion. Even now, this number is twice compared to the value that was disclosed at the end of 2020. The graph also shows that, given the rise of alternative digital assets like Ethereum, the once-dominant Bitcoin is beginning to lose some of its significance in this market. In 2022, Bitcoin accounts for 40–50%

[1] Bitcoin Ban: These Are the Countries Where Crypto Is Restricted or Illegal, Euronews, 2022. URL: https://www.euronews.com/next/2022/08/25/bitcoin-ban-these-are-the-countries-where-crypto-is-restricted-or-illegal2

of the total cryptocurrency market capitalization, down from over 80% in 2014.

When looking at the topic of cryptocurrency's emergence, it should be noted that it is frequently associated with terms such as "money", "payment", "security", and "electronic money". Some researchers point out that because cryptocurrencies do not entirely adhere to contemporary monetary theory, they cannot be referred to as "money" [19]. This kind of asset cannot be compared to paper or other forms of commodity money. The properties of contemporary technology and money are combined in cryptocurrency, raising new economic issues. While some governments have begun to regulate cryptocurrency, there is still a lack of clarity and consistency in the regulatory environment. The lack of regulation can make it difficult for investors and users to understand their legal and financial obligations, and it can also make it easier for fraudulent activities, such as money laundering and terrorist financing, to occur [20]. Cryptocurrency is vulnerable to security risks, such as hacking and theft. The decentralized nature of cryptocurrency makes it difficult to protect against these risks, and the consequences of a security breach can be severe. For example, in 2018, the cryptocurrency exchange Coincheck was hacked, resulting in the theft of $530 million worth of cryptocurrency.[2] Cryptocurrency is also vulnerable to market manipulation, as the small market size and the lack of transparency make it easy for large investors to influence the price of cryptocurrencies. This can lead to price bubbles and market crashes, which can have significant economic consequences [21]. The rise of cryptocurrency has also raised questions about taxation. As cryptocurrencies are considered assets rather than currencies, they are subject to capital gains tax. However, the lack of clear taxation guidelines has led to confusion and controversy [22]. The process of mining cryptocurrency, which involves solving complex mathematical equations to validate transactions and secure the blockchain, consumes large amounts of energy. It has raised concerns about the environmental impact of cryptocurrency, as the energy consumption of mining is estimated to be as high as 110 TWh per year, which is comparable to the energy consumption of a small country [23]. While proponents of cryptocurrency argue that it has the potential to increase financial inclusion, others argue that it may exacerbate existing inequalities. For example, the high energy consumption of mining may make it difficult for individuals in developing countries to participate in the cryptocurrency market [24]. Cambodia's electricity prices are among the highest in the region, with an average cost of $0.15 per kilowatt-hour (kWh). This makes it challenging for individuals to afford the high energy costs required for mining cryptocurrencies, especially for those who rely on electricity from the grid.[3] The decentralized nature of cryptocurrency has also raised concerns about consumer protection. As there is no central authority to regulate the market, there is a lack of recourse for consumers who might become victims of fraud or other malicious activities [25].

The advantages of cryptocurrency usage in the Chinese and Cambodian economies

Cryptocurrency has gained significant popularity in China. While the Chinese government has taken a cautious approach towards cryptocurrencies, there are several advantages associated with their use in the country. The effectiveness and quickness it gives for transactions is one of the main benefits of cryptocurrencies in China. Intermediaries are frequently involved in traditional banking systems, which can cause delays and raise prices. On the other hand, cryptocurrencies operate on decentralized networks that provide peer-to-peer transactions without the need for intermediaries. It shortens the transaction process and does away with the requirement for third-party verification. Cryptocurrencies can significantly reduce transaction costs compared to traditional payment methods. In China, where online payment systems such as Alipay and WeChat Pay dominate, cryptocurrency transactions can provide an alternative with lower fees. Additionally, cross-border

[2] Cryptocurrency worth $ 530 million missing from Japanese Exchange, WSJ, 2018. URL: https://www.wsj.com/articles/cryptocurrency-worth-530-million-missing-from-japanese-exchange-1516988190

[3] High electricity bills push every Cambodian to the brink of despair, Khmer Times, 2022. URL: https://www.khmertimeskh.com/501052317/high-electricity-bills-push-every-cambodian-to-the-brink-of-despair

transactions using cryptocurrencies can be cheaper than traditional methods, as they bypass currency conversion fees and international transfer charges. Cryptocurrencies have the potential to promote financial inclusion in China by providing access to financial services for individuals who are unbanked or underbanked. Based on data acquired by Finbold, around 287 million adults, or 20% of the Chinese population, were unbanked as of Q1 2021. Cryptocurrencies can offer these individuals an opportunity to participate in the digital economy and access financial services without requiring a traditional bank account. In China, where trust issues exist due to various scams and fraudulent activities, blockchain-based cryptocurrencies can enhance transparency by recording all transactions on a public ledger that is accessible to all participants. This transparency reduces the risk of fraud and enhances trust among users. Industries such as supply chain management, healthcare, and intellectual property rights can benefit from the transparency and immutability offered by blockchain technology. By embracing cryptocurrencies, China can position itself as a leader in blockchain innovation. Cryptocurrencies can, as well, facilitate international trade and investment in China. By using cryptocurrencies for cross-border transactions, businesses can bypass the traditional banking system, reducing transaction costs and increasing efficiency. Cryptocurrencies can attract foreign investors who are interested in participating in China's digital economy. Decentralization provides individuals with greater control over their finances and reduces the risk of government interference or censorship. In a country like China, where there are strict capital controls and limitations on individual financial freedom, cryptocurrencies offer an alternative that promotes individuals' financial sovereignty.

Not much different from China, cryptocurrency offers several advantages in Cambodia, contributing to the growth and development of the country's financial ecosystem. Cryptocurrencies have the potential to provide financial services to the unbanked and underbanked population in Cambodia. About 70 percent of Cambodians have access to financial services, with more than 8.6 million e-wallet account holders at the end of 2021, according to the National Bank of Cambodia (NBC).[4] Cryptocurrencies can bridge this gap by allowing individuals to store, send, and receive money without the need for a traditional bank account. This can empower individuals and businesses, particularly in rural areas, to participate in the digital economy and access financial services. Cryptocurrencies eliminate intermediaries such as banks and payment processors, reducing transaction costs significantly. This can be particularly beneficial for Cambodian migrant workers who frequently send remittances back home, as they can avoid the hefty fees charged by traditional remittance services. Transactions recorded on a blockchain are immutable and transparent, making it difficult for fraud or manipulation to occur unnoticed. The government can, consequently, combat corruption and increase trust in financial transactions within Cambodia's economy. Cryptocurrencies enable innovative fundraising mechanisms such as ICOs and Security Token Offerings (STOs). These mechanisms allow startups and entrepreneurs in Cambodia to raise capital directly from investors globally without going through traditional venture capital or banking channels. The increased access to capital can foster entrepreneurship and innovation within the country. Cambodia has a significant reliance on remittances from overseas workers, particularly those working in countries like Thailand, Malaysia, and South Korea. Cryptocurrencies can facilitate faster and cheaper cross-border payments compared to traditional methods like bank transfers or money transfer operators. By leveraging cryptocurrencies, individuals can send money internationally with reduced fees and faster settlement times, benefiting both senders and recipients. Cryptocurrencies can offer an alternative to traditional fiat currencies, which can be subject to inflation or political instability. In countries with volatile economies, such as Cambodia, cryptocurrencies can provide a more stable store of value and medium of exchange. Such stability can help protect individuals' wealth and promote economic growth. Embracing cryptocurrencies can position Cambodia as an early

[4] 70 Percent of Cambodians Have Access to Financial Services, Khmer Times, 2022. URL: https://www.khmertimeskh.com/501052053/70-percent-of-cambodians-have-access-to-financial-services

adopter of emerging technologies. By fostering a supportive environment for blockchain and cryptocurrency startups, the country can attract investment and talent in the technology sector, which can lead to job creation, knowledge transfer, and overall economic development [26].

Problems of cryptocurrency recognition in China and Cambodia and ways to address them

The monetary unit serves as the standard measure of value and is used to price goods and services, calculate taxes and tariffs, and determine the value of international trade agreements. It is typically a unit of account that is widely accepted within a given country or region as a means of exchange for goods and services. Examples of monetary units include the U.S. dollar, the Euro, the Japanese yen, and the British pound [27]. The choice of the monetary unit can have significant implications for economic policy, international trade, and financial markets. Any state involved in the management of monetary circulation has a monetary system as a fundamental component. Previously, it has developed in a different state, and the applicable laws have fixed it. The monetary system is composed of components such as types of money; an emission system, which is a process for the issue and circulation of banknotes in accordance with the law; and regulation of monetary circulation. Central bank cryptocurrencies, also known as central bank digital currencies (CBDCs), refer to digital forms of national currencies issued and regulated by central banks. These digital currencies are designed to function as a secure and efficient medium of exchange, just like traditional fiat currencies, but in a digital format. Central bank cryptocurrencies have gained significant attention in recent years due to the increasing popularity and adoption of cryptocurrencies, such as Bitcoin and Ethereum. While these decentralized cryptocurrencies operate independently of any central authority, central bank cryptocurrencies are issued and controlled by central banks, making them more centralized and regulated. The concept of central bank cryptocurrencies emerged as a response to the growing interest in cryptocurrencies and the potential benefits they offer, such as faster transactions, reduced costs, and increased financial inclusion. Central banks recognized the need to explore the possibilities of digital currencies to modernize their payment systems and maintain control over their monetary policies. *Fig. 2* demonstrates the taxonomy of money, which categorizes different forms of money based on their underlying characteristics and functions. This taxonomy helps to understand the various types of money that exist in the modern financial system and highlights the role of central banks in issuing and regulating money, as well as the emergence of new forms of digital currencies, such as e-money and cryptocurrencies. Central bank money refers to the liabilities issued by a central bank, which typically include physical cash and reserves held by commercial banks at the central bank. Physical cash, such as banknotes and coins, is widely recognized as a medium of exchange and a store of value. Reserves held by commercial banks at the central bank are used for settlement purposes and to meet regulatory requirements. Commercial bank money refers to the liabilities created by commercial banks through deposit-taking activities. When individuals or businesses deposit funds into their bank accounts, they effectively lend those funds to the bank. These deposits are considered as commercial bank money and can be used for transactions through various payment methods like checks, debit cards, or electronic transfers. E-money, also known as electronic money or digital currency, is a form of money that exists only in electronic or digital form. It is typically issued by private entities and can be used for online transactions or stored on electronic devices like smartphones or prepaid cards. E-money is often backed by an equivalent amount of fiat currency held in reserve by the issuer. Cryptocurrencies are digital or virtual currencies that use cryptography for security and operate on decentralized networks called blockchains. Unlike traditional forms of money, cryptocurrencies are not issued or regulated by any central authority, such as a central bank. Bitcoin was the first widely recognized cryptocurrency, but many others have emerged since then, each with its own unique features and underlying technology. Central bank cryptocurrencies (CBCCs) are a subset of cryptocurrencies that are issued and regulated by central

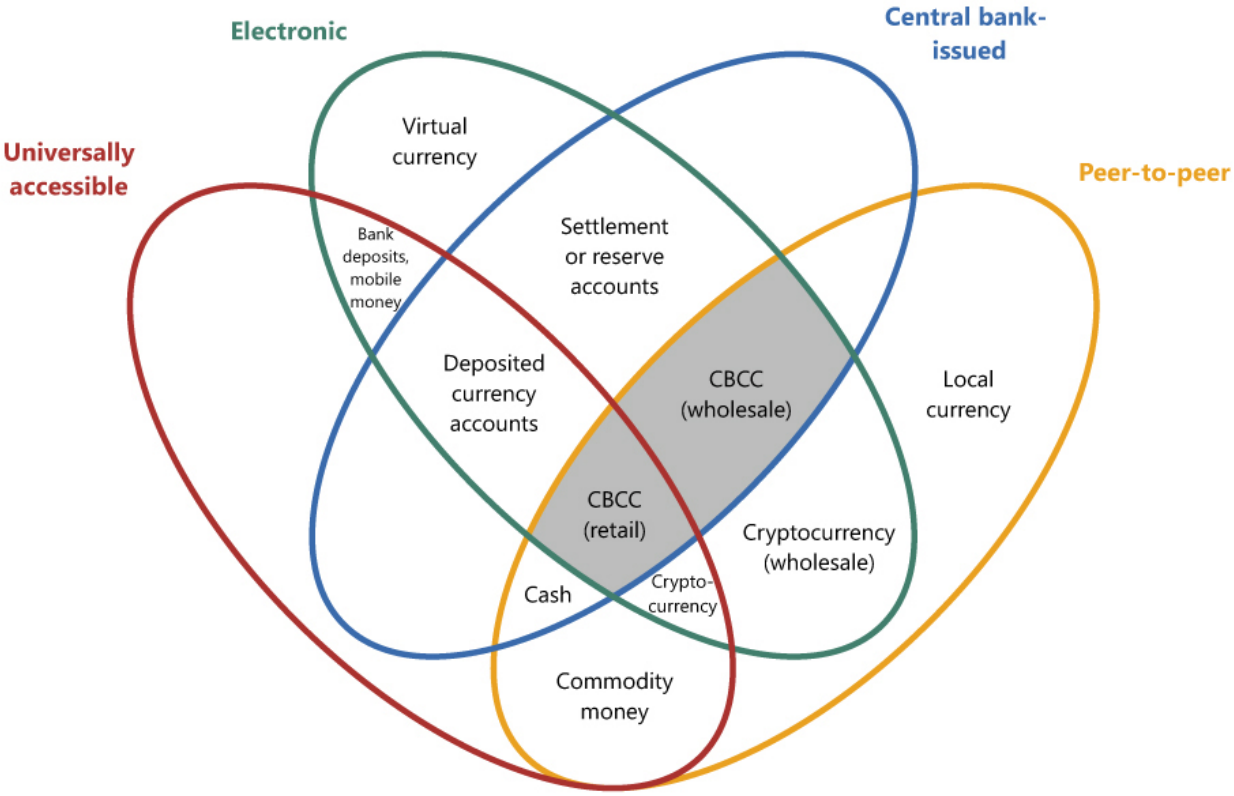

Fig. 2. **Taxonomy of money, based on "Central bank cryptocurrencies"**

Source: [28].

banks. CBCCs aim to combine the benefits of cryptocurrencies, such as fast and secure transactions, with the stability and trust associated with central bank money. CBCCs could be designed to operate on a centralized or decentralized network, depending on the specific implementation.

Currently, cryptocurrency is governed globally by a broad range of legal systems. In addition to safeguarding investors, several nations have included cryptocurrency markets in newly enacted tax, money-laundering, counterterrorism, and organized crime rules, forcing financial institutions to perform due diligence on their customers [29]. In China, for instance, the People's Bank of China (PBOC) has been working on creating a fully-backed digital fiat currency since 2014. This is anticipated to be one of the first digital currencies issued by a central bank.[5] Although it seems to be interested in creating digital money, the government has been extremely cautious. Chinese officials do not view virtual currencies like Bitcoin as a mechanism for retail payments similar to paper money, coins, or credit cards. Tokens or virtual currencies used in initial coin offering (ICO) financing were not issued by monetary authorities and could not be accepted as legal tender, circulated, or used as a currency in the markets, according to statements made in 2017 by a number of other government agencies that announced the ban of ICOs in China. Because of this, cryptocurrencies are neither used by the financial system to offer important services nor accepted by the appropriate agencies, despite its aim of creating a digital currency with full backing. To further protect investors and lower financial risk, the Chinese government has severely restricted private cryptocurrency trading. These limitations have included banning ICOs, limiting cryptocurrency trading platforms, and discouraging the nation's sizable Bitcoin mining industry, which has an impact on the world's cryptocurrency markets. The Chinese government has promoted the development of the underlying blockchain technology in an effort to modernize its financial system and establish China as a leader in this innovative technology. President Xi Jinping said in 2019 that block-

[5] China Accelerates Blockchain Adoption, Jones Day, 2020. URL: https://www.jonesday.com/en/insights/2020/01/china-accelerates-blockchain-adoption

chain represents an "important breakthrough in independent innovation of core technologies," and that China must "seize the opportunities" it offers.[6] Despite the fact that these developments have renewed investment in blockchain technology in China, the government is still taking precautions to prevent any possible societal issues brought on by the growth of blockchain. There are certain concerns with the blockchain technology recommendation. According to the PBOC, research should be done on blockchain technology and digital currency to improve services to the actual economy. The PBOC thinks that the development of blockchain technology is possible without the use of tokens, which are seen to be the source of a number of societal issues, including fraud and unlawful fundraising. The world's first digital currency supported and controlled by a central bank is most likely to be created by China, which has already finished constructing the infrastructure for its Digital Currency Electronic Payment (DCEP) system and laying the groundwork for giving the digital yuan the same legal standing as the physical yuan.[7] Cryptocurrency usage in China has faced several challenges and problems over the years. China has taken a strict stance on cryptocurrencies, imposing various regulations to control their usage within the country. In 2013, the PBOC issued a notice stating that Bitcoin was not a currency and prohibited financial institutions from handling Bitcoin transactions which led to the closure of several cryptocurrency exchanges in China. In September 2017, Chinese authorities went a step further and banned ICOs, which are fundraising methods involving the issuance of digital tokens. The ban was implemented due to concerns over fraud, illegal fundraising, and financial instability. Additionally, cryptocurrency trading platforms were also shut down in China. Furthermore, in 2019, the PBOC announced its plans to launch its own digital currency called the DCEP. The plans aim to establish greater control over the financial system and reduce the influence of decentralized cryptocurrencies [30]. Cryptocurrency usage in China has also raised economic concerns, which include capital flight. Cryptocurrencies provide an avenue for individuals to bypass capital controls and move money out of the country. It has been a concern for Chinese authorities, who aim to maintain stability in their financial system. Another economic concern is the potential for speculative bubbles and market manipulation. The volatile nature of cryptocurrencies can lead to price fluctuations that may have adverse effects on investors and the overall economy. Moreover, there have been instances of fraudulent activities associated with cryptocurrencies in China. Ponzi schemes and scams have emerged, leading to financial losses for unsuspecting investors [31]. The use of cryptocurrencies requires a robust technological infrastructure. However, China faces certain technological challenges, including scalability, that hinder widespread adoption. As cryptocurrencies gain popularity, the existing blockchain networks may struggle to handle a large number of transactions. This can result in slower transaction speeds and higher fees. Another challenge is energy consumption. Cryptocurrency mining, particularly for Bitcoin, requires significant computational power and energy. China has been a major hub for cryptocurrency mining due to its cheap electricity, but this has raised concerns about environmental sustainability. Additionally, the anonymity associated with cryptocurrencies has raised concerns about money laundering and illicit activities. Chinese authorities have been working on implementing stricter KYC and AML measures to address these concerns.[8] Concerning these challenges of cryptocurrency usage, the Chinese government has taken various measures to address the problems associated with cryptocurrencies in the country. Clear and consistent regulations could help provide a stable environment for the development of cryptocurrency. The government could establish a comprehensive legal framework that addresses issues such as taxation, AML and KYC requirements, and consumer protection. Improved security measures, such as multi-sig-

[6] With Xi's backing, China looks to become a world leader in blockchain as us policy is absent, CNBC, 2019. URL: https://www.cnbc.com/2019/12/16/china-looks-to-become-blockchain-world-leader-with-xi-jinping-backing.html

[7] In Depth: China's digital currency ambitions lead the world, Nikkei Asia, 2020. URL: https://asia.nikkei.com/Spotlight/Caixin/In-depth-China-s-digital-currency-ambitions-lead-the-world

[8] China makes cryptocurrency transactions illegal: An Explainer, China Briefing News, 2021. URL: https://www.china-briefing.com/news/china-makes-cryptocurrency-transactions-illegal-an-explainer/

nature wallets and cold storage solutions, can help protect users' assets. The development of more secure and decentralized exchanges could reduce the risk of hacking and other security breaches. Education and awareness campaigns could help increase public understanding of cryptocurrency and its potential uses. Additionally, the government could provide incentives for businesses and individuals to adopt cryptocurrency, such as tax breaks or subsidies. The development of more energy-efficient mining technologies and the use of renewable energy sources could help mitigate the environmental impact of cryptocurrency mining. The government could, moreover, implement policies to encourage the use of clean energy for mining activities. Strengthening AML/KYC regulations and improving cooperation between law enforcement agencies and the cryptocurrency industry could help prevent the use of cryptocurrency for illicit activities. The development of more transparent and accountable governance structures within the industry could help address these concerns. China also recognizes that addressing the problems of cryptocurrency requires international cooperation. The Chinese government has actively engaged with other countries and international organizations to share experiences, exchange information, and develop common regulatory approaches.

Throughout the cryptocurrency aspect in Cambodia, the lack of financial sector decentralization and the high interest in hacking and fraud led to the popularity of cryptocurrencies [32]. Therefore, the regulator should adhere to the Basel Committee in order to defend against the risk of cryptocurrencies. Concerns in Cambodia include the lack of web laws and regulations and insufficient financial technology knowledge. Even though there is no official prohibition, the General Commissariat of National Police, the Securities and Exchange Commission of Cambodia, and NBC jointly issued a warning statement saying that all cryptocurrencies are illegal in Cambodia because their spread is not supervised by appropriate authorities and could result in risks. The responsible authorities encouraged the general public to be careful of cryptocurrencies that did not have a license from them. Despite the letter of warning's publication, investors in Cambodia continue to discover ways to get involved with cryptocurrencies.[9]

The NBC has been actively working towards developing its own digital currency, known as the Bakong. The project was officially launched in July 2019 and has been under development since then. The primary objective of introducing the Bakong is to promote financial inclusion and enhance the efficiency of payment systems in Cambodia. One of the key motivations behind the development of the Bakong is to reduce the country's heavy reliance on cash transactions. Currently, a significant portion of Cambodia's population still relies on cash for their daily transactions, which can be cumbersome and inefficient. By introducing a digital currency, the government aims to provide a more convenient and secure alternative for conducting transactions. The Bakong digital currency operates on a blockchain-based platform, which ensures transparency, security, and immutability of transactions. It utilizes a centralized ledger system managed by the NBC, allowing for efficient monitoring and regulation of transactions. Users can access the Bakong through various channels, including mobile applications and participating financial institutions. The implementation of the Bakong involves collaboration with multiple stakeholders, including commercial banks, microfinance institutions, and other financial service providers. These entities are integrated into the Bakong system, enabling users to seamlessly transfer funds between different accounts and institutions. The Bakong supports merchant payments, which makes it easier for users to conduct transactions. With this feature, users can make purchases at merchants located both in and out of their physical locations. It is aimed at encouraging spending and promoting a cashless economy. Furthermore, the Bakong digital currency is designed to be interoperable with other payment systems in Cambodia. Users can transfer funds between their Bakong wallets and traditional bank accounts, further enhancing the convenience and accessibility of the digital currency. The Cambodian government has been actively promoting the adoption of the Bakong digital currency among its citizens. Various cam-

[9] Cryptocurrency in Cambodia, Standard Insights, 2022. URL: https://standard-insights.com/blog/cryptocurrency-in-cambodia

paigns and educational initiatives have been launched to raise awareness about the benefits and functionalities of the digital currency. Additionally, the government has been working on establishing a regulatory framework to ensure the proper functioning and security of the Bakong system.[10]

The absence of specific rules and regulations is one of the main obstacles to cryptocurrency adoption in Cambodia. For organizations and people wishing to engage in cryptocurrency-related activities, the lack of a complete legal framework from the government causes uncertainty. Lack of explicit laws makes it challenging for businesses to operate within the law and may discourage prospective investors. The inadequate knowledge and awareness of cryptocurrencies among the broader Cambodian population is a huge additional issue. The idea of digital currencies, how they operate, and their potential advantages are unfamiliar to many people. The adoption and acceptance of cryptocurrencies as a valid method of payment or investment are hampered by such a lack of understanding. Risks linked with cryptocurrencies include price volatility, weaknesses in security, and the possibility for usage in illegal activities. These worries have produced distrust among Cambodian regulators and financial institutions. Authorities are hesitant about completely adopting cryptocurrencies due to concerns about money laundering, fraud, and terrorist financing. The majority of transactions in Cambodia's financial system are made in cash, and the use of digital payment systems is still in its developmental stages. The general public utilizes traditional financial systems, which are well-established. It is difficult for cryptocurrencies to take off as a substitute for traditional financial services or a way to store value due to this dominance. However, several steps, such as a regulatory framework, public education, and collaboration with financial institutions, should be taken into account to address these problems and promote cryptocurrency recognition in Cambodia. The government should establish clear regulations that provide legal certainty for businesses operating in the cryptocurrency space. The framework should cover areas such as licensing requirements, consumer protection measures, AML policies, and taxation guidelines. Efforts should be made to educate the public about cryptocurrencies, their benefits, and potential risks. They can be done through awareness campaigns, workshops, and educational materials that explain the basics of cryptocurrencies and how to safely engage with them. Collaboration between cryptocurrency companies and traditional financial institutions can help bridge the gap between the two systems. Partnerships can be formed to develop secure and regulated cryptocurrency exchanges, enabling users to convert between digital currencies and traditional fiat currencies seamlessly.

Conclusions and recommendations

The findings of this study indicate that cryptocurrency has both positive and negative impacts on the economy. On the one hand, it offers numerous benefits, such as increased financial inclusion, reduced transaction costs, and enhanced security and privacy. Cryptocurrency also has the potential to foster innovation and economic growth, particularly in the context of the 4.0 industrial revolution, where digital technologies play a crucial role. On the other hand, there are several concerns associated with cryptocurrency. These include its volatility, potential for facilitating illicit activities such as money laundering and terrorism financing, regulatory challenges, and risks to financial stability. It is essential for governments to carefully consider these factors when formulating policies related to cryptocurrency.

The experiences of various countries in recognizing and restricting cryptocurrency provide valuable insights. Some countries have embraced cryptocurrency by implementing regulations that promote its development while mitigating risks. Others have taken a more cautious approach by imposing restrictions or outright bans. These experiences highlight the importance of striking a balance between fostering innovation and protecting consumers and financial systems.

In the case of China, there are both opportunities and challenges in relation to cryptocurrency usage. China has been at the forefront of technological advancements, including blockchain technology, which underpins many cryptocur-

[10] Is Cambodia's Bakong the future of digital currencies? World Economic Forum, 2021. URL: https://www.weforum.org/agenda/2021/08/cambodias-digital-currency-ishowing-other-central-banks-the-way

rencies. However, the Chinese government has also imposed strict regulations on cryptocurrency trading and ICOs. The study suggests that China should continue to monitor developments in the cryptocurrency space while considering measures to address risks and promote responsible usage.

Similarly, Cambodia faces its own set of prospects and problems regarding cryptocurrency adoption. The country has shown interest in leveraging blockchain technology for various applications, including cross-border payments and financial inclusion. However, there are concerns about consumer protection, money laundering, and the potential impact on the country's monetary policy. The study recommends that Cambodia take a cautious approach, closely monitoring developments in the cryptocurrency market and implementing appropriate regulations to mitigate risks.

To address the problems associated with cryptocurrency, several approaches were proposed for both China and Cambodia. These include enhancing regulatory frameworks to ensure investor protection, implementing robust anti-money laundering measures, promoting financial literacy and consumer education, fostering collaboration between government and industry stakeholders, and exploring the potential of CBDCs.

In conclusion, this study highlights the need for governments to carefully consider the implications of cryptocurrency on their economies. While cryptocurrency offers numerous opportunities, it also presents challenges that must be addressed through effective regulation and risk management. By adopting a balanced approach, governments can harness the benefits of cryptocurrency while minimizing its potential negative impacts.

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