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Cryptocurrency and Economic Inequality: A Global Economic Order Analysis

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Abstract: This article takes cryptocurrency as the research object and explores in depth its close relationship with economic inequality. Through literature analysis, case studies, and statistical data, this study examines the economic inequality caused by cryptocurrencies in countries and regions with different levels of economic development from the perspective of the global economic order. Research has found that the popularity and application of cryptocurrencies have not only promoted financial innovation, but also exacerbated wealth inequality. On the one hand, the high volatility and technological barriers of cryptocurrencies make it easier for high-income groups and early investors to profit from them, while low-income groups and ordinary investors face higher risks and barriers to participation; On the other hand, the decentralized nature of cryptocurrencies may weaken traditional financial regulatory systems and further widen the economic gap between developed and developing countries. This article further analyzes the fundamental mechanisms by which cryptocurrencies exacerbate economic inequality, including technological gaps, regulatory deficiencies, and capital concentration. Targeted strategies are proposed, such as strengthening global financial regulatory cooperation, promoting inclusive financial technology innovation, and enhancing public financial literacy. The research results provide theoretical support and practical reference for reducing economic inequality caused by cryptocurrencies, and have important practical significance for improving the global financial governance system.

Keywords: Cryptocurrency, economic inequality, global economic order, response strategies.

1. Introduction

In the evolving landscape of the global economic order, cryptocurrency has emerged as a novel financial phenomenon, rapidly gaining prominence. Developed countries, leveraging their advanced technological capabilities, mature financial markets, and robust infrastructure, have secured a first-mover advantage in the cryptocurrency domain. Conversely, developing nations, constrained by limited technological expertise, less stable financial systems, and insufficient regulatory experience, find themselves at a relative disadvantage. This disparity has given rise to a multitude of complex economic inequality issues within the global cryptocurrency market.

A profound understanding of the relationship between cryptocurrencies and economic inequality is instrumental in unveiling the challenges and opportunities that the global economic order encounters within the burgeoning financial sector. Theoretically, it enriches the discourse on economic inequality by incorporating the novel dimension of cryptocurrencies. Practically, it

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furnishes a foundation for nations to formulate judicious regulatory policies on cryptocurrencies and to foster financial equity, thereby steering the global economy towards a more balanced and stable trajectory. This paper aims to delve into the economic inequality phenomena triggered by cryptocurrencies across different countries and regions. It seeks to analyze their specific manifestations in areas such as resource allocation, access to financial services, and market participation opportunities, along with the underlying influencing factors and mechanisms. Furthermore, the study explores effective strategies to mitigate these inequalities.

This study employs a comprehensive approach that integrates literature analysis, case studies, and data statistics. Through literature analysis, existing research findings are systematically reviewed to grasp the current state of research. Case studies of selected representative countries and regions are conducted to provide an in-depth examination of the actual scenarios where cryptocurrencies contribute to economic inequality. Additionally, data statistics are utilized to analyze relevant data, thereby uncovering the characteristics and trends of these inequality phenomena.

2. Cryptocurrency, economic inequality, and solutions

2.1. The concept and development of cryptocurrency

Cryptocurrency, a digital or virtual currency that uses cryptography for security, was first introduced with the creation of Bitcoin in 2009 by an unknown person or group using the name Satoshi Nakamoto. Since then, thousands of different cryptocurrencies have emerged, each with unique features and use-cases. Ethereum, for example, introduced smart contracts, enabling the development of decentralized applications (DApps) on its blockchain platform.

The development of cryptocurrency has been marked by rapid growth and extreme volatility. Initially, it was mainly embraced by technological enthusiasts and libertarians drawn to its decentralized nature and potential to operate outside the traditional financial system. However, as cryptocurrency prices soaredhave soared in recent years, it has attracted mainstream investors, financial institutions, and the general public [1].

2.2. Research on economic inequality

Economic inequality has long been a central topic in economics. Traditional measures like the Gini coefficient focus on income and wealth distribution among individuals or households within a country. Income inequality is influenced by factors such as education levels, labor market skills, and access to capital. Wealth inequality, which takes into account assets like real estate, stocks, and savings, is often more persistent over time.

In the context of globalization, research has expanded to analyze economic inequality between countries. Developed countries generally have higher per capita income, more developed social welfare systems, and more stable financial institutions compared to developing countries. This economic development gap has far-reaching implications for various aspects of economic inequality, including access to resources, technology, and financial services.

2.3. The relationship between cryptocurrency and economic inequality in existing studies

Previous studies have explored the relationship between cryptocurrency and economic inequality from multiple perspectives. Some research suggests that cryptocurrency could potentially reduce economic inequality. Its decentralized nature might offer greater access to financial services for the unbanked and underbanked populations worldwide, especially in developing countries. For instance, in regions with limited traditional banking infrastructure, cryptocurrency wallets can serve as a basic financial storage and transfer mechanism.

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However, other studies point out the opposite. The high - tech nature of cryptocurrency requires a certain level of technological literacy and access to advanced digital devices. In developing countries, where a large proportion of the population may lack digital skills and high - speed internet access, they are less likely to participate in the cryptocurrency market. This digital divide can exacerbate economic inequality, as those in developed countries or the more technologically advanced segments of developing countries can take advantage of cryptocurrency-related opportunities, while the rest are left behind.

Moreover, the speculative nature of the cryptocurrency market also contributes to inequality. Wealthy investors with more capital can withstand the high volatility of the cryptocurrency market and potentially earn substantial profits, while small-scale investors may be more vulnerable to market crashes and losses. This leads to a situation where the rich get richer, and the poor face greater risks.

2.4. Potential solutions

2.4.1. Exploring the nature of inequality

The escalating economic inequality in the United States can be attributed to the nation's departure from the Bretton Woods system and the gold standard, which granted the government the authority to print money without direct backing. This policy led to inflation, diminishing purchasing power, and disproportionately affected lower-income individuals. Many countries that peg their currencies to the U.S. dollar, either directly or indirectly, also suffer from the influence of the U.S. For example, Zimbabwe experienced extreme hyperinflation in the early 2000s due to excessive money printing. By 2008, inflation reached 89.7 trillion percent, with prices doubling every few days, rendering the Zimbabwean dollar nearly worthless. This hyperinflation eroded savings and incomes, causing severe shortages of basic goods and soaring unemployment.

At the same time, inflation has also led to wild growth in real estate and investment prices worldwide. In China, over the past two decades, expansive monetary policies following the abandonment of the gold standard have led to significant inflationary pressures. The real estate market in China has seen a dramatic increase in property prices, far outpacing wage growth and inflation. For instance, in 2000, the average price of newly built homes in Beijing was approximately 3,000 RMB per square meter, and by 2020, it had surged to over 50,000 RMB per square meter, a more than sixteen-fold increase. Meanwhile, the average annual income of urban residents in Beijing increased from around 20,000 RMB in 2000 to only approximately 100,000 RMB by 2020. This disparity between wage growth and real estate price rises has made homeownership increasingly out of reach for lower-income individuals, while wealthier residents and investors continue to benefit from property appreciation [2].

2.4.2. The role of cryptocurrencies in addressing economic inequality

The decentralized nature and accessibility of cryptocurrencies can reduce the need for intermediaries such as banks and provide financial services to underserved populations, leading to greater financial inclusion. Anyone with an internet connection can access and use cryptocurrencies, transcending geographical boundaries and empowering individuals in underserved regions to participate in the global economy.

The fixed supply mechanism of some cryptocurrencies, like Bitcoin with a capped supply of 21 million coins, offers a potential hedge against inflation. As the supply decreases, the intrinsic value of the currency increases, preserving or even enhancing purchasing power over time, which is a significant advantage over traditional fiat currencies.

The transparency of blockchain technology can also reduce corruption and unfair practices in traditional finance, fostering a more equitable distribution of wealth.

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2.4.3. Problems of cryptocurrencies

However, empirical studies present a more complex picture. Cryptocurrencies have been associated with significant wealth inequality. Although the Gini coefficient of Bitcoin seems lower than the world average, a substantial portion of Bitcoin's wealth is concentrated among a small percentage of holders. As of 2021, approximately 0.01% of Bitcoin addresses controlled about 27% of the total supply, and the top 50 miners often control more than 50 percent of all aggregate mining capacity, highlighting a high degree of wealth concentration within the ecosystem. In comparison, according to Federal Reserve data, the top 1% in the U.S. controlled 30% of total U.S. household wealth.

Smaller - market - capitalization and shorter - issuance - time cryptocurrencies may have even more severe wealth concentration issues. For example, Dogecoin exhibits one of the highest wealth concentrations, with a single address holding 23.54% of all Dogecoins, and the top 100 addresses controlling 64.67% of the wealth. The top five ERC-20 tokens on Ethereum also show high wealth concentration, with Gini coefficients close to 1, indicating near-perfect inequality. This implies that many of the gains from further adoption are likely to fall disproportionately to a small set of participants.

Wealth concentration in cryptocurrencies can also lead to security threats. Large holders, or "whales," can manipulate the exchange rate by creating artificial demand or supply, causing significant price volatility and eroding trust in the cryptocurrency market. When the exchange rate is manipulated downward, smaller participants may find it unprofitable to validate transactions, which can incentivize them to act against the system, potentially leading to security attacks. Whale transactions, with high transaction fees, can cause a race among participants to include these transactions in the blockchain, leading to multiple forks of the cryptocurrency and slowing down the entire network.

Some cryptocurrencies like Dogecoin, ZCash, and Ethereum Classic have been found to violate the honest majority assumption, with less than 100 participants controlling over 51% of the wealth. This concentration of wealth can lead to centralization of control, where a small group of participants can dominate the network's operations and decision-making processes. Malicious actors can manipulate the blockchain to create conflicting transactions, resulting in double-spending, and create false transactions that disrupt the normal functioning of the network and cause financial losses for other participants. Sybil attacks may also occur, where a single entity controls multiple addresses to influence the network's consensus mechanism.

3. In-depth analysis of the root causes of economic inequality in cryptocurrency

3.1. Technological barriers and participation disparities

Technological factors are a major root cause of economic inequality in the global cryptocurrency market. In developed countries, strong electronics industries and mature consumer markets ensure widespread access to high-performance digital devices like computers and smartphones, which are essential for cryptocurrency-related activities. For example, in the United States, a high penetration rate of such devices enables most households to actively participate in the cryptocurrency space.

Conversely, in developing countries, especially in parts of Southeast Asia, limited economic development leads to high-priced digital devices. International organization data shows that the penetration rate of these devices in some regions is significantly lower than in developed countries, with some remote areas having a rate below 30%. This lack of hardware severely restricts the participation of a large part of the population in the cryptocurrency market.

Network infrastructure also plays a crucial role. Developed countries, with substantial network infrastructure investments, offer high-speed, stable internet, facilitating seamless cryptocurrency

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transactions. South Korea, leading in 5G network coverage, is a prime example. In contrast, many developing countries, such as some in Africa, suffer from limited network coverage, slow speeds, and unstable connections. This not only increases transaction latency and risks but also makes it difficult for residents to engage in time-sensitive cryptocurrency activities.

Moreover, the complexity of cryptocurrency operations, trading rules, and blockchain technology requires a certain level of technical proficiency. Developed countries, with comprehensive education systems and abundant resources, provide citizens with access to advanced technological education, and often host blockchain-related seminars and training programs. In contrast, developing countries face scarce educational resources and uneven educational quality. Many schools cannot offer advanced technology courses, and professional training for the public on cryptocurrency knowledge is limited. As a result, residents of developing countries lag far behind in understanding and applying cryptocurrency technology [3].

Early adopters of cryptocurrency, especially Bitcoin, had the opportunity to invest at extremely low prices. For instance, Bitcoin was under $1 in 2010, and those who held early positions saw its value soar to over $60,000 in 2021. This early-stage wealth accumulation has led to significant disparities, as new entrants face much higher prices. These early investors continue to dominate the market, violating the decentralized ideal of cryptocurrency and mirroring the wealth-concentration problem in traditional financial systems.

The cryptocurrency space's heavy reliance on technical knowledge creates barriers for many. A 2022 FCA survey in the UK found that 70% of crypto investors had university degrees, indicating that participation is mainly limited to the highly educated and tech-savvy. Additionally, high cryptocurrency transaction fees, especially during high-congestion periods for Bitcoin, make smaller transactions unfeasible for those with limited financial resources.

3.2. Financial system disparities and their impact

Mature, stable, and diversified financial systems in developed countries strongly support cryptocurrency development. Traditional financial institutions in the US, for example, have engaged in cryptocurrency-related services like custody, lending, and investment consulting, enriching the market ecosystem and enhancing liquidity and stability. Well - established regulatory frameworks in these countries also contribute to a healthier market, protecting investors.

In contrast, developing countries struggle with underdeveloped financial systems. In rural and remote areas of some developing countries, bank branches are scarce, and basic financial services are lacking, let alone cryptocurrency-related services. Moreover, these countries often lack robust regulatory frameworks for the cryptocurrency market. Regulatory bodies lack expertise and tools, leading to market irregularities, fraud, and money-laundering. In such unstable environments, investors' rights are inadequately protected, fostering cautious investment attitudes.

3.3. Economic structure and development - level constraints

Developed countries, with economic structures centered on high-end manufacturing, modern services, and technological innovation, have inherent advantages in the cryptocurrency domain. Their enterprises and investors have substantial financial resources, advanced R&D capabilities, and rich market experience. In cryptocurrency mining, for example, they can invest heavily in advanced equipment, and their service industries support cryptocurrency applications in e-commerce and cross-border trade.

Developing countries, often relying on agriculture, resource extraction, and labor-intensive manufacturing, with lower economic development levels, have limited resources for cryptocurrency investment and technological development due to the low-capital and low-technology nature of these

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industries. Lower income levels also restrict investment capital. Additionally, their high dependence on external markets puts them at a disadvantage in international trade and weakens their influence in shaping global economic systems, including cryptocurrency regulations and market competition [4].

3.4. Regulatory uncertainty and institutional advantage

The highly inconsistent regulatory environment for cryptocurrency across countries exacerbates market inequality. Some countries embrace it, while others impose restrictions or bans. This uncertainty disproportionately affects retail investors who lack the resources and legal expertise to navigate complex regulations. In contrast, institutional investors can use their legal teams and financial capabilities to manage risks. A 2021 BIS study found that over 90% of DeFi transactions above $10 million were conducted by institutional investors, as they can take advantage of more favorable regulatory jurisdictions.

3.5. Access to ICOs and private sales

ICOs and private sales in the cryptocurrency space offer lucrative opportunities, but they are usually only available to accredited investors and institutions. Retail investors are often excluded from these early-stage investment rounds. Research by Messari revealed that early ICO investors saw average returns of up to 100x, while retail investors enter the market when token prices are already inflated. A CoinDesk report found that venture capitalists and institutional investors participate in over 70% of ICOs, leaving retail investors with limited early-stage investment opportunities and exacerbating market inequality.

4. Case studies illustrating cryptocurrency - related economic inequality

4.1. Case of the United States (developed country)

The United States, as a leading developed nation, presents a prime example of how a technologically - advanced and economically - robust country benefits in the cryptocurrency realm. With its high-tech infrastructure, a large number of technology-savvy individuals are actively involved in cryptocurrency activities. Silicon Valley, known as the global hub of technological innovation, has witnessed the emergence of numerous cryptocurrency-related startups. These startups attract substantial venture capital investments, fueling the development of new cryptocurrency-based technologies and services [5].

In terms of cryptocurrency mining, large - scale mining operations in the U.S. are equipped with state - of - the - art mining rigs and advanced cooling systems. These operations can take advantage of relatively stable energy supplies and favorable regulatory environments in some states. For instance, Wyoming has implemented cryptocurrency-friendly regulations, which has encouraged the establishment of mining farms. As a result, wealthy investors and large - scale mining companies in the U.S. have reaped significant financial rewards from cryptocurrency mining, further increasing their wealth and economic influence.

Moreover, the participation of major financial institutions in the U.S. cryptocurrency market has provided a wide range of services to high - net - worth individuals. Goldman Sachs, for example, has explored cryptocurrency-related investment opportunities, offering its clients access to cryptocurrency-based financial products. This has enabled wealthy investors to diversify their portfolios and potentially earn high returns, while the average American with limited financial resources may find it difficult to participate in such high-end investment opportunities [6].

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4.2. Case of Nigeria (developing country)

Nigeria, a developing country in Africa, offers a stark contrast to the U.S. in the context of cryptocurrency-related economic inequality. Despite a growing interest in cryptocurrency among the Nigerian youth, the lack of technological infrastructure poses a major obstacle. A significant portion of the population, especially in rural areas, lacks access to reliable high-speed internet. According to a report by the Nigerian Communications Commission, only about 40% of the population has access to broadband internet, which is far from sufficient for seamless cryptocurrency transactions.

The high cost of electronic devices also restricts participation. The average price of a decent-quality smartphone or computer in Nigeria is relatively high compared to the average income. Many Nigerians cannot afford to purchase the necessary devices to engage in cryptocurrency trading or mining. As a result, they are excluded from the potential economic benefits that cryptocurrency could bring [7].

In addition, Nigeria's financial system is still in the process of development. The regulatory environment for cryptocurrency is ambiguous, with the Central Bank of Nigeria issuing warnings against cryptocurrency transactions due to concerns about money laundering and financial instability. This lack of clear regulations has led to a high level of uncertainty in the cryptocurrency market. Small-scale investors, who are often more vulnerable to market fluctuations and regulatory changes, are reluctant to invest in cryptocurrencies. Without the support of a stable financial system and clear regulations, the Nigerian cryptocurrency market remains underdeveloped, and most of the population misses out on the economic opportunities associated with cryptocurrency, further widening the economic gap between Nigeria and developed countries [8].

5. Conclusion

Cryptocurrency has burst onto the global scene as a game-changer for money and finance, offering both exciting possibilities and tough challenges, especially when it comes to economic inequality. This study has dug into how cryptocurrencies connect to wealth gaps, showing a big difference between rich and poor countries. In places like the United States, fancy tech, strong financial systems, and clear rules have let rich investors, big companies, and early adopters make the most of crypto markets, keeping the same old power structures in place. But in developing countries like Nigeria, things like spotty internet, not enough tech, and confusing laws have locked lots of people out, making the worldwide wealth divide even bigger.

This paper found some key reasons for this gap: differences in tech access, weak financial setups, economic limits, unclear rules, and big players—or “whales”—controlling the market. Crypto’s big idea of being open to everyone and fighting inflation sounds great, but in reality, it often ends up like regular money systems, with wealth piling up in just a few hands. Our case studies and data show that without some changes, crypto might make inequality worse instead of better.

Still, there’s hope. This research points to some solid fixes. Better rules, both in individual countries and around the world, could cut down on shady stuff like market tricks or scams and help more people get involved. Changing how crypto works—like making fairer systems or limiting how much one person can control—could stop wealth from piling up with just a few. And the biggest key? Education. Teaching people in left-out areas how to use crypto, making platforms simpler, and spreading basic blockchain know-how could give everyone a fair shot at this digital world.

In the end, crypto could shake up how the world’s economy works, but right now, it’s leaning toward keeping inequality alive unless act on purpose. Mixing new ideas with fairness takes teamwork from governments, tech experts, and teachers to make sure this money revolution doesn’t just help the lucky few but lifts up people everywhere. As crypto keeps growing, shouldn’t just judge it by how much it’s worth or its cool tech— should see if it can build a fairer, more equal future.

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References

[1] *Agarwal, S., & Qian, W. (2014) Consumption and Debt Response to Unanticipated Income Shocks: Evidence From a Natural Experiment in Singapore. American Economic Review, 104(12), 4205-4230.*

[2] *Aiello, D., Baker, S. R., Balyuk, T., et al. (2023) Who Invests in Crypto? Wealth, Financial Constraints, and Risk Attitudes (No. w31856). National Bureau of Economic Research.*

[3] *Aladangady, A. (2017) Housing Wealth and Consumption: Evidence From Geographically Linked Microdata. American Economic Review, 107(11), 3415-3446.*

[4] *Baker, M., Nagel, S., & Wurgler, J. (2006) The Effect of Dividends on Consumption.*

[5] *Baker, S. R. (2018) Debt and the Response to Household Income Shocks: Validation and Application of Linked Financial Account Data. Journal of Political Economy, 126(4), 1504-1557.*

[6] *Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M., & Yannelis, C. (2020) How Does Household Spending Respond to an Epidemic? Consumption During the 2020 COVID-19 Pandemic. The Review of Asset Pricing Studies, 10(4), 834-862.*

[7] *Baker, S. R., & Kueng, L. (2022) Household Financial Transaction Data. Annual Review of Economics, 14(1), 47-67.*

[8] *Balyuk, T., & Williams, E. (2021) Friends and Family Money: P2P Transfers and Financially Fragile Consumers. Available at SSRN 3974749.*