Proceedings of ICMRED 2025 Symposium: Effective Communication as a Powerful Management Tool
DOI: 10.54254/2754-1169/187/2025.BL23702

The Potential Impact of Digital Currencies on Inflation in Developing Countries

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Abstract: Developing countries typically experience frequent inflation due to weak budgetary systems, fiscal deficits, and additional surprises. In recent years, digital currencies—including cryptocurrencies and central bank digital currencies (CBDCs) —have emerged as potential tools for addressing these challenges. This report investigates whether digital currencies substantially reduce inflation or increase monetary policy success in a growing economy. It discovered that digital currencies offer novel programmes for value transfer. However, they are not intrinsically anti-inflationary, based on economic theory, poetry, and case reports from Nigeria, Venezuela, Jamaica, and the Bahamas. Cryptocurrencies provide a hedge in deflationary settings but lack key control and stability. CBDCs have yet to significantly impact inflation outcomes despite their promise for financial inclusion and data collection. Ultimately, digital currencies may be a part of a more comprehensive system of good financial governance. This report argues for a careful yet strategic approach where modern technology complements, rather than replaces, standard fiscal and monetary policy tools.

Keywords: Digital currency, inflation, cryptocurrency.

1. Introduction

Inflation affects economic stability by shrinking the value of money; sad inflation—the public increase in prices across an economy—is a serious problem in many developing countries. Unlike developed countries, developing countries frequently experience double- or triple-digit inflation, where inflation is generally low and repetitive. Such frequent inflation, destabilising benefits, savings, and trust in federal economies hamper long-term funding. In response, these countries ' citizens and policymakers have begun testing digital currencies as a potential solution or tool to improve financial stability.

Digital currencies exist in two primary forms: decentralized cryptocurrencies like Bitcoin and Ethereum and centralized central bank digital currencies (CBDCs) such as Nigeria's naira and the Bahamas ' Sand Dollar. Despite their different governance and performance, these technologies represent a fundamental change in how price is stored, transmitted, and trusted. Advocates believe digital currencies can encourage financial inclusion, enhance accountability, reduce reliance on dangerous national currencies, and improve monetary policy effectiveness.

However, the question remains: Do digital currencies curb inflation in developing countries, or are they merely a transitory solution? This report explores this problem by observing how digital currencies function in expansionary settings and their practical applications. Following case studies

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from nations that are developing digital currency jobs, the study reviews current economic theory and books. The objective is to provide a fair, data-driven analysis of digital currencies' effectiveness in controlling world inflation.

2. Literature review

Inflation results when a market's money source expands more quickly than goods and services are produced [1]. Monetarist economists, notably Milton Friedman, have emphasized that "inflation is always and everywhere a monetary trend" [1]. So, successful inflation control depends significantly on the leading company's ability to manage the money supply, maintain governmental discipline, and maintain public trust in the money [2].

Technically, cryptocurrencies are a negative substitute for fiat money, particularly those with fixed provide systems [3]. Cryptocurrencies can act as a store of value in hyperinflation settings, preserving people's buying energy. However, they are unsuitable for federal financial administration because of the volatility and lack of legal standing. According to Hayek's theory, dollar competition, in which people choose the most secure currency, can encourage financial control [2, 3]. However, this may impair a central bank's authority, particularly in developing or unstable economies.

Likewise, CBDCs are online representations of a nation's central bank's fiat currency. They promise to increase monetary transmission, help genuine-time monitoring of financial activity, and extend the reach of monetary policy to vulnerable populations. According to scientific work from organizations like the IMF and BIS, CBDCs may improve central bankers' ability to regulate interest rates and liquidity flows if properly designed [4]. They do, however, come with risks, particularly in developing nations with poor administrative trust and a lack of technological infrastructure. Digital currencies may provide tools for managing inflation, but they do not replace macroeconomic fundamentals. Their inflation-fighting perspective is still conditional and context-dependent as a result.

3. Monetary policy and digital currency in developing countries

3.1. Nigeria: the naira

Nigeria became the first American nation to introduce a CBDC known as the naira in October 2021. In recent years, inflation has remained above 15 to 20 % in Nigeria. The naira was touted as a means of achieving financial inclusion, lowering transaction costs, and improving the effectiveness of monetary policy.

However, adoption was slow at first. Less than 0.5 % of Nigerians were using the naira as of 2023 [5]. According to a report from the IMF, many people preferred standard bank applications over using cryptocurrencies like Bitcoin and stablecoins to defy inflation and money restrictions [6]. Additionally, post-eNaira launch, Nigeria's inflation rate increased from 17 % in 2021 to over 24 % in 2023, indicating that the CBDC had no discernible anti-inflation effect [7].

The eNaira's policy utility was constrained by its slight infiltration. The Central Bank of Nigeria also struggled with trust and failed to connect the eNaira to wider economic changes. The CBDC's introduction, as a result, was mainly metaphorical and unimportant.

3.2. Venezuela: Petro and Crypto adoption

Venezuela experienced one of the worst hyperinflation-related incidents in recent memory, with inflation rising above 1,000,000 % in 2018. The Country's fiat money, the Bolívar, collapsed. Petro, a state-backed cryptocurrency supposed to be supported by oil resources, was introduced by the government in 2018. The Petro was unable to regain its validity [8]. Independent reviews questioned

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whether it had any support and was not commonly accepted domestically or internationally. Decentralized cryptocurrencies like Bitcoin, Dash, and Tether, a USD-pegged cryptocurrency, were popular in Venezuela. For remittances, benefits, and everyday purchases, Crypto became a crutch.

Although this local crypto implementation helped people mitigate the effects of inflation, it did not stop it. Inflation started to decrease when the authorities de facto dollarized the market and reined in cash printing. Venezuela illustrates the advantages and drawbacks of digital currencies: they can provide personal comfort but not structural security without plan adjustments.

3.3. Jamaica: JAM- Iodide

Jamaica's CBDC, JAM-DEX, was established in 2022. Compared to Venezuela or Nigeria, Jamaica's inflation rate was moderately secure (roughly 5 to 10%). JAM-DEX was developed primarily to improve payment methods and financial inclusion [9].

Despite government subsidies, deployment of JAM-DEX remained subdued. In the CBDC type, less than 0.1 % of the money supply existed as of 2023 [9]. Inflation remained within specific bands, influenced more by central bank interest charge policies and international product prices than by any effect of JAM- DEX.

However, JAM-DEX demonstrated how to implement a CBDC easily without causing economic strain. Instead of implementing primary inflation control, it may have a more substantial long-term impact due to improved access to finance and settlement system effectiveness [10].

3.4. The Bahamas: Sand Dollar

The Bahamas is a unique example of how the world's first retail central bank digital currency (CBDC), the Sand Dollar, was introduced in October 2020, not as a response to inflation but as a means of addressing financial isolation on its dispersed islands. Since the Bahamian dollar (BSD) has always been pegged 1:1 to the US dollar, inflation rates have remained steady on average between 2 and 3 %.

The Sand Dollar aimed to upgrade the Country's repayment system and extend financial services to remote communities with minimal bank exposure. Over 100,000 digital wallets had been produced by the late 2022 deadline, which is impressive for a nation with a community of about 400,000 [10]. However, the CBDC represented less than 0.2 % of the money supply, indicating minimal usage for big-scale transactions or savings.

The Sand Dollar had no discernible impact on inflation control and was not intended to. In contrast to local monetary policy failures, inflation in the Bahamas increased quietly to 5.6 % in 2022 due to global supply chain surprises and commodity prices [11]. The nail between the USD and the yen has largely kept the peg between the two currencies firm. However, the Sand Dollar established a law for CBDC rollouts that were well-governed and healthy. Without creating economic disruption or compromising financial credibility, the nation demonstrated that a CBDC may coexist with standard cash.

4. The impact of digital currency on inflation

According to Table 1, higher digital access has a better chance of becoming the norm for CBDCs normal. Even though the Bahamas had a respectable economic impact, its relatively massive smartphone market and web penetration contributed to a better adoption of the Sand Dollar. Contrary to Venezuela's loss, the Petro, trust, experienced management, and a friendly network are all required.

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Table 1: Digital currency and its impact in several countries

Country	2022 Inflation rate	Digital currency	Adoption level	Impact on inflation
Nigeria	~18.8%	eNaira (CBDC)	Very Low	None
Venezuela	>200%	Crypto + Petro	High (Crypto)	None
Jamaica	~10.3%	JAM-DEX (CBDC)	Very Low	None
Bahamas	~5.6%	Sand Dollar (CBDC)	Low	None

Nigeria, Venezuela, Jamaica, and Bahamas provide interesting differences between intentions, implementation rates, and inflationary settings. There are a few habits: (1) Decentralized cryptocurrencies are used more frequently in countries with higher inflation (like Venezuela and Nigeria). Countries with average inflation (such as Jamaica and the Bahamas) introduced CBDCs more slowly and primarily to improve payment performance. (2) CBDC adoption accounts for less than 1 % of total currency circulation in all four countries. The financial impact that CBDCs can have on cost levels or the flow of money is greatly limited by this small penetration. (3) Citizens in Venezuela and Nigeria used stablecoins and Bitcoin to evade money controls and inflation. This grassroots movement demonstrates the government's desire for money stability even through illegal means.

4.1. Policy design

A CBDC may be successfully launched thanks to accountability, clear goals, and effective public conversation, as demonstrated by The Bahamas. The Petro in Venezuela, on the other hand, failed because of a lack of trust and clarity. This comparison shows that digital currencies are no one-size-fits-all options for inflation, but they can provide significant advantages. Their influence depends on the design, implementation size, governance, and root economic health.

4.2. Limitations and schwierigkeiten

Despite the growing passion for digital currencies, some limitations constrain their ability to address inflation. Inflation is primarily a result of excess money supply, poor fiscal policy, or surprises. No decentralized or centralized digital currency can address structural issues like the government's overeating or business output's sluggishness.

4.3. Adoption and volatility

Cellphone infiltration and access to the internet are constrained in nations like Nigeria and Jamaica. The statistical CBDCs aim to serve, but many vulnerable citizens are digitally excluded. As long-term inflation bushes, Bitcoin and other cryptocurrencies are extremely dangerous and uncertain. Stablecoins have higher potential but depend on foreign monetary policy, which lessens regional independence. Several developing countries lack legal structures for digital currencies, introducing people to scams and money adjustments. Administrative implementation and private-sector technology are also thwarted by regulatory uncertainty.

4.4. Threatening to monetary sovereignty

Extensive crypto usage can result in de facto devaluation or crypto-ization. This impairs the central bank's authority over money supply, payment, and interest rates. CBDCs Still have not demonstrated macro impact. CBDCs have not significantly impacted inflation paths, as seen in Jamaica and Nigeria [5, 9]. Their viability depends greatly on administrative trust and wider economic changes.

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5. Potential limitation and outlook

5.1. Obstacles to digital access

Some people in developing countries lack devices, safe web links, or online education. This website break constrains the potential approach of both CBDCs and cryptocurrencies. Governments must tackle network gaps first. Without widespread online participation, most of the population will be subject to traditional inflationary pressures because digital currencies may only get a small amount of wealth.

5.2. Policy advice

Participate in online networks by expanding mobile networks and paying for smartphones for low-income individuals. Creating public trust requires separate central bank governance and empty economic policies. Focus on understanding: Digital currency rollouts may be accompanied by campaigns encouraging financial literacy. Create savvy, achievement, and trustworthy regulatory frameworks that promote growth and consumer protection. Possible CBDC designs may also have programmable features like automated tax deductions or paying caps to increase inflation energy without impairing individual rights.

5.3. Potential view

Greater Integration of CBDCs into Monetary Policy: As CBDCs mature and adoption increases, central banks may use them positively as part of their inflation-control toolkit. For instance, a central bank might regard rewarding CBDC investments (paid attention to digital currency) as affecting money flow. They could encourage people to hold onto CBDC (by paying attention) rather than using it, reducing the need in an inflationary environment. In contrast, they may charge small negative attention to encourage consumption in a negative fall (or give discounts for paying CBDC by a date). With a commonly used CBDC, these fine-tuned policies, which are difficult to obtain with money, could be feasible. In order to control financial cycles, some economists have thought about "programming" money, such as issuing expired funds that must be spent by the deadline [12]. These remain philosophical, but experimentation may be conducted in this area in the long run, especially in developed nations with frequent demand-management issues.

6. Conclusion

Digital currencies have introduced exciting opportunities for developing countries' economic methods. These innovations offer promise and complexity, from cryptocurrencies that motivate people in inflation-stricken nations to CBDCs designed to improve financial inclusion and payment methods. According to this article, digital currencies are not effective at reducing inflation. In addition to preventing economic problems, cryptocurrencies like Bitcoin and stablecoins cannot address the root causes of financial problems. CBDCs, in contrast, provide central banks with tools to modernize economic infrastructure. However, they have not been proven to control inflation unless they are widely adopted and paired with solid policy frameworks.

Ultimately, how effective digital currencies are at reducing inflation will depend in part on the governance, trust, and economic discipline surrounding their use. A well-designed CBDC introduced openly and broadly may improve a nation's financial resilience. Cryptocurrencies can be used as additional financial instruments when properly regulated and integrated. Developing countries should accept digital currency innovation slowly but consciously. Digital currencies may remain excellent

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complements to a stabilizing, inflation-resistant economy, but never as alternatives if combined with sound macroeconomic policies and public trust.

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