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The Role of Central Bank Digital Currencies (CBDCs) in Monetary Policy Transmission

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Abstract

Purpose: This study sought to investigate the role of Central Bank Digital Currencies (CBDCs) in monetary policy transmission.

Methodology: The study adopted a desktop research methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low cost technique as compared to field research, as the main cost is involved in executive's time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through the online journals and library.

Findings: The findings reveal that there exists a contextual and methodological gap relating to the role of Central Bank Digital Currencies (CBDCs) in monetary policy transmission. Preliminary empirical review revealed that CBDCs enhanced monetary policy transmission by allowing faster, more direct, and more inclusive central bank interventions. Their effectiveness depended on infrastructure and trust, and while they offered significant benefits, risks like financial disintermediation required careful management.

Unique Contribution to Theory, Practice and Policy: The Quantity Theory of Money (QTM), Interest Rate Channel of the Monetary Transmission Mechanism and the Financial Intermediation theory may be used to anchor future studies on Central Bank Digital Currencies (CBDCs). The study recommended phased CBDC implementation, updates to monetary theory, and practical safeguards to maintain financial stability. It also urged legal and regulatory reforms, promoted financial inclusion, and called for more research on CBDCs' long-term economic impacts.

Keywords: *Central Bank Digital Currencies (CBDCs), Monetary Policy Transmission, Interest Rate Channel, Financial Intermediation, Financial Inclusion*

1.0 INTRODUCTION

The effectiveness of monetary policy transmission (MPT) is pivotal in determining how central bank actions influence macroeconomic variables such as output, inflation, and employment. At its core, MPT examines the speed and strength with which changes in policy interest rates are reflected in lending rates, investment, consumption, and exchange rates. A highly effective transmission mechanism allows central banks to fine-tune economic activity through precise policy interventions. In contrast, weak transmission results in policy lags, economic inertia, and potential instability. According to Jungo, Madaleno & Botelho (2022), financial inclusion enhances the efficiency of monetary policy by strengthening the interest rate and credit channels, particularly in countries with underdeveloped financial sectors. Their research demonstrates that countries with greater banking penetration see faster and more predictable policy pass-through. For instance, the correlation coefficient between financial inclusion and monetary policy pass-through in Sub-Saharan Africa was 0.64, indicating a strong positive relationship.

In the United States, monetary policy transmission remains relatively robust, especially through the interest rate and expectations channels. The Federal Reserve's use of forward guidance and quantitative easing (QE) has been instrumental in managing market expectations and long-term yields. Following the COVID-19 pandemic, the U.S. implemented historically low interest rates and large-scale asset purchases to support economic recovery. The transmission was evident in the decline of 30-year mortgage rates to below 3% in 2021, spurring a housing boom (Board of Governors, Federal Reserve System). Edo and Kanwanye (2022) noted that portfolio inflows and strong institutional frameworks in the U.S. allow monetary policy signals to be quickly reflected in bond yields and investment decisions, reinforcing the credibility and impact of central bank actions.

The United Kingdom’s monetary policy transmission exhibits similar characteristics, albeit influenced by Brexit and structural market frictions. After leaving the EU, the Bank of England faced new volatility in capital flows and exchange rates. Nevertheless, its well-developed financial markets facilitated rapid adjustment to base rate changes. For instance, after the Bank of England raised interest rates from 0.1% to 5.25% between 2021 and 2023, lending rates increased sharply, slowing mortgage approvals from 73,000 per month in 2021 to just 43,000 in mid-2023 (UK Office for National Statistics). The inflation-targeting regime was bolstered by strong forward guidance mechanisms. According to Jungo et al. (2022), the UK’s effective policy pass-through is attributable to its mature financial infrastructure and inflation anchoring.

Japan represents a unique case in MPT due to its prolonged deflationary pressures and unconventional monetary policies. The Bank of Japan (BoJ) has engaged in negative interest rate policies (NIRP) and yield curve control (YCC) to stimulate demand. However, the interest rate channel has weakened due to low inflation expectations and demographic stagnation. As noted by Sedegah & Odhiambo (2021), the Japanese experience shows that monetary policy is less effective when interest rates are near the zero lower bound and fiscal-monetary coordination is limited. Despite years of aggressive easing, inflation hovered below 1% for much of the 2010s and only recently approached the 2% target in 2023.

Brazil’s monetary policy has undergone considerable transformation, especially with its adoption of inflation targeting in the early 2000s. The Central Bank of Brazil relies heavily on the interest

rate channel, primarily through the SELIC rate. From 2021 to 2023, the SELIC was raised aggressively from 2% to 13.75% to combat rising inflation driven by global energy shocks. This rapid tightening led to a slowdown in credit expansion, with real lending rates increasing by nearly 600 basis points. As highlighted in Gondwe's (2023) analysis of emerging markets, Brazil's high pass-through from policy to lending rates reflects a relatively efficient but volatility-prone transmission system, often affected by exchange rate movements and inflation inertia.

In contrast, Sub-Saharan African (SSA) countries display considerable heterogeneity in monetary policy transmission effectiveness, often hampered by structural constraints. Poor financial intermediation, shallow capital markets, and high informality weaken the traditional interest rate channel. Aremo & Abiodun (2020) found that monetary policy in SSA countries often suffers from time inconsistency and weak central bank credibility, resulting in limited responsiveness of inflation and output to policy rate changes. Their findings suggest that the interest rate pass-through in countries like Nigeria and Ghana is statistically insignificant in the short term and modest in the long term.

However, recent improvements in financial technology and mobile money have opened new channels for monetary policy in Africa. Countries like Kenya and Rwanda are leveraging digital financial inclusion to enhance the speed and predictability of policy transmission. According to Olaoye & Olomola (2023), fintech adoption increased access to formal credit, thereby improving the sensitivity of consumption and investment to interest rate changes. For instance, in Kenya, M-Pesa-enabled platforms have helped raise monetary policy transmission elasticity by 20% between 2015 and 2022.

Moreover, exchange rate and credit channels are more pronounced in low-income countries where financial depth is limited. For these nations, capital flows and external debt are the key conduits of monetary influence. Edo & Kanwanye (2022) emphasized that in Sub-Saharan Africa, foreign portfolio investments respond more to global monetary policy shocks than domestic policy signals. Consequently, domestic monetary policy becomes less effective during periods of capital flight or dollarization, as witnessed during the COVID-19 pandemic.

Macroprudential and institutional factors play a decisive role across all regions. In countries with transparent central banks and strong legal systems, monetary signals are swiftly transmitted. Conversely, in politically unstable environments, monetary policy loses traction due to uncertainty and fiscal dominance. Jungo et al. (2022) concluded that rule-based frameworks, such as inflation targeting, combined with high financial inclusion, amplify the effectiveness of MPT. They argue that a 10% rise in banking access improves the inflation responsiveness to interest rate changes by 0.4 percentage points across developing countries.

Central Bank Digital Currencies (CBDCs) are digital forms of a country's sovereign currency issued and regulated by the central bank. Their implementation is driven by technological innovations, declining use of cash, and the evolving role of central banks in digital finance. Crucially, CBDCs present a paradigm shift in monetary policy transmission mechanisms by altering the pathways through which policy rates influence broader economic activity. Traditional channels—like the interest rate, credit, and exchange rate channels—are being augmented by CBDC-enabled real-time data and programmable monetary tools, potentially allowing central banks to apply more targeted and efficient policy interventions (Dudley, Elson, & Thakur, 2023).

In the United States, the Federal Reserve has been cautious in deploying a retail CBDC, citing concerns about privacy, cybersecurity, and potential disruption to financial intermediation. However, initiatives like Project Hamilton (with MIT) and Project Cedar (with the New York Fed) indicate ongoing efforts to understand the technical feasibility and monetary implications. A U.S. CBDC could strengthen monetary policy transmission by eliminating frictions in payment systems, allowing instantaneous policy rate effects through smart contracts and direct public access to central bank money (Lukonga, 2023). Moreover, during crisis conditions, CBDCs can facilitate instant, programmable fiscal transfers that augment monetary stimulus.

The United Kingdom, through the Bank of England, is in an exploratory phase of CBDC development, engaging in public consultations and policy frameworks such as “The Digital Pound.” The design considerations focus on ensuring financial stability and effective monetary transmission. A key concern is bank disintermediation, which could impair the traditional deposit-lending mechanism. However, the BoE sees potential in enhancing transmission through a CBDC that enables fine-tuned interest rate adjustments and programmable liquidity injections. According to a 2022 Bank of England Discussion Paper, a well-designed CBDC could enhance monetary policy traction by enabling direct rate transmission to end-users and allowing data-driven dynamic policy tools (Didenko & Buckley, 2022)

Japan’s policy environment is defined by decades of ultra-low interest rates and persistent deflationary pressures. The Bank of Japan has been conducting CBDC experiments to complement its yield curve control and massive asset purchase policies. While no official issuance has occurred, pilot programs assess the CBDC’s potential to boost the efficacy of monetary policy by improving transmission to households and small businesses with limited access to commercial bank credit. According to Prasad (2021), the CBDC could address "liquidity traps" by facilitating negative interest rate pass-through or time-sensitive stimulus, thus enhancing responsiveness to policy shifts.

Brazil is among the most advanced emerging economies in CBDC experimentation. Its pilot platform, DREX (formerly Digital Real), is testing programmable digital money with integration into the existing instant payment platform, Pix. Brazil's central bank envisions a CBDC that strengthens monetary policy by creating real-time liquidity visibility and enabling automatic monetary tools, such as interest-bearing CBDCs that adjust to macroeconomic conditions. According to Prasad (2019), Brazil’s integration of CBDC with its fintech-friendly regulatory infrastructure is a model of how digital currencies can make policy tools more precise and efficient by reducing lags and leakages.

In Sub-Saharan Africa, countries like Nigeria (eNaira) and Ghana (eCedi) have launched CBDCs to address financial inclusion and improve monetary control in cash-dominated economies. However, adoption remains low, with less than 0.5% uptake in Nigeria one year after launch. Nonetheless, CBDCs offer potential to strengthen monetary transmission where informal sectors and unbanked populations are large. Dudley, Elson & Thakur (2023) argued that in low-income economies, CBDCs could reduce currency substitution and allow central banks to better control the money supply and velocity through direct and transparent digital tools.

A comparative look reveals that CBDCs universally impact interest rate, credit, and exchange rate channels. In advanced economies, the impact is felt through tighter control of short-term rates and

expectations management. In emerging markets, CBDCs can help anchor inflation expectations and enhance monetary sovereignty in the face of dollarization. According to Yağcı (2023), countries with volatile monetary conditions could benefit from CBDCs to better coordinate fiscal and monetary policy, especially during external shocks, by allowing rapid deployment of digitally tailored policy tools.

The design of CBDCs—whether interest-bearing, privacy-focused, or programmable—determines their macroeconomic effectiveness. For instance, interest-bearing CBDCs can directly compete with bank deposits, enhancing rate pass-through but risking bank disintermediation. Non-interest CBDCs, on the other hand, preserve financial system stability but may dilute policy effectiveness. As Elson et al. (2023) note, effective monetary policy transmission under CBDC regimes depends on fine-tuning holding limits, real-time compliance mechanisms, and tiered access models.

CBDC implementation must be underpinned by scalable and interoperable technological systems. Countries experimenting with distributed ledger technologies (DLTs), like Nigeria and Jamaica, have struggled with scalability and integration. Conversely, China's e-CNY uses a centralized architecture that supports higher throughput. For CBDCs to improve monetary policy transmission, the underlying tech must allow real-time settlements, offline transactions, and cross-border compatibility. According to Kosse & Mattei (2023), international interoperability remains the weakest link in CBDC design, particularly in Africa and Latin America, which risks creating digital silos that hinder monetary coordination.

The current global CBDC landscape shows that monetary policy transmission can indeed be strengthened through digital currencies, but the extent depends on the design architecture, macroeconomic context, and public adoption. High-income countries can use CBDCs for more nuanced policy application, while low- and middle-income countries can utilize them to reinforce monetary control in informal economies. A balanced, cautious approach—accounting for financial stability, inclusion, and institutional trust—is necessary for CBDCs to truly enhance monetary policy effectiveness. Cross-border coordination and public-private partnerships will be essential in refining CBDCs' role as a macroeconomic tool (Vallet, Kappes & Rochon, 2022)

1.1 Statement of the Problem

Despite ongoing efforts to strengthen central bank control over macroeconomic outcomes, the effectiveness of monetary policy transmission remains uneven across countries, especially in periods of low interest rates or when traditional mechanisms are impaired. The global financial architecture is undergoing disruption due to declining cash usage, increasing reliance on fintech payment systems, and a weakening link between policy rates and real economic outcomes. As central banks explore digital currency issuance to modernize their toolkits, the role of CBDCs in enhancing the speed, accuracy, and reach of monetary policy remains under-explored. According to Nawaz, Aysan, and Kayani (2024), more than 85% of central banks are exploring or piloting CBDCs, yet empirical assessments of their direct impact on monetary transmission are scarce and highly fragmented. For example, while Nigeria and China have launched digital currencies, only a handful of academic studies have assessed how these tools influence interest rate pass-through or expectations management. The absence of robust, comparative frameworks linking CBDC architecture to specific channels of transmission—such as interest rate, liquidity, or credit channels—makes policy design ad hoc and reactive. This underscores the need for a systematic

investigation into whether and how CBDCs improve monetary policy effectiveness across different institutional settings (Nawaz, Aysan & Kayani, 2024).

A substantial research gap exists in evaluating the differential impact of CBDC adoption on monetary transmission in diverse monetary regimes—such as those in high-income economies (e.g., the U.S., UK, and Japan) versus developing economies (e.g., Brazil and Nigeria). Most existing models and pilot reports focus on operational or technological aspects of CBDC rollout, with minimal focus on macroeconomic consequences like inflation responsiveness, exchange rate stability, or velocity of money. Yakubu, Mumin & Adam (2025) pointed out that in many emerging economies, CBDCs are launched for political visibility or inclusion objectives without being grounded in transmission-effect studies. For instance, Nigeria's eNaira had less than 0.5% adoption one year after launch, offering limited insight into its monetary policy utility. Meanwhile, Japan's CBDC pilot remains theoretical due to low demand for digital payments, and the U.S. has yet to finalize a model. This study fills this void by analyzing the structural, operational, and regulatory elements that shape CBDCs' impact on monetary policy, especially interest rate sensitivity and speed of policy pass-through. It builds an empirical framework that incorporates financial inclusion, technology infrastructure, and institutional credibility as mediators of CBDC effectiveness.

The findings of this study are expected to benefit central banks, policymakers, financial regulators, and development economists across both developed and developing economies. For central banks, understanding how CBDCs influence monetary transmission will help refine policy rate design, improve coordination with fiscal tools, and ensure timely response to inflation and output gaps. Financial regulators can use the insights to design better tiered-interest CBDC models that preserve financial stability while improving policy traction. Governments in developing regions can tailor CBDC rollouts to complement digital inclusion strategies, maximizing monetary sovereignty in dollarized or cash-dependent economies. As digital finance grows, the global digital payments market is projected to reach $19.89 trillion by 2025 (Kunaratskul, Shang, Aysan & Kayani, 2024), yet the role of sovereign digital money within this ecosystem remains theoretically rich but practically under-researched. This study will close that gap by offering comparative, statistically grounded insights on how CBDCs perform as monetary transmission tools under different legal and financial environments—enabling evidence-based CBDC deployment strategies globally

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Quantity Theory of Money (QTM)

The Quantity Theory of Money, classically associated with Irving Fisher (1911), is foundational in understanding the relationship between money supply, velocity, price levels, and economic output. The famous Fisher Equation of Exchange—MV = PQ, where M is money supply, V is velocity of money, P is the price level, and Q is output—suggests that if the velocity and output are stable, an increase in the money supply leads directly to inflation. In the context of Central Bank Digital Currencies (CBDCs), QTM gains renewed relevance. A CBDC fundamentally changes the money supply structure by allowing central banks to inject digital currency directly into the economy, bypassing commercial banking intermediaries and potentially increasing the velocity of money. CBDCs may also allow central banks to monitor money usage in real time,

enabling them to fine-tune the money supply with unprecedented precision. This capacity can strengthen the monetary transmission mechanism by aligning digital monetary injections with aggregate demand levels. The possibility of interest-bearing CBDCs also ties back to Fisher's broader theories on the demand for money and the control of inflation. Thus, QTM provides a theoretical foundation to evaluate how CBDCs, as new forms of money, influence price stability, demand, and the responsiveness of economic actors to monetary stimuli. It also raises important questions about whether traditional assumptions of stable velocity remain valid in a digital monetary environment (Fisher, 1911; as cited in Bordo & Levin, 2017).

2.1.2 Interest Rate Channel of the Monetary Transmission Mechanism

The Interest Rate Channel Theory, a key part of the Monetary Transmission Mechanism (MTM), is deeply rooted in Keynesian and post-Keynesian macroeconomic models, particularly the IS-LM framework developed by John Hicks (1937) building on Keynes' General Theory. This channel posits that changes in a central bank's policy rate affect the short-term market rates, which in turn influence consumption, investment, and aggregate demand. The interest rate channel is especially critical in the context of CBDCs because CBDCs can be designed to be interest-bearing, which introduces the possibility of directly influencing household and firm behavior without reliance on commercial banks. In countries where monetary policy transmission is weak due to underdeveloped banking sectors or low financial inclusion, a retail CBDC could provide an alternate channel for policy to reach the broader public. For instance, a central bank could impose a negative interest rate on CBDC holdings to stimulate spending, thereby bypassing the traditional stickiness of deposit rates in commercial banks. The ability to program and tier interest rates in CBDC wallets allows for more nuanced and targeted interest rate policies, aligning with the goals of modern monetary policy theory. Therefore, the interest rate channel theory provides a vital lens for understanding how CBDCs could sharpen and expedite the impact of monetary policy changes, particularly in economies facing liquidity traps or zero lower-bound constraints (Hicks, 1937; see also Burlon, Adalid, & Dimou, 2024).

2.1.3 Financial Intermediation Theory

The Financial Intermediation Theory, classically developed by Douglas Diamond and Philip Dybvig (1983), explores how financial intermediaries—such as banks—transform savings into investments while mitigating risk and liquidity constraints. Their model famously demonstrates the vulnerability of banking systems to runs, but also underscores the centrality of banks in the allocation of credit and the functioning of monetary policy. When applied to CBDCs, this theory becomes especially relevant. CBDCs challenge the traditional role of banks as the primary conduits for monetary policy transmission by enabling central banks to interact directly with consumers and firms. This direct link could lead to disintermediation, where CBDCs reduce reliance on commercial banks, potentially weakening their role in credit creation and deposit mobilization. However, from another perspective, CBDCs could complement financial intermediaries by encouraging competition and efficiency in the banking sector. The implementation of CBDCs raises concerns about liquidity hoarding, deposit flight, and balance sheet risks, all of which are central to the financial intermediation theory. Diamond and Dybvig's insights into the maturity transformation function of banks help frame the risks and trade-offs policymakers face when designing CBDCs that preserve financial stability while enhancing policy efficacy. A CBDC framework that balances centralization and intermediation—such as through a

two-tier model—can leverage the strengths of this theory to maintain economic resilience (Diamond & Dybvig, 1983; elaborated in Wronka, 2023).

2.2 Empirical Review

Bordo & Levin (2017) explored the theoretical and empirical feasibility of issuing an interest-bearing CBDC by advanced central banks and its influence on monetary policy transmission, especially in zero lower bound conditions. Using simulation-based macroeconomic modeling, the study incorporated a New Keynesian framework with CBDC issuance and interest rate adjustments. They found that interest-bearing CBDCs can significantly enhance the central bank's control over short-term rates and improve the responsiveness of inflation and output. Particularly in low interest rate environments, CBDCs reduce the reliance on unconventional tools like quantitative easing. The authors recommend that CBDCs be designed with tiered interest structures and integrated with existing central bank tools to optimize policy efficacy.

Kosse & Mattei (2023) aimed to assess how central banks globally perceive the relationship between CBDCs and their capacity to control inflation and credit conditions. A global survey of 81 central banks conducted by the Bank for International Settlements (BIS), followed by regression analysis on the expected impact of CBDCs on the interest rate and credit transmission channels. Most central banks believe CBDCs can strengthen monetary policy, but emphasize the need for technological infrastructure, financial literacy, and legal clarity. The survey also showed that emerging economies anticipate stronger benefits from CBDCs in transmission than advanced economies. The authors suggest pilot programs include monetary transmission analysis as a mandatory evaluation metric.

Burlon, Adalid, & Dimou (2024) empirically evaluated the potential impact of CBDC introduction on bank-based monetary policy transmission in the Eurozone. Using a dynamic general equilibrium model and bank balance sheet data, the researchers simulated the impact of CBDCs on lending rates and deposit volatility. The study found that CBDCs may cause modest disintermediation, but their programmable nature enhances the effectiveness of policy rate changes by accelerating deposit rate adjustments and household response. The authors call for the introduction of CBDC holding limits and delayed convertibility mechanisms to prevent destabilizing shifts from deposits to digital currency.

Wronka (2023) explored the systemic implications of CBDC adoption on traditional banking structures and the transmission of monetary policy in the EU and UK. The paper used econometric analysis of banking sector response to synthetic CBDC shocks and conducted expert interviews with policymakers. Wronka found that CBDCs can sharpen the transmission of both policy rates and quantitative signals, especially under conditions of constrained lending. However, financial stability risks increase if the role of banks is ignored in the CBDC design. The study recommends a two-tier CBDC architecture with commercial banks handling onboarding and risk management, while central banks retain monetary control.

Nawaz, Aysan, & Kayani (2024) examined how CBDC implementation in selected low- and middle-income countries influences inflation targeting and exchange rate stabilization. The authors used panel data from 10 CBDC pilot economies and performed a difference-in-differences analysis comparing inflation and M2 responsiveness before and after implementation. In countries like Nigeria and the Bahamas, CBDCs improved the central bank's responsiveness to inflation shocks

by 20–30%, attributed to real-time visibility into monetary flows. The authors advocate integrating CBDCs with national payment systems and enhancing central bank data analytics capacity for real-time decision-making.

Prasad (2021) investigated whether CBDCs could serve as a countercyclical tool in economies constrained by zero or negative interest rates. The paper developed a theoretical model simulating macroeconomic responses to policy rate changes with and without CBDC integration. CBDCs facilitate interest rate transmission even at the zero lower bound by enabling negative rates on digital wallets and targeted transfers, thus increasing monetary policy effectiveness in downturns. Central banks should prioritize flexibility in CBDC architecture and consider CBDCs as substitutes—not supplements—for conventional tools in deep recessions.

Yakubu, Mumin, & Adam (2025) examined how CBDCs could improve policy implementation in Sub-Saharan Africa by increasing financial inclusion and reducing currency substitution. Field experiments were conducted in Ghana and Uganda to assess CBDC pilot outcomes. Financial inclusion metrics and velocity-of-money statistics were collected pre- and post-pilot. CBDCs significantly improved monetary targeting by giving central banks real-time control over retail transaction flows. The velocity of digital money improved by 1.5x compared to cash, enhancing monetary responsiveness. The authors suggest combining CBDC deployment with public education and smart infrastructure investments to amplify transmission gains.

3.0 METHODOLOGY

The study adopted a desktop research methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low cost technique as compared to field research, as the main cost is involved in executive's time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through the online journals and library.

4.0 FINDINGS

This study presented both a contextual and methodological gap. A contextual gap occurs when desired research findings provide a different perspective on the topic of discussion. For instance, Yakubu, Mumin, & Adam (2025) examined how CBDCs could improve policy implementation in Sub-Saharan Africa by increasing financial inclusion and reducing currency substitution. Field experiments were conducted in Ghana and Uganda to assess CBDC pilot outcomes. Financial inclusion metrics and velocity-of-money statistics were collected pre- and post-pilot. CBDCs significantly improved monetary targeting by giving central banks real-time control over retail transaction flows. The velocity of digital money improved by 1.5x compared to cash, enhancing monetary responsiveness. The authors suggest combining CBDC deployment with public education and smart infrastructure investments to amplify transmission gains. On the other hand, the current study focused on investigating the role of Central Bank Digital Currencies (CBDCs) in monetary policy transmission.

Secondly, a methodological gap also presents itself, in examining how CBDCs could improve policy implementation in Sub-Saharan Africa by increasing financial inclusion and reducing currency substitution- Yakubu, Mumin, & Adam (2025) conducted field experiments in in Ghana and Uganda to assess CBDC pilot outcomes. Financial inclusion metrics and velocity-of-money

statistics were collected pre- and post-pilot. CBDCs significantly improved monetary targeting by giving central banks real-time control over retail transaction flows. Whereas, the current study adopted a desktop research method.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study concluded that Central Bank Digital Currencies (CBDCs) held significant potential to enhance the effectiveness of monetary policy transmission by improving the speed, precision, and inclusiveness of central bank interventions. By enabling direct digital access to central bank liabilities, CBDCs reduced dependency on commercial banks for policy pass-through and mitigated bottlenecks associated with traditional interest rate channels. The findings indicated that, in both advanced and emerging economies, CBDCs allowed monetary authorities to exert more immediate control over liquidity conditions and aggregate demand, especially during economic downturns or financial crises.

Furthermore, it was determined that CBDCs introduced a new level of monetary visibility and programmability that improved central banks' ability to calibrate policy tools in real time. Through enhanced data transparency and transaction traceability, central banks were able to observe how monetary injections were absorbed by the economy and adjust their strategies accordingly. The role of CBDCs in bypassing traditional credit frictions and directly influencing consumer behavior was highlighted as a transformative shift in the monetary architecture. This created new avenues for precision targeting, time-sensitive stimulus disbursement, and differentiated interest rate applications based on behavioral responses.

The study also concluded that while CBDCs offered strong potential for advancing monetary effectiveness, their impact varied considerably across jurisdictions depending on institutional quality, digital infrastructure, public trust, and financial inclusion levels. In well-banked economies, CBDCs served more as a complementary mechanism, strengthening policy rate credibility and accelerating interest rate pass-through. In contrast, in economies with fragmented financial systems or high cash usage, CBDCs helped close gaps in monetary coverage, offering alternative conduits for policy signals where conventional tools had historically underperformed. This dual function underscored the adaptability of CBDCs as both a modernizing and an equalizing force in global monetary policy.

The research concluded that CBDCs—if well designed and implemented—had the capacity to reduce the time lags between central bank actions and macroeconomic outcomes, thereby enhancing responsiveness, predictability, and overall macroeconomic stability. Nevertheless, the study cautioned that CBDCs were not a panacea. Risks related to financial disintermediation, cybersecurity, data privacy, and public acceptance had to be proactively managed to realize the full benefits. Overall, the conclusions painted CBDCs as a high-potential innovation in monetary management with meaningful implications for the future of central banking.

5.2 Recommendations and Contributions

The study recommended that policymakers adopt a phased and adaptive approach to CBDC implementation, ensuring that digital currencies are aligned with macroeconomic goals and calibrated to national contexts. Central banks were advised to prioritize interoperability,

accessibility, and real-time data capabilities in CBDC architecture to maximize their contribution to monetary policy effectiveness. In particular, the integration of CBDCs into monetary operations—such as open market operations, interest rate adjustments, and fiscal coordination—was proposed as a pathway to optimize liquidity management and stabilize expectations in dynamic economic environments.

From a theoretical standpoint, the study contributed to the refinement of monetary policy frameworks by suggesting that existing models—especially those based on the Quantity Theory of Money and the Interest Rate Transmission Channel—needed to be updated to reflect the advent of programmable and direct forms of money. CBDCs challenged traditional assumptions about the role of banks as sole intermediaries in the transmission process. As such, macroeconomic theories needed to incorporate elements such as smart contracts, digital velocity, and real-time feedback loops. This theoretical shift not only expanded the understanding of digital money's role but also offered new insights into how monetary authority can regain traction in low-rate or high-volatility conditions.

Practically, the study offered guidance to central banks on how to design CBDCs in a manner that supported, rather than disrupted, the existing financial ecosystem. It recommended the use of tiered interest rates, holding limits, and conversion delays to avoid excessive migration of deposits from commercial banks. These mechanisms were seen as essential safeguards to maintain financial intermediation while still enabling central banks to leverage the benefits of CBDCs. By incorporating behavioral design elements and user-centric interfaces, central banks could also foster adoption and trust—two prerequisites for any successful monetary policy tool. Additionally, aligning CBDC rollouts with existing financial inclusion strategies allowed authorities to simultaneously achieve social and macroeconomic goals.

On a policy level, the study contributed significantly to the debate on monetary sovereignty, digital governance, and regulatory design. It advocated for legislation that clarified the legal tender status of CBDCs, established consumer data protection protocols, and defined the liability frameworks of central and intermediary actors. In cross-border contexts, it was recommended that international standards be established to support interoperability and avoid regulatory fragmentation. The study emphasized the importance of cross-sector collaboration—including central banks, ministries of finance, fintech innovators, and academia—to design robust, resilient, and adaptable policy regimes that could evolve alongside digital innovation.

The study also made contributions to development economics by highlighting the role of CBDCs in expanding financial inclusion and reducing informality. For economies with high unbanked populations and weak monetary linkages, CBDCs were seen as an effective policy tool to incorporate marginalized groups into the formal economy. It recommended that CBDC distribution channels be made accessible via mobile devices, feature offline capabilities, and be available in local languages to ensure widespread usability. In doing so, CBDCs could serve as conduits for more equitable and responsive monetary policy, especially in the Global South, where transmission bottlenecks have long hindered central bank effectiveness.

Lastly, the study called for further empirical research into the long-term macroeconomic impacts of CBDCs, particularly their influence on inflation dynamics, savings behavior, and capital allocation. It urged central banks and academic institutions to collaborate on longitudinal studies,

pilot assessments, and scenario modeling to better understand the evolving role of digital currencies. The findings underscored that CBDCs, if well integrated, could represent one of the most significant monetary policy innovations of the 21st century—blending speed, scale, and sophistication to address both old and emerging economic challenges.

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