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TECHNOLOGY FOR THE MONEY OF THE FUTURE: DESIGNING A CENTRAL BANK DIGITAL CURRENCY (CBDC)

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ABSTRACT

This paper examines the feasibility and implications of a highly accountable form of central bank digital currency (CBDC), conceptualized as a National Accountable Digital Currency (NADC), in economies characterized by persistent informality, high cash dependence, and limited fiscal capacity. The study adopts a qualitative methodology combining a structured review of academic literature with comparative analysis of international monetary developments and descriptive evidence from Latin America. Unlike instant payment systems, which modernize transaction infrastructure without altering the nature of money, an NADC represents an institutional redesign of sovereign currency. It embeds identity linkage, traceability, and compliance directly at the level of the monetary unit. The analysis evaluates core design features—including account-based issuance, tiered wallets, constrained programmability, and permissioned ledger governance—and assesses their implications for tax compliance, financial crime reduction, monetary policy transmission, and state capacity. The results suggest that a highly accountable digital currency could significantly expand the effective tax base and reduce large-scale illicit finance by constraining anonymous transactions. However, these gains are conditional on strong legal safeguards, central bank independence, and credible limits on data access and programmability. The paper concludes that digital accountability amplifies institutional quality rather than substituting for it, making governance and reform sequencing central to any viable CBDC strategy in Latin America.

Keywords: Central Bank Digital Currency, Digital Sovereign Money, Informal Economy, Monetary Governance, Financial Crime, Latin America, State Capacity

Tecnología para el dinero del futuro: Diseño de una moneda digital de banco central (CBDC)

RESUMEN

Se examina la viabilidad y las implicaciones de una forma altamente responsable de moneda digital de banco central (CBDC), conceptualizada como una Moneda Digital Nacional Responsable (National Accountable Digital Currency, NADC), en economías con informalidad persistente, alta dependencia del efectivo y limitada capacidad fiscal. El estudio adopta una metodología cualitativa que combina una revisión estructurada de la literatura académica con análisis comparativo de desarrollos monetarios internacionales y evidencia descriptiva de América Latina. A diferencia de los sistemas de pagos instantáneos, que modernizan la infraestructura transaccional sin alterar la naturaleza del dinero, una NADC implica un rediseño institucional de la moneda soberana al incorporar vinculación de identidad, trazabilidad y cumplimiento normativo en la unidad monetaria. El análisis evalúa elementos clave de diseño —emisión basada en cuentas, billeteras escalonadas, programabilidad restringida y registros autorizados— y examina sus implicaciones para el cumplimiento tributario, la reducción del crimen financiero, la transmisión de la política monetaria y la capacidad del Estado. Los resultados sugieren que una moneda digital altamente responsable podría ampliar la base tributaria efectiva y reducir el financiamiento ilícito al restringir transacciones anónimas. Sin embargo, estos beneficios dependen de salvaguardias legales sólidas, independencia del banco central y límites creíbles en el acceso a los datos y la programabilidad. El artículo concluye que la rendición de cuentas digital amplifica la calidad institucional, por lo que la gobernanza y la secuencia de reformas son determinantes para su viabilidad.

Palabras clave: Moneda Digital de Banco Central, Moneda Soberana Digital, Economía Informal, Gobernanza Monetaria, Crimen Financiero, América Latina, Capacidad del Estado.

Introduction

According to the International Labour Organization (ILO), persistent informality remains a structural constraint on fiscal capacity and institutional effectiveness across developing economies. In Latin America, informal employment often exceeds half of total labor participation, while a large share of transactions continues to rely on cash (Awasthi & Engelschalk, 2018; ILO, 2022). This combination limits tax collection, reduces the effectiveness of public policy, and weakens enforcement mechanisms

Cash plays a dual role within this structure. It facilitates low-cost transactions for households operating outside the formal system but also enables large-scale illicit activity by allowing anonymity in high-value exchanges (Rogoff, 2016; Shapiro, 2021). The absence of traceability creates a structural blind spot for fiscal authorities and law enforcement, reinforcing a stable equilibrium in which informality and weak institutional capacity sustain each other.

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Recent advances in payment systems have improved transaction efficiency but have not altered this equilibrium. Instant payment platforms expand access and reduce costs, yet they operate on commercial bank money and coexist with cash. As a result, they do not address the core issue of anonymity embedded in physical currency.

This paper examines an alternative approach: the design of a National Accountable Digital Currency (NADC). Unlike payment innovations, an NADC modifies the structure of money itself by embedding identity linkage and traceability at the monetary level. The central question is whether such a system can expand fiscal capacity and reduce illicit finance without generating governance risks that offset its potential benefits.

Methodology

This study follows a qualitative approach aimed at evaluating the feasibility and implications of a National Accountable Digital Currency under conditions of high informality and limited fiscal capacity.

Statistical data is obtained from official documents published by: the International Labour Organization (ILO), while fiscal constraints are documented by the International Monetary Fund (IMF) and The World Bank; Payment system developments are analyzed by the Bank for International Settlements (BIS).

First, a structured review of the academic literature on central bank digital currencies is conducted, focusing on monetary design, financial intermediation, and macroeconomic implications (Barrdear & Kumhof, 2022; Kahn et al., 2022; Andolfatto, 2021; Brunnermeier & Niepelt, 2019).

Second, a comparative institutional analysis is developed using selected cases—Brazil, Mexico, Colombia, the Euro Area, and the United States—capturing variation in informality, financial development, and governance capacity.

Third, descriptive empirical evidence from international sources (IMF, 2021; BIS, 2022; ILO, 2022) is incorporated to contextualize cash usage, informality, and payment system adoption. These data support institutional interpretation rather than econometric estimation.

The objective is not to estimate causal effects, but to establish a coherent link between monetary architecture, enforcement capacity, and institutional constraints.

Informality, Cash, and Structural Constraints

Informality in Latin America reflects persistent structural conditions rather than a transitional phase. High regulatory burdens, weak enforcement capacity, and limited trust in public institutions contribute to the persistence of economic activity outside formal systems (ILO, 2022).

Cash remains central within this environment. In Colombia, for example, cash continues to account for a large share of retail transactions despite increasing digital penetration. Similar patterns are observed in Mexico and Brazil, where digital payment adoption has expanded but has not displaced cash usage (BIS, 2022). In quantitative terms, the scale of informality in Latin America remains substantial. Informal employment reaches approximately 58–60% in Colombia and 55–57% in Mexico, compared to less than 15% in the United States. Similarly, the informal economy is estimated at around 35–40% of GDP in Colombia and approximately 25–33% in Mexico and Brazil, significantly above levels observed in advanced economies (ILO, 2022).

Cash usage reflects this structural divergence. According to Global Findex data, a majority of transactions in Latin America still rely on cash, particularly in low-income segments and informal markets, whereas digital payments dominate in advanced economies (Demirgüç-Kunt et al., 2022).

The implications for fiscal capacity are significant. Transactions conducted in cash leave no audit trail, limiting the ability of tax authorities to enforce compliance. This constraint affects not only small-scale informality but also large-scale illicit financial flows. Empirical studies suggest that anonymity in payment systems is a key enabler of tax evasion and underground economic activity (Rogoff, 2016).

Comparative evidence across regions highlights the magnitude of these differences (see Table 1). Advanced economies exhibit lower levels of informality and reduced reliance on cash, reflecting stronger institutional frameworks and enforcement mechanisms.

Table 1.
Informality and Cash Dependence in Selected Economies

Country / Region	Informal Economy (% of GDP)	Informal Employment (% of Total Employment)	Cash Use as Primary Means of Payment
Brazil	~33%	~40–45%	High but declining
Mexico	~25%	~55–57%	Very high
Colombia	~35–40%	~58–60%	Very high
European Union	~15–18%	~15–20%	Low to moderate
United States	~10–12%	<15%	Low

Statistical footnotes :

- Informal economy estimates for Latin America and OECD countries are based on the IMF and World Bank shadow economy and labor market assessments (IMF, 2021).
- Informal employment (ILO, 2022).
- Cash usage patterns (BIS, 2022; Demirgüç-Kunt et al., 2022**).**

Payment Systems and the Limits of Digitalization

The expansion of digital payment systems represents a significant technological advance but does not constitute a transformation of the monetary system. Instant payment platforms operate on existing bank deposits and do not alter the underlying structure of money. (Table 2).

Table 2.
Instant Payment Systems versus CBDC Initiatives (Conceptual Separation)

Country / Region	Instant Payment System (Launch Year)	Type of Money Transferred	CBDC Project	CBDC Status
Brazil	PIX (2020)	Commercial bank deposits	DREX	Pilot
Mexico	CoDi (2019)	Commercial bank deposits	Digital Peso	Exploratory
Colombia	BRE-B (2024–2025)	Commercial bank deposits	—	Research
Euro Area	TIPS (2018)	Commercial bank deposits	Digital Euro	Preparatory
United States	FedNow (2023)	Commercial bank deposits	—	Research

Statistical footnotes:

- Classification of payment systems and CBDC initiatives (Auer & Böhme, 2020; BIS, 2022).
- National system descriptions (Banco Central do Brasil, 2021; Banco de México, 2021; Banco de la República, 2026; European Central Bank, 2023; Federal Reserve, 2023).

Brazil provides the most relevant case. The introduction of PIX led to rapid adoption, reaching a majority of the adult population within a short period. However, cash usage persists, particularly in informal sectors. The system improved efficiency but did not eliminate anonymity (Auer et al., 2021). PIX reached more than 85% of the adult population within a few years of its launch and processes tens of billions of transactions annually. Despite this scale, cash usage has not disappeared, particularly in informal segments of the economy (Banco Central do Brasil, 2023; BIS, 2022).

In Mexico, the CoDi platform achieved more limited adoption, reflecting differences in institutional trust and financial inclusion. In contrast to Brazil, Mexico's CoDi system shows that adoption is not automatic. Although the platform achieved user registration rates of approximately 20–25% of the adult population, active usage remains limited, reflecting weaker incentives and lower trust (Banco de México, 2021; BIS, 2022).

Colombia's BRE-B system remains in earlier stages, with uncertain long-term impact.

These cases illustrate a consistent pattern: payment digitalization reduces transaction costs but does not fundamentally alter incentives for formalization. As long as cash remains available, economic agents can choose anonymity when it is advantageous.

5. The Architecture of the NADC

The National Accountable Digital Currency differs from existing digital payment systems not in the speed or convenience of transactions, but in the nature of the monetary instrument itself.

Current digital payment systems—such as instant transfers and mobile payments—operate as layers on top of commercial bank money. They modernize the transaction process, but the underlying money remains unchanged. Cash continues to coexist, and compliance is enforced externally through financial institutions. As a result, anonymity persists wherever cash or unmonitored channels are used.

By contrast, an NADC modifies the structure of sovereign money. Transactions are recorded within a regulated ledger, and the currency itself carries identity linkage and traceability features. Compliance is not applied after the transaction but is embedded within the unit of account.

This distinction has direct implications. Digital payment systems improve efficiency but leave the underlying incentives for informality largely intact. An NADC, by reducing anonymity at the monetary level, alters those incentives by increasing the visibility of economic activity.

In this sense, the difference is not technological but institutional: digital payment systems change how money moves, while an NADC changes what money is.

In public blockchain systems, transactions are visible but typically linked only to pseudonymous addresses, making it difficult to connect activity to real users. In contrast, a regulated ledger combines record-keeping with verified identity and clear governance, making traceability operational.

Governance is maintained through a permissioned framework in which regulated intermediaries provide access and services, ensuring scalability while preserving institutional control. Unlike cash, which operates outside formal oversight, an NADC embeds compliance within the unit of account itself. This reduces anonymity at scale and alters the incentives shaping economic activity, although its effectiveness ultimately depends on credible rules governing data access and enforcement.

Economic Implications

The primary economic effect of an NADC is an expansion of fiscal visibility. By reducing anonymous transactions, the system increases the effective tax base without requiring higher tax rates (IMF, 2023).

Evidence from existing payment systems suggests that digitalization alone is insufficient to achieve this outcome (see Table 3).

Table 3.
Adoption of Instant Payment Systems in Latin America

System	Year Launched	Adult Population Coverage	Transaction Scale
PIX (Brazil)	2020	>85% of adults	Tens of billions of transactions annually
CoDi (Mexico)	2019	~20–25% registered users	Low active usage
BRE-B (Colombia)	2024–2025	Early-stage adoption	Rapid initial registration

Statistical footnotes:

- PIX adoption and transaction volume (Banco Central do Brasil, 2023; BIS, 2022).
- CoDi user registration (Banco de México, 2021; BIS, 2022).
- BRE-B data (Banco de la República, 2023).

While adoption rates may be high, the coexistence of cash limits the impact on informality. In contrast, a system that embeds traceability directly into money affects both small-scale compliance and large-scale illicit finance. Transactions become observable, reducing opportunities for tax evasion and money laundering (Shapiro, 2021).

Additional effects may include **improved monetary policy transmission**, as greater visibility enhances the ability of central banks to monitor economic activity. However, these effects depend on broader institutional conditions. The potential fiscal impact of increased traceability can be approximated by considering the scale of the informal economy. In countries where informal activity represents 30–40% of GDP, even partial formalization can generate significant increases in tax revenue without changes in statutory rates (IMF, 2023).

At the same time, international evidence suggests that illicit financial flows and tax evasion are disproportionately concentrated in transactions that rely on anonymity. Reducing this anonymity through traceable monetary instruments may therefore have non-linear effects on compliance (Shapiro, 2021).

Governance Risks

The same features that enhance accountability also generate risks. The centralization of transactional data increases the potential for misuse, particularly in environments with weak institutional safeguards.

Global CBDC developments reflect these concerns (see Table 4).

Table 4.

Global CBDC Development Status (2024–2025)

Indicator	Value
Countries researching CBDCs	>130
Share of global GDP covered	~98%
Countries with CBDC pilots	~50
Fully launched retail CBDCs	<15
Central banks prioritizing retail CBDCs	~70%

Statistical footnotes:

- Global CBDC statistics (BIS, 2022; IMF, 2023).
- Classification of research, pilot, and live stages follows BIS methodological standards (Auer et al., 2021).

While research and pilot programs have expanded rapidly, full implementation remains limited **(**European Central Bank, 2023; Federal Reserve, 2023**).**

Key risks include:

- Excessive concentration of financial information
- Political interference in monetary systems
- Erosion of privacy protections

These risks are not hypothetical. They are inherent to the design of highly traceable monetary systems and must be addressed through legal and institutional constraints.

Institutional Constraints

The effectiveness of an NADC depends fundamentally on institutional quality. Strong governance frameworks are required to ensure that accountability mechanisms are applied consistently and transparently.

Comparative indicators highlight significant variation across countries (see Table 5). Differences in rule of law, tax capacity, and regulatory enforcement shape the potential outcomes of digital monetary reform.

In weak institutional environments, the same tools that enhance enforcement may be used selectively or politically, undermining trust and generating unintended consequences.

International Experience

International experience highlights the importance of institutional context in shaping outcomes. In Latin America, payment innovation has advanced rapidly, but monetary transformation remains limited.

Brazil's DREX project represents a more advanced stage of development, focusing on integration with financial markets. Mexico and Colombia remain in exploratory phases.

Outside the region, China has developed a large-scale CBDC under a centralized model, demonstrating the feasibility of implementation under strong state capacity. However, this model reflects institutional conditions that differ significantly from those in Latin America.

Nigeria provides a particularly informative empirical case. The eNaira, launched in 2021 as one of the first retail CBDCs globally, has exhibited persistently low adoption despite strong policy support. IMF evidence indicates that, within the first year, wallet uptake remained below 1% of bank accounts, with approximately 98% of wallets inactive in a typical week and total transaction volumes extremely limited relative to the size of the monetary system (IMF, 2021). More recent data confirm that this pattern has not substantially

changed: as of 2024, the eNaira represents roughly 0.3–0.4% of total currency in circulation, indicating negligible monetary penetration (Tunji, 2024; IMF, 2023).

Even in absolute terms, usage remains marginal. Total transactions since launch have been on the order of tens of billions of naira—small relative to Nigeria's broader payment system, where electronic transactions reach hundreds of trillions annually . This divergence highlights a critical point: the existence of digital infrastructure does not guarantee adoption of a sovereign digital currency.

Policy efforts to accelerate uptake—including restrictions on cash withdrawals and currency redesign—generated short-term increases in wallet downloads but did not produce sustained usage. Instead, they exposed the limits of coercive transition strategies in environments characterized by low institutional trust.

The Nigerian case therefore illustrates that traceability-enhancing monetary innovations, in the absence of strong incentives and credible governance, may remain largely peripheral to actual economic activity.

Transition Dynamics: From Cash-Based Systems to Accountable Digital Money

The transition from a cash-dominated system to a fully accountable digital monetary framework represents one of the most complex aspects of CBDC implementation. While the theoretical advantages of a National Accountable Digital Currency (NADC) are significant, the process of replacing or displacing cash introduces transitional frictions that are both economic and political.

A central constraint is the coexistence problem. In most realistic scenarios, cash and digital currency operate in parallel during extended transition periods. This coexistence allows economic agents to arbitrage between anonymity and traceability, depending on incentives. As long as cash remains available, actors engaged in tax evasion or informal activity retain the option to operate outside the digital system. This limits the immediate impact of NADC adoption on fiscal capacity.

Empirical evidence from payment system adoption supports this dynamic. Even in highly digitized environments, cash usage declines gradually rather than disappearing entirely (BIS, 2022). In Latin America, this persistence is reinforced by structural informality and uneven access to financial services. As a result, any transition strategy must account for the durability of cash as both a transactional and store-of-value instrument.

A forced transition—where access to cash is restricted to accelerate digital adoption—introduces additional risks. The Nigerian experience illustrates these constraints. Measures to limit cash withdrawals and redesign currency aimed to push users toward digital alternatives, including the eNaira. Instead, these policies generated short-term liquidity shortages, disruptions in informal markets, and resistance from economic agents. Rather than accelerating adoption, they revealed the limits of enforcement when trust is insufficient (IMF, 2021).

A gradual transition, by contrast, preserves system stability but slows the realization of benefits. In this scenario, adoption depends on relative advantages rather than coercion. Users shift to digital currency when it offers clear benefits in terms of cost, convenience, or security. However, for actors who value anonymity, these benefits may not outweigh the perceived costs of traceability.

A further complication arises from the **risk of financial disintermediation**. If an NADC provides a direct claim on the central bank, it may attract deposits away from commercial banks, particularly during periods of financial stress (Brunnermeier & Niepelt, 2019). This dynamic introduces trade-offs between monetary innovation and financial stability, requiring careful design of wallet limits, remuneration structures, and access conditions.

The transition also interacts with **capital mobility.** In open economies, the introduction of a highly traceable domestic currency may incentivize the use of alternative stores of value, including foreign currencies or decentralized digital assets. This substitution effect can limit the effectiveness of domestic reforms and create additional policy challenges.

In Latin America, these dynamics are particularly relevant. **Dollarization**, both formal and informal, already plays a role in several economies. A shift toward fully accountable domestic currency could reinforce incentives to hold assets outside the regulated system if trust in institutions is limited.

The transition problem, therefore, is not merely technical. It involves a reconfiguration of incentives across households, firms, and financial institutions. Successful implementation requires alignment between monetary design, regulatory frameworks, and institutional credibility.

Political Economy of Monetary Traceability

The introduction of a National Accountable Digital Currency fundamentally alters the distribution of power within the economic system. By embedding traceability into money, it redistributes information, enforcement capacity, and control over transactions. These changes generate both support and resistance across different groups.

From the perspective of the state, the benefits are clear. Increased fiscal visibility expands the effective tax base and reduces reliance on distortionary taxation. Enhanced traceability improves the detection of illicit financial flows and strengthens regulatory enforcement. These gains are particularly relevant in economies with high levels of informality and limited administrative capacity (IMF, 2021).

However, the same features that benefit the state impose costs on economic agents operating outside formal systems. Informal workers, small firms, and sectors reliant on cash transactions face increased exposure to regulation and taxation. While formalization may generate long-term benefits, the short-term adjustment costs are significant.

This creates a structural source of resistance. Informality is not only a constraint but also a response to institutional conditions. In environments characterized by high regulatory burdens and limited trust, economic agents may rationally choose to remain outside formal systems. The introduction of a fully traceable currency reduces the feasibility of this choice, increasing the perceived cost of participation.

Large-scale illicit actors represent another source of resistance. Activities such as tax evasion, corruption, and organized crime depend on anonymity for their operation. A system that restricts anonymous transactions directly threatens these activities. As a result, opposition may not be limited to passive avoidance but may include active efforts to undermine implementation.

At the same time, segments of the formal economy may support the introduction of an NADC. Firms operating within regulated systems face competitive disadvantages when informal actors evade taxation and compliance costs. Increased enforcement can level the playing field, improving allocative efficiency.

Financial institutions occupy an intermediate position. On one hand, they may benefit from integration into a digital monetary system. On the other hand, they face risks related to disintermediation and increased regulatory oversight. The design of the NADC, particularly the role of intermediaries, will shape their incentives.

The political economy of NADC adoption is therefore characterized by conflicting interests. The state seeks increased control and revenue, while segments of the private sector seek to preserve flexibility and autonomy. The outcome depends on the balance of these interests and the credibility of institutional safeguards.

Comparative experience highlights the importance of governance structures. In China, strong state capacity allows for the implementation of a centralized digital currency with limited resistance. In Nigeria, lower levels of trust and institutional capacity have constrained adoption despite policy efforts. Latin American economies fall between these extremes, with moderate institutional capacity and significant informality.

This intermediate position creates both opportunities and risks. On one hand, there is scope for improving fiscal capacity and reducing illicit activity. On the other hand, insufficient trust may limit adoption and generate resistance.

The sequencing of reforms becomes critical. Introducing a highly accountable digital currency without parallel improvements in governance, transparency, and legal safeguards may undermine credibility. Conversely, gradual reforms that build trust may facilitate adoption over time.

Extended Comparative Evidence: Latin America in Context

Latin America presents a distinct institutional environment for the evaluation of CBDCs. The region combines relatively developed financial systems with persistent informality and moderate institutional capacity.

Brazil represents the most advanced case in terms of payment innovation. The rapid adoption of PIX demonstrates the capacity for large-scale digital transformation when incentives are aligned. However, the persistence of cash usage indicates that efficiency gains alone do not eliminate informality (BIS, 2022).

Mexico and Colombia illustrate more gradual adoption patterns. Differences in rule of law, tax capacity, and regulatory enforcement shape the potential outcomes of digital monetary reform (World Bank, 2023; Organisation for Economic Co-operation and Development, 2023).

Beyond the region, comparative cases provide additional insights. China demonstrates the feasibility of large-scale CBDC implementation under strong state capacity. Nigeria highlights the constraints imposed by low trust and resistance to traceability.

Taken together, these cases reinforce a central conclusion: the effectiveness of a National Accountable Digital Currency depends less on technological design than on institutional context. Digital accountability is not a substitute for governance. It is a mechanism that amplifies existing institutional structures. Comparative data reinforce this pattern. (See Table 5).

Table 5.

Governance and Fiscal Capacity Indicators

Country	Rule of Law (WB Index)	Government Effectiveness (WB Index)	Tax Revenue (% of GDP)
Brazil	Moderate	Moderate	~32%
Mexico	Moderate	Moderate	~16%
Colombia	Moderate	Moderate	~18–19%
Germany	High	High	~38%
United States	High	High	~25%

Statistical footnotes:

- Rule of Law and Government Effectiveness indicators (Handoyo, 2023).
- Tax revenue data are based on IMF Fiscal Monitor (2023) and OECD Revenue Statistics (2023).

While more than 130 countries are currently exploring CBDCs, representing approximately 98% of global GDP, fewer than 15 have fully launched retail systems (BIS, 2022; IMF, 2023). This gap between research and implementation reflects the institutional complexity of introducing traceable money at scale.

Latin America occupies an intermediate position in this global landscape: advanced in payment infrastructure but constrained in institutional capacity relative to full monetary transformation.

Conclusion

The National Accountable Digital Currency represents a transformation of money rather than a technological upgrade. Its potential benefits—expanded fiscal capacity, reduced illicit finance, and improved enforcement—are substantial.

However, these outcomes are conditional. Digital accountability amplifies existing institutional structures rather than replacing them. Where governance is strong, it can enhance state capacity. Where it is weak, it may generate risks of misuse, capital flight, and loss of trust.

Limitations and Future Research

This study is conceptual and does not provide econometric estimation. Data on informality and cash usage remain imperfect, and no country has implemented a fully accountable digital currency at scale.

Future research should focus on behavioral responses to reduced anonymity, the interaction between digital identity systems and financial inclusion, and empirical analysis based on CBDC pilot programs.

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The authors do not have any interest conflict.

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References

Andolfatto, D. (2021). Assessing the Impact of Central Bank Digital Currency on Private Banks, *The Economic Journal*, 131(634), 525–540, https://doi.org/10.1093/ej/ueaa073

Auer, R., & Böhme, R. (2020). The technology of retail central bank digital currency. https://www.bis.org/publ/qtrpdf/r_qt2003j.pdf

Auer, R., Cornelli, G., & Frost, J. (2020). *Rise of central bank digital currencies: Drivers, approaches and technologies*. SSRN Electronic Journal. https://raphaelauer.info/wp-content/uploads/2020/12/Auer-Cornelli-Frost-2020-CBDC-Drivers-approaches-and-technologies-VoxEU-28-October.pdf

Awasthi, R., & Engelschalk, M. (2018). *Taxation and the shadow economy: How the tax system can stimulate and enforce the formalization of business activities* (Policy Research Working Paper No. 8391). World Bank. http://hdl.handle.net/10986/29603

Banco Central do Brasil. (2021). *PIX: The Brazilian instant payment system*. https://www.bcb.gov.br/en/financialstability/spi_en?ano=2021

Banco Central do Brasil. (2023). *PIX statistics and usage reports*. https://www.bcb.gov.br/en/financialstability/pixstatistics

Banco de la República. (2026). *Conozca BRE-B*. https://www.banrep.gov.co/es/bre-b

Banco de México. (2026). *Información Sobre Codi Cobro Digital* https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html

Bank for International Settlements. (2022). *Annual Economic Report 2022: The future monetary system*. https://www.bis.org/publ/arpdf/ar2022e.htm

Barrdear, John & Kumhof, Michael. (2022).. The macroeconomics of central bank digital currencies,Journal of Economic Dynamics and Control, 142(C). https://ideas.repec.org/a/eee/dyncon/v142y2022ics016518892100083x.html

Brunnermeier, M. K., & Niepelt, D. (2019). On the equivalence of private and public money. *Journal of Monetary Economics, 106*, 27–41. https://doi.org/10.1016/j.jmoneco.2019.07.004

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank. https://www.researchgate.net/publication/362424422_The_Global_Findex_Database_2021_Financial_Inclusion_Digital_Payments_and_Resilience_in_the_Age_of_COVID-19

European Central Bank. (2023). *A stocktake on the digital euro: Progress report on the investigation phase*. https://www.ecb.europa.eu/euro/digital_euro/timeline/profuse/html/index.en.html

Federal Reserve. (2023). *FedNow Service: Overview and resources*. https://www.federalreserve.gov/paymentsystems/fednow_about.htm

Handoyo, S. (2023). Worldwide governance indicators: Cross country data set 2012–2022, *Data in Brief,* 51, 109814. https://www.sciencedirect.com/science/article/pii/S2352340923008764

International Labour Organization. (2022). *Women and men in the informal economy: A statistical picture* (3rd ed.). https://www.ilo.org/publications/women-and-men-informal-economy-statistical-picture-third-edition

International Monetary Fund. (2021). *Nigeria: Selected issues* (Country Report No. 22/33). https://www.imf.org/en/Publications/CR/Issues/2022/02/08/Nigeria-Selected-Issues-512903

International Monetary Fund. (2023). *Fiscal Monitor: On the path to policy normalization*. https://www.imf.org/en/Publications/FM/Issues/2023/04/03/fiscal-monitor-april-2023

Kahn, C. M., Rivadeneyra, F., & Wong, T.-N. (2022). Should the central bank issue e-money? *Journal of Monetary Economics, 125*, 50–64. https://www.econstor.eu/bitstream/10419/197911/1/1043494065.pdf

Organisation for Economic Co-operation and Development. (2023). *Revenue Statistics 2023: Tax revenue buoyancy in OECD countries*. https://www.oecd.org/en/publications/revenue-statistics-2023_9d0453d5-en.html

Rogoff, K. S. (2016). *The curse of cash*. Princeton University Press.

Shapiro, J. N. (2021). *The underground economy and financial crime*. Princeton University Press.

Tunji, S. (2024, July 21). *eNaira makes up less than 1% of currency in circulation as of March 2024*. Nairametrics. https://nairametrics.com/2024/07/21/enaira-makes-up-less-than-1-of-currency-in-circulation-as-of-march-2024/