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DeFi, Inclusion, and Financial Democracy

Financial democratization and inclusion are foundational pillars in establishing a more equitable financial landscape. In the world's pursuit of establishing a more equitable financial landscape, Decentralized Finance (DeFi) has emerged as a revolutionary path towards making this vision a reality. Although the promise of DeFi has yet to be fully realized, there is growing evidence that it has the potential to significantly transform economies plagued by political instability, corruption, hyperinflation, and inadequate financial infrastructure. DeFi offers scalable and cost-effective solutions that bypass the prohibitive expenses and complexities of traditional financial setups, opens pathways to financial inclusion for underserved communities, and fosters a cycle of economic empowerment rather than exclusion.

This paper provides an overview of how DeFi is emerging among countries with fragile economic and financial systems. First, it defines financial democratization and inclusion, then outlines how DeFi works. Then provides case studies of Lebanon, Nigeria, and Mexico — countries that have responded to the shortcomings of their financial systems with greater DeFi adoption. Finally, the paper peers into the pathway forward and addresses what is required of developed countries' public policy approaches.

Financial Democratization and Inclusion In Context

Financial inclusion is the process of ensuring that individuals, households, and businesses have access to, and can effectively use, the appropriate financial services and products they need for transactions, credit, payments, savings, and insurance.[1] In a financially inclusive environment, financial products and services are available to those who traditionally lack access, thereby promoting economic growth and empowering vulnerable groups within society.

Financial democratization goes a step beyond merely providing access. Instead, it is a multi-layered process that starts with ensuring equal property ownership rights and lays the groundwork for broad participation in democratic governance and the economy. In a democratic and fair environment, members of a society have equal and fair conditions,

[1] Cicchiello, Antonella Francesca, et al. "Financial Inclusion and Development in the Least Developed Countries in Asia and Africa." *Journal of Innovation and Entrepreneurship*, vol. 10, no. 49, 2021, https://doi.org/10.1186/s13731-021-00190-4.

access to the capital creation process, and equal opportunity to participate in the decision-making processes.[2]

At their core, 'inclusion' and 'democratization' represent two sides of the same coin that foster a more equitable financial landscape. Inclusion aims at broadening access to financial services for all; while democratization addresses deeper systemic inequalities by advocating for equal rights to property ownership and active participation in economic decision-making.

Democratization and Inclusion in Fragile Financial Settings

By 2030 it's estimated that 59% of the world's poorest will live in fragile state settings, characterized by political instability, corruption, inflation, and ineffective financial and monetary policies.[3] The Organisation for Economic Co-operation and Development (OECD) describes fragility as the combination of exposure to risks and the insufficient capacity of states, systems, or communities to manage, absorb, or lessen those risks.[4] Hence, the push for financial democratization and inclusion is often linked to political reforms that support good governance. This echoes the World Bank's definition of good governance as “the manner in which power is exercised in the management of a country's economic and social resources for development,” where factors such as “openness, transparency, predictability, and the rule of law” are critical to inducing government behavior that benefits development.[5]

Therefore, achieving financial equality and inclusivity necessitates the democratic oversight of money creation, distribution, and regulation. It also requires limiting political influence over finance, enhancing the autonomy of financial institutions such as central banks, and ensuring transparency and accountability.[6]

While achieving these policy objectives is feasible in democracies, institutional reform poses greater challenges in developing countries. In these settings, centralizing power within financial institutions and creating monopolies over monetary systems can be

[2] Kregel, Jan. "Democratizing Money." Levy Economics Institute of Bard College Working Paper No. 928, May 2019. Levy Economics Institute, http://www.levyinstitute.org.
[3] Overview: Fragility, Conflict and Violence." World Bank, 27 Apr. 2023, www.worldbank.org/en/topic/fragilityconflictviolence/overview.
[4] Chehade, Nadine, Molly Tolzmann, and Sabaa Notta. "Inclusive Finance in Fragile Countries: Advancing a Vital Agenda." CGAP, 20 July 2021, www.cgap.org/blog/inclusive-finance-in-fragile-countries-advancing-vital-agenda
[5] See : Isham, Jonathan, et al. "The Manner in Which Power is Exercised in the Management of a Country's Economic and Social Resources for Development." 1997. Financial Democratization, by Philip A. Wellons, Harvard Law School, 1997, p. 1.
[6] Mellor, M. (2019). Democratizing Finance or Democratizing Money? Politics & Society, 47(4), 635-650.

counterproductive, potentially enhancing the control of corrupt elites over finances. This situation could worsen existing problems, particularly where oversight and democratic controls are inadequate or compromised. Furthermore, the path to political reform and establishing robust governance is complex and prolonged, often obstructed by substantial obstacles that render it impractical. This reality underscores the need for immediate, alternative solutions that can efficiently meet the needs of the populace. Therefore, the pursuit of innovative financial systems like DeFi is crucial in overcoming the constraints of conventional reform efforts.

Decentralized Finance

DeFi leverages public blockchain technology to provide open, transparent access to financial services without the need for centralized intermediaries or institutions. Public blockchains are distributed ledgers maintained by a network of decentralized, unaffiliated computers (nodes) that validate transactions and record them on the ledger.

DeFi consists of sets of blockchain-based software programs known as ‘smart contracts’ to automatically execute the terms of an agreement when a user initiates a transaction and predefined conditions are met. What’s particularly beneficial about a smart contract is that its code is both immutable — as it cannot be changed once programmed into the blockchain to prevent any tampering with the code — and open-source.

A common analogy for a smart contract is that of a vending machine: the vending machine automatically releases a bag of chips on the condition that it receives $2. The consumer initiates the transaction then solely relies on code to execute it, not a third party vendor.

Importantly, because DeFi exists on a public blockchain and depends entirely on software instead of intermediaries, there’s no central authority or gatekeeper dictating who can access it. This means anyone with an internet connection has access to financial services, opening up the global economy to those who would otherwise be excluded.

Lebanon: DeFi Adoption the Context of State Failure and Corruption

What was once called "Switzerland of the Middle East" for its robust financial sector, Lebanon has descended into a crisis marked by corruption, inadequate financial policies, and a failing banking sector, leaving it on the edge of total state failure. In 2019, a financial crisis hit the Lebanese economy leaving more than two thirds in poverty.[7] As a consequence of the crisis, the Lebanese state and its central bank declared bankruptcy in 2022, stating that the losses will be divided between the state, banks, and depositors. By 2023 the net financial losses in public sectors were estimated to be over $72 billion and the average yearly inflation rate reached 222.42%.[8]

Since the beginning of the crisis, the state imposed withdrawal restrictions on citizens, which led some Lebanese citizens, in a desperate bid to access their savings to hijack banks — not to commit robbery in the traditional sense but to demand access to their own accounts. These actions underscore the desperation and severity of Lebanon's financial crisis.[9] The crisis also revealed many financial mismanagement and corruption incidents, most significantly related to Lebanon's central bank governor, Riad Salameh, who is currently facing international sanctions and is under investigation in several European countries over allegations of embezzling more than $300 million from the central bank.[10]

These incidents likely ignited the growth of DeFi in Lebanon. In 2022, Chainalysis Geography of Cryptocurrency Report, Lebanon achieved the second-highest ranking for DeFi value received, highlighting the country's substantial engagement with DeFi platforms. In the same report, Lebanon was ranked third in the Middle East and North Africa (MENA) region in Year on Year growth in crypto transaction volume, with 120% annual growth.[11]

This substantial growth is due to "trust in the reliability and integrity" of cryptocurrency and DeFi systems, which led to greater adoption.[12] Contrary to expectations, herd behavior (the tendency of individuals to mimic the actions of a larger group) and regulatory support (perceptions of government regulation of cryptocurrencies) were not found to significantly influence intentions towards cryptocurrency adoption. This

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[7] Lebanon: Events of 2022." Human Rights Watch, 2023, www.hrw.org/world-report/2023/country-chapters/lebanon

[8] Bechara, Stephanie. "Lebanon's Inflation Remains in the Triple Digits in 2023." L'Orient Today, 23 Jan. 2024, today.lorientlejour.com/article/1365438/lebanons-inflation-remains-in-the-triple-digits-in-2023.html.

[9] Al Jazeera. 'What Is Behind Lebanon's Bank Robberies: Explainer.' Al Jazeera, 15 Sept. 2022, www.aljazeera.com/news/2022/9/15/what-is-behind-lebanons-bank-robberies-explainer."

[10] Lebanon's Central Bank Meltdown: A Cautionary Tale of Financial Engineering." Peterson Institute for International Economics. www.piie.com/blogs/realtime-economics/lebanons-central-bank-meltdown-cautionary-tale-financial-engineering.

[11] The Chainalysis 2022 Geography of Cryptocurrency Report https://www.chainalysis.com/blog/2022-global-crypto-adoption-index/

[12] Abou Ali, Ali Abdel Karim. "DeFi Era: The Behavioral Intentions Toward Cryptocurrency in Lebanon." Innovation & Management Review, 2023, https://doi.org/10.1108/INMR-02-2023-0022.

suggests that social influence and regulatory perceptions are less critical in shaping cryptocurrency intentions in Lebanon.[13]

Nigeria: DeFi as a Hedge Against Economic Collapse

Nigeria, Africa's largest economy, faces severe economic distress, with inflation hitting 29.9% in January, the highest since 1996.[14] In 2024, the national currency, naira, experienced a near 230% annual depreciation, ranking it as the second most devalued currency worldwide after Lebanon's pound.[15] This currency crisis — compounded by significant government debt, high unemployment, and frequent power outages — is halting economic growth and precipitating substantial losses for businesses due to the devaluation of the currency.[16]

The Chainalysis Geography of Cryptocurrency Report cited a mass crypto adoption in Nigeria over the years mainly for remittance, savings, international commerce transactions, and peer to peer transactions (P2P).[17] Their data indicated that Nigerians turn to cryptocurrency as a hedge or alternative during economic instability. This is evident by the increased interest in Bitcoin and stablecoins as the naira's value has decreased, particularly during the extremely steep drops in June and July of 2023. This is despite the regulatory attempts by the Nigerian Central Bank (NCB) to curb cryptocurrency usage by closing and not allowing any new bank account by any person or entity which has engaged in digital assets activities, according to the NCB.[18]

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[13] Ibid

[14] Nigeria's Currency Crisis is Decades in the Making." The Economist, 7 Mar. 2024, www.economist.com/middle-east-and-africa/2024/03/07/nigerias-currency-crisis-is-decades-in-the-making

[15] Ibid

[16] Naira Devaluation Pushes Nestle to First Loss in 12 Years." BusinessDay, BusinessDay Media Ltd. businessday.ng/companies/article/naira-devaluation-pushes-nestle-to-first-loss-in-12-years/. Accessed 03 Apr. 2024.

[17] The Chainalysis 2023 Geography of Cryptocurrency Report." Chainalysis, 2023, (page 87) https://go.chainalysis.com/geography-of-cryptocurrency-2023.html. Accessed 3 Apr. 2024.

[18] In Feb 2021, the NCB banned financial institutions from dealing in or facilitating transactions. The ban was lifted in December 2023. See: Nigerian Central Bank Lifts Ban on Crypto Trading." Reuters, 23 Dec. 2023, https://www.reuters.com/world/africa/nigerian-central-bank-lifts-ban-crypto-trading-2023-12-23/

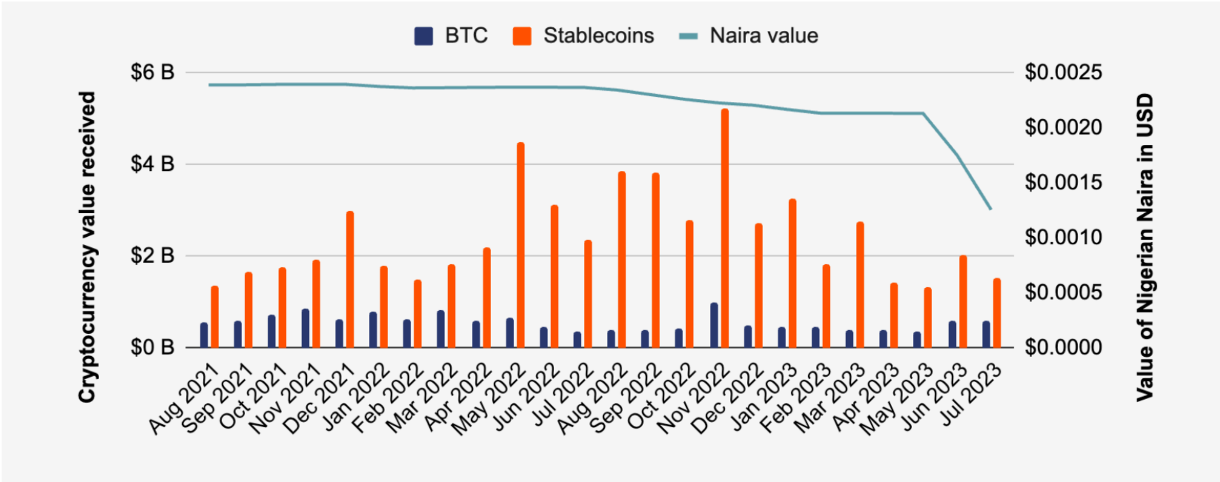

Figure 1: Bitcoin and stablecoin volume received by Nigerian exchanges vs. Naira value Aug 2021 - Jul 2023

Nigeria's trajectory in DeFi adoption is underscored by a leap from the 34th position in 2021 to the 2nd position in 2023 in the Global Crypto Adoption Index. While the on-chain number of DeFi deposits was at 118th place in 2021, the country advanced significantly in overall DeFi engagement. By 2023, and as a result of the currency crisis, Nigeria was leading with a 1st place in P2P exchange trade volume and maintaining a strong position in retail DeFi value received, jumping from 8th to 4th place.[19] This data illustrates a substantial and rapid increase in both the scale and depth of DeFi adoption, reflecting enhanced trust and integration of DeFi solutions into the Nigerian financial landscape.

Mexico: A Shift Towards Affordable and Secure Financial Services

In Mexico, financial inclusion presents considerable challenges with only 37% of adults holding bank accounts, a number that is significantly lower than other countries with similar levels of development.[20] Approximately 21% of adults without a bank account report that financial institutions are too distant, highlighting significant exclusion in rural

[19]The Chainalysis 2023 Geography of Cryptocurrency Report." Chainalysis, 2023, (page 86) https://go.chainalysis.com/geography-of-cryptocurrency-2023.html. Accessed 3 Apr. 2024.

[20] Expanding Financial Access for Mexico's Poor and Supporting Economic Sustainability." World Bank, 9 Apr.2021www.worldbank.org/en/results/2021/04/09/expanding-financial-access-for-mexico-s-poor-and-supporting-economic-sustainability.

areas and municipalities undergoing transition.[21] This is a significant challenge for the world's second-biggest receiver of remittances with an estimated $67 billion flowing into the country from overseas in 2023.[22]

The issue with the remittances (i.e., payments) market is its overreliance on foreign exchange (FX) markets, especially in the absence of formal financial institutions in the recipient countries. In the FX market, individual brokers and dealers frequently manage transactions over-the-counter, settling them through intricate bilateral and multilateral netting systems. This settlement process involves lengthy chains of intermediaries, which increase the transactions' costs and complexity for end-users.[23]

By leveraging DeFi technologies for on-chain FX trading and settlement, many of the traditional FX market's issues including slow settlement times, high costs, and settlement risks, can be mitigated. It also reduces the high costs associated with establishing banking infrastructure and services. The usage of DeFi protocols can significantly decrease the transaction costs, totaling up to 80% from transaction costs, which amounts to approximately $30 billion annually from global remittances fees for households relying on these funds.[24] These costs might fall further with expansion of on-ramp options and protocol update and L2 solutions.[25]

For example: sending remittance of $500 with DeFi would accumulate charges for currency conversion on the blockchain and for moving money into and out of the digital system for as low as $5 (See: figure 3). This amount is substantially lower than the global average of 6.1% of the total transaction, where traditional banking systems remain the most expensive type of service provider with an average cost of 11.48 percent.[26]

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[21] Paula Cruz‑García, María del Carmen Dircio Palacios Macedo, Emili Tortosa‑Ausina, Financial inclusion and exclusion across Mexican municipalities, Regional Science Policy & Practice, Volume 13, Issue 5, 2021, Pages 1496-1526.

[22] Remittance Flows Grow in 2023 at a Slower Pace: Migration and Development Brief." World Bank, 18 Dec. 2023 www.worldbank.org/en/news/press-release/2023/12/18/remittance-flows-grow-2023-slower-pace-migration-development-brief.

[23] Adams, Austin and Lader, Mary-Catherine and Liao, Gordon and Puth, David and Wan, Xin, On-Chain Foreign Exchange and Cross-Border Payments (January 18, 2023). Available at SSRN: https://ssrn.com/abstract=4328948 or http://dx.doi.org/10.2139/ssrn.4328948

[24] Adams, Austin, et al. "On-Chain Foreign Exchange and Cross-Border Payments." SSRN, 24 Jan. 2023, https://ssrn.com/abstract=4328948.

[25] For instance, Ethereum's Dencun L2, which was introduced on March 13, 2024, reduced average gas fees on L2 by 10 times. https://blog.ethereum.org/2024/02/27/dencun-mainnet-announcement

[26] World Bank. "Remittance Prices Worldwide Report." Q3 2023, https://remittanceprices.worldbank.org/sites/default/files/rpw_main_report_and_annex_q323_1101.pdf

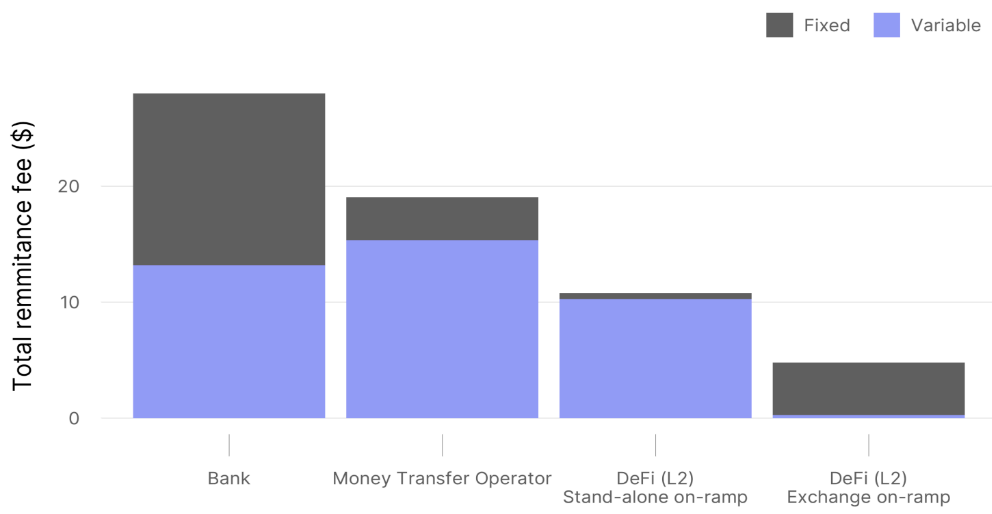

Figure 3: Remittance costs for $500 transfer

The data from 2021 to 2023 showcases Mexico's significant shift towards embracing cryptocurrency and, in particular, decentralized finance (DeFi). In 2021, Mexico had an overall crypto adoption index ranking of 44th, a ranking of 144th in p2p transactions, 22nd on chain DeFi value received, and 25th on-chain retail DeFi value received.[27] The index score suggests that while there was engagement, there was substantial room for growth and development.

In 2022, the upward movement to the 28th position for crypto adoption was a strong indicator of momentum building within the country's crypto ecosystem with a ranking of 122nd in p2p transactions, 23rd DeFi value received, and 19th on-chain retail DeFi value received. This growth is likely attributed to a growing understanding of and confidence in the use of blockchain-based financial services.[28] In the same year, the remittance market registered a significant growth at a year-over-year growth rate of 400% and a grip on 4% of Mexico's total remittance market.[29]

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[27] 2021 Global Crypto Adoption Index." Chainalysis, 18 Aug. 2021, (page 118) (https://www.chainalysis.com/blog/2021-global-crypto-adoption-index/. Accessed 3 Apr. 2024.

[28] The 2022 Global Crypto Adoption Index: Emerging Markets Lead in Grassroots Adoption, China Remains Active Despite Ban, and Crypto Fundamentals Appear Healthy." Chainalysis, 14 Sept. 2022, (page 83) www.chainalysis.com/blog/2022-global-crypto-adoption-index/. Accessed 3 Apr. 2024.

[29] The 2022 Global Crypto Adoption Index: Emerging Markets Lead in Grassroots Adoption, China Remains Active Despite Ban, and Crypto Fundamentals Appear Healthy." Chainalysis, 14 Sept. 2022, (page 25) www.chainalysis.com/blog/2022-global-crypto-adoption-index/. Accessed 3 Apr. 2024.

By 2023, Mexico's rapid ascent to the 16th place in the overall index, with a ranking of 30th in p2p transactions, 16th DeFi value received, and 16th on-chain retail DeFi value received, underscored a robust adoption trend.[30] The consistent advancements across centralized services, P2P exchanges, and retail participation in DeFi point to a broad-based, grassroots expansion of crypto within the country. Nearly half of their whole transaction in 2023's volume processed through DeFi.[31]

The Pathway Forward

DeFi provides inclusive and equitable financial services and may be a formidable challenger to traditional financial frameworks around the world. Traditional systems, often mired in corruption and ineffective policies, are slow to address the urgent financial needs of marginalized communities. Meanwhile, DeFi, with its decentralized and open-source nature, offers a radical alternative. It enables a shift from centralized control over financial resources to a more distributed model, empowering individuals by giving them direct access to financial tools and opportunities. This shift not only offers immediate benefits but also pressures existing financial structures to adapt and improve, potentially leading to broader systemic changes.

These decentralized approaches ensure immediate financial access and empowerment for marginalized communities, bypassing traditional barriers. In the absence of such alternatives, systemic inefficiencies and exclusions will persist, leaving these communities devoid of critical financial services. These conditions entrench economic disparities and limit the broader economic potential of the society, maintaining cycles of poverty among its most vulnerable populations.

DeFi innovation will also be a critical aspect of the democratization and innovation roadmap. While it is evident in the aforementioned case studies that DeFi technology is drawing closer to the mainstream, it is critical to continue to support greater adoption of the DeFi industry and open-source innovation. Mainstream adoption of DeFi is still largely influenced by policymakers in developed countries but is facing aggressive

[30] The Chainalysis 2023 Geography of Cryptocurrency Report." Chainalysis, 2023, (page 87) https://go.chainalysis.com/geography-of-cryptocurrency-2023.html. Accessed 3 Apr. 2024.
[31] The Chainalysis 2023 Geography of Cryptocurrency Report." Chainalysis, 2023, (page 22) https://go.chainalysis.com/geography-of-cryptocurrency-2023.html. Accessed 3 Apr. 2024.

scrutiny due to legitimate, though often overstated,[32] concerns regarding its use for illicit purposes.

Policymakers in more developed countries must understand that their decisions don't just shape their own financial landscapes but also the lives of the less fortunate marginalized communities. Therefore, adopting a careful yet forward-thinking strategy could create a setting in which DeFi acts as a complement to, rather than a challenge against, established financial systems. This approach would not only spur innovation but also ensure stability and security worldwide, showcasing the potential for DeFi to integrate seamlessly into the global financial ecosystem.

[32] According to the Chainalysis 2024 Crypto Crime Report only 0.34% of crypto transaction volume associated with illicit activity, declining from 0.42% in 2022. According to the UN Office on Drugs and Crime's report in 2011, a meta-analysis of the results from various studies suggests that illicit activities amount to some 3.6% of global GDP (2.3%-5.5% of global financial system).
Additionally, according to the National Risk Assessments for Money Laundering, Terrorist Financing and Proliferation Financing's report, conducted by the U.S. Treasury in 2024, the report carefully noted that illicit finance involving crypto remains small relative to financial crime in other parts of the financial sector.