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Financial Inclusion through Decentralized Finance: A Citizen Perspective

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Abstract: *DeFi, a blockchain-based innovation, eliminates traditional financial intermediaries, offering direct peer-to-peer financial transactions and access to a wide array of financial services including lending, borrowing, insurance, and investment opportunities. This paper delves into how DeFi democratizes access to financial resources, particularly for the underserved and unbanked populations worldwide, by reducing transaction costs, enhancing transparency, and providing secure and equitable access to financial services. Through a citizen-centric lens, this article contributes to the ongoing dialogue on leveraging DeFi for global financial inclusion, suggesting pathways for integrating DeFi into the broader financial ecosystem in a manner that maximizes its inclusivity and benefits for all citizens.*

Keywords: *financial inclusion; DeFI; blockchain; financial services; transparency.*

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Introduction

We need multiple efforts to overcome our natural inertia. As in the case of other industries, the structural reconfiguration of our financial systems will occur sooner or later, as the current models become unsustainable, or irrelevant to consumers. Technology advancement has significantly raised the expectations of customers and citizens in terms of digital interaction. We might observe, for example, how citizens prefer to make bank transfers, pay their bills, or complete administrative paperwork using digital channels, such as mobile apps or online portals. The agile transformation of financial management and services now requires convenient and sustainable mobility, value-based pricing, instant gratification, and goldfish-sized attention spans (Puga, 2022).

One of the key characteristics of Web 3.0 is the promise of enabling more democratic and equitable financial services through the expansion of decentralized finance, or DeFi. It can be compared to building a safe conduit between the participants to a transaction directly, bypassing banks and governments. Also, DeFi differentiates itself from the conventional financial structure because it is transparent, programmable, immutable, interoperable and without permission (INATBA Report, 2023). Through consumer-centered trading platforms and personal wallets, DeFi applications' distinctive features give users higher direct control over their assets than traditional financial institutions. DeFi could potentially aid in the restructuring of the financial industry by releasing it from the limitations of fractional reserves and enabling large-scale consumer credit services. Also, DeFi has the potential to significantly improve financial inclusion by improving accessibility and the use of financial services for individuals without bank accounts. This is because the majority of DeFi's current product and service offerings are comparable to those found in traditional finance.

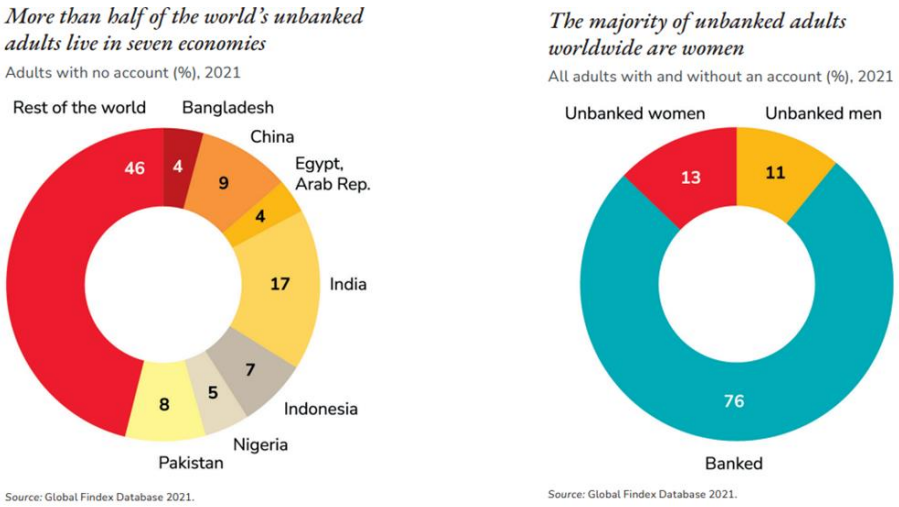
Unbanking: causes and effects

Financial exclusion has long been a major social problem, keeping poor people from having access to and using financial services. This marginalization reinforced the cycles of poverty again and again (Popescu, 2022). It became common practice to use the term "financial inclusion" to alleviate poverty and empower disadvantaged populations, such as unbanked[1]

[1] Unbanked people lack access to any financial services, such as a checking account at a bank or mobile money. Globally, 1.4 billion adults are unbanked, according to the latest Global Findex Database, available at: https://www.worldbank.org/en/publication/globalfindex.

or underbanked[2] populations, in the beginning. Currently, the term is used to refer to new technologies, such as mobile or open banking, and new service providers, such as fintech companies.

According to a Global Findex 2021 poll (*Graphic1*), the primary causes of people's lack of banking are people's absence of funds, their perception of account expenses, and their distance from financial organizations (Demirgüç-Kunt *et. al.*, 2022). Lack of access to financial products and services can have major negative effects on the economy and society, particularly in underdeveloped nations and rising markets. In this sense, DeFi may encourage financial insertion by making these service industries available to everybody with a computer, smartphone, and an internet connection (INATBA Report, 2023).



Graphic 1
Source: (Demirgüç-Kunt *et. al.*, 2022, p. 34)

As a matter of fact, financial services have seen a large transformation in particular to the introduction of blockchain technology, which has increased accessibility for the underbanked and unbanked by establishing an open, reachable, and effective financial environment.

[2] People who are underbanked have access to basic financial services but do not use them or do not have access to mainstream banking facilities such as credit.

Financial Inclusion Overview

Ensuring financial inclusion is a fundamental goal in attaining fair economic development and decreasing poverty on a worldwide scale. Providing universal access to affordable, functional financial goods and services that meet individual requirements is the goal, irrespective of financial resources or social status (Mhlanga, 2023). Historically, a variety of issues have made financial inclusion more difficult, including geographic limitations, insufficient identity, high transaction costs, and stringent qualifying standards set by traditional banking institutions. Three main dimensions were used in other previous studies (Sapre, 2021; Chen et al., 2022) to define financial inclusion:

- **access**, as the provision of financial products and services through both physical (bank divisions, ATMs, financial institutions, savings and loan associations, and post offices) and remote (mobile money applications, internet-based banking, and online payment systems) (INATBA Report, 2023)

- **usage**, which describes a customer's need for financial services and goods whether or not they interact with the established financial system (INATBA Report, 2023) and,

- **efficacy**, which refers to the benchmarks for financial services and goods (INATBA Report, 2023).

The necessity for greater digital financial inclusion has also been emphasized by the COVID-19 situation. For example, roughly eighty million adults in India conducted their first digital merchant payment during the pandemic (Mhlanga, 2023). In China, 82% of consumers made a digital merchant payment in 2021, with over 100 million adults (11%) making their first purchase following the pandemic's beginning (Demirgüç-Kunt *et. al.*, 2022). The concept of digital financial inclusion pertains to the utilization of cost-effective digital methods to provide a range of traditional financial services that are appropriate for the needs of underserved and financially excluded populations (World Bank Group, 2022). The G20 reiterated its commitment to putting the G20 High-Level Principles for Digital Financial Inclusion into practice and pledged to promote financial inclusion globally. Also, according to the World Bank Group (2022), financial inclusion is essential to lowering extreme poverty and promoting shared prosperity, facilitating 7 Sustainable Development Goals or otherwise known as Global Goals, which were adopted by the United Nations in 2015. In countries where more than 80% of the population has an account, the next step is to transition from accessibility to account utilization (China, Thailand, Kenya, India) (Ozili, 2023). These countries were reliant on reforms, private sector innovation, and

efforts to provide affordable accounts that supported mobile and digital transactions (World Bank Group, 2022).

DeFi has a lot of potential to improve financial inclusion, but there are risks and obstacles that must be properly addressed. The digital nature of DeFi requires a basic level of technological literacy and access to the internet, which can be a barrier for certain populations (Popescu, 2022). DeFi pulse indicated that since $9.1 billion worth of value was locked in DeFi in July 2022, the entire value of DeFi has surged four times (Pay, 2022). The recent boom in cryptocurrency investments has been primarily to blame for this. Blockchain has become becoming more and more popular; currently, there are over 80 million blockchain wallets worldwide, up 35 million in just the previous two years (Pay, 2022). When DeFi is positively adopted, an environment that is favorable to other financial services like lending and borrowing is created.

Furthermore, the regulatory environment surrounding DeFi is still developing, which raises questions regarding fraud, consumer protection, and financial stability. In order to fully exploit DeFi for financial inclusion, it is critical to overcome these issues by cooperative efforts amongst stakeholders, including governments, regulatory organizations, and the DeFi community. Cryptocurrencies, mobile wallet operations, smart contracts, peer-to-peer loans (P2P), free banking on blockchain applications, asset management, and other features can all limitlessly contribute to financial integration as part of DeFi's customer-centric platform paradigm, as further explained below. (INATBA Report, 2023).

DeFi can facilitate financial inclusion; but how?

The role of DeFi in enhancing the accessibility

Firstly, not every individual has access to credit, despite it being a crucial part of the economy. People who would not otherwise have access to loans or be coerced into using predatory loan instruments like payday loans are now able to do so thanks to DeFi borrowing and lending (Pay, 2022; INATBA Report, 2023). However, counterarguments such as that DeFi is just a smart proposition for providing tech-savvy consumers with access to finance or that increases suboptimal financial behaviour risks should be considered too (Aramonte *et. al.*, 2021). Still 1.7 billion adults lack a bank account or a mobile money provider account because many nations still struggle to offer individuals trustworthy banking accessibility and financial security (Mikhalev, 2020).

Secondly, in terms of interest rates, DeFi restores lending to how it was before fractional reserve banking: more money can be lent if more people keep their money in a particular token, and the interest rate on the loan accumulates over time (Ejeke, 2022). The stored asset may therefore be rewarded with a higher interest rate. Moreover, apps like Compound (through COMP) and Uniswap (via UNI) show that DeFi may even give value directly to consumers to boost its adoption[3].

Thirdly, based on present practices, underserved consumers may find it easier to obtain DeFi loan than traditional credit-rating-based lending (Pay, 2022). One major benefit of decentralized lending, for example, is that it gives borrowers quick access to finance that is very competitive (INATBA Report, 2023). Additionally, it gives lenders worldwide a chance to participate and submit bids. Lenders can confirm transactions and handle accounts virtually quickly with the help of smart automated contracts and oracle technology, saving them both time and money (OECD, 2022).

There are also some concerns that many of DeFi's services are backed by crypto. Unlike conventional banking where one can trust intermediaries to act with her/his best interests in mind, in the DeFi ecosystem, the middleman is replaced by smart contracts (Pay, 2022). Users of DeFi services can stay anonymous and are not needed to divulge any personal information. For example, this presents several legal and risk evaluation issues (INATBA Report, 2023). However, one solution to this problem is for borrowers to apply for loans from lenders like traders on their own and institutional investors after posting collateral in the form of a cryptocurrency or other asset. In this way, the system maintains its stability and dependability (Mikhalev, 2020). But this collateral system-based exclusive intermediation also calls into question if DeFi's claims to democratize finance and provide fair use of financial products and services will come to pass (OECD, 2022). When collateral is needed, access to DeFi services—like borrowing—becomes restricted because these services are exclusive to asset owners. Furthermore, some of these services' possible appeal and functionality outside of the virtual realm may be limited by crypto collaterals (Mikhalev, 2020; INATBA Report, 2023).

Keeping these issues in mind, tokenizing real-world assets, harmonizing regulatory structures, and incorporating compliance guidelines, including developing a digital identity system, are the main requirements for realizing DeFi's promise to transform the real-world economy (Rockship, 2023). The pledge of tokenised equity and assets is more complex, but it can

[3] DeFi is also referred as "*lego money*" because piling up dApps increases the returns.

bridge the break between the real and virtual realms and provide liquidity at the same time (Horne, 2023). For instance, liquidity would be possible for firms that do not have access to liquid capital because their assets are too valuable. It would also allow them to diversify their investments, for example, through DeFi crowdfunding platforms (INATBA Report, 2023). Tokenisation of assets provides transparency and improved liquidity and tradability of least-liquid assets to traditional businesses and crypto-enthusiasts (Garrido, 2023).

The role of DeFi in usage and efficacy

It is worth noting that the prevalent DeFi offerings currently in circulation bear similarities to those found in traditional finance (OECD, 2022). It could be helpful to differentiate among the products or service categories indicated below (*Tabel 1*) in the context of the DeFi approach and financial inclusion in general.

DeFi Services	➢ **stablecoins and protocol tokens** ➢ **exchanges** ➢ **credit** ➢ **insurance** ➢ **derivatives** ➢ **asset management** ➢ **oracles** ➢ **vaults** ➢ **wallets** ➢ **data storage** ➢ **identity management** ➢ **alternative dispute resolution**
Financial Incentive System	➢ lock-up yields ➢ liquidity mining ➢ airdrops ➢ yield farming ➢ liquidation fees
DeFi Inclusive Strategies	➢ lending ➢ payments ➢ investments ➢ utility access

Tabel 1
Source: (INATBA Report, 2023)

DeFi is anticipated to boost financial inclusion by enabling users without bank accounts to interact with the financial system (Binmile, 2023). Additionally, it may also make it possible for the financial and open banking industries to compete more fiercely. For instance, enticing low-income consumers to invest makes micro-investment possible, which advances both macroeconomic expansion and the well-being of the person. As of December 2020, there were over 60 million active blockchain wallets (Cryptorank, 2022). The number of users is increasing as new blockchain-based wallets and cryptocurrency goods and services hit the market, indicating that decentralized digital currency has migrated from the periphery of technology into the core of the economic system (Blockchain Charts, 2023).

Since the pandemic led to a significant increase in digital bank accounts, exponential popularity of digital currencies and easier access to banking services for citizens, digitalisation and decentralisation's promise for the society of an inclusive and sustainable financial ecosystem seems more believable (Kiefer *et. al.*, 2020). It should be highlighted that traditional financial institutions have not been idle to DeFi's entrance into the mainstream market, where they add considerable economic value while playing a key role in promoting retail adoption. According to the Chainalysis Report (2021), in DeFi transactions, "large institutions" account for 60% of all transactions, whereas "large institutional transactions" are defined as above $10 million.

While some of these innovations are likely to be beneficial for reducing transaction costs, enabling better control of one's assets, driving competition, and fostering financial inclusion, at the same time, the variety of challenges might hinder this expanding sector (Far *et. al.*, 2023). In the table listed below (*Table 2*), we highlighted some of the potential risks encountered, as follows:

Financial risks: credit and counterparty credit risk, liquidity risk, market risk
Cyber and operational risks: cyber-attacks, network governance issues, implementation risks
Legal risks: ML/FT, consumer protection, regulatory uncertainty
Reputational risks: scams, cyber-attacks, crypto crashes, contagion

Table 2
Source: (Mhlanga, 2023)

Despite its potential to democratise finance and increase financial inclusion, DeFi is still in its infancy, and we should consider serious concerns from cybersecurity threats to suboptimal financial decision-making consequences which might undermine financial stability and systemic risk (Wewege & Thomsett, 2019).

Conclusions

Web 3.0 and its economies should not be confused with digital currencies, such as cryptocurrencies, virtual currencies, or central bank digital currencies. Web 3.0 is a computer-based enabler of virtual worlds where people can have real or fictional experiences. Through this virtual ecosystem, people learn creative ways to relate, build new communities, and develop novel models of economies, adapting to this digital lifestyle. Despite these explorations being relatively new, some features of DeFi, including smart contracts, may become part of traditional finance.

Though trying to avoid hasty generalisation, we may conclude based on the loans facilitating and financial diversification, low transaction costs, interoperability, trust and transparency in the economic environment, DeFi might enable financial inclusion in communities who most need it. Since it makes these investments accessible to individuals from various backgrounds, it's a fantastic method for folks who are new to investing to start learning about the opportunities that they've overlooked or missed out on.

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