

THE FINTECH INCLUSION PARADOX: A CONCEPTUAL FRAMEWORK OF BEHAVIOURAL, COGNITIVE, AND STRUCTURAL BARRIERS TO FINANCIAL INCLUSION IN UNDERSERVED POPULATIONS

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ABSTRACT

Financial technology (FinTech) has become one of the focal points of financial inclusion policies across the world, and especially in emerging and developing economies. Digital payment systems, mobile banking systems, app-based credit, and micro-savings are products that are massively marketed as solutions to traditional barriers to access that came with traditional financial institutions. The article constructs a conceptual framework that shows the mediating and moderating role of behavioural barriers, cognitive ability constraints, and structural limitations on the relationship between FinTech access and financial well-being. The study helps to develop a more intricate perception of digital financial inclusion, as its framing of financial inclusion as a capability-based and outcome phenomenon, as opposed to a technological state, helps to enrich the concept of financial inclusion. The suggested framework provides both theoretical understanding and practical direction to policymakers, FinTech innovators, and development agencies who aim to develop inclusive and sustainable digital financial ecosystems.

KEYWORDS: *FinTech Innovation, Financial Inclusion, Underserved Population, Behavioural Barrier, Digital Divide, Conceptual Framework.*

Introduction

Financial inclusion is now a key element of the economic development agenda around the globe because it has the potential to alleviate poverty, increase economic inclusion as well as advance social equity. FinTech novelty over the last ten years has been placed as disruptive tools that can overcome crucial obstacles related to the traditional banking framework, such as elevated transaction expenses, geographic limitations, and strict documentation principles (Demirguc-Kunt et al., 2022). Mobile money applications, digital wallet systems, peer-to-peer lending, and app-based savings products have increased the access of formal financial services to people who have been historically locked out of traditional finance. Even with such advances, there is still an uneven distribution of the results of FinTech-driven financial inclusion efforts. Although digital access has gone a notch higher, a considerable number of people still find it difficult to effectively and continuously use digital financial services. The use of FinTech has not led to greater financial

security or stability in some situations, and, in others, has created new risks (fraud, abuse, over-indebtedness, etc.) (Ozili, 2023). The developments are problematic to the existing belief that technology innovation is inherently an inclusive process. A substantial part of the extant literature defines financial inclusion through the access and adoption to the factors based on the ownership of an account, the frequency of transactions, or the rates of digital penetration. Though such measures capture the aspect of availability, they do not show why those with access can be financially vulnerable or inactive. Such an access-focused approach does not take into account the behavioural, cognitive, and institutional determinants that inform the relationship between individuals and digital financial systems. This article consequently states that in the digital age, financial exclusion is no longer a problem of infrastructures but rather entrenched within behavioural attitudes, capability, and systemic architecture decisions. To deal with this gap, the paper presents the concept of the FinTech Inclusion Paradox, a theoretical

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perspective on explaining the lack of correlation between the expansion of access and inclusion outcomes. The article comes up with a detailed conceptual model that expounds on the role of multi-layered barriers in determining the financial inclusion of underserved populations.

Urban Conceptualization of Underserved Populations

The definition of underserved populations in this research is the person or a group of people who have limited financial ability regardless of the official existence of financial services which are facilitated by FinTech. This definition also applies beyond the broad spectrum of unbanked-banked to a digitally-included but functionally-excluded user capable of being meaningfully financially engaged. Underserved populations refer to the persons or groups that encounter ongoing behavioural, cognitive, and organisational impediments that weaken their opportunities to effectively pursue, believe, and use FinTech-assisted monetary services to enhance their fiscal well-being. This theoretical formulation is consistent with the capability approach that does not focus on access but on effective utilization and results (Sen, 1999). The framework is especially applicable in the case of emerging and developing economies where the pace of FinTech diffusion frequently surpassed the development of capabilities and institutional support.

The listing of underserved groups and obstacles to it is based on previous research on digital financial inclusion, behavioural finance, and inclusive innovation (Demirguc-Kunt et al., 2022; World Bank, 2023; GSMA, 2023; OECD, 2022; UN

Women, 2023).

Conceptualizing the Problem of FinTech Inclusion Paradox

The FinTech Inclusion Paradox can be defined as the fact that the greater the digital access to financial services, the more this does not always result in higher financial capability and well-being of underserved groups. On the one hand, thanks to the proliferation of FinTech platforms, more people may gain access and opportunity, but on the other hand, behavioural complexity, cognitive overload, and structural rigidity lead to new exclusion options. The given paradox contradicts the mainstream belief that technological innovation is inherently inclusive. Rather, it emphasizes the fact that the effects of inclusion are mediated by the capabilities of the users to perceive, believe, and successfully interact with digital financial systems.

Literature Synthesis

FinTech and Access-Oriented Financial Inclusion

Studies always emphasize the interaction of FinTech in decreasing the entry barriers in financial systems due to the cost reduction and the possibility to be remote (Demirguc-Kunt et al., 2022). Nevertheless, there is growing reason to believe that access is not a sufficient means of maintaining or positive involvement with financial services.

Digital Finance Behavioural Barriers

According to behavioural economics, there are limited rationality and perceptions of trust and loss aversion that influence financial decisions

Table 1: Populations Underserved and Prevailing FinTech Inclusion Impediments

Underserved Group	Key Characteristics	Dominant Barriers	Key Supporting Sources
Low-income and informal workers	Irregular income, cash dependence	Behavioural (risk aversion), structural (credit exclusion)	Demirgüç-Kunt et al. (2022); World Bank (2023)
Rural and remote populations	Limited infrastructure, agent dependence	Structural (ecosystem gaps), cognitive (digital skills)	World Bank (2022); GSMA (2023)
First-time digital finance users	Newly onboarded to FinTech platforms	Behavioural (trust deficit), cognitive (complexity)	OECD (2022); Suri & Jack (2023)
Women in low-income households	Restricted autonomy, limited device access	Behavioural (social norms), structural (institutional bias)	UN Women (2023); Demirgüç-Kunt et al. (2022)
Micro-entrepreneurs and self-employed	Reliance on informal credit	Cognitive (planning skills), product-context mismatch	OECD (2023); World Bank (2023)
Elderly and low-digital-literacy users	Limited technology familiarity	Cognitive (digital literacy), behavioural (fraud fear)	OECD (2022); Agarwal et al. (2023)

FinTech Services, Innovation, and Financial Inclusion Theory Positioning

Theory	Core Argument of the Theory	Application in Existing Literature	Positioning in the Present Study
Financial Intermediation Theory	Financial intermediaries reduce transaction costs and information asymmetry between users and financial systems.	Digital platforms and FinTech innovations act as new intermediaries by lowering costs and improving access to financial services (Boot, 2000; Gomber et al., 2018).	This study extends Financial Intermediation Theory by arguing that FinTech services reduce access barriers for underserved populations but do not automatically translate into meaningful inclusion without behavioural and structural support mechanisms (Boot, 2000; Gomber et al., 2018).
Diffusion of Innovation Theory	Adoption of innovation depends on perceived relative advantage, compatibility, complexity, trialability, and observability.	FinTech adoption among low-income and rural populations is influenced by perceived usefulness, trust, and social influence (Rogers, 2003; Oliveira et al., 2022).	The study positions FinTech adoption among underserved populations as uneven and contingent upon contextual constraints, highlighting gaps between adoption and sustained usage (Rogers, 2003; Oliveira et al., 2022).
Capability Approach	Development should be evaluated based on individuals' real freedoms and capabilities rather than mere access to resources.	Financial inclusion research increasingly emphasizes well-being and capability enhancement over account ownership (Sen, 1999; Alkire et al., 2023).	This study adopts the Capability Approach to reconceptualize financial inclusion as financial well-being, emphasizing the ability of underserved users to effectively utilize FinTech services (Sen, 1999; Alkire et al., 2023).
Behavioural Finance Theory	Cognitive limitations and behavioural biases influence financial decision-making.	Behavioural barriers such as low trust, limited financial literacy, and risk aversion hinder effective FinTech usage (Kahneman, 2011; OECD, 2023).	The study integrates Behavioural Finance Theory to explain why access to FinTech does not guarantee inclusion, proposing behavioural factors as key mediators between FinTech usage and financial well-being (Kahneman, 2011; OECD, 2023).
Technology Acceptance Model (TAM) / UTAUT	Technology usage is driven by perceived usefulness, ease of use, and facilitating conditions.	TAM and UTAUT are widely used to explain FinTech adoption behaviour across different socio-economic groups (Davis, 1989; Venkatesh et al., 2012).	This study extends TAM/UTAUT by situating technology acceptance within underserved contexts, where infrastructural and institutional constraints moderate acceptance-outcome relationships (Davis, 1989; Venkatesh et al., 2012).
Institutional Theory	Institutional frameworks shape individual and organizational behaviour through formal and informal rules.	Regulatory quality, infrastructure, and consumer protection frameworks influence digital financial inclusion outcomes (North, 1990; World Bank, 2023).	The study applies Institutional Theory to explain how regulatory and infrastructural constraints moderate the impact of FinTech services on financial inclusion for underserved populations (North, 1990; World Bank, 2023).
Financial Well-being Theory	Financial well-being reflects an individual's ability to meet financial obligations and feel secure about the future.	Recent studies argue that financial well-being is a more meaningful indicator of inclusion than access-based metrics (CFPB, 2017; Demirgüç-Kunt et al., 2022).	This study positions financial well-being as the ultimate outcome of FinTech-enabled inclusion, moving beyond traditional access-based measures (CFPB, 2017; Demirgüç-Kunt et al., 2022).

(Thaler, 2018). Among the underserved users, the intimidation of fraud, suspicion of online products, and perceived complexity are major obstacles to the effective use of FinTech services.

Cognitive Ability and the Digital Divide

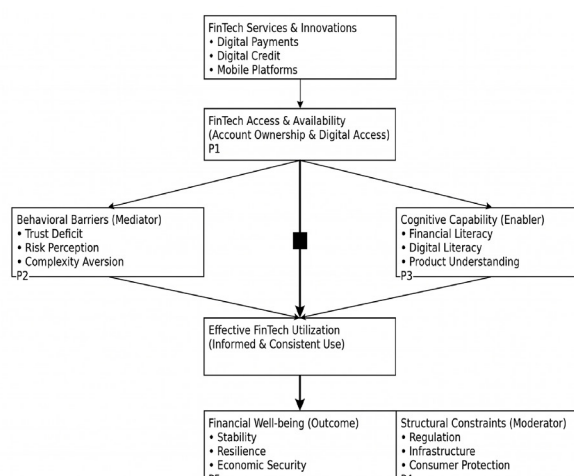
The digital divide theory has taken an alternative approach by embracing ideologies of skill-based and outcome-based divisions in addition to physical access (van Dijk, 2020). Poor digital and financial literacy limits the capacity of the people to navigate and comprehend such platforms, products, and make well-informed financial choices.

Structural and Design Constraints

The literature on inclusive innovation proposes that FinTech solutions are usually developed in terms of scalability more than contextual relevance, hence product-user misfit (Heeks et al., 2023). Consistency and discontinuous ecosystems also reduce inclusive results.

Conceptual Framework

Conceptual Model: FinTech Services and Financial Inclusion



Research Propositions

This paper presents a series of hypothetical propositions to clarify how the FinTech-based financial services have an effect on the financial inclusion outcomes of underserved populations. These hypotheses are based on the existing research on financial inclusion, behavioural economics, digital capability theory, and inclusive innovation, and are to be used in the future to test them empirically.

Proposition 1 (P1): Full Access to FinTech Does Not Guarantee Meaningful Financial Inclusion Access to formal financial services via FinTech platforms is not a sufficient requirement to ensure meaningful financial inclusion although the expansion of access to formal financial services

by FinTech platforms is substantial. Financial inclusion does not only encompass the availability or account ownership, but also involves good and consistent and useful use of financial services. The underserved populations can have access to the digital platforms but they can be locked out because they lack the trust, low engagement, or they fail to translate access to better economic opportunities. This is a suggestion that defies access-based models of inclusion and emphasizes on the use of outcome-based metrics like financial stability and resilience.

Proposition 2 (P2): The Relationship Between FinTech Access and Financial Well-Being Has Behavioural Barriers in the Middle According to behavioural barriers, lack of trust, perceived danger, and aversion to complexity are important to determine the manner in which people use FinTech platforms. These behavioural reactions might not allow users to take advantage of digital financial services even in situations where such access is provided. Thus, behavioural barriers are a set of mediating processes developing the reasons why the access to FinTech does not necessarily result in better financial well-being of underserved users.

Proposition 3 (P3): Cognitive Ability Has a Positive Impact on the Successful Use of FinTech Services Financial literacy and digital literacy may be classified as cognitive capability, which is important in identifying the capacity of the users to comprehend, navigate, and make informed decisions in FinTech systems. The increased degrees of cognitive ability allow a person to assess financial products, risks handling, and efficient use, improving the beneficial effect of FinTech access on financial well-being. This suggestion underlines the centrality of a capability formation as a prerequisite of the substantial financial incorporation.

Proposition 4 (P4): Structural Impediments Mediate the Association Between Access to FinTech and Financial Well-Being The effectiveness of the FinTech-enabled inclusion is conditioned by structural constraints, such as regulatory frameworks, institutional practices, ecosystem fragmentation, and design limitations. Such limitations can bolster or influence the effects of the FinTech access on financial well-being. As an illustration, the benefits of FinTech services to underserved populations can be decreased due to restrictive regulations, lack of interoperability, or exclusionary design elements. Therefore, the structural factors are a moderating force in the inclusion process.

Proposition 5 (P5): Financial Well-Being Is a Stronger Measure of Financial Inclusion as Compared to Access-Based Measures The conventional financial inclusion indicators are centered on the access and utilization factors. Yet, these indicators do not reflect whether digital financial services enhance the financial security, resilience, and the long-term economic outcomes of the users. According to this suggestion, the financial well-being as an indicator of inclusion in FinTech-driven financial ecosystems is more extensive and meaningful, as it implies stability, confidence, and ability to address financial shocks.

Theoretical Contribution

The research contributes to the literature on financial inclusion in three main dimensions. To start with, it redefines financial inclusion as a capacity-based phenomenon as opposed to an access-based status. Second, it proposes the FinTech Inclusion Paradox, which incorporates behavioural and cognitive aspects in the FinTech inclusion theory. Third, it provides a multi-theoretical synthesis between development economics, behavioural finance, and innovation research.

Limitations and Future Research Directions

Being a conceptual study which relies on secondary data, this study lacks empirical testing of the suggested framework. In future research, the propositions can be verified by longitudinal or mixed-method research. A study involving segment-specific exclusion processes by gender, geography, and livelihoods might also be conducted using further research.

Conclusion

This paper illustrates that financial inclusion brought about by FinTech is limited by further exclusion processes that go beyond access. The paper has provided a more subtle analytical insight into the concept of digital financial inclusion by defining the FinTech Inclusion Paradox and suggesting an integrative conceptual framework to establish the basis of more inclusive innovation strategies.

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