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Financial Inclusion in Developing Countries

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Abstract: Financial inclusion has emerged as a priority, for developing nations with the goal of improving the well-being of communities through ensuring availability of formal financial services and institutions that are customized to meet the requirements and capabilities of local residents. This research delves into the analysis of financial inclusion patterns in 41 developing countries spanning from 2010 to 2023. Pinpoints factors contributing to enhanced financial access. Through an exploration of trends and hurdles faced in this area this study underscores the significance of systems, in driving economic advancement alleviating poverty and nurturing socio-economic equilibrium. The study highlights the importance of implementing policies that promote knowledge and literacy while fostering advancements and establishing regulatory frameworks to enhance financial inclusion.

Keywords: Financial inclusion; Developing countries

Introduction

Financial inclusion has become a concern, in the century and continues to present challenges in less developed nations by leaving notable disparities unresolved among different groups of people within society (Milana & Ashta, 2020). It involves the endeavor to offer banking services to all members of society including those in the impoverished segments of the population (Lenka and Bairwa 2016). Simply put financial inclusion aims to ensure that everyone has access to a variety of institutions, formal financial services and products that cater to their needs and capacities, with the goal of enhancing their overall well-being (Nandru et al., 2023). A financial system that includes everyone ensures that both individuals and businesses can easily access products, like transactions and savings at rates to meet their requirements effectively and efficiently (Anwar et al., 2023). This system brings about outcomes by boosting literacy levels and providing investment options while also improving how the community consumes financial products and services (Suhendra et al., 2022).

Financial inclusion has become an issue, in developing nations; however, it is mostly discussed in developed countries at the moment due to the access to formal financial services for a large number of residents, in those nations (Kara et al., 2021). This can hinder their ability to manage risks, develop small businesses, or save and accumulate wealth. (Bourainy, Salah, and Sherif 2021). Additionally, this country has a high rate of unbanked and underbanked individuals, leading to a significant number of residents lacking bank accounts or having limited access to financial

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services. Financial inclusion enhances the ability to access economic resources and ensures individuals' livelihoods in different economic systems. (Qasim 2022). The increasing accessibility of financial infrastructure stimulates the economic strength of humanity. The lack of income and facilities in developing areas prevents millions of people from participating in the formal financial sector (Anwar et al., 2024).

Financial inclusion is defined as the ratio of individuals and companies using financial services, a topic of great interest to policymakers, researchers, and other stakeholders at that time (Mpofu, 2022). Financial inclusion is a situation where the majority of individuals can access available financial services while reducing the number of individuals who are unaware of the benefits of existing financial access without incurring high costs. Mbutor & Uba (2013) assert that increasing financial inclusion not only has the potential to boost economic growth but also affects monetary policy by increasing the sensitivity of aggregate demand to interest rate changes. In most countries, the central bank of an economy can directly influences the monetary policy through the sustainable growth of the financial system. This demonstrates that in situations where marginalized financial groups lack access to formal financial services, the central bank can play a significant role (Didu et al., 2022).

1. Literature Review

In general, financial inclusion is necessary for the sustainability of equitable economic growth. (Subbarao, 2009). Financial inclusion must pay attention to equal access to financial services and information. External circumstances beyond a group's control should not deprive them of access to financial services and information. The Financial Inclusion Centre fully defines financial inclusion. (Bourainy et al. 2021). Financial inclusion can serve as a tool to generate the necessary financial fuel for achieving inclusive economic growth. In a broader context, it promotes economic inclusion by improving the living conditions of the poor with better facilities and creating job opportunities. Thus, including those communities in the financial system as a whole can generate positive externalities, making monetary policy more efficient. Similarly, monetary policy instruments. The financial inclusion strategy aims to increase the number of people with bank accounts who bring their savings and investments into the formal financial system. It also encourages the use of formal and modern banking tools such as ATMs, net banking, and mobile banking. Adults who have easy access to affordable financial services can easily achieve financial inclusion. People with higher financial awareness have a greater chance of obtaining better financial services by optimally utilising their savings and investments.

According to Lenka and Bairwa (2016), unlike developed countries, developing countries see financial inclusion as something new. In this context, the term "developing countries" refers primarily to countries in Asia, Africa, and Latin America. Developed countries have conducted numerous studies on financial inclusion, while developing countries have only conducted a few on this topic. Experts assert that banks can accelerate financial inclusion by prioritizing the provision of modern banking facilities like internet banking, mobile banking, and ATM services. Jungo et al. (2022) conducted a comparison between the relationship between monetary policy and financial inclusion in Latin America and the Caribbean (LAC) and Sub-Saharan African (SSA) countries, using PCA to calculate the financial inclusion index. They find that financial inclusion enhances the effectiveness of monetary policy in SSA and improves it in LAC countries.

According to Salisu (2022), most monetary policy efforts theoretically focus on a context that assumes the existence of a representative household. While some families can build up wealth to manage their expenses over time there are also households that lack access, to resources and thus struggle to adapt to fluctuations in interest rates. Understanding how labor market updates and informal borrowing play a role, in comprehending the ways monetary policies influence the economy and ensuring their execution is widely acknowledged knowledge.

Salisu (2022) stated that there is not a theory connecting financial inclusion or deepening with monetary policy or inflation at the moment. In theory making monetary policy usually involves assuming the presence of a household. Some households can possess assets and handle their spending over time; however, others lack means. Thus, cannot adjust to interest rate fluctuations. Understanding how monetary policy spreads across the economy and making sure it is applied effectively involves having insights, into the job market and informal lending practices.

When financial inclusion expands it usually boosts the value of the system and enhances the effectiveness of monetary policy (Koomson et al., 2020). The credit channel theory sheds light on how monetary policy and financial inclusion are interconnected according to Khan et al., 2016). This theory mainly looks at loans, as the means of funding for households and small businesses. Monetary policy compels banks to adjust their loan portfolios by decreasing the amount offered and increasing interest rates in response to a decrease, in the money supply. When people struggle to get loans and have to deal with borrowing options, they often end up financing things themselves of relying more heavily on the financial system. This idea is supported by Ouyang and Rajan (2019) who claim that certain features of banks. Like their size and who owns them. Show how well the monetary policy works through interest rates. Changes, in policy tend to have an impact on small banks and those that rely a lot on central bank funding.

2. Methodology

The financial inclusion indicator assesses how accessible a country's financial sector is, to all individuals and groups within its population. This indicator is created as a measure that takes into account factors related to financial inclusion such, as the reach of banking services the accessibility of banking facilities and the extent to which people utilize the banking system. The financial inclusion index (IFI) combines information about these dimensions into a single number ranging from 0 to 1.

The first step is to build a combined financial inclusion index. Typically, we understand financial inclusion in several dimensions, encompassing various aspects of access and participation in the financial system. (Omar and Inaba 2020). The research (Akter, 2016) summarizes the dimensions and indicators of financial inclusion, among other things.

1. Penetration Dimension: The upper limit of users incorporated into the formal financial system. The number of deposits circulating in commercial banks indicates the penetration of financial services.

2. Dimension of Availability: The number of financial institution outlets, including branches and ATMs, per 100,000 adults measures the extent of geographical or demographic reach of financial services.

3. Dimension of Use: This assesses the frequency and sufficiency with which clients engage with financial services, including savings, loans, payments, remittances, transfers, and others. This factor signifies the efficacy of the financial system; mere access is insufficient to provide an inclusive financial framework. The dimension formula is as follows:

$$d_i = w_i \frac{A_{ik,t} - m_i}{M_i - m_i} \qquad (1)$$

d_i : Index of Financial Inclusion

W_i : Weighted Indicator

A_i : the actual value of a certain indicator for dimension i in economy k in year t

M_i: maximum value (upper limit) for a specific indicator on dimension i

m_i : minimum value (lower limit) for a specific indicator on dimension i

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Table 1. Weighted of Each Dimension

Dimension	Variable	Weighted
Penetration Dimension	Number of bank account	1
Dimension of Use	credit of commercial bank	0.50
Dimension of Availability	Number of branch bank per 100.000 adults	0.70
Dimension of Availability	Number of ATM per 100.000 adults	0.30

After assigning weights to the dimensions, the final Financial Inclusion Index is calculated as follows:

$$X_1 = \frac{\sqrt{d_1^2 + d_2^2 + \cdots + d_n^2}}{\sqrt{w_1^2 + w_2^2 + \cdots + w_n^2}}, \qquad (2)$$

$$X_2 = 1 - \frac{\sqrt{(w_1 - d_1)^2 + (w_2 - d_2)^2 + \cdots + (w_n - d_n)^2}}{\sqrt{(w_1^2 + w_2^2 + \cdots w_n^2)}}, \qquad (3)$$

$$\mathrm{CFII}_i = \frac{1}{2}[X_1 + X_2], \qquad (4)$$

The equation for X1 calculates the normalized Euclidean distance between the achievement position X and the worst location, O, in n-dimensional space. The equation for X2 denotes the normalized inverse Euclidean distance between the achievement position (X) and the ideal state (W). We standardize both distances to confine them to a range of 0 to 1. We ultimately compute CFII by determining the arithmetic mean of Equations X1 and X2. Consequently, CFII is a value that exists within the range of 0 to 1. This indicates that the index possesses distinct bounds and exhibits a monotonically increasing trend. An increase in the index's value signifies a drop in interest rates.

3. Results and Discussion

The data gives us information, about three types of variability. Overall Variability between and within groups or categories. All three categories have the value of 0b5105 which tells us that the central tendency remains constant across these levels on average. When we look at the deviations we can see different patterns of variability in each category. The overall standard deviation is 0b2113 showing us a level of dispersion across the entire dataset, with values ranging from a minimum of 0b0598 to a maximum of 0b9451. There appears to be quite a range of data overall indicating diversity, within it as a whole; however the Between standard deviation is slightly lower at 0 2058 with a more constrained minimum and maximum range of 01213 to 09209 This suggests moderate variation among groups or entities implying that while some distinction can be observed these groups tend to have similarities among them than with the dataset, as a wholeThe standard deviation of 0.0567 falls within a range of 0.2750 to 0.7620 indicating that there is not difference, within each group compared to between groups showing consistent behavior patterns within each group despite overall variability being significant and mostly stemming from inter group disparities rather, than intra group differences.

Table 2. Descripive Statistic Index Financial Inclusion

Category	Mean	Std Deviation	Minimum	Maximum
Overall	0.5105	0.2113	0.0598	0.9451
Between	0.5105	0.2058	0.1213	0.9209
Within	0.5105	0.0567	0.2750	0.7620

Financial inclusion in general is to ensure access to formal financial services with affordable funds in a fair and transparent manner. In addition, financial inclusion is necessary for sustainable, equitable economic growth (Subbarao, 2009). To achieve inclusive economic growth, financial inclusion can be a tool to generate monetary fuel. In a broader context, it increases economic inclusion by improving the lives of the poor by providing better facilities and creating more employment opportunities. Higher disposable income increases a financial institution's savings and deposit base. Greater financial inclusion makes monetary transmission channels more efficient as the share of the formal sector increases.

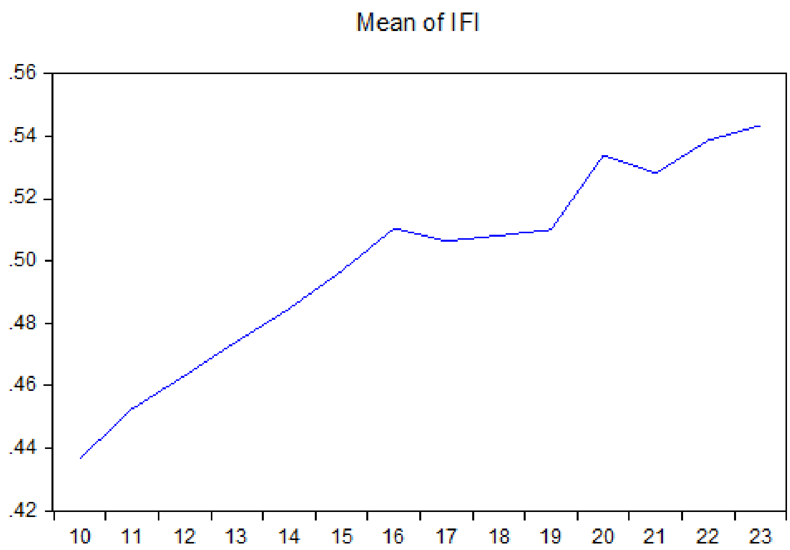

Figure 1. Financial Inclusion (Index)

It can be seen that in **Figure 1**, in 2010 the financial inclusion index was at 0.43. The index increased every year until it reached 0.521 in 2016. Then in 2017 it experienced a slight decrease to 0.517. However, the index rose again in 2018 to 0.519 and returned to 0.521 in 2019. The index rose quite significantly in 2020 to

0.544. In 2021 there was a slight decline to 0.540. The increase in 2020 could be due to digitalization efforts and increased use of digital financial services during the COVID-19 pandemic, while 2021 could show the economic impact of the pandemic. In 2022, the index will increase again to 0.549 and continue to rise to 0.553 in 2023. This shows continued recovery and growth in financial inclusion. According to (Lenka and Bairwa 2016), in contrast to developed countries, developing countries see financial inclusion as something new.

Conclusion

The examination of the financial inclusion index shows a consistent trend, towards increased availability of financial services with notable advancements attributed to digitalization efforts. The analysis of variability indicates diversity across the dataset primarily originating from distinctions between groups rather than within them. The rise in inclusion between 2010 and 2023 the significant surge in 2020 following the impact of the COVID 19 pandemic underscores the expanding role of digital financial services, in reaching underserved populations. Despite facing obstacles, like the effects of the pandemic the ongoing rise in the financial inclusion index indicates that worldwide endeavors for economic expansion are heading in the correct direction. In developing nations enhancing investments in up, to date banking technologies could expedite this advancement ultimately fostering a more economic environment.

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