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FINANCIAL INCLUSION AND HUMAN DEVELOPMENT INDEX IN NIGERIA

[1]Emmanuel Nathan (PhD), [2]Endurance, Keyamo
[1]Department of Economics, Faculty of Social Sciences, Niger Delta University, Wilberforce Island, PMB 071, Yenagoa, Bayelsa State, Nigeria
[2]Department of Banking and Finance, School of Management Science Federal Polytechnic, Ekowe, Bayelsa State, Nigeria

ABSTRACT

This study investigated the impact of financial inclusion on Human Development Index (HDI) in Nigeria. Financial inclusion was proxied by Commercial Banks Advances and Loans (CBAL), Microfinance Banks Advances and Loans (MBAL), Commercial Banks Lending Rate (CBLR) and the Number of Commercial Bank Branches (NCBB) as independent variables while HDI constituted the dependent variable. The use of the Autoregressive Distributed Lag (ARDL) technique and Bounds Test revealed that there is a long-run and short-run relationship between the variables. Specifically, the results showed that in the long-run, if CBLR changes by one unit, HDI will change by -0.005900 but if CBAL changes by one unit, HDI will change by 0.000640. In the short-run, one unit change in CBAL will prompt a change in HDI by 0.076000. All the changes are statistically significant at the 5% level. The R-squared of 86% showed that the independent variables have high influence on the dependent variable. Likewise, the serial correlation tests also revealed the absence of autocorrelation in the model. Among other things, the study recommended that government and monetary authorities should ensure microfinance banks advances and loans get to the hands of those intended as this will encourage more to enter formal banking so that they can benefit from such loans. Also efforts should be made by both government and commercial banks to increase the quantity of loans through innovative means as this will go a long way in attracting people into the banking system.

KEYWORDS: Financial Inclusion, HDI, ARDL, Economics Development, Nigeria.

1. INTRODUCTION

Generally, financial inclusion refers to the ease of accessibility to finance and financial services. The greater the level of access to finance and financial services in an economy, the more prosperous the economy will become (Martin 2008). In other words, lack of accessibility to finance and financial services constitute a major clog in the wheel of the development of a country. Little wonder then that rudimentary economics such as the circular flow of income and expenditure makes tacit acknowledgement of the crucial role of financial inclusion in an economy because it shows that savings must pass through the financial market to get to the hands of investors. Certainly therefore, a financial system that is not accessible, flexible and generally inclusive enough will hinder investment and economic growth and this will not augur well for the welfare and wellbeing of citizens (Driss 2021).

In more specific terms, Financial inclusion, as defined by the Centre for Financial Inclusion (2010) is the accessibility of affordable and secure financial services for all individuals and entities within an economy. This means that people should be able to access a variety of financial services at reasonable prices, conveniently, and with dignity. On the other hand, financial exclusion refers to the lack of access to necessary and suitable financial services. According to Mohan (2006) financial exclusion occurs when certain sectors of society are unable to access appropriate, secure, fair, and cost-effective financial products and services from formal financial service providers. While there is no definitive list of services that ensure financial inclusion, Stephen (2009) highlights the importance of banking and insurance services, as well as financial literacy and capabilities, as essential components of inclusive finance. Joseph and Aliyu (2020) identify banking, other financial institutions/microfinance institutions, insurance, and pensions as key elements of financial inclusion, noting that digitalization and technology have become increasingly important and perhaps now central in expanding access to financial services. In this study, however, financial inclusion is proxied by four key variables namely:

commercial banks' lending rate, commercial banks advances and loans, microfinance banks advances and loans and the number of commercial bank branches in Nigeria.

In recent times, however, the quest for improved economic growth is no longer merely a subject matter of annual increases in Gross Domestic Product (GDP) as more attention is now rightly focused on how such increases in GDP translate to improving vital indicators of citizens' wellbeing. This brings to fore the more important issue of inclusive economic growth which implies that for economic growth to make any meaning, it must translate to improving fundamental indicators of citizen's welfare such as life expectancy, per capita income and education all of which are encapsulated in the composite index known as Human Development Index (HDI) of a country. Essentially, the Human Development Index (HDI) has emerged as an indispensable tool to gauge the overall quality of life experienced by a nation's inhabitants. By amalgamating an array of crucial indicators, this composite index offers a comprehensive panorama of human development, successfully transcending the limitations imposed by a narrow focus on economic growth. With its broader perspective, the HDI surpasses conventional GDP benchmarks, encompassing vital factors that directly impact human wellbeing and advancement. It examines three fundamental dimensions: a decent standard of living, longevity or life expectancy and education. It is the mean of these three indices. The United Nations has embraced the Human Development Index (HDI), as revolutionary measurement of citizens' wellbeing and the progress of nations worldwide. This game-changing index was spearheaded by renowned Pakistani economist, Mahbub ul Haq. Since its inception, the HDI has become a pivotal tool in the annual evaluation of countries' development and the overall quality of life experienced by their inhabitants (UNCTAD 2021).

In recent rankings released by the United Nations Development Program (UNDP), countries have been divided into four distinct groups according to their Human Development Index (HDI) scores. These categories provide an overview of a country's level of human development and its socio-economic standing on a global scale. Topping the list is the group of countries with very high human development, characterized by HDI scores ranging from 0.8 to 1. These nations have achieved remarkable progress in key areas such as education, healthcare, and standard of living. The countries within this category demonstrate exceptional levels of prosperity and well-being for their citizens. Following closely behind are countries classified under high human development, showcasing HDI scores between 0.7 and 0.799 (UNCTAD 2021). Although these nations may not have reached the same level of advancement as their very high human development counterparts, they still exhibit significant achievements in various aspects of human well-being. Their commitment to development is evident through continuous improvements in areas like education and life expectancy.

Another group comprises countries with medium human development, encompassing HDI scores ranging from 0.550 to 0.699. These nations face numerous challenges on their path towards development, including limited access to resources and insufficient infrastructure. Nevertheless, they are recognized for their efforts in improving the quality of life for their citizens, albeit at a somewhat slower pace compared to higher-ranking countries. Finally, the group with low human development includes countries scoring between 0 and 0.549 on the HDI scale. These nations struggle with significant disparities in health, education, and living standards. Many face major obstacles such as widespread poverty, insufficient healthcare services, and lack of educational opportunities. The categorization of countries based on HDI scores offers valuable insights into the collective efforts and accomplishments of nations around the world. It serves as a reminder that despite the progress made in some regions, there are still substantial disparities and challenges to overcome in achieving universal human development. Sadly, Nigeria has consistently shown poor performance in the Human Development Index ranking. In the recent report for 2021, Nigeria landed at a disappointing 163rd place out of 191 countries (Human Development Report, 2021).

The foregoing makes it crucial to consistently shine a spotlight on financial inclusion, as it can have a significant impact on Human Development Index (HDI), which reflects the welfare of households. Numerous studies have taken a look into the nexus between financial inclusion and economic growth in the country. Others have focused on financial inclusion and narrower measures of human wellbeing. Such studies have used proxies such as per capita income or even consumption for welfare or wellbeing while using loans to agricultural sector, deposits of remote branches of commercial banks, loans to remote branches of commercial banks and credit to private sector as proxies for financial inclusion. Such studies include Karlan and Zinman (2010) and Okuma (2017). This study however sheds a new light on the impact of financial inclusion in Nigeria as it delves into its impact on Human Development Index (HDI) which is a holistic measure of human wellbeing thereby providing a much-needed comprehensive understanding of how financial inclusion can affect individual wellbeing. It focuses attention mainly on the impact of financial inclusion (as indicated by commercial banks' lending rate, commercial banks advances and loans, microfinance banks advances and loans and the number of commercial bank branches in Nigeria) on Human Development Index (HDI) within the period of 1986 to 2022.

2. LITERATURE REVIEW

2.1 Historical perspective of Financial Inclusion in Nigeria

Successive governments in Nigeria have long been grappling with the challenge of achieving financial inclusion. It is for this reason that Okonkwo and Nwanna (2021) lament that the quest for optimal financial inclusion in the country has remained elusive, primarily due to a multitude of factors. A significant barrier is the lack of sufficient awareness among citizens, who remain unaware of the benefits and opportunities that come with being financially included. Additionally, limited accessibility to mobile money services poses a considerable challenge, preventing a sizable portion of the population from accessing basic financial services. Moreover, a widespread atmosphere of mistrust, prevalent among Nigerians, further exacerbates the situation. Despite some noteworthy progress made in recent times, these persistent obstacles continue to impede the nation's endeavors towards achieving a high standard of financial inclusivity.

The Central Bank of Nigeria (CBN 2013) has highlighted the long-standing dependence of the Nigerian economy on cash transactions. In the wake of the country's independence, a large portion of the money supply was kept outside the formal banking sector, a situation resulting in a heavy reliance on physical currency. However, there has been a shift in the fraction of currency held outside the banking system to the overall money supply over the years. In the 1960s, this ratio stood at a remarkable 61.1 percent, indicating a strong preference for cash transactions. This strong preference for cash transaction may be as a result of the lack of necessary digital financial platforms back then. Nevertheless, there has been a clear decrease in this ratio over time. By the 1970s, the ratio had fallen to 44.3 percent, signaling a move towards a more formal banking system. This trend continued into the 1980s, with the ratio dropping further to 40.9 percent. This suggests a gradual shift from cash transactions to more digital and formal methods of financial exchange. It is important to note, however, that the decline in the ratio does not necessarily mean a rise in bank usage alone, as the overall money supply has also increased significantly during the same period (CBN, 2013).

In an endeavor to ensure that banking and other financial services reach even the remotest parts of the country, the Central Bank of Nigeria (CBN) launched the rural banking program. Its primary objective was to incentivize banks into establishing branches in rural communities, thereby guaranteeing financial services for the rural dwellers. However, in the 1990s and early 2000s, the banking industry in Nigeria faced a catastrophic crisis. The excessive corrupt spending of politicians led to an alarming surge in the money in circulation, resulting in a worrying increase in the mean amount of currency not within the banking system compared to the total money supply. During this time, this ratio skyrocketed to a staggering 47.7 percent. To avert any further crises in the banking sector, the government acted swiftly, implementing multiple policies aimed at strengthening the industry. One of the most influential measures taken was the bank consolidation exercise of 2004. This strategic move aimed to merge and consolidate banks in order to enhance financial stability and reduce the ratio of currency outside the banking system to the total money supply. By 2005, this ratio had decreased to a favorable 38.2 percent, marking a substantial improvement. The government's proactive approach in addressing the challenges faced by the banking industry displayed a strong commitment to ensuring financial stability and promoting financial inclusion for the country's economic well-being. The bank consolidation exercise of 2004 played a crucial role in revitalizing the sector and establishing a more secure and efficient financial system for all stakeholders.

Okorie (1990) opine that it is worth noting that the Rural Banking Program, which was devised through the Central Bank of Nigeria (CBN) in 1977, stands out as one of the earliest and most noteworthy policy measures in promoting financial inclusion in the country. This program aimed at ensuring that every local government in Nigeria had at least one bank branch. The purpose of the Rural Banking Program extended beyond the mere facilitation of savings in rural areas. It also intended to cultivate banking practices within the predominantly rural agrarian community and extend credit facilities to small-scale entrepreneurs and industries. Implemented in two phases of 1977-1980 and 1980-1983, the scheme recorded considerable success in achieving its targets. The first phase which targeted the opening of 200 rural bank branches achieved five (5) new rural branches at the end of December 1977, one hundred and eighty-eight (188) at the end of June 1980 and one hundred and ninety-four (194) at the end of December 1980. The sum of N22.4million was recorded as total loans and advances and N116.4million as deposits of the rural bank branches as at the end of June 1980. The second phase targeted the opening of 266 rural bank branches and at the end of June 1981 one hundred and twenty-one (121) new branches were recorded. This number increased to one hundred and eighty-one as at the end of December 1983. Martins (2008) emphasized that the positive impact of the Rural Banking Program were extensive as it led to improved access to banking and other financial services for countryside residents specifically with respect to savings and money transfer facilities. Additionally, an encouraging fall in the ratio of cash held outside of banks to the overall narrow money supply was also witnessed.

Furthermore, in an effort to encourage financial inclusion and savings among rural communities, the People's Bank was founded in 1989. This groundbreaking establishment was supported by generous loans and grants from the Federal Government, the Central Bank of Nigeria, and philanthropic organizations. Its primary focus was to cater to the underprivileged individuals in the society by accepting modest deposits and offering small loans to individuals with low incomes. These loans were especially helpful to those who were unable to meet the strict loan requirements imposed by traditional commercial banks. Remarkably, the People's Bank rapidly expanded its reach across the nation, significantly widening its services in a remarkably short span of time. CBN (2004) reports that the number of branches of People's Bank grew from 169 in 1990 to a peak of 275 as at December of 1994. Similarly, the number of borrowers also increased from 8007 in 1989 to 79,061 in 1990. Unfortunately, because of bureaucratic bottlenecks the bank could not survive for many years. Thus, Community Banks were established in the early 1990s and they recorded considerable success such that as at 1999 there were a total of 550 Community Banks with assets of N8.9billion, total deposits of N5.7billion as well as loans and advances of N2.9billion.

In more recent times, other efforts to promote financial inclusion in Nigeria include the National Microfinance Policy launched in 2005 to provide the regulatory and supervisory framework that will enable the establishment and growth of private microfinance outfits as well as permit the operation of cooperatives, market associations and non-governmental organizations (NGOs) as microfinance institutions. The microfinance outfits played a vital role in capturing much of the unbanked population but they continued to have their problems of uncertainty and instability. Moreover, in 2011, the Central Bank of Nigeria (CBN) made a significant move by granting licenses for Non-Interest Financial Institutions (NIFIs). This decision aimed to cater to a large portion of the population who, due to religious reasons, do not engage in interest banking. Additionally, the CBN hoped to attract foreign direct investment (FDI) from the Middle East and South East regions, where many investors favor non-interest banking. In recent times, the CBN has been aggressively encouraging financial institutions to invest more in e-banking products and electronic payment systems. This push is intended to further enhance the growth of financial inclusion across the country. Recognizing the importance of expanding financial inclusivity, the National Financial Inclusion Strategy (NFIS) was formulated in the year 2012. This strategy outlined specific targets to achieve by 2020. Among the key goals were to attain eighty percent overall inclusion, encompassing both formal and informal sectors, and seventy percent formal financial inclusion. While there have been some successful endeavors in this regard, it is evident that there is still much room for improvement.

2.2 Theoretical Framework and Empirical Literature

This work is hinged on the Vulnerable Group Theory of financial inclusion by Bhandari (2015) which argues that when it comes to bolstering financial inclusion within a nation, the primary focus should be on uplifting the less privileged or vulnerable segments of society. These include individuals with low incomes, the elderly, women, youths, and even those who have suffered sudden wealth loss due to factors like natural disasters. In essence, the theory posits that the very essence of financial inclusion should revolve around enhancing the welfare and well-being of citizens. The supposition is that vulnerable groups in the society are the most financially excluded and as such there is the need to give them special attention in financial inclusion agenda. One way to address this is for government at all levels to embark on government-to-person (G2P) cash transfers. These transfers would involve depositing funds directly into the accounts of vulnerable individuals who have been identified. The aim is to motivate other vulnerable people who do not currently enjoy access to formal financial systems to join them.

Advocates of the vulnerable group theory argue that this approach not only provides an opportunity for the government to support the less fortunate but also helps bridge the disparity between the haves and have-nots. By promoting financial inclusion among vulnerable groups, proponents suggest that this targeted effort may prove more cost-effective compared to implementing it across the entire population. Nevertheless, critics argue that the vulnerable group theory overlooks an important segment of the society: individuals who may not be vulnerable per se but are still financially excluded. While the theory offers a potential solution for the needy, it fails to address the needs of those who fall outside the vulnerable group but still face financial hardships. This obviously constitutes a disadvantage.

The study of the impact of financial inclusion on Human Development Index (HDI) as a measure of citizen wellbeing is relatively fledging. In other words, many other studies have focused primarily on financial inclusion and its impact on selected narrow measures of citizens' welfare and not a holistic measure such as HDI. Thus, the ensuring empirical literature will focus on financial inclusion and economic growth as well as financial inclusion and narrower measures of citizens' welfare.

In an extensive study, Estrada, Park, and Ramayandi (2010) thoroughly examined the role played by financial inclusivity on real personal income total output growth in developing countries in Asia. Over a span of two decades, from 1987 to 2008, data from 125 developing Asian nations was analyzed to uncover the association between financial inclusivity and economic performance. The research uncovered a profound finding - financial inclusivity was conclusively determined to have a substantial helpful effect on the performance of real per capita GDP. Interestingly, it was revealed that financial depth, rather than financial structure, had a more influential role in driving this growth. Furthermore, the study highlighted the importance of investment effectiveness in enhancing output growth. One of the most striking conclusions of the study was the challenge it posed to the conventional wisdom that the relationship between finance and growth differed significantly between developing and industrialized countries. These findings align with the subsisting literature on the topic and support the theory of the finance-growth relationship. The study also highlighted the significance of financial openness in driving growth. Both financial inclusion and financial openness were determined to have a distinctively impressive effect on economic performance, bringing about numerous benefits for developing Asian countries. Notably, financial openness had an even greater effect on economic performance which was evident in the post-crisis period, suggesting that it played a crucial role in recovery and development. It is worthy of note that the study made very clear the vital role that financial accessibility and financial openness play in driving economic growth in developing Asian countries and therefore underscores the need for policymakers to prioritize and promote these factors to capitalize on their positive impact. The research shed new light concerning the vital part played by financial inclusivity in driving high economic performance in the emerging economies on the Asian continent.

In Siddik (2017), it was discovered that financial inclusion holds the key to transforming the lives of rural women in Bangladesh. Through the use of a survey method, Siddik distributed 500 questionnaires to women residing in the Kurigram and Gaibandha districts during the months of January and February in 2017. The results yielded compelling evidence, demonstrating that by incorporating financial inclusion initiatives, women experience significant improvements in their income, living standards, and purchasing power. Furthermore, this newfound financial freedom enables them to provide their children with better education and healthcare. As a result of these findings, the study fervently called upon the Bangladeshi government to expedite the implementation of more inclusive financial packages, specifically designed for women. By doing so, the study asserts that the country would witness a remarkable enhancement in equitable growth.

In a recent study carried out by Aziakpono and Tita (2017), the impact of financial inclusivity on social wellbeing and asset-building for South Africans was explored. Using a straightforward quantile regression technique, the researchers sought to analyze how financial inclusion affects asset acquisition among impoverished individuals in South Africa. By analyzing data from the FinScope 2014 consumer survey, which offered valuable insights into the financial behaviors of South Africans, the researchers focused on variables such as insurance and savings to measure financial inclusion. Asset ownership was determined using a composite asset index. The outcomes of the study revealed a positive and statistically significant nexus between financial inclusion and asset ownership across all levels of asset distribution, underscoring the importance of accessibility to financial services for individuals in poverty within the South African state. Interestingly, the change in asset ownership was found to be higher at the lower tail quantile, lower at the median quantile, and again greater at the upper tail quantile. These results suggest that financial accessibility has a greater connection with asset acquisition for poor and low-income individuals, compared to those who are already part of the working class. Based on these results, the research work posited that financial accessibility performs a vital task in bridging the socioeconomic divide between the high income earners and the low income earners in South Africa thus highlighting the potential benefits that poor and low-income individuals can derive from increased accessibility to financial products. By promoting financial accessibility, policy makers and stakeholders can work towards creating a more equitable society and improving the overall welfare of South Africans. An impressive aspect of the study is its emphasis on using financial inclusion to aid the poor acquire assets that will not only bring them out of poverty but also keep them out of poverty. This is a case of not just giving the poor fish but also giving them hooks to catch a fish.

Ousmane, Ishmael, and Aliyu (2017) in their study shed light on the important interrelationship between financial inclusion variables and household welfare in Nigeria. Making use of data collected from the Living Standard and Demographic Survey of 2010 and 2012, the researchers examined the empirical connection of financial inclusivity and the consumption of individuals. To ensure accuracy in their findings, the study took into account potential confounding factors and used a panel data approach. The results were remarkable, as they revealed a profound positive effect of accessibility to finance on the consumption of individuals. The findings suggest that financial inclusion can be a powerful tool in the fight against poverty in Nigeria. However, it's worth noting that the study has certain limitations one of which is the reliance on micro-data from a relatively short period of time, spanning only the years 2010 and 2012. This narrow time frame may restrict the generalizability of the study's results and thus calls for caution in applying the results. In a similar study, Joseph (2017) revealed that inclusive finance plays a crucial role in narrowing the economic disparity between the wealthy and the impoverished in Nigeria. Utilizing data from 1980 to 2014 and employing the Generalized Method of Moment (GMM) estimation technique, the research highlighted the potential benefits of enhancing financial inclusion for individuals with limited income. The findings suggested that by implementing measures to improve access to financial services for low-income individuals, there could be a boost in investment and overall economic well-being. It is worth noting, however, that the study utilized per capita GDP as a proxy for citizen well-being, which may not fully capture the true level of societal welfare.

In Moise and Xu (2018), attention was given to the association between financial inclusivity and the economic performance of Rwanda. This was thoroughly examined and analyzed. The study, which analyzed data spanning from 2004 to 2016, utilized the Autoregressive Distributed Lag (ARDL) estimation technique to draw its conclusions. Various indicators were employed as indicators for measuring financial inclusion level, including the quantity of loan accounts with deposit money banks in every 1000 adults, pending deposits with deposit money banks, pending loans with commercial banks, the presence of Automated Teller Machines per 100,000 adults, and the density of deposit money bank branches in every 1,000 km2. Conversely, Real Gross Domestic Product (RGDP) was utilized as a measurement for economic performance in the country. The study's findings underscored a notable and lasting correlation between financial inclusivity and economic progress in Rwanda. Consequently, the researchers recommended that the government of Rwanda implement policies to make it easier for Rwandan citizens to access loans, which they argue would create a more favorable environment for continued economic development.

Yomi and Nwafor (2018) delved into the delicate connection between financial inclusion and economic growth in Nigeria. Examining data from 2001 to 2016, the study formulated two hypotheses and employed the Double Stage Least Squares Regression Method to put them to the test. The results of the study disclosed that while financial intermediation did not display a profound effect on financial access over the study period, financial access had a powerful influence on Nigeria's economic growth. This important discovery has important implications for policymakers and financial institutions in the country. The researchers suggested that commercial and microfinance banks, as crucial intermediaries, should develop specialized financial products tailored to the needs of the financially excluded population. By doing so, it is believed that Nigeria could experience substantial growth in per capita GDP, leading to overall economic development within the nation. The study serves as an undeniable call to action for stakeholders in the financial sector. By prioritizing financial inclusion and ensuring that the financially excluded population has access to the necessary financial tools, Nigeria stands a chance to significantly boost its economic growth and ultimately uplift the living standards of its citizens. Similarly, in a recent study conducted by Fadun (2018), the focus was on financial accessibility as a means for reduction of poverty and better income distribution in Nigeria. Selected respondents in the study area were given structured questionnaires to gather data, which was then analyzed using descriptive statistics. The outcome of the study revealed that financial accessibility plays a significant role in alleviating poverty and redistributing income in Nigeria.

Saifullahi, Huseyin, and Behiye (2019) delved into finding out the empirical nexus between financial inclusion and citizen welfare in Nigeria. Their work, which focused on 1750 rural households, utilized micro-level data and an innovative multi-variate financial inclusion index to unravel significant findings. The study's primary discovery was that of the very strong impact that financial accessibility has on household welfare in Nigeria. By linking citizens to formal financial systems, access to credit and other financial services greatly improved their overall well-being. However, their analysis also made use of a decomposition mechanism which revealed a crucial disparity: medium and high-income individuals reaped more significant benefits from financial inclusivity compared to households that are poorer. While financial inclusion boosted the welfare of all households, it was evident that higher-income groups experienced greater advantages. Highlighting the implications of their findings, the study emphasized the importance of restructuring rural financial markets. They argued that for financial inclusion to effectively alleviate poverty and bridge income gaps, greater access to credit must be promoted, particularly for low-income earners. This study sheds light on the crucial interplay between financial inclusion and citizen welfare, urging policymakers and stakeholders to prioritize the restructuring of rural financial markets. By doing so, Nigeria can aim for poverty alleviation and income convergence, while making sure that the benefits of financial inclusion are shared equitably among all citizens.

A thorough look at the empirical literature clearly reveals a huge deficit of studies on financial inclusion and a holistic measure of human wellbeing such as Human Development Index. Thus, it is the perspective of this paper that by empirically examining the linkage between financial inclusion and Human Development Index, a fresh understanding will be gathered regarding the impact of financial inclusion on the welfare of citizens in Nigeria.

3. METHODOLOGY

3.1 Research Design

The quasi-experimental research design is the blueprint for this work. The absence of the element of randomization in economic studies usually necessitate the use of the quasi-experimental research design which facilitates determining the impact of one or more independent variables on a dependent variable. Specifically, the quasi experimental research design is utilized in this work to analyze the impact of the various independent variables, that is, commercial banks' lending rate, commercial banks advances and loans, microfinance banks advances and loans, and the number of commercial bank branches on Human Development Index (HDI).

3.2 Model specification

It is safe to infer that Human Development Index (HDI) which is a holistic indicator of citizens' welfare depend on the level of financial inclusion. On this basis, the model is specified as follows:

HDI = f (CBLR, CBAL, NCBB, MBAL) --- (1)

Where:

HDI = Human Development Index

CBLR = Commercial Banks Lending Rate

CBAL = Commercial Banks Advances and Loans

NCBB = Number of Commercial Bank Branches

MBAL = Microfinance Banks Advances and Loans

The linearized logarithmic form is:

$Log\text{HDI} = \beta o + \beta_1\text{CBLR} + \beta_2 Log\text{CBAL} + \beta_3\text{NCBB} + \beta_4 Log\text{MBAL} + U_1$ --- (2)

βo is the intercept while β_1, β_2, β_3 and β_4 are all parameters to be estimated. U_1 is the stochastic or disturbance term. With the exception of CBLR, all the parameters are expected to have a positive sign.

Equation 2 is re-specified as follows if the variables are not well behaved:

$\Delta\text{HDI} = \beta o + \beta_1(\Delta\text{CBLR}_t) + \beta_2(\text{CBAL}_t) + \beta_3(\Delta\text{NCBB}_t) + \beta_4(\Delta\text{MBAL}_t) + U_1$ ----- (3)

Where:

Δ = Difference Operator

β = Parameters to be estimated

t-i = Unknown lags

U_1 = Stochastic Term

If cointegration is found among the variables, equation 3 above transmutes into the Error Correction Model (ECM) which is expressed below:

$\Delta\text{HDI} = \beta o + \beta_1(\Delta\text{CBLR}_{t-i}) + \beta_2(\Delta\text{CBAL}_{t-i}) + \beta_3(\Delta\text{NCBB}_{t-i}) + \beta_4(\Delta\text{MBAL}_{t-i}) + \beta_5(\text{ECM}_{t-i}) + U_1$ -- (4)

Where:

B_5 = Speed of adjustment coefficient

3.3 Data
Secondary data drawn from various sources are used in this dissertation. Table 1 below highlights the data, a brief description of them and their sources.

Table 1: Data, description and sources

Variable	Brief Description	Source
Human Development Index (HDI)	Summary index of human achievement in three dimensions namely decent standard of living or per capita income, a long and healthy life and being educated or knowledgeable.	World Bank, 2022
Commercial Banks Lending Rate (CBLR)	This is the average rate paid on commercial bank credit	CBN Statistical Bulletin, 2022
Commercial Banks Advances and Loans (CBAL)	The sum of all advances and loans given by commercial banks within a year	CBN Statistical Bulletin, 2022
Number of Commercial Bank Branches (NCBB)	The total number of branches of commercial banks in the country within a year	CBN Statistical Bulletin, 2022
Microfinance Banks Advances and Loans (MBAL)	The sum of all advances and loans given by microfinance banks within a year	CBN Statistical Bulletin, 2022

3.4 Estimation Technique
The Autoregressive Distributed Lag (ARDL) technique is the fundamental method of data analysis of this work. There are however a few other supplementary analytical tools which accompany it such as the Unit Root Test, graphs as well as statistical tests of significance. The ARDL technique is very useful for establishing both short run and long run dynamics between variables.

4. DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Unit Root Test
Table 2: Unit Root Test (Augmented Dickey-Fuller Statistic)

Variables	Levels	First Difference	Order of integration
HDI	-3.766926	-11.65290	1(0)
CBLR	-2.318296	-6.002326	1(1)
CBAL	-1.262518	-8.179677	1(1)
NCBB	-1.396936	-4.616348	1(1)
MBAL	4.653793	-1.209820	1(0)

Source: Author's computation, Eviews 9

Table 2 above clearly shows that all the variables display a varied order of integration but none is stationary beyond first difference. This forms the basis for the utilization of the ARDL technique and its Bounds Counteraction Test.

4.2 ARDL Bounds Test
To establish whether there is a long run relationship among the variables, the ARDL Bounds Test is conducted. Table 3 is a presentation of the ARDL Bounds Test result. The F-statistic of 6.629062 in Table 3 is clearly greater than the upper bounds at the five percent significance level. On this basis, it is obvious that there is a long run relationship between HDI and all the independent variables.

Table 3: ARDL Bounds Test for HDI, CBAL, MBAL, CBLR and NCBB

Included observations: 35
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	6.629062	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's computation, Eviews 9

4.3 Long-run and Short-run Estimates

Having established that a long run relationship exists among the variables in model two, presented in Tables 4 and 5 are the long-run and short-run estimates.

Table 4: Long run estimates model two

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CBLR	-0.005900	0.017944	0.328822	0.0339
CBAL	0.000640	0.000000	-0.899920	0.0045
MBAL	-0.008300	0.000001	-0.507997	0.6465
NCBB	0.000033	0.000067	0.500596	0.6511
C	0.266815	0.462368	0.577062	0.6044

Source: Author's computation, Eviews 9

Table 4 reveals that, in the long-run, commercial bank lending rate (CBLR) has a negative and statistically significant effect on human development index in Nigeria. Specifically, if CBLR changes by one unit, human development index will change by -0.005900. On the other hand, commercial bank advances and loans (CBAL) have a positive and statistically significant impact on human development index such that any one unit change in CBAL will result in a change in human development index to the magnitude of 0.000640. Microfinance banks advances and loans and the number of commercial bank branches in Nigeria respectively have a negative and positive insignificant impact on human development index such that a one unit change in microfinance banks advances and loans and the number of commercial bank branches in Nigeria will cause human development index to change by -0.008300 and 0.000033 respectively.

Table 5 provides a picture of the short-run dynamics between the financial inclusion variables and human development index in Nigeria. Commercial banks' lending rate (CBLR) have a negative and insignificant impact on human development index to the extent that a one unit change in CBLR will induce a change in human development index

Table 5: Short-run estimates

Dependent Variable: HDI

Counteracting Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HDI(-1))	-0.116352	0.124414	-0.935199	0.4187
D(HDI(-2))	0.064197	0.180507	0.355650	0.7456
D(HDI(-3))	-0.315057	0.136945	-2.300609	0.1049
D(CBLR)	-0.003477	0.001790	-1.942771	0.1473
D(CBAL)	0.076000	0.004003	-1.016094	0.0444
D(CBAL(-1))	0.000006	0.000000	0.942228	0.4156
D(CBAL(-2))	0.000015	0.000000	0.350598	0.7491
D(CBAL(-3))	0.000140	0.000000	0.509460	0.0395
D(MBAL)	0.000000	0.000000	0.493437	0.6556
D(MBAL(-1))	-0.000617	0.000000	-1.877359	0.1571
D(MBAL(-2))	-0.002013	0.000000	0.269759	0.8048
D(NCBB)	0.000025	0.000016	1.587965	0.2105
D(NCBB(-1))	0.006306	0.000020	-1.400210	0.2560
D(NCBB(-2))	0.010463	0.000017	-1.253725	0.2987
D(NCBB(-3))	-0.041456	0.000015	2.827814	0.0663
CointEq(-1)	-0.275343	0.106169	-2.593436	0.0208

Cointeq = HDI - (0.0059*CBLR + 0.0006*CBAL -0.0083*MBAL + 0.0000 *NCBB + 0.2668)

R^2=0.86 DW=2.2 Prob(F-statistic) =0.0000 Source: Author's computation Eviews

by -0.003477. Commercial banks advances and loans (CBAL) have a positive and statistically significant impact on human development index. A one unit change in CBAL will prompt a change in human development index by 0.076000. However, the lags of CBAL all have a positive but insignificant impact on human development index. A one unit change in one, two and three lags of CBAL will cause a change in human development index by 0.000006, 0.000015 and 0.000140 respectively. Further, the current value of microfinance banks advances and loans (MBAL) have a positive but insignificant impact on human development index while its one and two lags both have a negative and insignificant impact on human development index. The number of commercial bank branches (NCBB) in Nigeria at both current value and one and two lags all have a positive but insignificant impact on human development index. A one unit change in the current value of NCBB and its one and two lags will result in a change in human development index by 0.000025, 0.006306 and 0.010463 respectively. But a one unit change in three lags of NCBB will cause a change in human development index by -0.041456. The error correction term which is denoted by CointEq (-1) is negative and significant pointing to a satisfactory speed of adjustment. The coefficient of determination of 86% indicates that the explanatory variables in model two are actually responsible for changes in human development index in Nigeria while the Durbin-Watson statistic of 2.2 suggests the absence of autocorrelation in the model.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Based on the findings of this work, it is reasonable to infer that financial inclusion impacts significantly on the welfare of Nigerians since Human Development Index is a holistic indicator of welfare or living standard of individuals. However, out of all the financial inclusion variables, it is only commercial bank advances and loans (CBAL) that have the most significant impact on Human Development Index since its impact is significant both in the long and short runs thereby pointing to it as a potent tool in the hands of government, policy makers and players in the financial sector to positively impact the welfare of Nigerians. In addition, the significant impact of Microfinance Banks Advances and Loans (MBAL) on human development index in the short-run is a clear indication that government and policy makers can utilize MBAL as a formidable tool in improving the wellbeing of Nigerians.

5.2 Recommendations

The statistically significant positive impact of commercial banks advances and loans (CBAL) on human development index in both the long and short run highlights the importance of increasing the availability of such loans. If such loans are increasingly available, more persons outside the banking system will be encouraged to enter formal banking so that they can benefit from the loans. The government, along with commercial banks, should work together to ensure that loans are readily available at affordable cost. The government, through the apex bank, should consider implementing lending rate ceilings for commercial banks to ensure that loan costs remain affordable for individuals. This would make it easier for people to access the funds they need without facing exorbitant interest rates. Commercial banks, on the other hand, should explore new and innovative methods to make loans more accessible without imposing strict collateral requirements. Also, the negative link of commercial bank lending rate with human development index in the long-run which implies that HDI can be bettered by reducing lending rate calls on government through the CBN to constantly ensure that commercial banks do not charge exorbitant rates for their facilities.

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