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The Impact Of Financial Liberalization On Economic Development In Nigeria: A Focus On The Human Development Index (HDI)

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Abstract
Financial liberalization reduces government regulations and increases private sector participation in the economy. Since the 1980s, 1990s, and into the 21st century, many nations have implemented this policy to enhance competitiveness and foster economic growth. In Nigeria, financial liberalization began with the Structural Adjustment Programme (SAP) in 1986. However, its impact on economic development in low developing countries (LDCs), including Nigeria, remains mixed and controversial. This study assessed the effects of financial liberalization on Nigeria's economic development from 1986 to 2022. The research analyzed variables such as Lending Rate (LIR), Exchange Rate (EXR), Capital Account Openness (KAOPEN), Market Capitalization (MCP), and Private Sector Credit (PSC) as independent variables, with the Human Development Index (HDI) representing economic development. Using data from the Central Bank of Nigeria Statistical Bulletin and World Bank Development Indicators, the study employed econometric techniques including Augmented Dickey-Fuller tests, ARDL Bound Tests, Error Correction Mechanism (ECM), and ARDL model estimation for analysis. Findings revealed financial liberalization positively and significantly impacted HDI (C = 12.42928, P = 0.000001). LIR, KAOPEN, and PSC demonstrated significant positive effects on HDI, while EXR and MCP had mixed, insignificant impacts. The study concluded that financial liberalization positively influenced Nigeria's economic development during the studied period. Recommendations included adopting flexible monetary policies to reflect macroeconomic changes and expanding financial inclusion to underserved communities. By extending the study to 36 years and modifying previous models, it contributed valuable insights to the literature.
Keywords: *Financial liberalization, Economic Development, Human development Index, Nigeria*

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I. Introduction

Financial liberalization involves reducing or eliminating government restrictions on the financial industry, such as interest rate controls, capital controls, and restrictions on entry into the banking sector (Pradhan, Arvin, Bahmani, Hall, & Norman, (2017)). The goal is to create a more open and competitive financial system, which is believed to lead to more efficiency, innovation, and economic growth (Ikeora, Igbodika, & Jessie, 2016). This concept gained prominence in the late 20th century as many countries moved away from heavily regulated financial systems, influenced by the belief in the benefits of free markets and the desire to attract foreign investment. The International Monetary Fund (IMF) and the World Bank also promoted financial liberalization as part of their structural adjustment programs for developing countries.

In the 1980s and 1990s, developed countries embraced financial deregulation, removing restrictions on interest rates and allowing banks to set rates based on market conditions. Market-oriented reforms included privatization of state-owned banks and increased competition in the financial sector. For instance, in the early 1980s, the United States underwent significant financial deregulation with the Depository Institutions Deregulation and Monetary Control Act of 1980 and the Garn-St. Germain Depository Institutions Act of 1982. These acts allowed banks to offer a wider range of financial services, removed interest rate restrictions and facilitated the entry of non-bank institutions into the financial market (U.S. Congress, Public Law 96-221, 1980; Public Law 97-320, 1982). Similarly, the UK's Financial Services Act of 1986, known as the Big Bang, removed barriers between different financial services, allowed electronic trading on the London Stock Exchange, and increased competition among financial institutions (UK Parliament, Financial Services Act 1986).

From 1986 to 2022, Nigeria's economy underwent significant policy shifts towards financial liberalization. This shift was driven by a desire to move away from a highly regulated financial system that had hindered economic growth. Influenced by the theoretical frameworks of McKinnon (1973) and Shaw (1973), which were further developed by authors like Kapur (1976), Mathieson (1980), and Fry (1997), Nigeria transitioned to a more market-oriented financial system. The McKinnon-Shaw framework suggested that

government-imposed restrictions, such as interest rate ceilings and high reserve requirements, hinder financial development and economic growth. However, some scholars argue that financial liberalization assumes the existence of perfect capital markets without credit rationing, information imperfections, or inaccurate forecasting of future events. Market failures, including macroeconomic failures and information problems, are present even in developed countries and are particularly pronounced in developing nations. Consequently, Killick and Martin; Ocampo and Stiglitz in Okafor (2018) observed that market economies are not entirely self-regulating, and government interventions are necessary to establish regulations that mitigate risks and enhance economic stability. Financial liberalization can influence the Human Development Index (HDI) through its effects on income, health, and education. The Human Development Index serves as a statistical and per capita income gauge, categorizing countries into four tiers of human development. It assesses the average attainment in vital aspects of human development, including living a long and healthy life, acquiring knowledge, and maintaining a decent standard of living (Human Development Report Office, 2017). Interest rate controls are a significant aspect of financial repression, but other facets include directed investments. These can take forms such as mandating banks to lend to specific sectors, central banks providing credit at subsidized rates, government ownership of financial institutions, and government guarantees for private sector loans (Udoka & Anyingang, 2012). The rationale behind preferential interest rates is that the market might neglect priority sectors if left to its own devices. McKinnon and Shaw argued that opening the financial sector would stimulate higher savings rates, promote greater investments, and spur economic growth (Orji, Anthony-Orji, & Mba, 2015). They posited that financial repression occurs when a nation imposes limits on nominal deposit and loan interest rates, keeping them significantly below the inflation rate. Consequently, these low or negative real interest rates discourage savings and hinder the effective flow of those savings through the financial system, adversely affecting investment quantity and quality and, thus, economic growth and development. This perspective called for financial liberalization, which seemed more rewarding.

Interest rate liberalization involves transitioning from fixed or controlled rates to market-determined ones. In Nigeria, interest rate reforms have evolved over the years, particularly after the 2004 Banking Sector Reforms, aiming to improve capital allocation efficiency and stimulate investment. Examining interest rate trajectories provides insights into capital costs, borrowing patterns, and investment decisions within Nigeria's economy.

Nigeria's exchange rate policies underwent substantial modifications, including multiple exchange rate regimes, impacting trade, foreign direct investment, and currency stability. Exchange rate liberalization entails allowing market forces to determine exchange rates, moving away from fixed or heavily managed rates. For example, in 2016, Nigeria adopted a more flexible exchange rate system. Exchange rate liberalization affects export competitiveness and attracts foreign investment, and analyzing exchange rate dynamics offers valuable insights into Nigeria's economic development.

During this period, Nigeria's capital account openness, which refers to the ease of capital flows in and out of the country, evolved significantly. This involved progressively reducing restrictions on cross-border capital flows, facilitating more foreign portfolio investment (FPI) and foreign direct investment (FDI) (IMF, 2016). Increased capital account openness can boost investment and diversify capital sources, crucial for assessing its impact on foreign investment and economic stability. In this study, capital account openness is measured by the ratio of aggregate FDI, FPI, and other investments to the gross domestic product (Central Bank of Nigeria, 2017).

Nigeria's capital market saw remarkable growth, with the stock market's size and performance, indicated by market capitalization, reflecting investor confidence and financial sector development. The Nigerian Stock Exchange (NSE) experienced increased activity, new listings, and higher market capitalization. A growing stock market offers companies' access to capital, promotes transparency, and attracts foreign investment (World Bank, 2018).

The effect of financial liberalization on economic development has been extensively researched and debated. Financial liberalization, involving the removal of government regulations and the opening of financial markets, is often viewed as a pathway to economic growth, attracting investment and fostering financial sector development. However, its effect, particularly in developing countries like Nigeria, remain arguable contested. While financial liberalization has the potential to stimulate economic growth and enhance financial sector efficiency, it also poses several challenges and risks. Understanding the multifaceted consequences of financial liberalization and identifying conditions under which it can be a catalyst for growth, or a source of instability is crucial (International Monetary Fund, 2016). Existing research indicates that the impact of financial liberalization varies widely across different countries and contexts. Some nations have experienced accelerated economic growth and financial sector expansion following liberalization, such as studies by Ikeora, Igbodika, and Jessie (2016) in Nigeria and Ali (2022) in Africa. Conversely, other studies, like those by Misati and Nyamongo (2011) and Enwobi, Mlambo, and Ansongu (2017), have documented financial crises and increased income inequality. Understanding the factors leading to these divergent outcomes is essential (Central Bank of Nigeria, 2017). There is also a debate regarding the trade-off between financial stability and economic growth in the

context of liberalization. Some argue that liberalization may lead to greater financial instability, exacerbate income inequality and leave marginalized populations without access to financial services (Hattari & Rajan, 2008; Demirgüç-Kunt & Klapper, 2013), while others contend it can contribute to long-term economic prosperity (Carbó-Valverde & Sánchez, 2013; Levine, 2005; Boyd & De Nicolo, 2003). This dilemma necessitates a careful examination of policies and regulatory frameworks (World Bank, 2018).

Despite promises, remarkable achievements of the policy have not translated into impressive economic performance in Nigeria (Ikeora, Igbodika, & Jessie, 2016). The economy remains on the verge of collapse, marked by volatility in nearly all significant macroeconomic indicators. The composition of instruments used for financial liberalization can also pose problems. For instance, financial liberalization can lead to volatility in interest rates, making long-term business planning and investment challenging. It may also result in currency fluctuations, affecting the stability of the Nigerian Naira and impacting trade. It is apparent therefore that the impact on economic development, particularly in Nigeria, is complex and contested, with potential benefits like growth and efficiency countered by risks of instability, inequality, and external vulnerability.

This necessitates rigorous research to understand the conditions under which financial liberalization can sustainably promote inclusive growth rather than cause adverse effects.

This study addressed these issues, by encapsulating five variables—interest rate, exchange rate, Capital Account Openness (COP), Capital Market Capitalization (CMC), and Private Sector Credit (PSC)—as proxies for financial liberalization. It adopts Human Development Index (HDI), as a proxy for economic development. In this perspective, the study is guided by the following null hypotheses: $H0_1$: Interest rate does not have a significant effect on Human development Index; $H0_2$: exchange rate does not have a significant effect on Human development Index; $H0_3$: capital account openness does not have a significant effect on Human development Index; $H0_4$: capital market capitalization rate does not have a significant effect on Human development Index; $H0_5$: private sector credit does not have a significant effect on Human development Index. The study is divided into five sections viz; Section One is the Introduction, Section Two is Review of Related literature, Section Three is Methodology, Section Four is Empirical Analysis and Discussion, and Section Five is the Conclusion

II. Review Of Related Literature

Conceptual Review

Financial Liberalization

Financial liberalization refers to the process of reducing or eliminating restrictions in the financial sector to allow for market-driven financial intermediation. It includes interest rate deregulation, exchange rate liberalization, capital account openness, enhanced private sector credit access, and capital market development. This concept was popularized by McKinnon (1973) and Shaw (1973), who argued that financial repression—through interest rate controls, directed credit, and limited competition—undermines savings and hampers investment.

By liberalizing financial markets, governments aim to improve resource allocation, deepen financial systems, and attract investment that can drive economic growth and development (Levine, 1997). In Nigeria, financial liberalization became more prominent after the introduction of the Structural Adjustment Programme (SAP) in 1986, which involved the deregulation of interest rates, promotion of capital markets, and liberalization of foreign exchange regimes (CBN, 2012).

Economic Development

Economic development is a broad concept that encompasses not only increases in income or GDP but also improvements in education, healthcare, and living standards. It is about expanding people's real freedoms and opportunities, as emphasized by Sen (1999). Economic development is more meaningful when it leads to improved human capital, reduced inequality, and increased well-being (Todaro & Smith, 2011).

Financial liberalization, when properly implemented, can facilitate development by mobilizing savings, supporting entrepreneurship, and enabling investment in social infrastructure. It is through such linkages that financial liberalization may impact economic development.

Human Development Index (HDI)

The Human Development Index (HDI), developed by the United Nations Development Programme (UNDP), measures human welfare by combining indicators of health (life expectancy), education (mean and expected years of schooling), and income (GNI per capita). It serves as a comprehensive indicator of economic development and quality of life (UNDP, 2022).

Financial liberalization can influence HDI positively by improving access to finance for education and healthcare, enabling infrastructure investment, and increasing household income through job creation and entrepreneurial opportunities (Adusei, 2013). However, if liberalization increases inequality or financial exclusion, its impact on HDI may be negative.

Dimensions of Financial Liberalization and Their Links to HDI

a. Interest Rate Deregulation

Removing controls on interest rates allows for market determination, which can enhance savings mobilization and channel credit to productive sectors. In theory, higher real interest rates should encourage savings and provide more resources for investment in education, healthcare, and housing—thereby improving HDI (Ranciere, Tornell & Westermann, 2006). However, excessively high rates may discourage borrowing and affect small businesses and households.

b. Exchange Rate Liberalization

Allowing exchange rates to respond to market forces can attract foreign investment, improve export competitiveness, and promote economic stability. In Nigeria, exchange rate reforms have supported foreign capital inflows into sectors such as telecommunications, education, and healthcare. However, exchange rate volatility has at times worsened inflation, undermining living standards and purchasing power (Edwards, 2001).

c. Capital Account Openness

Opening the capital account permits cross-border flow of funds, enabling foreign investments in infrastructure, education, and health sectors. Yet, liberalizing without adequate regulatory frameworks may expose the economy to sudden capital flight and financial instability, which can erode human development gains (Kose et al., 2009).

d. Credit to the Private Sector

One of the key outcomes of liberalization is improved access to credit, especially for households and micro, small, and medium enterprises (MSMEs). Access to finance enhances productivity, supports income-generating activities, and empowers individuals, particularly women and youth (Beck, Demirgüç-Kunt & Levine, 2007). These developments directly contribute to improved HDI.

e. Market Capitalization

Market capitalization—the total value of a stock market as measured by the aggregate value of listed companies—is a strong indicator of capital market development. Financial liberalization often encourages the growth of stock markets by allowing greater participation, both domestic and foreign. A deep and liquid capital market can raise long-term funds for investment in critical sectors such as infrastructure, education, and health (Levine & Zervos, 1998).

In Nigeria, reforms in the capital market—such as demutualization of the Nigerian Stock Exchange and improved corporate governance—have increased market capitalization and enhanced investor confidence. This, in turn, helps mobilize long-term capital for public-private partnerships in health and education sectors. Thus, rising market capitalization can indirectly improve HDI by facilitating investment in human development drivers.

Nigeria's Experience with Financial Liberalization and HDI

Despite over three decades of liberalization efforts, Nigeria's human development outcomes remain poor. Although GDP growth has been recorded intermittently, Nigeria ranked 163rd out of 191 countries on the HDI in 2022 (UNDP, 2022). Structural bottlenecks, poor governance, financial exclusion, and macroeconomic instability have limited the developmental impact of liberalization policies.

For example, while credit to the private sector and market capitalization have grown, access to credit for low-income households remains low. Similarly, exchange rate volatility and inflation continue to erode real incomes. These issues highlight the importance of inclusive, well-regulated, and well-sequenced financial liberalization in achieving meaningful human development outcomes.

Theory of Financial Liberalization

The theory of financial liberalization, is rooted on the foundational research of McKinnon (1973) and Shaw (1973). According to this theory, deregulating the domestic financial market, allowing market forces to determine interest rates, and controlling credit and capital can contribute to the macroeconomic stability and economic growth of countries. In simpler terms, financial liberalization can spur economic growth and development by increasing investment and productivity. It argues that deregulating the financial markets leads to improved savings and investments, enhances economic efficiency, increases capital accumulation, channels savings from the informal sector to the formal sector of the economy, and facilitates the transfer of resources from the financial sector to the real economy. Banam (2010) suggests that financial liberalization can be advantageous if it results in three key outcomes: (1) greater savings, (2) a reduction in the cost of capital, and (3) the adoption of improved governance practices. From a theoretical standpoint, financial liberalization is expected to lead to higher real interest rates, which can in turn encourage savings.

Consequently, higher savings levels are anticipated to fund increased investments, ultimately leading to higher economic growth and development

The foundation of this theory rests on the belief that the main causes of economic distortions and instability in developing countries are financial repression measures, such as interest rate caps, directed credit allocation, and trade barriers imposed through trade tariffs. MacKinnon (1973) and Shaw (1973) argue that by replacing regulations and controls that promote financial repression with financial liberalization, not only can economic growth be stimulated, but economic development can also be fostered. Here, financial development pertains to the enhancement in the quality, quantity, and efficiency of financial intermediary services. According to Ang (2008), an improved financial system results in better allocation of financial resources when the financial system functions effectively. This allows businesses to expand more easily through lower borrowing costs and enables financial intermediaries to direct their funds to the most promising projects. Ultimately, this is expected to result in improved quality, quantity, and efficiency of financial intermediary services.

Financial liberalization theory which refers to the process of deregulating and opening up financial markets to promote economic growth and development is linked to various indicators of economic development thus:

Financial liberalization can lead to increased access to credit and investment opportunities, which can stimulate entrepreneurship and job creation, ultimately leading to higher incomes and improved living standards. Greater access to financial services, such as banking and insurance, can facilitate education and healthcare expenditures, contributing to human capital development. Thus, countries that undergo financial liberalization often experience improvements in HDI, as evidenced by higher literacy rates, longer life expectancy, and better access to essential services. Financial liberalization can attract domestic and foreign investment by providing a conducive environment for capital flows and reducing regulatory barriers.

Financial liberalization therefore can have a significant impact on various indicators of economic development, including the Human Development Index by promoting greater access to financial services, facilitating investment, and improving resource allocation efficiency. However, the effects of financial liberalization can vary across countries and depend on the broader policy context in which it is implemented. This study is anchored on financial Liberalization Theory.

Empirical Review

Hussain et al. (2010) assessed the effectiveness of foreign direct investment (FDI) and international trade extension as tools for economic stability and development in the contemporary international context, focusing on Pakistan. They used data span from 1975 to 2008, a period marked by economic and financial liberalization within an open economy framework, often associated with globalization. The study employed Ordinary Least Squares (OLS) regression analysis with the Human Development Index (HDI) as the dependent variable. The independent variables considered were the ratio of FDI to GDP, real GDP growth rate, and the levels of export and import. The analysis revealed that the coefficient of FDI is statistically significant and aligns with the anticipated positive impact on HDI. However, the coefficient of the real GDP ratio is found to be insignificant and carries a negative sign, potentially indicating the influence of income inequality in the Pakistani context. This suggests that, during the specified period, FDI played a significant role in influencing human development in Pakistan. However, challenges related to income inequality may have mitigated the positive effects associated with real GDP growth. The findings underscore the complex interplay between economic indicators and human development, emphasizing the need for nuanced policy considerations to address diverse factors influencing a country's development trajectory.

Gulaliyeva et al. (2017) conducted a comparative analysis of the economic development conditions in Turkey and Azerbaijan, focusing on the liberalization process as a specific economic phenomenon. The study introduced a new research method called the "index of leftness (rightness) of the economy" to evaluate the degree of economic liberalization. The findings indicated that the Azerbaijan economy employs more "right" methods of economic regulation compared to Turkey. The term "rightness" here implies a higher degree of regulation or control in economic policies. In contrast, the Turkish economy is characterized by a higher propensity for fluctuations in the studied parameters. Despite the Turkish economy's susceptibility to fluctuations, the primary trajectory of its development is oriented towards increased liberalization. Simultaneously, the study observed a growth in indicators of human development in Turkey. This suggests that, in the Turkish context, economic liberalization is pursued alongside positive trends in human development. Conversely, the Azerbaijani economy is portrayed as more liberalized and less regulated in comparison. This implies that Azerbaijan has embraced a more open and free-market approach to economic policies. The article concluded by highlighting the contrasting approaches to economic liberalization in Turkey and Azerbaijan, shedding light on their respective impacts on economic stability and human development indicators.

Arestis, and Caner (2010) investigated the theoretical foundations and conducts an empirical analysis to explore the relationship between capital account liberalization and poverty in developing countries during the

period 1985–2005focusing on developing countries. The study employed various econometric techniques, including the 'system GMM' technique, complemented by OLS and Instrumental Variables (IV) techniques to examine whether capital account liberalization has contributed to poverty alleviation. Additionally, the research explored whether the impact of capital account liberalization on poverty is contingent upon the quality of institutions. The study revealed that there is no statistically significant relationship between the degree of capital account liberalization and the poverty rate during the specified period. This suggests that, on average, capital account liberalization alone does not exhibit a substantial impact on poverty levels in developing countries. The study observed that developing countries with higher institutional quality tend to have lower poverty rates. However, the statistical significance of this effect was found to be relatively low. This implies that while institutional quality is associated with lower poverty, the relationship may be mixed and influenced by other factors. Finding also showed that a higher degree of capital account liberalization is correlated with a lower income share for the poor. This suggests that, rather than directly alleviating poverty, liberalization may have implications for income distribution, potentially affecting the economic well-being of the impoverished population.

A study by Lucky (2022) examined the relationship between macroeconomic variables and the Human Development Index (HDI) in Nigeria from 1986 to 2018. The macroeconomic variables analyzed included money supply, government spending, inflation, exchange rate, and interest rate as proxies for the independent variable, while HDI served as the dependent variable. Data was sourced from the Central Bank of Nigeria (CBN) statistical bulletin and the World Bank Development Indicator. Econometric techniques such as descriptive statistics, the Augmented Dickey-Fuller test, and the Philip Perron test for unit root were used for data analysis. The Auto-Regressive Distributed Lag (ARDL) model was employed to assess the relationship between macroeconomic variables and HDI. Results indicated that these macroeconomic variables had significant long-term and short-term effects on HDI in Nigeria. Specifically, money supply and interest rates negatively impacted HDI, while government expenditure had a positive effect. Inflation and exchange rates showed mixed dynamics with varying short-term effects. The study recommended implementing relevant policy instruments to create a favorable socioeconomic environment to enhance HDI, increasing the education budget to support poor children, and encouraging private sector investment to create employment opportunities and improve living standards in Nigeria.

In a study, Yolanda (2017) aimed to analyze the effects of the Indonesian Bank (BI) rate, foreign exchange rates, money supply, oil prices, and gold prices on inflation and its subsequent impact on the Human Development Index (HDI) and poverty in Indonesia from 1997 to 2016. The study utilized secondary data collected through purposive sampling and employed multiple regression analysis to assess these relationships. The findings from Model 1 revealed that the BI rate, money supply, oil prices, and gold prices significantly and positively influenced inflation, while the exchange rate had no significant effect. The determinant coefficient of 0.9497 indicated that 94.97% of the variability in inflation could be explained by the independent variables. In Model 2, the results showed that inflation had a significant and positive impact on the HDI, while Model 3 demonstrated a significant and positive effect of inflation on poverty levels. The study concluded that macroeconomic variables substantially influence inflation, which in turn affects human development and poverty in Indonesia.

Dao and Van (2023) conducted a study examining the influence of openness on human capital across 112 countries globally from 2000 to 2019. They employed a two-stage least square fixed-effect model with instrumental variables to elucidate the intricate connection between human capital and its primary determinants. The findings revealed substantial variations in the impact of openness across different country groups. In developed and upper-middle-income developing countries, Foreign Direct Investment (FDI) exhibited no discernible effect on human capital, whereas it had a positive impact in lower-middle-income countries and a negative impact in low-income countries. For developed nations, exports were found to foster human capital formation, while in low-income developing countries, they were observed to hinder such formation. In developing countries, imports had a positive influence on human capital, whereas in developed countries, the effect of imports on human capital was negative. The study also highlighted that international cooperation effectively elevated human capital levels in developed, upper-middle-income, and low-income countries. However, this positive impact was not observed in lower-middle-income countries.

Hong (2017) utilized a dataset comprising 16 East Asian countries over the period 1985 to 2010 to investigate the influence of inbound Foreign Direct Investment (FDI) on the accumulation of human capital. The outcomes indicated that a rise in foreign presence correlates with an uptick in secondary schooling but has an adverse effect on tertiary education. Specifically, FDI originating from OECD countries demonstrated positive effects on both secondary and tertiary education within East Asian nations. These findings remain consistent across various measures of educational attainment and different model specifications.

III. Methodology

Research Design

Research design is the framework of research methods and techniques chosen by a researcher. It allows the researcher to use the methods that are suitable for the subject matter. Balsely (1988) defined a research design as the plan, structure and strategy of investigation concerned so as to obtain answers to research questions and to control variance. Kerlinger (1973) described research design as the more fundamental question of how the study subjects will be brought into and employed within the research setting to yield the required result. Expost facto research design was used. This involves the use of secondary data.

Nature and Sources of data

The data for this research work were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicators (WDI).

Model Specification

The statistical models adopted are predicated on the presumed effect of independent variables on the dependent variables.

The work is structured into five models. The models captured the effect of financial liberalization on economic development indicators. The variables are:

Financial liberalization (independent variable)- proxied by:
Interest Rates (INR),
Exchange Rates (EXR),
Capital Account Openness (COP),
Capital Market Capitalization (CMC),
and access to financial services represented in the study by the ratio of private sector credit (PSC) to the GDP.

Economic Development (dependent variable) – proxied by:
Human Development Index (HDI).

Model 1
Model was adopted from Adam (2020). The model is:
LRGDP = f(LDR, PINV, REXR, INFL, FINDEX)
Where, LRGDPt = Log of RGDP, REXR = Real exchange rate, PINV = Private investment as a ratio of GDP, LDR = Real lending rate, interest rate, FINDEXi = Financial liberalization index
The model will be modified to:
HDI = f(INR, EXR, COP, CMC,PSC) ---------- 1

Where:
HDI = Human Development Index
INR = Interest Rate
EXR= Exchange Rate
CMC = Capital Market capitalization
Capital Account Openness
CPS = Credit to Private Sector
In applying ARDL approach, the equation is presented as
$\Delta HDI_t = {}_0 + + \ + + \ +$ ---------- 2

Since a long run relationship exists, equation 4 is reparametrized and presented as the cointegrating error correction model as state in equation 3.
$\Delta HDI_t = \beta_0 + + \ + + \ +$ ---------- 3

β_0- β_5 are coefficients of the independent variables and μ is the error term representing the unobserved factors that influence the dependent variable, Δ is the difference operator, α is the speed of adjustment parameter from short run to a long run equilibrium, and *ECT* is the residuals derived from the estimation of the model given in Equation

Method of Data analysis
ARDL model estimation was used.

IV. Data Analysis Model

HDI= f (LIR, EXR, KAOPEN, MCAP, PSC)

Trend Analysis of the Economic Development Variables

Human Development Index (HDI)

In figure 4.1, the trend reveals a volatile pattern with periods of decline, stagnation, and growth. However, if we look at the broader picture, there seems to be a general upward trend in HDI, suggesting overall improvement in human development over the long term.

The figure shows a gradual increase in the Human Development Index (HDI) from 0.37 in 1986 to 0.58 in 1989. Following this, there is a consistent decline, reaching 0.33 in 2000. This could be attributed to various factors such as economic crises, political turbulence that characterised the period, and social disruptions that probably negatively impacted living standards, education, and health during this period.

Subsequently, there is another gradual increase, reaching 0.56 in 2016, before a slight decrease to close at 0.54 in 2022. This recovery period could be attributed to the political stability that characterized the Yaradua and the Jonathan Governments that resulted to economic growth, improved social policies, investments in education and healthcare.

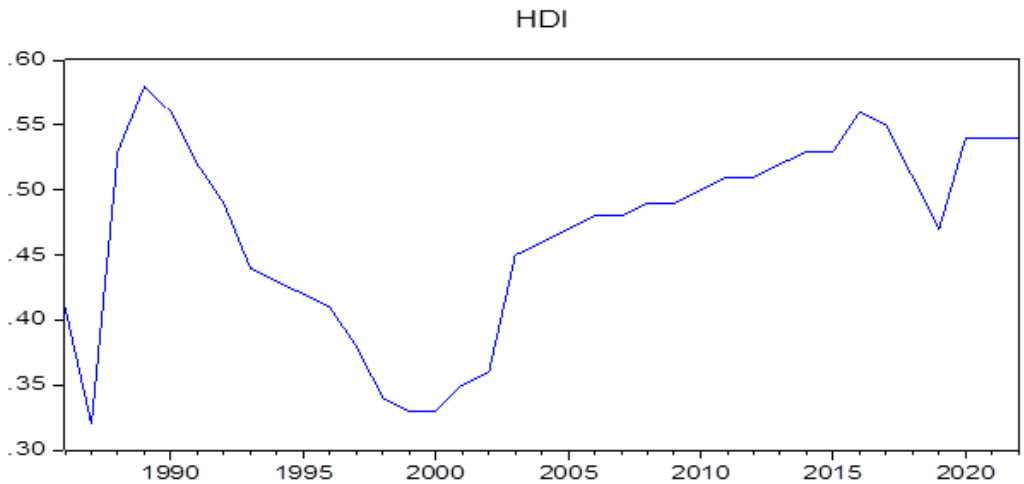

Figure: 4.1: Trend in Human Development Index in Nigeria 1986 – 2022
Source: Compilation by the Researcher using Eviews10.0

Descriptive Statistics

Table 4.1: Summary Statistics of Key Variables (1986–2022)

	HDI	GFCF	UER	PCI	RGDPG
Mean	0.468378	30.80676	4.654324	4.162973	4.542973
Median	0.490000	29.39000	3.780000	4.200000	4.050000
Maximum	0.580000	54.95000	9.010000	15.33000	14.60000
Minimum	0.320000	14.82000	3.500000	-2.040000	-1.580000
Std. Dev.	0.074181	12.63416	1.614868	3.854334	3.716439
Skewness	-0.625578	0.313439	1.553538	0.515636	0.625660
Kurtosis	2.266794	1.902367	3.981080	3.459193	2.904664
Jarque-Bera	3.242098	2.463233	16.36700	1.964671	2.427956
Probability	0.197691	0.291820	0.000279	0.374436	0.297013
Sum	17.33000	1139.850	172.2100	154.0300	168.0900
Sum Sq. Dev.	0.198103	5746.391	93.88071	534.8120	497.2290
Observations	37	37	37	37	37

Model Estimation and Results

Model I: HDI = F(LIR, EXR, KAOPEN, MCAP, PSC)

Unit Root Test (Augmented Dickey-Fuller)

Table 4.2: Stationarity Results

In adherence to the standard procedure, a unit root test was performed on every time series data within the model to assess the stationarity of the series. Unit roots represent a feature of certain time series data, and neglecting this assessment may lead to unreliable analysis outcomes. Stationarity in data is observed when it

maintains a consistent mean trend and behaves predictably. The findings of the unit root test are encapsulated in Table 4.2

Table 4.2 Summary of Augmented Dickey Fuller Unit Root Test for Model I

Vari\able	TEST CONDUCTED	Mackinonnon Critical Value at 5% probability level	Level Test Stat	Mackinonnon Critical Value at 5% probability level	1st Difference Test Stat	Order of Integration
HDI	ADF	-2.945842	-1.949219	-2.948404	-6.309106	I(1)
LIR	ADF	-2.945842	-3.924601			I(0)
EXR	ADF	-2.945842	2.375022	-2.948404	-4.046518	I(1)
KAOPEN	ADF	-2.945842	-1.649242	-2.948404	-5.744563	I(1)
MCAP	ADF	-2.945842	-1.618239	-2.948404	-6.731008	I(1)
PSC	ADF	-2.951125	-0.684054	-2.951125	-5.478663	I(1)

Source: Computation by the researcher (2024)

The results from the Augmented Dickey Fuller tests reveal that Human Development Index (HDI), exchange rate (EXR), capital account openness (KAOPEN), Market Capitalization (MCAP) and private sector credit (PSC), exhibit stationarity at the first difference I(1), while lending interest rate (LIR) is stationary at level I(o). This signifies that the variables demonstrate stationarity at the specified order of integration and at a significance level of 5%.

Result of Normality test for Model I

To ensure the adequacy of the data for analysis, we examined its normal distribution. The Jarque-Bera Normality test, which stipulates that a series should exhibit a Bell-shaped histogram to be considered normally distributed, was employed. The results of this test are depicted in Figure 4.2, where it is evident that the data distribution adheres to the required bell shape. The null hypothesis for the Jarque-Bera test is stated as follows: H_0 - Data conform to a normal distribution at a 0.05 level of significance. In Figure 4.2, the P-value of Jarque-Bera Statistics is observed to be 0.874940, surpassing the 0.05 threshold. Consequently, we refrain from rejecting the null hypothesis, confirming that the data for Model I follows a normal distribution. As a result, the insights derived from the analysis of the model can be employed for inferences.

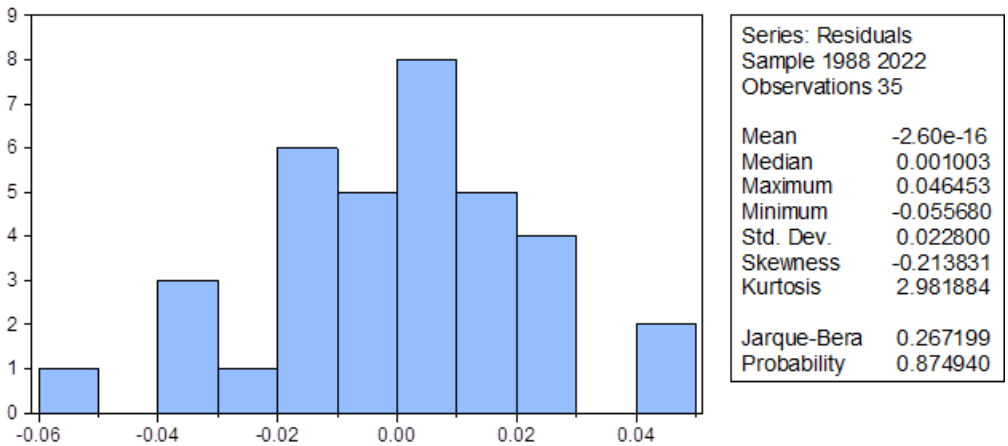

Figure 4.2 Jarque – Bera Normality Test for Model I
Source: Computation by the researcher (2024)

Serial Correlation Test

The result of serial correlation test for model I is presented in table 4.3

Table 4.3 Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.714708	Prob. F (2,18)	0.5027
Obs*R-squared	2.574938	Prob. Chi-Square (2)	0.2760

Source: Computation by the Researcher (2024)

The null hypothesis of no serial correlation is accepted judging from the value of probability of the F-statistic which is 0.2760 > 0.05 level of significance. Therefore, the Breusch-Godfrey Serial Correlation LM Test indicates that the residuals are not serially correlated and the equation can be used for hypothesis tests and for inferences.

Cointegration Test

After the appropriate model was selected, the ARDL bound test was conducted according to procedure. The result is presented in Table 4.4.

Table 4.4 ARDL Bounds Test

ARDL Bounds Test				
Date:20/02/24 Time: 16:18				
Sample: 1986 2022				
Included observations: 35				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.174078	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Computation by the Researcher (2024)

In the bound test, the F-statistic of 5.174078 is greater than the upper bound value of 3.38 at 5% level of significance as observed in Table 4.5. This shows that a long run equilibrium relationship exists between the dependent variable – human development index representing economic development and the independent variables viz; lending interest rate, exchange rate, capital account openness, market capitalization, and private sector credit all representing financial liberalization. However, even though a long run relationship exists between the dependent and independent variables, in the short run, there is an error since some of the variables were stationary only at I(0). The ARDL error correction regression is used to determine the speed of correction of this error for equilibrium to be attained in a long run. The ARDL ECM is represented in Table 4.6 by CointEq(-1). Table 4.7 is the short run and long run ARDL estimated model.

Regression Analysis

$$\Delta HDI_t = \beta_0 + \sum_{t=1}^{q} \beta_1 \Delta LIR_{t-1} + \sum_{t=1}^{q} \beta_2 \Delta EXR_{t-1} + \sum_{t=1}^{q} \beta_3 \Delta KAOPEN_{t-1} + \sum_{t=1}^{q} \beta_4 \Delta MCAP_{t-1} + \sum_{t=1}^{q} \beta_5 \Delta PSC_{t-1} \quad \text{---------- 1}$$

Since a long run relationship exists, equation 1 is reparametrized and presented as the cointegrating error correction model as stated in equation 2.

$$\Delta HDI_t = \beta_0 + \sum_{t=1}^{q} \beta_1 \Delta LIR_{t-1} + \sum_{t=1}^{q} \beta_2 \Delta EXR_{t-1} + \sum_{t=1}^{q} \beta_3 \Delta KAOPEN_{t-1} + \sum_{t=1}^{q} \beta_4 \Delta MCAP_{t-1} + \sum_{t=1}^{q} \beta_5 \Delta PSC_{t-1} + \alpha ECT_{t-1} + \mu \quad \text{----------2}$$

Where a ECT is the error correction term as the model transitions from short run perturbations to a long run equilibrium.

Table 4.5 ARDL Cointegrating and Long Run Form

ARDL Cointegrating And Long Run Form				
Dependent Variable: HDI				
Selected Model: ARDL (1, 2, 2, 2, 0, 2)				
Date: 02/05/24 Time: 09:31				
Sample: 1986 2022				
Included observations: 35				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LIR)	-0.001264	0.004142	-0.305175	0.7634

D (LIR (-1))	-0.008048	0.005300	-1.518632	0.1445
D(EXR)	0.000407	0.000340	1.197906	0.2450
D (EXR (-1))	-0.000489	0.000334	-1.467181	0.1579
D(KAOPEN)	0.064492	0.040541	1.590778	0.1273
D (KAOPEN (-1))	-0.074605	0.029931	-2.492567	0.0216
D(MCP)	0.002305	0.001293	1.783335	0.0897
D(PSC)	0.000748	0.003058	0.244452	0.8094
D (PSC (-1))	-0.003632	0.002827	-1.285075	0.2134
CointEq(-1)	-0.438890	0.131491	-3.337790	0.0033
Cointeq = HDI - (0.0360*LIR -0.0003*EXR + 0.4203*KAOPEN + 0.0053				
*MCP + 0.0111*PSC + 0.5914)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIR	0.035978	0.014620	2.460845	0.0231
EXR	-0.000255	0.000284	-0.899013	0.3793
KAOPEN	0.420305	0.201447	2.086426	0.0500
MCP	0.005252	0.002871	1.829572	0.0823
PSC	0.011075	0.004529	2.445118	0.0239
C	0.591424	0.158073	3.741469	0.0013

Source: Computation by the researcher (2024)

The values of the coefficient of lending interest rate in the short run (See Table 4.5) and long run of-0.001264 and 0.035978 with their corresponding probabilities equal to 0.7634 and 0.0231 respectively. We therefore reject the null hypothesis H01 and conclude that the lending interest rate had a negative but statistically insignificant effect on human development index in the short run and a positive and significant effect in the long run. This implies that for every unit increase in the lending interest rate, the human development index will increase by 0.035978 unit. This finding contrasts with the study by Lucky (2022), which found a negative impact of interest rate on human development in Nigeria. However, the finding aligns with a study by Yolanda (2017) which found interest rate positively related to inflation and inflation subsequently positively and significantly related to human development index. However, the finding aligns with a study by Yolanda (2017) which found interest rate positively related to inflation and inflation subsequently positively and significantly related to human development index.

Secondly, while the exchange rate has a positive but insignificant effect on human development index in the short run, its effect in the long run is negative, and also statistically insignificant at the 5% level of significance. We therefore fail to reject the null hypothesis H02 and conclude clearly that exchange rate was detrimental to the Nigerian economy. A one-unit increase in the exchange rate is associated with a decrease of 0.000255 units in the human development index. However, this coefficient is not statistically significant at conventional levels ($p = 0.3793 > 0.05$.

Capital account openness has a positive but insignificant effect on the human development index in the short run, but its effect in the long run is positive and significant, as revealed in Table 4.7 We therefore fail to reject the null hypothesis H03. It shows that for each unit increase in capital account openness, the human development index is expected to increase by approximately 0.420 unit. This coefficient is statistically significant at the 0.05 level, as the p-value is 0.05. Arestis and Caner (2010) investigated the relationship between capital account liberalization and poverty in developing countries. They found no statistically significant relationship between the degree of capital account liberalization and poverty rates. The findings from Arestis and Caner contradicts the regression results of this study where the coefficient is statistically significant implying that capital account openness has an influence on human development index.

For each unit increase in market capitalization, the human development index is expected to increase by approximately 0.005 unit, but again, this coefficient is not statistically significant at conventional levels as $P = 0.0823 > 0.05$. We therefore fail to reject the null hypothesis H03 and conclude that market capitalization has no significant effect on human development index.

In a similar vein, while the private sector credit has a positive effect on the human development index both in the short run and in the long run, it's effect in the short run is insignificant ($p=8094 >.05$) but statistically significant in the long run at the 0.05 level being that $p= 0.0239<0.05$. We therefore fail to reject the null

hypothesis H03 and conclude for each unit increase in private sector credit, the human development index is expected to increase by approximately 0.011 unit.

In table 4.5, CointEq(-1) is the equivalence of the error correction term (ECT). The value of CointEq (-1) =-0.438890 shows that about 44% of the errors that occurred in the short run are corrected in each period before equilibrium is attained in the long run. This implied that equilibrium would be attained in about $2\frac{1}{4}$ years.

Extract from Table 4.5

R-squared	0.896913	Mean dependent var	0.474286
Adjusted R-squared	0.824751	S.D. dependent var	0.071013
S.E. of regression	0.029728	Akaike info criterion	-3.895927
Sum squared resid	0.017675	Schwarz criterion	-3.229350
Log likelihood	83.17873	Hannan-Quinn criter.	-3.665825
F-statistic	12.42928	Durbin-Watson stat	1.467949
Prob(F-statistic)	0.000001		
*Note: p-values and any subsequent tests do not account for model selection.			

The extract from the selected model (Table 4.5) below showed that adjusted R-squared is 0.896 implying that about 90% of changes in the human development index result from the financial liberalization variables under study. The F-statistic of 12.4 with its probability Prob(F-statistic) of 0.000 showed that the financial liberalization variables in the model have a joined effect on the human development index and the effect is significant at 5% level of significance.

V. Conclusion

The study showed lending rate, capital account openness, and private sector credit each has a positive and significant effect on the human development index; exchange rate has a negative but insignificant effect while market capitalization has positive and insignificant effect on human development index. However, financial liberalization variables in this model have a joint significant effect on HDI. The study therefore concluded that financial liberalization had a positive effect on human development index - an indicator of economic development in Nigeria within the period under study. The study recommended that the Government should prioritize measures to enhance financial inclusion. This could be achieved by providing adequate infrastructure and direct sustainable financial services to the underbanked and the unbanked communities to improve household income and reduce income inequality thereby fostering inclusive economic growth and improving Human Development Index (HDI). It contributed to knowledge enhancing our understanding of financial liberalization influence on human development. Based on the findings the study suggested a study Comparing the effects of financial liberalization across different countries or regions with varying levels of development, institutional frameworks, and policy regimes could offer deeper insights into the contextual factors that influence outcomes. This comparative analysis could help identify best practices and policy lessons that can be applied in different contexts.

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