Financial Development and Human Development in Nigeria

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Abstract. This study examines the relationship between financial development indicators and human development in Nigeria from 1990-2019. It investigates the effect of broad money supply/Gross Domestic Product (GDP) on Human development; it examines the impact of credit supply/GDP on human development and assesses the link between market capitalization and human development. The study employs expo-facto research design and Autoregressive Distributed Lag to examine the relationship between Financial Development and Human Development. Previous studies in Nigeria had focused on financial development and economic growth, financial deepening and economic growth. Therefore, this study is a response to the dearth of relevant empirical studies on financial development and human development in Nigeria. From the results, the long run net effect of broad money supply/GDP on human development is negligible and positive. M2/GDP in Nigeria only account for the extent of monetization rather than financial intermediation. The long run net effect of credit supply/ GDP on human development is negligible and positive. The long-run effect of M2/GDP, CPS/GDP are statistically significant but has no power to substantially influence human development in Nigeria. The study suggests that banks should effectively perform their intermediation roles and effort should be made by the policy makers to widen/broaden the Nigeria capital market activity. Policy makers should concentrate on financial system and their roles for effective money supply and credit supply while implementing economic policies.

1 Introduction

The idea of human development was first looked into by Aristotle who believes that policymakers should identify the needs of individual so as to improve their living conditions (Kuriakose, Iyer 2015). In the early 1960s there were increasing clamour and calls not to put too much importance on GDP, because in the past, economic performance (GDP) had become both the leading objective, and indicator of economic development in many nations despite that GDP was never intended to be used as an indicator of welfare. From 1970s to 80s economic development experts considered using alternative measure for development as against GDP that is narrow in perspective. Hence, experts

considered putting emphasis on employment, income redistribution and meeting of basic necessity of life as indicators of development and these argument helped to give room for the human development approach, which is about broadening the quality of human life, instead of simply the growth of the economy in which human beings live.

According to UNDP (2017a), "the Human Development Index is based on three parameters which are: Long life, measured by life expectancy at birth, education or skills, captured by a combination of adult education, the total primary, secondary and tertiary enrolment and the living standard measured by real GDP per capita". In Ranis, Sewart (2004), human development was used interchangeably with human capital to indicate a two way relationship between economic growth and human development. Economic growth is a subset of human development and it is expected that human development is accorded the maximum priority but development experts continue to treat economic growth as both the leading objective and an indicator of economic development (Solow 1956). Human development is multidimensional while economic growth is a single achievable objective that is capable of driving human development indicators (Sala-i-Martin, Pinkovskiy 2010). It is surprising that not until 1990s when UNDP and Organisation for Economic Cooperation and Development (OECD) made human development the world's central reference point for development, previous emphasis have been on economic growth and GDP per capita. The current level of poverty, income inequality in Nigeria and the claim by the World Bank that Nigeria is the Capital city of Poverty is further confirmation that all is not well with the country in the area of human development and a signal that Nigeria is far from achieving Sustainable Development Goals (World Bank 2022).

However, the debates on how financial development could enhance human development now become new national focus and remain a tensed issue without any moderate consensus in Nigeria. Overcoming human development challenges requires access to financial resources, whereas access to finance requires a procedurally complicated process as a result of various risks and the general cost of transactions. To appreciate the role of financial development, leading development economists like King, Levine (1993) and Park et al. (2018) have re-emphasized that "higher levels of financial development is positively correlated with faster rates of economic growth, physical capital accumulation, and economic efficiency both before and after controlling for numerous country and policy factors". According to World Bank (2014), financial development is a private sector driven strategies that enhances economic growth and human welfare and play important role in human development in both developed and developing countries. Investment, loans and interest rate contribute to human development because these are key macroeconomic factors that drive economic growth and development (Asongu 2011). Notwithstanding that financial development can do more to reduce both economic and social challenges, access to finance remain a major challenge to both individuals and private sector in Nigeria and Africa in general (Tchamyou 2017).

To appreciate the novelty of the above statement of the research problem in view of current developmental challenges facing Nigeria, it is better to situate the importance of financial development within the framework of the United Nation General Assembly adopted plan of action for people, prosperity and planet under Sustainable Development Goals (SDGs). The UNDESA report elaborated on how access to finance can help to combat poverty, hunger, and ensure good health, quality education, gender balance, decent work, economic growth, reduction in inequality through savings, access to credit, digital micro-insurance, digital flexible saving and loan facilities, digital wallets, MSME digital payment (ITU 2015, UNDESA - UNESCO 2014, UNDP 2017a,b).

Based on above narratives, this research work focuses on financial development and human development in Nigeria.

2   Statement of the Problem

The motivations for this study are: Firstly, the dearth of relevant empirical literature on financial development and human welfare in Nigeria. Also, the World Bank report of 2015 on meeting the Millennium Development Goals (MDGs) gave a clearer picture that poverty is reducing in all parts of the world except African continent which does not in

any way getting closer to meeting the MDG extreme poverty target (World Bank 2015). The above narration is a clear departure from the claims that African continent has experienced over two decades of growth from 1990s (Fosu 2015). The fact remains that African nations and especially Nigeria experiences economic growth that does not translate into human welfare. Hence, the need to shift the debates from GDP to education, health and general human welfare so as to understand the recent human development trends and challenges in African nations (Kuada 2015).

Secondly, despite the fact that finance is crucial for investment, recent findings revealed that financial development has become a major economic challenge in Nigeria because recent revelation during naira re-designation has further confirmed that huge proportion of money in the Nigerian economy which should be channel into investment and development is currently outside the banking system resulting in allocation inefficiency and ineffective financial intermediation (CBN 2015, 2023, Saxegaard 2006, Owoundi 2009, Asongu 2014a,b, Tchamyou 2017).

Thirdly, there is a dearth of empirical researches on the nature of the relationship between financial development and human development by the development economists in Nigeria. Lastly, despite of the fact that many studies (Shaw 1973, McKinnon 1973, Roubini, Sala-i-Martin 1991, Qi, Teng 2006, Onaolapo 2015, Babajide et al. 2015, Ogwumike, Afangideh 2008, Beck, Levine 2007, Ogwumike, Afangideh 2008, Asongu 2017) have confirmed the positive effects of financial sector development on economic growth and development, Poverty and inequality (inclusive growth) have eroded the gain from economic growth in Nigeria (Wright 2017). This is because any growth that fails to create jobs and develop the economy cannot be sustained (Alege et al. 2016). It is against this belief that this study intends to examine the link between financial development and human development.

The broad objective of the study is to investigate the relationship between financial development and human development in Nigeria while the specific objectives are to:

1. investigate the impact of Money supply/GDP on human development in Nigeria.

2. examine the effect of Credit supply/GDP on human development in Nigeria.

3. evaluate the relationship between market capitalization and human development in Nigeria.

3   Literature Review

The World Economic Forum in 2011 precisely describes financial development as the indicators, guidelines, practices and institutions that would engender effective financial intermediation, markets, deepening access to capital and financial services (World Economic Forum 2011). Similarly, Levine (1999) suggests that an ideal measure of financial development focuses on the ability of the financial sector to conduct researches on firms, discover profitable ventures, institute corporate control, manage risk, mobilize savings, and ease transactions. According to Levine (1997), a nation's financial sector would be ranked as more developed than that of other countries if its costs of bringing the surplus unit and deficit unit together are cheaper and if it improves the productivity of capital allocation amid rival projects. On the other hands, Human development as measured by human development index (HDI) focused on income, education and life expectancy and is regarded as a more comprehensive indicator of human welfare (Alkire 2002, Alkire, Foster 2011, UNDP 2010, 2017b). Empirical literature on human development reveals that educated individuals are less risk-averse, knowledgeable and are high savers. Thus, improving the percentage of people with education provides new opportunities for empowerment of people. Knowledge and skills also enable individuals to change from informal to formal sector opportunities which permit them to access formal financial services. Financial sector development by way of credit channels often result in the accumulation of human capital which influences economic growth (Sarwar et al. 2021).

3.1   Theoretical Framework

From the extant literature review, there are two separate theories on the relationship between financial development and human development. There are views that financial development is necessary for growth and development. Financial difficulty such adverse selection, moral hazard, monopolies of knowledge and a procedurally complicated process as a result of various risks and the general cost of transactions can restrict the poor from accessing the required finance. It therefore suggests that combating human development challenges through efficiency allocation of capital would enhance access to finance by the poor to finance profitable investment and raise average income (Perroti 1993, Galor, Tsiddon 1996).

The end result from ease of access to finance would be improvement in human welfare due to increasing economic growth and reducing income inequality (Beck et al. 2009, Beck, Levine 2007, Demirguc-Kunt, Levine 2009, Galor, Tsiddon 1996).

The opposing views argue that financial development benefits the upper class. According to these theorists, the poor depends on the remittances and informal financial sectors for capital (Beck et al. 2009, Gupta et al. 2009). The pro arguments and anti-arguments on the link between financial development and human development have been harmonized by accepting that there are exceptions to pro and anti-arguments on the nature of the relationship between finance and development. The last strand of argument view that finance and inequalities are inversely related and asserted that there is an inverted U-shaped relationship between GDP per capita income and inequality (Greenwood, Jovanovic 1990) and this is consistent with the hypothesis of Kuznets (1955) which claims that U-shaped relationship occurs as a country goes through the various phases of economic development.

The bottom-line of this hypothesis is that when the economy is still in the adolescent stages of development, the inequality gap widens as the financial markets develop due to a poor financial inclusion or greater exclusion of the low-income group.

The above separate theoretical perspectives are interconnected with the intensive and extensive margin theories which postulates as follows;

The views of the intensive margin theories access to finance affect inclusive growth and human development unmediatedly and mediatedly by improving the financial service experience of private organizations and individuals that have been financially included (Chipote et al. 2014). On the other hand, the extensive margin theory postulates that financial access improves financial service experience and usage of financial services of both the private organizations and individually who have been experiencing financial exclusion due to financial constraints (Chiwira et al. 2016, Odhiambo 2014, Orji et al. 2015).

3.2   Empirical Studies

Obviously, studies on the linkage between financial development and human development are scanty in Nigeria and the vast number of studies in this area focused on developed world. The pioneering work of Schumpeter (1911), (Bageout 1873), King, Levine (1993), McKinnon (1973) and Shaw (1973) laid strong foundation for the study of finance and growth and investigate the relationship between financial development and economic growth with claims that there exist a linear and positive relationship between finance and growth. Similarly, theoretical literatures by Beck et al. (2009), Levine (1997), Demirguc-Kunt, Levine (2009) and Galor (2011) suggest that financial development improves human welfare by increasing economic growth and reducing income inequality.

Subsequently, many recent studies continentally have lent credence to the role of financial development in promoting human welfare. For instance, Sethi et al. (2019) report that high level of financial sector development and big market size led to a rise in human development in South Asia. Likewise, Sehrawat, Giri (2017) argue that financial development and human development are key driver of economic growth and further assert that financial development with low human development result in poor economic growth while Monacelli et al. (2011) cross-country study provide evidence that financial system promote human development. Monacelli, Lovino and Pascucci's study which use data from

68 countries and cover 1990-2005 reveal that financial market and financial architecture influenced the Human Development Index; a composite indicator of health, education and income. The positive linkage between finance and human capita was detected by Sarwar et al. (2021) who investigate the relationship between financial development and human capital development with a claim that financial development and human capital have positive and significant effect on developing countries' economic performance.

Asongu (2011) investigates the factors that determine human development from the financial development index using time series data of 38 developing countries. The author asserts that financial activity, size, and depth (in decreasing order) are statically significant for inequality-adjusted human development whereas financial allocation efficiency significantly depletes human welfare and conclude that financial allocation efficiency does not drive human development. The study of Hakeem, Oluwatoyin (2012) examines the relationship between Human Capital and financial development in South Africa for the period of 1965-2005 and the result of the study shows that there is a weak relationship between financial development and all the proxies of Human Capita used with the exception of life expectancy at birth and secondary school enrolment.

Akhmat et al. (2014) extend the existing researches by examining the links that exist among the economic growth, financial development and human development using a sample of four countries taken from South Asian Regional Cooperation Organization (SAARC) countries. The finding of their study reveal that there is a sustainable long-run relationship among financial development, economic growth and human development in the SAARC region. Study by Filippidis, Katrakilidis (2015) investigate the role of institutions and human development on financial development in the beginning and developing stages of the economic growth, using data from 52 developing economies and cover the period of 1985-2008. The researchers decomposes and disentangles institutional variables economically, politically and socially to comprehensively assess which institutional variables significantly explain human development reported that institutional quality explained the cross countries variances in the extent of development in the banking sector. The study also shows that economic institutions and human development are significant for the development of the banking sector while the legal system exhibit dominance among economic institutions.

Kaya (2018) examine the effect of the financial markets development on human development and measured the level of development of financial markets with the Borsa Istanbul 100 Index (BIST) growth rate and use Human Development Index developed by UNDP to represent the level of human development. The study use Johansen-Juselius Cointegration test to determine the existence of long-term relationship between the variables and Granger Causality test was used to determine the causal relationship between the variables of interest. The study discovered that both dependent and independent variables are related in the long term and the HD index granger caused the BIST index.

Raichoudhury (2016) conducts an empirical analysis of the nexus between financial inclusion and human development across countries. The author measures financial inclusion using a cross country data set from Financial Access Survey (FAS) and the index of financial inclusion (IFI). The study discovered that the levels of human development and financial inclusion in a country moved concurrently with each other, with minor exceptions. The correlation coefficient for IFI and HDI values were calculated to be 0.82 and 0.85 indicating that significant positive correlation between the two indices. The findings of study revealed that income level and financial inclusion in a country moved concurrently with each other. All the high income countries are also the high IFI countries.

Kilic, Özcan (2018) examine the impact of financial development on human capital in developing countries between 1990 and 2015. The study specified two different panel data models including different measures for human capital. Results of the study reveal that financial development positively influenced the level of human capital level in developing economies and causal linkages exist between financial development and human capital indicators.

Asongu, Rexon (2021) examine the direct and indirect nexus between financial development and inclusive human development in African countries using panel data and

regression. The study employs Two-Stage Least Squares, Fixed Effects, Generalized Method of Moments and Tobit regressions for the analysis. Human development was proxy by inequality adjusted human development index while financial development was proxy by all financial development indicators as developed by World Bank. The result of the findings indicate that financial institution and financial market depth and efficiency improve inclusive human development, but the banks failure to perform its intermediating roles by channelling savings into credit for private individuals and firms due to information asymmetry has negative effects on inclusive human development. The study recommends that effort should be made by policy makers to improve credit accessibility to the individual households and firms through efficient and effective policy making. The study also suggests that eliminating or minimization of information asymmetry will limit idle cash which could have been invested by households and firms.

Tekin (2020) investigates the causal relationship between financial development and human development using health and welfare indicators in developing countries purposely to know whether the financial developments of the countries affects the basic human development of the individuals and whether human development indicators impact on financial development. The data for the study covers the period 1970- 2016. Pedroni and Kao test of cointegration and Dumitrescu and Hurlin panel causality analysis were conducted by the researcher. The results of the study show that there is long-run link between financial development and human development and a causal link between financial development and human development in developing nations.

Ferraz et al. (2020) use Data Envelopment Analysis (DEA) to capture absolute capability values and the social efficiency of 129 Brazilian meso-regions, considering their heterogeneous financial means and identified a new indicator called Capability Index Adjusted by Social Efficiency (CIASE) to examine the human development performance of regions based on their extreme levels of poverty as well as their social efficiency in translating limited financial resources into human development. The study also develops a Deprivation and Financial Responsibility based Prioritization Index (DFRP) that assisted in identifying key regions for higher government spending in human development. The findings of the study for Brazil show that many poor regions did relatively well in the area of social efficiency than in the area of human development. On the contrary, many wealth regions did relatively poorly in the area of social efficiency than in the area of absolute values.

3.3 Research Gap

Evidently, studies on the linkage between financial development and human development are scanty in Nigeria and the vast number of studies in this area focused on developing and developed world

4 Methodology

4.1 Model Specification

This research work uses a single aggregate index termed HDI which was developed by UNDP in 1990 to capture human development while M2 to GDP, CPS to GDP and Market Capitalization are used to capture Financial Development. The basis for limiting our independent variables to three was due to data availability and the need to be cautious of data proliferation, number of observations and the effect of degree of freedom on our observations. The choice of these variables was also motivated by the foundational work of Bageout (1873), Schumpeter (1911), Hicks (1969) and financial development framework developed by McKinnon (1973) and Shaw (1973), King, Levine (1993) which laid strong foundation for the nexus between Financial development and human development but we defer by limiting our independent variables to three key measures of financial development due data availability and econometric factors. Levine and King's model would be adapted because of its succinctness and its simplicity for empirical confirmation of the link between finance and development.

Table 1: Sources and measurement of variables

Variables	Definition/Meaning	Sources
HDI	Human development index	United Nation Development Programme Report (1990-2019)
$\frac{m2_t}{gdp_t}$	Ratio of money supply to GDP	Central Bank of Nigeria Statistical Bulletin (1990-2019)
$\frac{cps_t}{gdp_t}$	Ratio of credit to private sector to GDP	Central Bank of Nigeria Statistical Bulletin (1990-2019)
$\frac{mkcap_t}{gdp_t}$	Ratio of market capitalization to GDP	The market values of companies' share in any currency

Based on Levine and King's theoretical and conceptual views, the adapted empirical model for this study is specified as:

$$hdi_t = f\left(\frac{m2_t}{gdp_t},\ \frac{cps_t}{gdp_t},\ \frac{mkcap_t}{gdp_t}\right) \tag{1}$$

where[1] $\frac{m2_t}{gdp_t}$ is the ratio of broad money supply to GDP (financial deepening), $\frac{cps_t}{gdp_t}$ is the ratio of credit to private sector to GDP (financial deepening), and $\frac{mkcap_t}{gdp_t}$ is the ratio of the market capitalization to GDP (capital market activity).

4.2 Method of Data Analysis

The study used the ARDL model for the analysis. The flexibility and suitability of ARDL for 1(0) and 1(1) order of integration, and its capability to test for long run association and perform better when the sample is less than sixty observations is appealing to the researchers (Granger, Yoon 2002).

According to Pessaran et al. (2001), the ARDL model is specified as:

$$
\begin{aligned}
\Delta HDI_t =\ & \alpha + \sum_{i=1}^{n} B_{1i}\Delta HDI_{t-i} + \sum_{i=0}^{n} B_{2i}\Delta\frac{M2}{GDP}_{1t-i} + \sum_{i=0}^{n} B_{3i}\Delta\frac{CPS}{GDP}_{2t-i} + \\
& \sum_{i=0}^{n} B_{4i}\Delta\frac{mkcap_t}{gdp_t}_{4t-i} + C_1 HDI_{t-1} + D_1\frac{M2}{GDP}_{t-1} + D_2\frac{CPS}{GDP}_{t-1} + \\
& D_4\frac{mkcap_t}{gdp_t}_{t-1} + e_{it}
\end{aligned} \tag{2}
$$

where Δ represent first difference, HDI is the dependent variable, t is period, α denotes the intercept, $\frac{m2_t}{gdp_t}, \frac{cps_t}{gdp_t}, \frac{mkcap_t}{gdp_t}$ are expressed in form of k by 1 vector of regressors, C_1, D_1, D_2, D_3, D_4 represent long run coefficients while B_1, B_2, B_3, ... represent short run coefficients , $t-i$ represent optimal lags for the dependent and independent variable, e_{it} represents the error term.

5   Results of the Diagnostic Test

The choice of the most suitable unit root test is difficult. Researcher employed Augumented Dickey Fuller, Kwiatkowski-Phillips-Schmidt-Shin unit root tests to examine numerically and statistically the stationarity nature of the variables since using these two unit root test would enhance the credibility of the unit root test results (Enders 1995). The result of unit root is presented in Table 3.

Selecting an appropriate lag order is a prerequisite for a dependable regression analysis because empirical evidences have shown that chosen lag arbitrarily would result in

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[1]See Table 1 for data sources and measurement, and Table 2 for the expected signs.

Table 2: A priori expectation

Variables	Definition	Expected Sign	Supporting Literature
HDI	Human development index	+	Sarwar et al. (2021)
$\frac{m2_t}{gdp_t}$	Ratio of money supply to GDP	+	Beck et al. (2009), Beck, Levine (2007), Demirguc-Kunt, Levine (2009) and Galor (2011)
$\frac{cps_t}{gdp_t}$	Ratio of credit to private sector to GDP	+	Asongu, Rexon (2021)
$\frac{mkcap_t}{gdp_t}$	Ratio of market capitalization to GDP	+	Asongu, Rexon (2021)

Table 3: Unit root test

Variable	ADF	KPSS
HD	1(1)	1(1)
CPS/GDP	1(1)	1(1)
LM2/GDP	1(1)	1(1)
MKTCAP/GDP	1(1)	1(0)

Author's computation

autocorrelation. Hence, the researcher based their lag selection on AIC, FPE AND HQ. ARDL selects Lag 2 for human development, M2/GDP, CPS/GDP and lag 0 for Market capitalization. From the ARDL model, we estimated the long-short run information and the response of HDI to Financial Development indicators instantaneous and constant shocks. Table 4 depicts the estimated ARDL (2, 2, 2, and 0) model. It can be seen from the Table 4 that, all the variables except market capitalization are statistically significant. From the ARDL, the level of Human development in the past appears to be important in explaining current human development in Nigeria which is an indication that previous year's health, education and income conditions significantly influence current human development and the result is in line with study of Sarwar et al. (2021). Conversely, Money supply to GDP has both negative and positive effects on human development. The negative effect may be due to contractionary policies and inflationary influence of expansionary policies. However, the net-effect of M2/GDP on human development is weak and positive indicating M2/GDP is not strong enough to influence human development in Nigeria. Credit supply to GDP exhibit both negative and positive effect (mixed effect) on human development but the net-effect of CPS/GDP is negative indicating that the injection or withdrawal of credit into Nigeria economy yield negative effect human development and this is in line with Asongu (2011). Market Capitalization has positive and insignificant effect on human development in Nigeria and this support the study of Sethi et al. (2019) and Asongu, Rexon (2021).

We proceeded to test for the existence of long-run effects among the variables. Table 5 reveals the ARDL bound test result. The calculated F-statistics of 5.4 at 5% p-value is far greater than the critical values and we may conclude that the long run relationship among human development index, M2/GDP, CPS/GDP and Market capitalization has been empirically confirmed and the result support the study by Tekin (2020).

Table 6 shows the long-run parameters estimate. The result shows that the accumulated (long run) net effect of broad money supply/GDP on human development is negligible and positive while the accumulated (long run) net effect of credit supply/real GDP on human development is also negligible and negative and the result is similar to what is obtained by Kilic, Özcan (2018). Also the accumulated long run effect of market capitalization on human development is neutral and insignificant indicating that capital market activity in Nigeria is very narrow. The long-run effects of money supply/GDP and credit supply/GDP are statistically significant. The results further show that an improvement in the present human development enhances future human development

Table 4: ARDL (2,2,2,0) estimated parameters

Dependent variable: HDI, *Method*: ARDL				
Variable	Coefficient	Std.Error	t-Statistic	Prob.
HDI(-1)	1.136026	0.191003	5.947674	0.0000
HDI(-2)	-0.353562	0.164624	-2.147689	0.0456
M2_GDP	0.006384	0.002682	2.380072	0.0286
M2_GDP(-1)	-0.004747	0.004016	-1.182245	0.2525
M2_GDP(-2)	0.009819	0.003091	3.177116	0.0052
CPS_GDP	-0.0041	0.002244	-1.826596	0.0844
CPS_GDP(-1)	0.003184	0.003358	0.948134	0.3556
CPS_GDP(-2)	-0.004974	0.002567	-1.937744	0.0685
MKT_CAP	9.39E-08	1.10E-06	0.085513	0.9328
Constant	-0.004082	0.035826	-0.113937	0.9105
R^2	0.962524	Mean dependent var		0.4580
Adj. R^2	0.943786	S.D. dependent var		0.0684
S.E. of regr.	0.016209	Akaike info criterion		-5.1340
Sum resid^2	0.004729	Schwarz criterion		-4.6583
Log likelihood	81.87662	Hannan-Quinn criter.		-4.9886
F-statistic	51.36777	Durbin-Watson stat.		2.1279
Prob(F-stat.)	0.0000			
Observations	30			

Selected Model: ARDL(2, 2, 2, 0)

Source: Author's Computation

Table 5: ARDL Bounds Test

Test Statistic	Value	K
F-statistic	5.415142	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61
Observations: 30		

by 35% (that is HDI exhibit 35% improvement on itself). The effect of credit supply and money supply on human development in Nigeria is negligible but statistically significant and this similar to the result obtained by Hakeem, Oluwatoyin (2012) and Asongu, Rexon (2021). The findings from the analysis reveal that money supply/GDP accounted for 5% improvement in human development in the long-run. The weak positive effect of M2/GDP on human development is not surprising because M2/GDP in Nigeria is a measure of the extent of monetization rather than financial intermediation or financial depth and it further confirms that Nigeria lack financial depth. A percentage change in CPS/GDP depletes human development by 2.7% and this may be as a result of the bank failure to perform its intermediating roles by way of channelling savings into credit for private individuals and firms due to information asymmetry and result further confirm the view of Asongu, Rexon (2021). Market capitalization appears to have insignificant positive effect on human development.

Table 7 depicts the short run parameters estimates. The result shows that the instantaneous effect and the one previous period's consecutive effects of Money supply/ GDP are negative in the short-run. The instantaneous effect and the one previous period's effect of credit supply/GDP are positive. Due to the fact that zero lag is selected for the

Table 6: Long Run Coefficients

Variable	Coefficient	Std.Error	t-Statistic	Prob.
M2_GDP	0.052663	0.021347	2.466989	0.0239
CPS_GDP	-0.027076	0.014988	-1.80648	0.0876
MKT_CAP	0.0000	0.000005	0.086268	0.9322
Constant	-0.018764	0.168082	-0.111636	0.9123
Observations: 30				

Source: Author's Computation

Table 7: ARDL (2, 2, 2, 0) short run estimate

Dependent Variable: HDI, *Method*: ARDL Cointegrating And Long Run Form				
Variable	Coefficient	Std.Error	t-Statistic	Prob.
D(HDI(-1))	0.353562	0.164624	2.147689	0.0456
D(M2_GDP)	0.006384	0.002682	2.380072	0.0286
D(M2_GDP(-1))	-0.009819	0.003091	-3.177116	0.0052
D(CPS_GDP)	-0.0041	0.002244	-1.826596	0.0844
D(CPS_GDP(-1))	0.004974	0.002567	1.937744	0.0685
D(MKT_CAP)	0.0000	0.000001	0.085513	0.9328
CointEq(-1)	-0.217536	0.062586	-3.475816	0.0027
Observations: 30				

Source: Author's Computation

market capitalization by the information criterion, it will naturally vanish in the error correction equation through the algebraic process. The short run (instantaneous) effect of market capitalization on human development is equivalent to the estimated coefficient (0.000000009) in table 4 above. We can see that this value is positive but not significant and this is in line with the study by Hakeem, Oluwatoyin (2012).

6   Conclusion

Since the short run estimates of ARDL is not strong enough to paint the clear picture of all the necessary dynamics, it would be a suicidal attempt to base policy recommendation on the short run result of the ARDL. The long run estimates reveal that the accumulated (long run) net effect of broad money supply/GDP on human development is negligible and positive which imply that money supply has no strong power to influence human development due failure of the financial system in performing the intermediation functions and this is line with the study by Asongu, Rexon (2021). Money supply/GDP which is a measure of the extent of monetization rather than financial intermediation or depth also triggers inflation which worsen human development and the result is similar to Uddin et al. (2020). The accumulated (long run) net effect of credit supply/GDP on human development is negligible and positive which implies that private credit has positive effect on private sector development only and the proportion of the private institutions that enjoys credit is negligible in Nigeria due to stringent credit condition, dominance of informal sector, cash outside the banking system, poor financial intermediation and the result is in support of Asongu, Rexon (2021) and CBN (2021), which reported that oversized cash outside banks left the lending capacity of the financial institutions at less than its full capacity, with negative consequences on economic growth, employment and distort the effectiveness of monetary interventions. Market capitalization has no significant short run or long run effects on human development which is an indication that the activity of the Nigeria capital market is very narrow and also a pointer to the fact that the Nigeria financial system weakly influence human development and the result further affirm the findings of Hakeem, Oluwatoyin (2012). The long-run effects of money

supply/GDP and credit supply/GDP on human development are statistically significant but has no strong power to influence human development because the Nigeria financial sector lack depth, face high cost of capital, keep excess liquidity and fail to perform its intermediation roles and this is in line with the Africa Competitiveness Report of 2017 by the World Economic Forum (2017). The results further shows that an improvement in the present human development lead 35% improvement in future human development (that is HDI exhibit 35% improvement on itself) and the result is in support of study by Sarwar et al. (2021). The main finding is that in Nigeria, money supply and credit supply have mixed and negligible effect on human development. The study affirms that money supply and credit supply affect human development more than the market capitalization. Therefore, banks should effectively perform their intermediating roles and effort should be made by the policy makers to widen/broaden the Nigeria capital market activity. Policy makers should concentrate on financial system and their roles for effective money supply and credit supply while implementing economic policies.

Competing Interests

We declared that the manuscript is original and has never been published anywhere or currently being considered for publication. There is no conflict of interest associated with this publication. No financial support from individuals or organization or Government body for this study that could have influenced the outcome of this research work. As a corresponding author, I confirm that the manuscript has been read and approved by co-authors for publication.

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