
The Effect of Monetary Policy on Economic Development in Nigeria

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Abstract:

The Human Development Index (HDI) serving as a proxy for development outcomes. Annual time series data spanning 1980 to 2023 were employed. The analysis utilized the Fully Modified Ordinary Least Squares (FMOLS) technique to examine long-run relationships. Findings reveal that money supply has a statistically significant and positive effect on human development at the 5% significance level, indicating that well-managed monetary expansions can support developmental goals. Consequently, the study recommends that the Central Bank of Nigeria adopt policies aimed at increasing money supply in a controlled manner. Furthermore, it advocates for a strategic review of government expenditure to focus more on programs that enhance welfare and support the most disadvantaged groups.

Keywords: Monetary policy, Money supply, Human Development Index, Economic development

1. Introduction

Economic development in Nigeria is a pressing concern, with the country facing significant challenges, including high poverty rates, unemployment, and limited access to quality education and healthcare. Despite being one of the largest economies in Africa, Nigeria's human development outcomes remain relatively low, with a human development index (HDI) score below the average for Sub-Saharan Africa. The stability and adequacy of the money supply have divergent implications for Nigeria's economic performance and its development outcomes. An excessive increase in money supply can spark up inflationary pressures, eroding purchasing power and undermining macroeconomic stability and development efforts. Conversely, a deficient money supply may hinder economic growth, investment, and consumption, constraining development efforts. Some studies have found positive effects, such as money supply reducing unemployment (Fosu et al., 2025; Shighweda, 2020; Bassey, 2017; Okeke and Chukwu, 2021) and poverty (Abdulrahman et al., 2023). However, other studies have found negative effects, including money supply increasing unemployment (Naimoğlu, 2023) and poverty (Bashir, 2023; Anjande et al., 2022), and monetary policy rate increasing unemployment (Fosu et

al., 2025; Eyone et al., 2024). Additionally, some studies have found no significant relationship between money supply and poverty reduction (Akpan et al., 2023).

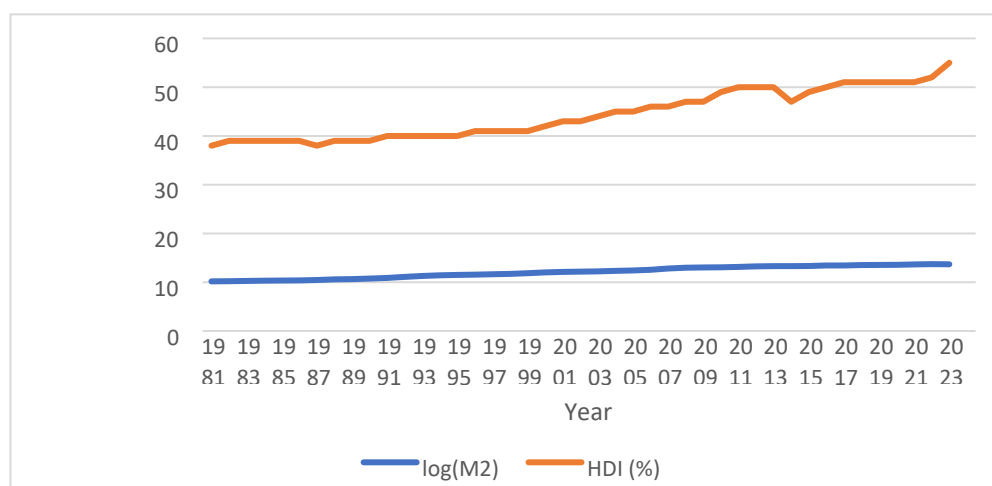


Figure1: Log of money supply and HDI

The trend analysis showed between money supply (M2) and human development index (HDI) in Nigeria (showed in figure I in log form and percentage respectively) from 1981 to 1990, showed M2 grew by 279% from ₦15.2 billion to ₦57.6 billion, while HDI increased by a modest 2.6% from 0.38 to 0.39. The next decade (1991-2000) saw a significant surge in M2, growing by 1,210% to ₦1.036 trillion, while HDI rose by 5% to 0.42. Between 2001 and 2010, M2 expanded by 791% to ₦11.663 trillion, accompanied by a 14% increase in HDI to 0.49. From 2011 to 2020, M2 grew by 174% to ₦38.905 trillion, while HDI increased by 2% to 0.51. In the most recent period (2021-2023), M2 rose by 8.7% to ₦48.316 trillion, and HDI grew by 7.8% to 0.55 (Central Bank of Nigeria, CBN,2024; United Nations Development Programme, UNDP, 2024). These trends highlight the varying rates of growth in money supply and human development across different periods, and suggests that the relationship between money supply (M2) and human development index (HDI) in Nigeria is not necessarily straightforward.

While money supply has grown significantly over the years, the corresponding growth in HDI has been relatively modest. This implies that increasing money supply may not automatically translate to proportional improvements in human development outcomes., The impact of monetary policy, particularly money supply, on economic development outcomes in divergent and not well understood or conclusive, making it challenging for policymakers to design effective policies that promote economic development and improve human well-being. Against this background, this study examined the impact of money supply on economic development in Nigeria, as measured by the HDI. Moreso, the study aims to contribute to the existing literature by examining the impact of money supply on economic development in Nigeria, using the Human Development Index (HDI) as a proxy for economic development. This is because the HDI provides a more comprehensive picture of

development than other development economic indicators such as poverty, unemployment and economic growth alone, taking into account factors such as life expectancy, education, and income.

2. Literature Review

2.1 Conceptual framework

Economic Development

The United Nations Development Programme (UNDP) defines economic development as a process that improves the quality of life for all people, focusing on sustainable and inclusive growth. According to the UNDP, economic development encompasses enhancing human development, promoting sustainable and resilient communities, and fostering economic growth through innovation, digitalization, and connectivity. The UNDP prioritizes core principles such as gender equality, social justice, and sustainability, recognizing the importance of addressing disparities in employment, income, and economic participation. By promoting climate-smart growth, circular economy solutions, and partnerships, the UNDP aims to ensure inclusive and Sustainable progress, focusing not just on income growth, but also on enhancing health, education and living standards.

Economic development goes beyond economic growth, incorporating qualitative changes in the economy and society (Sen, 1999). Economic development includes both growth and non-growth dimensions, such as technological and structural changes, and is often measured by indicators like the Human Development Index (HDI). Unlike economic growth, development requires more than just increased output; it demands improvements in human well-being, productivity, and institutional frameworks. In essence, economic development is about enhancing the overall quality of life and fostering sustainable progress. For this study, economic development is proxied by Human Development Index (HDI).

Monetary Policy

Monetary policy involves strategic actions taken by a central bank to control the money supply and interest rates to promote economic growth, stability, and low inflation. Its primary Price stability, full employment, and sustained economic growth are the goals. To affect borrowing costs and aggregate demand, central banks employ a variety of instruments, including reserve requirements, open market operations, and interest rate setting (Bernanke, 2017). Monetary policy can be expansionary, increasing money supply and reducing interest rates, or contractionary, reducing money supply and increasing interest rates. Effective monetary policy implementation requires careful consideration of various economic factors, including inflation, economic downturns, and global economic interdependence, to ensure a stable and growing economy (Krippner, 2016).

2.2 Theoretical framework

The Quantity Theory of Money

The quantity theory of money posits that the quantity of money is the primary determinant of the price level or the value of money (Aliu, 2022). According to this theory, any change in the quantity of money leads to a proportionate change in the price level. This direct relationship between the quantity of money and the level

of prices is expressed through the equation of exchange, $PT = MV$ (Ahuja, 2022). The theory assumes a constant velocity of circulation (V) and constant transactions (T), implying a direct and proportional relationship between the quantity of money and the price level. Despite its insights, the quantity theory of money has faced criticisms for oversimplifying the relationship between money supply and price level, ignoring other influential factors (Victor et al., 2022). The assumption of constant velocity is often violated, and the theory neglects demand-side factors.

Nevertheless, the quantity theory of money remains relevant to studying the impact of money supply on economic development (Ahuja, 2022). It provides guidance for measures aimed at controlling inflation, preserving economic stability, and fostering economic expansion. Policymakers can lessen the negative consequences of inflation, avert economic shocks, and foster an atmosphere that is conducive to growth by comprehending the connection between the money supply and price level (Aliu, 2022). Although the theory has limitations, it provides valuable insights that can guide policies aimed at promoting economic development.

Keynesians Theory of Unemployment

The Keynesian theory of unemployment, developed by Keynes (1937), posits that unemployment is primarily caused by a lack of aggregate demand in the economy. This theory assumes that aggregate demand determines employment levels, prices and wages are sticky in the short run, and unemployment can be involuntary. Despite its contributions, the theory has faced criticisms from classical economists, such as Pigou (1933), who argue that it ignores supply-side factors, monetarists like Friedman (1995), who emphasize the role of monetary policy, and new classical economists like Lucas (1976), who question the assumptions of price and wage stickiness.

The Keynesian theory of unemployment is highly relevant to the study of the impact of money supply on unemployment reduction. According to Keynesian economics, an increase in money supply can lead to an increase in aggregate demand, stimulating economic activity and reducing unemployment. Increasing the amount of money in the economy gives people and companies more money to spend and invest, which increases economic growth and aggregate demand. Businesses may expand their workforces in response to rising demand as economic activity rises, creating jobs and lowering unemployment.

The Big Push Theory

The Big Push theory, developed by Rosenstein-Rodan (1943), suggests that poverty can be alleviated through a significant injection of capital or investment in a developing economy. According to this theory, poverty is caused by a lack of investment in key sectors such as infrastructure, education, and healthcare, creating a poverty trap that can only be overcome through substantial investment. A big push towards economic development can create a threshold effect, where the economy starts growing sustainably. This hypothesis highlights how crucial outside funding or assistance is to helping developing nations escape poverty. The big push can assist nations in overcoming development obstacles and attaining sustainable economic growth by giving the economy a major boost.

2.3 Empirical Literatures

Fosu et al (2025) study analyzed the impact of monetary policy on unemployment in Ghana from 1991 to 2020. Using a vector error correction model, the study found that monetary policy rate positively and significantly affected unemployment in the long run, while money supply growth negatively and significantly impacted unemployment. Eyone et al. (2024) examined the impact of monetary policy mechanisms on unemployment reduction in Nigeria from 1986 to 2022. Using a dynamic autoregressive distributed lag (ARDL) model, the study found that prime lending rate was positive and significant, while broad money supply was negative and significantly correlated with unemployment.

Naimoğlu (2023) investigated the interdependence of money supply, financial progress, and unemployment in 8 upper-middle-income economies from 1990 to 2021. Using panel data analysis with the CCEMG/AMG method, the study found that financial development decreases unemployment, while money supply increases it. The impact of government spending and the money supply on poverty alleviation in Nigeria between 1981 and 2019 was studied by Akpan et al. in 2023. There was no long-term correlation between the money supply and reducing poverty, according to the study's regression 45 analysis. Nonetheless, it has been discovered that government spending on agriculture lowers poverty in the nation.

Abdulrahman et al. (2023) looked into how monetary policy affected Nigeria's efforts to reduce poverty between 1985 and 2019. The study discovered a high correlation between monetary policy and poverty reduction using the error correction model (ECM) technique.

George-Anokwuru (2023) investigated the influence of monetary policy on the misery 10 index in Nigeria from 1985 to 2019. Using an ARDL model, the study found that monetary policy rate and exchange rate have a significant relationship with the misery index, while broad money supply has no significant relationship.

Bashir (2023) explored the influence of urbanization, trade, human capital, FDI, and money on poverty in 20 developing countries from 2006 to 2022. Using panel ARDL analysis, the study found that trade openness, FDI, and human capital reduce poverty, while urbanization and money supply increase poverty.

Anjande et al. (2022) examined the roles of government spending and money supply on alleviating poverty in 48 Sub-Saharan Africa countries from 2001 to 2017. Using system GMM analysis, the study found that government spending and FDI reduce poverty, while money supply increases it.

Nasution et al. (2022) study identified leading indicators of poverty rates based on monetary policy in 5 ASEAN countries from 2005 to 2019. Using panel ARDL analysis, the 121 studies found that interest rates and exchange rates affect poverty rates in the long term, while 139 money supply affects poverty rates in the short term.

Okeke and Chukwu (2021) looked into how Nigerian unemployment was affected by monetary policy tools between 1986 and 2018. The study used an Autoregressive Distributed Lag 10 (ARDL) technique and discovered that the employment rate was positively and significantly impacted by the broad money supply, but that the exchange rate and liquidity ratio had large negative effects.

Onwuka (2021) examined the impact of fiscal and monetary policy on unemployment rate in Nigeria from 1981 to 2020. Using a Vector Autoregressive (VAR) model, the study found that government expenditure and interest rate have negative and significant effects on unemployment rate, while money supply has a positive and significant effect.

Shighweda (2020) examined the effects of government expenditure and money supply on unemployment in Namibia from 1980 to 2018. Using an ARDL model, the study found that both government expenditure and money supply have a negative and statistically significant impact on unemployment.

Bassey (2017) examined the role of money supply in determining unemployment rate in Nigeria from 1985 to 2015. Using a nonlinear autoregressive distributed lag (NARDL) model, the study found that money supply plays an important role in influencing unemployment rate in the long run. The study revealed a significant pass-through effect of money supply growth to unemployment rate.

2.4 Research Gap

While numerous studies have examined the impact of monetary policy on economic outcomes such as unemployment and poverty in various countries, including Nigeria and Ghana, the findings are often mixed and country- and- period-specific. Some studies have found that money supply has a positive impact on employment and poverty reduction, while others have found a negative or insignificant impact. Furthermore, the impact of monetary policy on human development index, specifically in Nigeria, remains understudied. Most studies have focused on poverty reduction or unemployment, rather than human development index which is a composite variable and therefore, a broader measure of economic development. Therefore, this study filled this gap by investigating the impact of broad money supply on human development index in Nigeria, using the human development index (HDI) as a proxy for economic development.

3. Research Methodology

3.1 Research design

This study adopted an ex post facto (after-the-fact) research design. This design was chosen because the researcher has no control over the independent variables, and inferences about the relationships among variables are drawn without any direct manipulation or current interaction between the dependent (regressand) and independent (regressor) variables (Ndiyo, 2015).

The study relies on secondary data sources, primarily time series data obtained from various publications of the Central Bank of Nigeria (CBN), including the Statistical Bulletin and Annual Reports and Statements of Accounts. Additional data were sourced from the National Bureau of Statistics (NBS) and the World Development Indicators (WDI). The model was estimated using macroeconomic indicators such as the Human Development Index (HDI), Government Expenditure on Health (GXHE), Government Expenditure on Education (GXEDU), Exchange Rate (EXR), Money Supply (MS), Treasury Bill Rate (TBR), Monetary Policy Rate (MPR) for the period 1981–2023. A multiple regression analysis was conducted, incorporating various diagnostic tests, including the Augmented Dickey-Fuller (ADF) unit root test, to assess the stationarity of the variables. The Autoregressive Distributed Lag (ARDL) technique was employed to determine the relationship between money supply and economic development within the specified time frame.

3.2 Model Specification

The model specified is grounded in several economic theories. The quantity theory of money informs the inclusion of money supply (MS) as a determinant of human development index (HDI), highlighting the

impact of monetary policy on economic activity and price levels. The keynesian theory of unemployment supports the role of government expenditure, in influencing aggregate demand and employment levels. The Big Push theory emphasizes the need for significant investment to overcome poverty traps and achieve sustainable economic growth, which is reflected in the model's inclusion of gross fixed capital formation and foreign direct investment. Othe controlled variables that can influence economic development such as population growth because of the size of the Nigeria's population, and economic growth rate are also included.

The model for this study is specified functional as follows:

$$HDI = f(MS, FDI, KAP, GOVEX, POPG, RGDPGR) \quad 1$$

Where:

HDI = Human Development Index. Measured in percentage (scale 0-1; where 1 represent 100 %)

MS= Money supply. Measured in Naira.

FDI = Foreign direct investment. Measured in US dollars.

KAP = Gross fixed capital formation. Measured in Naira.

GOVEX = Government expenditure. Measured in Naira.

POPG = Population growth. Measured in percentage of the growth of population over one year

RGDPGR = Real GDP growth rate. Measured in percentage of the growth of RGDP over one year

Equation 1 is specified in a mathematical form thus:

$$HDI_t = \alpha_0 + \alpha_1 MS_t + \alpha_2 FDI_t + \alpha_3 KAP_t + \alpha_4 GOVEX_t + \alpha_5 POPG_t + \alpha_6 RGDPGR_t \quad (2)$$

Equation 2 is specified in an econometric form thus:

$$HDI_t = \alpha_0 + \alpha_1 MS_t + \alpha_2 FDI_t + \alpha_3 KAP_t + \alpha_4 GOVEX_t + \alpha_5 POPG_t + \alpha_6 RGDPGR_t + \epsilon_t \quad (3)$$

Where ϵ_t is the error term which represents other variables that affect human development index that are not captured in the model.

Equation 3 is presented in linearlog form thus:

$$HDI_t = \alpha_0 + \alpha_1 \ln(MS)_t + \alpha_2 \ln(FDI)_t + \alpha_3 \ln(KAP)_t + \alpha_4 \ln(GOVEX)_t + \alpha_5 POPG_t + \alpha_6 RGDPGR_t + \epsilon_t \quad (4)$$

Where:

where α_0 is the intercept of the model and $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ and α_6 are the respective coefficients of the model.

Table 1: Data description, theoretical expectations and sources

S/N	Variables	Description of Data	Expected Source
1	HDI	Human development index is the index of health, life expectancy and education a nation holds. It is proxy for economic development and it is used as dependent variable in the model.	UNDP (2023)
3	MS	Money supply or money stock is the total amount of monetary assets available in an economy at a specific time. The coefficient is expected to be positive.	World Bank Indicator (2023)
4	FDI	Foreign direct investment (FDI) refers to an investment made by a company or individual from one country into a business or organization in another country, often involving a significant level of control or ownership. This can include investments in manufacturing, services, or other sectors, and can provide capital, technology, and expertise to the host country. The coefficient is expected to be positive.	World Bank Indicator (2023)
5	KAP	Capital, proxied by gross fixed capital formation (GFCF) which refers to the total value of fixed assets acquired or created by a country, business, or organization, such as buildings, machinery, equipment, and infrastructure, minus disposals. The coefficient is expected to be positive.	World Bank Indicator (2023)
6	GOVEX	Government expenditure refers to the total amount of money a government spends on various activities and functions. This includes government consumption, investment, and transfer payments. The coefficient is expected to be positive.	World Bank Indicator (2023)
	POPG	Population growth rate refers to the rate at which the number of individuals in a population increases over a specific period, usually expressed as a percentage or decimal value. The coefficient is expected to be negative.	World Bank Indicator (2023)
	RGDPGR	Real GDP growth rate refers to the percentage change in the value of a country's Gross Domestic Product (GDP) adjusted for inflation, typically measured over a specific period, such as a year. It is a proxy for economic growth. The coefficient is expected to be positive.	World Bank Indicator (2023)

4. Results and Discussion

4.1 Descriptive Analysis

Table 2: Descriptive statistics and matrix of correlation

	HDI	GXHE	GXEDU	EXR	MPR	MS	TBR
Mean	0.443488	2.447294	3.208843	144.1605	13.15419	15.89097	12.85876
Median	0.430000	3.504595	4.171030	118.5700	13.50000	13.01977	12.50000
Maximum	0.550000	6.149832	6.624034	1540.000	26.00000	27.09274	26.90000
Minimum	0.380000	-3.186541	-1.819208	0.610000	6.000000	8.464230	5.000000
Std. Dev.	0.049994	3.063327	2.872611	243.8572	3.956624	5.661930	4.658745
Skewness	0.347142	-0.448561	-0.576005	4.517221	0.647199	0.479426	0.502698
Kurtosis	1.692959	1.746529	1.926609	26.27098	4.312318	1.599323	3.285025
Jarque-Bera	3.924441	4.257031	4.442071	1116.495	6.087448	5.162316	1.956608
Probability	0.140546	0.119014	0.108497	0.000000	0.047657	0.075686	0.375948
Observations	43	43	43	43	43	43	43

Source: Researcher's Computation (2025), using E- Views 9.

Table 2 presents the descriptive statistics of key variables. The descriptive statistics 30 reveal key characteristics of the variables. The human development index (HDI) has a mean of 131 0.44, ranging from 0.38 to 0.55 with a standard deviation of 0.05, indicating a relatively low level of human development with moderate variability. Foreign direct investment (FDI) has a mean of \$2.56 billion, with a wide range from \$187 million to \$8.84 billion and a standard deviation of \$2.51 billion, suggesting significant fluctuations in foreign investment. Capital (KAP) and money supply (M2) also exhibit substantial means and wide ranges, with high standard deviations, indicating significant growth and variability in these economic indicators. Population growth (POPG) has a mean of 2.61, ranging from 2.38 to 3.00 with a small standard deviation of 0.13, suggesting stable growth. real GDP growth rate (RGDPGR) has a mean of 3.06, with a wide range from -13.13 to 15.33 and a standard deviation of 5.26, indicating significant fluctuations in economic growth. Government expenditure (GOVEX) has a mean of N2.48 trillion, ranging from N9.64 billion to N7.81 trillion with a standard deviation of N2.76 trillion, suggesting substantial government spending with high variability.

4.2 Correlation Analysis

The correlation matrix of the variables is presented in Table 3.

The human development index (HDI) has strong positive correlations with capital (KAP) at 0.8349, money supply (M2) at 0.8818, and government expenditure (GOVEX) at 0.9606, indicating that human development is closely tied to economic growth and government spending. HDI also has a moderate positive correlation with foreign direct investment (FDI) at 0.5977, suggesting that FDI is an important driver of human development.

Table 3: Correlation matrix of the study's variables

	HDI	FDI	KAP	M2	POPG	RGDPGR	GOVEX
HDI	1						
FDI	0.5977	1					
KAP	0.8349	0.2029	1				
M2	0.8818	0.2625	0.9659	1			
POPG	-0.2602	0.3323	-0.5166	-0.4912	1		
RGDPGR	0.2384	0.3441	0.0163	0.0065	0.0262	1	
GOVEX	0.9606	0.4731	0.907	0.9539	-0.3582	0.0988	1

Source: Researcher's Computation (2025)

In contrast, HDI has a weak positive correlation with real GDP growth rate (RGDPGR) at 0.2384, and a weak negative correlation with population growth (POPG) at -0.2602. These findings suggest that human development is strongly linked to economic indicators such as capital, money supply, and government expenditure.

4.3 Unit Root Test Results

Table 4 presents the unit root test results using both Augmented Dickey-Fuller (ADF) 11 and Phillips-Perron (PP) tests. The KPSS test for confirmation of conflicting results. The unit root test results indicate that most variables, including HDI, FDI, GOVEX, and KAP, are integrated of order 1 (I(1)), meaning they become stationary after first differencing. The results for M2 and POPG are ambiguous, with different tests suggesting different orders of integration, but likely I(1) or I(2). RGDPGR's order of integration is also uncertain, with the PP test indicating stationarity at level (I(0)) and the ADF test suggesting I(1).

The unit root results are presented in TABLE 4. The main unit root test methods used were presents the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test methods. The KPSS test method was only used on variables for confirmation of their conflicting unit root results. The unit root test results indicate that most variables, including HDI, FDI, GOVEX, and KAP, are integrated of order 1 (I(1)), meaning they become stationary after first differencing. The results for M2 and POPG are ambiguous, with different tests suggesting different orders of integration, but likely I(1) or I(2). RGDPGR's order of integration is also uncertain, with the PP test indicating stationarity at level (I(0)) and the ADF test suggesting I(1).

Table 4: Unit summarized the unit root test results

Variable	At level		After first difference		After second difference		Remark
	ADF	PP	ADF	PP	ADF	PP	
HDI	-2.1869	-1.765	-6.3753	-6.9335	-NE	NE	I(1)
	-4828	-0.7037	-0.0001	-0.0001			
FDI	-1.7099	-1.7674	-8.8307	-8.5186	NE	NE	I(1)
	-0.7292	-0.7026	-0.0001	-0.0001			
GOVEX	-1.8498	-1.8498	-7.1967	-7.1967	NE	NE	I(1)
	-6632	-6623	-0.0001	-0.0001			

KAP	-1.4141	-0.5742	-4.1121	-3.5911	NE	NE	I(1)
	-0.8418	-0.9755	-0.0124	-0.043			
M2	2.1465	0.6328	-1.7042	-6.4817	-4.4607	NE	I(2)/I(1)
	-1	-0.112	-0.7281	-0.0001	-0.0066		
POPG	-1.6714	-3.2876	-2.0017	-5.4179	4.5706	(NE)	I(2)/I(1)
	-0.7426	-0.0823	-0.5817	-0.0004	-0.0042		
RGDPGR	-2.9339	-4.2102	-10.8201	NE	NE	NE	I(1)/I(0)
	-0.163	-0.0096	-0.0001				
KPSS test type							
Variable	At level		After first difference		After second difference		
M2	0.2142(0.1460)		0.1308(0.1460)		NE I(1)		
POPG	0.1346(0.1460)		NE		NE I(0)		
RGDPGR	0.1633(0.1460)		0.1135(0.1460)		NE I(1)		

Note: figures in parenthesis are the respective probability values of the unit root test results; NE = not estimated because of reaching stationarity; the statistical significance of the unit root results is at 5 % level of significance.

Source: Researcher's Computation (2025)

The use of the Fully Modified Ordinary Least Squares (FMOLS) estimation technique in this study can be justified based on the unit root test results. Since most of the variables are integrated of order 1 (I(1)), there is a risk of spurious regression if traditional OLS is used.

4.4 Analysis of the cointegration test results

The Trace test and Maximum Eigenvalue test results are jointly presented in Table 5. These showed the present of 3 cointegration equations in both test results at a five per cent level of significance which strongly indicates the presence of a long run relationship in the study's variables.

Table 5: Cointegration test results

Series: HDI FDI KAP M2 POPG RGDPGR GOVEX			
Unrestricted Cointegration Rank Test (Trace)			
Hypothesized		Trace	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.890762	245.3752	125.6154
At most 1 *	0.826535	154.5918	95.75366
At most 2 *	0.636228	82.76882	69.81889
At most 3	0.409642	41.30844	47.85613
At most 4	0.247563	19.70037	29.79707
At most 5	0.157497	8.038424	15.49471
At most 6	0.024379	1.011936	3.841466
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None *	0.890762	90.7834	46.23142
At most 1 *	0.826535	71.823	40.07757
At most 2 *	0.636228	41.46038	33.87687
At most 3	0.409642	21.60807	27.58434
At most 4	0.247563	11.66194	21.13162
At most 5	0.157497	7.026488	14.2646
At most 6	0.024379	1.011936	3.841466

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Researcher's computation (2025), using E-Views 9.

The presence of cointegration suggests that the variables tend to move together in the long run, and that deviations from the equilibrium relationships are temporary.

4.5 Findings, results presentation and analysis

The estimated fully modified ordinary least square results

Table 6 presents the long-run estimates of the relationship between the Human Development Index (HDI) and key economic variables. The coefficient of LOG(FDI) is 0.0008, with a p-value of 0.7481. This suggests that foreign direct investment (FDI) has a positive but insignificant impact on human development index (HDI). This statistically indicates that a one percent increase in foreign direct investment will lead to a 0.08 per cent increase in human development index of Nigeria in the long run.

Table 6: The estimated fully modified ordinary least square results

Dependent Variable: HDI				
Method: Fully Modified Least Squares (FMOLS)				
Variable	Coefficient	Standard Error	t-Statistic	Probability value
LOG(FDI)	0.0008	0.0026	0.3236	0.7481
LOG(KAP)	0.0107	0.0071	1.5218	0.1370
LOG(M2)	0.0400	0.0045	8.9453	0.0001
POPG	0.0108	0.0187	0.5763	0.5681
RGDPGR	0.0002	0.0004	0.5421	0.5912
LOG(GOVEX)	-0.0371	0.0054	-6.8498	0.0001
Constant	-0.0171	0.0775	-0.2208	0.8266
Diagnostic test results				
Adjusted R-squared		0.953264		

Source: Researcher's computation (2025), using E-Views 9.

The coefficient of LOG(KAP) is 0.0107, with a p-value of 0.1370. This indicates that capital (KAP) has a positive but insignificant impact on HDI. Although the coefficient is positive, the result suggests that the effect of capital on human development index is not statistically significant. This statistically indicates that a one percent increase in gross fixed capital formation will lead to a 13.70 per cent increase in human development index of Nigeria in the long run.

The coefficient of LOG(M2) is 0.0400, with a p-value of 0.0001. This suggests that the money supply (M2) has a significant positive impact on HDI. The result indicates that an increase in money supply leads to a significant improvement in human development. This statistically indicates that a one percent increase in broad money supply will lead to a 4.0 per cent increase in human development index of Nigeria in the long run.

The coefficient of POPG is 0.0108, with a p-value of 0.5681. This indicates that population growth (POPG) has a positive but insignificant impact on HDI. The result suggests that population growth does not have a substantial effect on human development in Nigeria. This statistically indicates that a one percent increase in population growth rate will lead to a 0.011 per cent increase in human development index of Nigeria in the long run.

The coefficient of RGDPGR is 0.0002, with a p-value of 0.5912. This suggests that real GDP growth rate (RGDPGR) has a positive but insignificant impact on HDI. The result indicates that economic growth does not have a significant effect on human development in Nigeria. The statistically indicates that a one percent increase in economic growth will lead to a 0.0002 per cent increase in human development index of Nigeria in the long run.

The coefficient of LOG(GOVEX) is -0.0371, with a p-value of 0.0000. This suggests that government expenditure (GOVEX) has a significant negative impact on HDI. The result indicates that an increase in government expenditure leads to a significant decrease in human development. The statistically indicates that a one percent increase in government expenditure will lead to a 3.71 per cent decrease in human development index of Nigeria in the long run.

The adjusted R-squared value is 0.953264, indicating that about 95.33% of the variation in HDI is explained by the independent variables in the model. This suggests that the model has a good fit and is able to explain a significant portion of the variation in human development. Index in Nigeria.

Hansen stability test result

The Hansen parameter instability test results in Table 7 indicate that the series are cointegrated, suggesting a long-run relationship between human development index (HDI), foreign direct investment (FDI), capital (KAP), money supply (M2), population growth (POPG), real GDP growth rate (RGDPGR), and government expenditure (GOVEX). The Lc statistic of 0.686832 and a p-value of 0.1527 imply that we fail to reject the null hypothesis of cointegration. Although there are 6 stochastic trends in the asymptotic distribution, and the reported p-values are approximations using results for four stochastic trends, the results still suggest a long-run relationship between the variables.

Table 7: The results of Hansen stability test

Cointegration Test - Hansen Parameter Instability				
Series: HDI LOG(FDI) LOG(KAP) LOG(M2) POPG RGDPGR LOG(GOVEX)				
Null hypothesis: Series are cointegrated				
Lc statistic	Trends (m)	Trends (k)	Trends (p2)	Prob.*
0.68683	6	0	0	0.1527

Source: Researcher’s computation (2025), using E-Views 9.

This implies that while individual series may exhibit short-term fluctuations, they tend to move together in the long run, providing valuable insights for policymakers to predict long-term trends in human development in Nigeria.

Analysis of the normality test results

The Jarque-Bera test results in figure 2 indicate that the residuals are likely to be normally distributed, with a statistic of 3.336723 and a p-value of 0.188556. Since the p-value is greater than the significance level (usually 0.05), we fail to reject the null hypothesis of normality. This suggests that the model's assumptions are met, and the estimates are reliable. The normality of residuals implies that the model is well-specified, and the results can be trusted, providing a solid foundation for interpretation and decision-making.

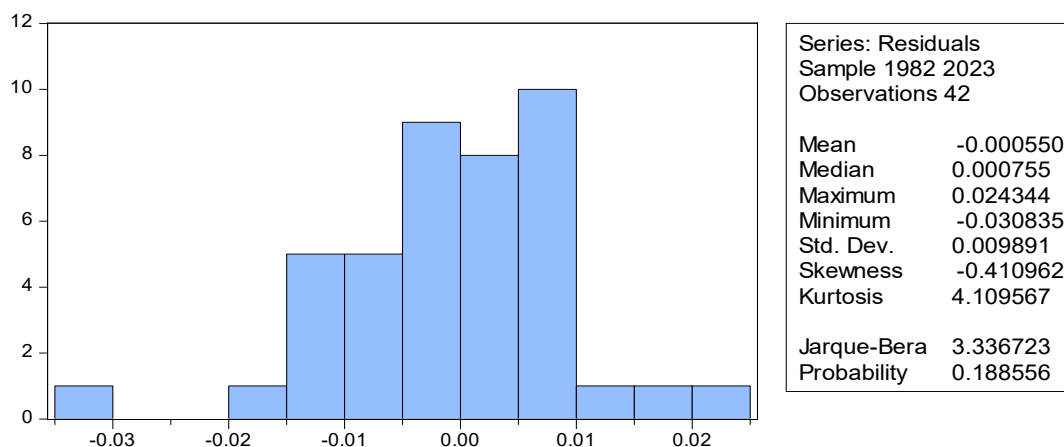


Figure 2: Normality test results

4.6 Discussion of findings

The study found that money supply has a positive and statistically significant impact on economic development, proxied by the human development index at a five per cent level of significance. The implication of this finding is that an increase in supply of broad money will lead to increase in the human development index in the long run in Nigeria holding all other factors constant. The statistically significant impact of the result means that broad money supply is one of the major drivers of economic development in Nigeria. This outcome of the positive effect of broad money supply on economic development may be attributed increased in the access to credit by Nigerians who access to credit caused by increased money supply may lead to increase

in economic activities and the spillover effect on job creations and quality of life. This finding is in line with theoretical expectations and in line with empirical studies such as Bassey (2017), Fosu et al (2025), Shighweda (2020), and Okeke and Chukwu (2021) whose studies found that money supply reduced unemployment; and Abdulrahman et al., (2023) whose studies found that money supply reduced poverty. These two concepts, unemployment and poverty, are related to HDI.

Also, foreign direct investment was found to have a positive but insignificant effect on the human development index (HDI) at a five per cent level of significance. This means that an increase in foreign direct investment will lead to an increase in human development index of Nigeria in the long run. The lack of statistically significance of FDI impact on HDI means that FDI is not one of the major determinants of Human development index in Nigeria. This may be due to the fact that most FDI inflows in Nigeria are concentrated in the extractive industry and therefore has a limited positive spillover effect on other sectors of the Nigerian economy.

Physical capital was also found to have a positive but statistically significant impact on human development index in Nigeria. This means that physical capital may not be one of the major drivers of human development index in Nigeria. The insignificant impact of capital on HDI may be due to the limited access to physical infrastructure and low level of industrialization in Nigeria. In Nigeria, access to finance is a significant challenge, and many individuals and businesses may not have access to capital, limiting its impact on human development.

The study found that population growth has a positive but insignificant impact on HDI. The result suggests that population growth does not have a substantial effect on human development in Nigeria. This statistically indicates that an increase in population growth rate will lead to an increase in human development index of Nigeria at a five per cent level of significance in the long run. The insignificant impact of population growth on HDI in Nigeria could be due to the country's high population growth rate, which may put pressure on existing resources and infrastructure. In Nigeria, rapid population growth may lead to increased competition for limited resources, potentially offsetting any positive effects on human development index.

The study found that real GDP growth rate has a positive but insignificant impact on HDI. The result indicates that economic growth does not have a significant effect on human development in Nigeria. The statistically indicates that an increase in economic growth will lead to an increase in human development index of Nigeria at a five per cent level of significance in the long run. The insignificant impact of economic growth on HDI in Nigeria could be attributed to the country's growth pattern, which is often driven by the extractive industries. In Nigeria, economic growth has not always translated to improved human development outcomes, as the benefits of growth may not be evenly distributed across the population.

The study found that government expenditure has a significant negative impact on HDI. The result indicates that an increase in government expenditure leads to a significant decrease in human development. The statistically indicates that an increase in government expenditure will lead to a decrease in human development index of Nigeria at a five per cent level of significance in the long run. This adverse effect impact of government expenditure on human development index is against theoretical expectations and may be attributed to pervasive corruption in government spending and the misappropriation of public fund in Nigeria.

5. Conclusions and recommendations

5.1 Conclusions

This study investigated the effect of monetary policies on economic development in Nigeria using time series data from 1980 to 2023. The estimation method employed for the study was the fully modified ordinary least square estimation technique. Broad money supply was used as a proxy for monetary policies while human development index was used as a proxy for economic development. The study found that money supply has a positive and statistically significant effect on human development index at a five per cent level of significance. The study, therefore, concluded that since money supply is beneficial to human development index, monetary policy is a veritable tool for the promotion of economic development in Nigeria.

5.2 Policy Recommendations

Based on the findings, the study made the following policy recommendations:

1. The positive and statistically significant of broad money supply on human development index calls for the Central Bank of Nigeria (CBN) to implement expansionary monetary policy. This could be policies such reducing the monetary policies rate which will lead to reduction in the lending rates by money deposit banks.
2. The negative and statistically significant impact of government expenditure on human development index (HDI) in Nigeria at five per cent level of significance calls for the Federal Ministry of Planning and budgeting to reassessment of government expenditure pattern with the aim of cutting wasteful spendings and also call for both the federal and subnational governments of Nigeria to prioritize expenditure on education and health which has the tendency to benefit the most vulnerable Nigerians the most.

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