



ECONOMIC GROWTH, MONETARY POLICY, AND SUSTAINABLE DEVELOPMENT IN NIGERIA

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Abstract

This study explored the intricate relationship between economic growth, monetary policy, and sustainable development in Nigeria from 2000 to 2023, with life expectancy serving as a proxy for human development. Recognizing the critical role of macroeconomic indicators in shaping social outcomes, the study empirically investigated how Gross Domestic Product (GDP), Gross Capital Formation (GCF), the Monetary Policy Rate (MPR), and the Lending Rate (LDR) influenced life expectancy over time.

Using descriptive statistics, correlation analysis, unit root testing, and multiple regression models, the research draws on 23 years of time-series data to establish key patterns and associations among the variables.

Findings from the analysis reveal that GDP has a statistically significant and robust positive impact on life expectancy before and after the introduction of monetary policy (0.000958, $p = 0.0000$ and 0.000849, $p = 0.0000$ respectively), emphasizing the transformative power of economic expansion in improving health and living standards. However, GCF, despite its theoretical importance, demonstrated a marginal and statistically insignificant effect, suggesting that capital investments may not be effectively targeted toward sectors that directly influence welfare. The study further found that while the MPR has no significant direct impact on life expectancy, the LDR exhibited a strong negative correlation and a significant adverse effect (-0.066059, $p = 0.0038$). This indicates that high borrowing costs may hinder access to essential services and suppress inclusive economic activity, thereby undermining sustainable development goals.

The study concluded that while economic growth remains a critical pillar of development, it must be supported by efficient investment strategies and inclusive financial systems. The study's policy recommendations include the need for lowering lending rates, enhancing investment efficiency, and adopting growth policies that prioritize social outcomes.

Key words: Economic Growth, Monetary Policy, Sustainable Development

INTRODUCTION

Economic growth, monetary policy, and sustainable development are critical components of Nigeria's macroeconomic framework. Economic growth is the increase in a country's productive capacity over time, measured primarily by Gross Domestic Product (GDP) (World Bank, 2023). Monetary policy, managed by the Central Bank of Nigeria (CBN), influences economic stability through interest rates, money supply, and inflation control (CBN, 2022). Sustainable development ensures that growth meets present

needs without compromising future generations' ability to meet theirs (United Nations, 2023).

Nigeria, as Africa's largest economy, has faced persistent challenges in aligning monetary policy with sustainable economic growth. Despite interventions by the CBN, issues such as inflation, exchange rate volatility, and unemployment persist (Eze & Okonkwo, 2023). This study explores the interplay between monetary policy and economic growth in Nigeria and assesses their implications for sustainable development.

Nigeria's economic growth has fluctuated significantly due to global oil price dynamics, fiscal mismanagement, and structural inefficiencies. Between 2000 and 2014, the country experienced high growth rates, averaging 7%, driven by crude oil exports and a growing service sector (National Bureau of Statistics [NBS], 2023). However, economic recessions in 2016 and 2020, triggered by declining oil prices and the COVID-19 pandemic, exposed structural weaknesses in the economy (IMF, 2023).

The recovery efforts, notwithstanding, Nigeria's growth remains fragile. The non-oil sector, including agriculture, telecommunications, and manufacturing, has shown resilience, but inadequate infrastructure, insecurity, and inconsistent policies hinder progress (Adebayo & Lawal, 2023). Consequently, achieving sustained economic growth requires effective monetary and fiscal policy coordination.

Monetary policy in Nigeria is primarily implemented by the Central Bank of Nigeria (CBN), using instruments such as interest rates, open market operations, and liquidity management to control inflation and stabilize the financial system (CBN, 2022). Over the years, monetary policy has played a crucial role in shaping economic outcomes. For instance, the Monetary Policy Rate (MPR) has fluctuated between 11% and 18% to manage inflationary pressures (NBS, 2023).

However, the effectiveness of monetary policy has been hampered by structural bottlenecks such as high fiscal deficits, exchange rate instability, and the informal economy's dominance (Olawale & Adeyemi, 2023). Inflation remains a major challenge, often driven by supply-side constraints rather than excess liquidity (CBN, 2023). Thus, while monetary policy is essential for economic growth, it must be complemented by fiscal and structural reforms.

The United Nations (2023) stated that sustainable development encompasses economic, social, and environmental sustainability. Nigeria has adopted global frameworks such as the Sustainable Development Goals (SDGs), but achieving them remains difficult due to governance challenges and economic volatility (United Nations, 2023). Monetary policy can contribute to sustainable development by promoting financial inclusion, stabilizing inflation, and supporting investments in green energy and infrastructure (Eze & Okonkwo, 2023). However, Nigeria's heavy reliance on oil revenues and weak diversification efforts threaten long-term sustainability. Climate change, deforestation, and resource depletion further complicate the sustainability agenda (Adebayo & Lawal, 2023). Economic growth, monetary policy, and sustainable development are crucial for Nigeria's long-term prosperity. However, despite various policy measures, Nigeria continues to experience economic instability, high inflation, and environmental degradation (World Bank, 2023). This study is necessary to assess how monetary policy influences economic growth and whether it aligns with sustainable development goals. Nigeria's economic trajectory has been volatile, characterized by recurrent recessions, inflationary pressures, and exchange rate fluctuations (IMF, 2023). The Central Bank

of Nigeria (CBN) employs monetary policies such as interest rate adjustments and liquidity control to stabilize the economy, yet growth remains fragile (CBN, 2022). A critical examination of the effectiveness of these policies is essential for ensuring economic stability and fostering long-term development. Furthermore, sustainable development has become a global priority, yet Nigeria faces challenges such as environmental degradation, resource depletion, and social inequalities (United Nations, 2023). Integrating sustainability into monetary and economic policies can help balance economic expansion with environmental conservation and social equity (Adebayo & Lawal, 2023). This study also responds to the gap in existing literature regarding the intersection of monetary policy and sustainable economic development in Nigeria. While several studies examine economic growth and monetary policy separately, fewer analyze their combined impact on long-term sustainability (Eze & Okonkwo, 2023). Understanding this relationship is crucial for policymakers to design holistic policies that drive inclusive growth.

2. LITERATURE REVIEW

Relevant Concepts and Theoretical Underpinning

Economic Growth

Economic growth refers to the sustained increase in the productive capacity of an economy, typically measured by the rise in a country's gross domestic product (GDP) or gross national income (GNI) over time (Costanza, et al., 1997). It is a critical indicator of a nation's economic health and its ability to improve the standard of living of its population (Barro, 2020).

Globally, economic growth has been driven by various factors including capital accumulation, technological innovation, labor force expansion, and improved institutional frameworks. According to Romer (1994), endogenous growth theory highlights the importance of technological change and human capital in driving long-term economic performance. More recent evidence from developing economies underscores the role of innovation and digital infrastructure in accelerating growth (World Bank, 2022).

In the Nigeria, economic growth has been relatively volatile, shaped by oil price fluctuations, structural rigidities, and governance issues. Olayemi and Ezeaku (2021) note that while Nigeria has experienced episodes of high GDP growth, these have not always translated into broad-based development or poverty reduction, largely due to sectoral imbalances and low productivity outside the oil sector. The non-oil sectors, particularly agriculture and services, have shown potential for driving inclusive growth, yet face constraints such as poor infrastructure, weak institutions, and policy inconsistencies (Adewale & Olaniyi, 2020).

Furthermore, economic growth in Nigeria has been increasingly linked to external shocks and macroeconomic instability. The International Monetary Fund (IMF, 2023) reports that while the country recorded a modest recovery post-COVID-19, macroeconomic imbalances including inflation and exchange rate volatility continue to pose

significant risks. This underscores the need for structural reforms and diversification to achieve resilient growth.

Recent studies emphasize the importance of inclusive and sustainable economic growth. For example, Akpan and Udo (2022) argue that in order to ensure long-term progress, growth policies must be inclusive, environmentally sustainable, and anchored in human development. Thus, while GDP growth remains a central objective, there is a growing consensus that its quality and distributional impacts are equally important.

Monetary Policy

Monetary policy involves the regulation of money supply and interest rates by a country's central bank to control inflation, stabilize the currency, and achieve economic growth. It plays a pivotal role in macroeconomic management, especially in achieving price stability and supporting economic objectives (Mishkin, 2019). Globally, Central Banks use tools such as open market operations, reserve requirements, and policy interest rates to influence liquidity and credit conditions. The effectiveness of monetary policy depends on the transmission mechanism and the credibility of the monetary authority (Bernanke et al., 2020). For example, in advanced economies like the United States and the Eurozone, central banks have adopted unconventional monetary policies—such as quantitative easing—to counter economic downturns and stimulate growth (ECB, 2021).

In developing countries like Nigeria, monetary policy faces unique challenges. The Central Bank of Nigeria (CBN) operates in a dual mandate environment—maintaining price stability while also promoting economic development. However, inflationary pressures, exchange rate instability, and fiscal dominance often complicate policy implementation (CBN, 2022). Empirical evidence suggests that Nigeria's monetary policy effectiveness is hampered by structural rigidities, weak financial systems, and external shocks (Ezenwa & Mordi, 2021).

Interest rate management has been a contentious area in Nigeria. High interest rates, aimed at curbing inflation, have often dampened investment and output growth. Conversely, overly accommodative policies have sometimes fueled inflation and exchange rate volatility (Adamu & Olatunji, 2020). The Monetary Policy Rate (MPR), which serves as the benchmark rate, has fluctuated over time in response to both internal and external macroeconomic conditions.

Recent discourse emphasizes the role of monetary policy in supporting sustainable development goals. For instance, Sere-Ejembi and Ibe (2023) argued that central banks in developing economies should integrate green financing and inclusive growth strategies into their policy frameworks. Additionally, inflation targeting frameworks, which have been adopted in several emerging markets, are being considered for improving transparency and predictability in Nigeria's monetary policy stance. Ultimately, while monetary policy is a critical tool for economic management, its success in Nigeria hinges on institutional reforms, data quality, and coordination with fiscal authorities.

Sustainable Development

Sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). It encompasses three interdependent dimensions: economic growth, social inclusion, and environmental protection. The concept gained attraction globally with the adoption of the United Nations Sustainable Development Goals (SDGs) in 2015, which set ambitious targets to eradicate poverty, protect the environment, and ensure peace and prosperity for all by 2030 (UNDP, 2022). Countries are now encouraged to integrate sustainability into their economic and social planning, moving beyond GDP as the sole measure of progress.

In Nigeria, sustainable development remains a critical policy objective, particularly in light of persistent poverty, environmental degradation, and social inequality. Despite being Africa's largest economy, Nigeria ranks low on global sustainability indices due to weak institutional capacity, over-reliance on fossil fuels, and uneven access to education and healthcare (National Bureau of Statistics, 2023). Ogunleye and Aluko (2022) argued that achieving sustainable development in Nigeria requires a multi-sectoral approach, including sustainable financing, renewable energy investment, and improved governance. Education, health, and infrastructure development are central to building the human capital necessary for inclusive growth. Moreover, effective environmental policies and climate adaptation strategies are needed to mitigate the adverse effects of climate change, particularly in regions vulnerable to desertification and flooding (Ajibola et al., 2023).

The role of institutions in promoting sustainability is gaining recognition. Robust governance structures, legal frameworks, and participatory decision-making processes are essential for achieving long-term development goals (World Bank, 2022). At the same time, there is growing interest in green finance, circular economy practices, and corporate sustainability reporting as means of aligning private sector activities with environmental and social objectives. Efforts to localize the SDGs have seen some progress, but significant gaps remain. Afolabi and Odu (2021) note that while national policies such as the Economic Recovery and Growth Plan (ERGP) and the National Development Plan (2021–2025) reference sustainable development, implementation and monitoring remain weak due to inadequate funding and political will.

Interconnection of Economic Growth, Monetary Policy and Sustainable Development

The dynamic interplay between economic growth, monetary policy, and sustainable development has garnered increasing scholarly and policy interest in recent years. These three macroeconomic dimensions are not isolated; rather, they form an interdependent triad influencing the overall trajectory of a nation's development. Economic growth, conventionally measured by the rise in real gross domestic product (GDP), is a critical driver of national development. However, the quality and inclusiveness of growth are increasingly scrutinized, particularly in the context of sustainable development and

environmental sustainability (Barro, 2020; UNDP, 2022). Sustainable development, which balances economic progress with social equity and environmental stewardship, requires that growth is not only rapid but also inclusive and ecologically conscious (WCED, 1987; Ogunleye & Aluko, 2022).

Monetary policy, administered primarily through interest rates, money supply control, and inflation targeting, plays a pivotal role in shaping economic growth outcomes. Effective monetary policy can foster macroeconomic stability, reduce uncertainty, and encourage long-term investment, all of which are necessary for sustainable development (Mishkin, 2019; Bernanke et al., 2020). In Nigeria, the Central Bank's monetary policies have aimed at maintaining price stability while indirectly influencing investment and growth (CBN, 2022; Ezenwa & Mordi, 2021). However, policy misalignment and external shocks—such as global oil price volatility—have historically disrupted this balance, undermining long-term development objectives.

The interdependence between these variables is particularly salient in developing economies like Nigeria. For instance, monetary policy that supports low inflation and stable interest rates can enhance investor confidence and productivity, thus stimulating economic growth. In turn, robust economic growth generates the fiscal space and capacity needed to invest in sustainable development initiatives such as renewable energy, education, and infrastructure (Adamu & Olatunji, 2020; Ajibola et al., 2023). Conversely, unsustainable growth patterns—such as those driven by extractive industries—can erode environmental quality and social well-being, leading to long-term developmental setbacks.

Moreover, monetary policy can be tailored to directly support sustainable development through green financing instruments and climate-responsive monetary strategies. Sere-Ejembi and Ibe (2023) advocate for a “green monetary policy framework” that incorporates climate risks into central banking operations. In this way, monetary policy not only stabilizes the economy but also facilitates environmentally responsible growth. Globally, institutions like the European Central Bank have begun integrating environmental considerations into monetary decision-making (ECB, 2021).

The Economic Recovery and Growth Plan (ERGP) and the National Development Plan (2021–2025) in Nigeria have recognized the interconnectedness of these macroeconomic pillars. However, practical implementation has been hindered by institutional weaknesses, inconsistent policies, and a lack of coordinated planning (Afolabi & Odu, 2021). The success of integrated development frameworks depends on strong governance, credible institutions, and effective policy coordination between monetary and fiscal authorities.

Theoretical Underpinning

The Endogenous Growth Theory (EGT) is the most suitable theoretical framework for this study although other theories are also relevant such as institutional theory and ecological economics theory. The EGT emerged as a response to the

limitations of the neoclassical growth model. This theory emphasizes that economic growth is primarily driven by internal factors within an economy rather than external forces or diminishing returns to capital (Romer, 1990). Unlike the Solow-Swan model, which treats technological advancement as an exogenous element, endogenous growth theory integrates technology, innovation, human capital development, and institutional factors into the core of the growth process.

Romer (1994) and Lucas (1988), the principal architects of the theory, argue that investments in knowledge, innovation, education, and infrastructure lead to self-sustaining economic expansion. In this light, the theory supports a central tenet of this study that sustainable development and economic growth are significantly influenced by domestic policy measures, including monetary policy interventions.

Monetary policy, as a key macroeconomic tool, aligns well with the assumptions of endogenous growth theory, particularly through its influence on investment, capital formation, interest rates, and inflation control. Effective monetary policy facilitates low inflation and stable macroeconomic conditions, which are necessary to encourage long-term investments in physical and human capital—critical drivers of endogenous growth (Barro & Sala-i-Martin, 2004). In Nigeria, where inflation volatility and exchange rate instability are persistent challenges, monetary policy can play a transformative role if effectively aligned with growth-enhancing priorities (Adamu & Olatunji, 2020).

The EGT also supports sustainable development, especially its emphasis on human capital, institutional quality, and innovation as critical inputs for growth. It echoes the multidimensional nature of development encapsulated in the United Nations Sustainable Development Goals (UNDP, 2022). For instance, health and education which are key social components of sustainable development are modeled as essential contributors to productivity in endogenous growth frameworks (Lucas, 1988; Romer, 1990). Consequently, this theory allows the integration of economic, social, and environmental pillars of sustainability into macroeconomic policy considerations.

Empirical Literature

Recent empirical studies have explored the interrelationship between economic growth, monetary policy, and sustainable development across various contexts. Adamu and Olatunji (2020) investigated the influence of monetary policy on economic growth using the Autoregressive Distributed Lag (ARDL) model. Their findings suggest that while monetary policy instruments such as interest rate and money supply significantly impact GDP growth in the long run, short-run effects are limited. This implies that monetary policy must be consistently applied over time to yield sustainable growth outcomes. Similarly, Umar and Dahiru (2021) used a vector error correction model (VECM) to assess the monetary policy-growth nexus in Nigeria from 1986 to 2019. Their results indicate a significant long-term relationship between

monetary aggregates and GDP, emphasizing the importance of monetary stability in economic planning.

Ajayi and Uchenna (2022) extended the analysis by examining how inflation targeting and exchange rate policies impact sustainable economic development. Using quarterly data and a generalized method of moments (GMM) approach, they found that inflation volatility and inconsistent exchange rate policies hamper sustainable growth, highlighting the need for coherent and forward-looking monetary frameworks in Nigeria.

From a broader African perspective, Mensah and Antwi (2021) analyzed the role of central bank policy in promoting inclusive and sustainable growth in Ghana. Their study, employing panel data across key macroeconomic indicators, concluded that central bank interventions were more effective when synchronized with fiscal policies aimed at social development and infrastructure investments. This finding echoes the argument for policy harmonization in achieving the Sustainable Development Goals (SDGs).

Globally, Nguyen et al. (2022) conducted a panel study across 25 emerging economies, investigating the interplay between economic growth, financial sector depth, and sustainable development indicators such as carbon emissions and human development index (HDI). They found that while economic growth enhances HDI, it also correlates with increased environmental degradation unless moderated by green fiscal and monetary initiatives. Their study supports the implementation of environmentally conscious monetary strategies, including green bond financing and interest rate incentives for sustainable projects.

Studies have also delved into the direct link between sustainable development and monetary-financial frameworks. Ogunleye and Aluko (2022) explored the impact of financial sector reforms and climate-related fiscal policies on sustainable development using a structural equation modeling (SEM) approach. Their findings reveal that monetary instruments tailored to environmental outcomes such as interest subsidies for renewable energy investments significantly enhance both environmental sustainability and economic inclusiveness. Furthermore, Eze and Okonkwo (2023) investigated the role of institutional quality in moderating the impact of monetary policy on sustainable development. Using data from 1995 to 2022 and applying the dynamic system GMM technique, they established that weak institutions dilute the efficacy of monetary policy, undermining efforts to achieve stable growth and sustainability targets. This aligns with the broader institutional economics literature emphasizing good governance as a prerequisite for effective macroeconomic management (North, 1990).

A related study by Adegbite and Isola (2022) evaluated the effectiveness of Nigeria's National Development Plans in integrating monetary policy with sustainable development targets. Through document analysis and key informant interviews, the researchers observed that while recent plans such as the National Development Plan (2021–2025)

articulate sustainability goals, practical implementation remains weak due to disjointed policy efforts between the Central Bank and developmental ministries.

Another empirical contribution by Yakubu and Haruna (2023) used an error correction model to analyze the causal relationship between interest rates, inflation, and per capita income in Nigeria. Their findings showed that high interest rates have a significant negative impact on per capita income and school enrollment, two key components of sustainable development. This suggests that monetary tightening, if not accompanied by pro-poor policies, may widen inequality and inhibit inclusive development.

3. METHODOLOGY

This study examines the moderating effect of monetary policy on the relationship between economic growth and sustainable development. The study will employ a hierarchical regression model to analyze the intervening effect of monetary policy on the economic growth – sustainable development nexus. Hierarchical regression allows for the sequential inclusion of variables, starting with economic growth and sustainable development indicators, followed by monetary policy variables, to assess their incremental explanatory power. This approach will help determine whether monetary policy enhances or weakens the impact of economic growth on sustainable development in Nigeria.

This study adopts a quantitative, longitudinal econometric design based on annual time-series data from Nigeria spanning 2000 to 2023. The study investigates the interaction between economic growth (EG) and sustainable development (SD), while examining the moderating effect of monetary policy (MP). Secondary data are sourced from credible repositories such as the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and the World Bank's World Development Indicators (WDI).

The study utilizes a hierarchical multiple regression model with monetary policy as intervening in the economic growth–sustainable development relationship. The base and extended models are specified as follows:

Model 1: Sustainable development – economic growth relationship

$$SD = f(EG) \dots\dots\dots (i)$$

Where SD = Sustainable development proxy as life expectancy (LIFEX) and EG = Economic growth measured by the gross domestic product (GDP) and gross capital formation (GCF). Therefore, the first hierarchy model is expressed econometrically as:

$$LIFEX = \beta_0 + \beta_1 GDP + \beta_2 GCF + \varepsilon_t \dots\dots\dots (ii)$$

Model 2: Inclusion of monetary policy as an intervening variable

$$SD = f(EG; MP) \dots\dots\dots (iii)$$

MP is proxy by monetary policy rate (MPR) and lending rate (LDR), so that the second model is expressed as:

$$\text{LIFEX} = \beta_0 + \beta_1\text{GDP} + \beta_1\text{GCF} + \beta_3\text{MPR} + \beta_4\text{LDR} + \varepsilon_t$$

..... (iv)

β_0 = Intercept

β_1 β_4 = Regressors' coefficients

To validate the assumptions of the regression models, the descriptive statistics and Pearson's correlations are examined. The multiple regression technique is employed to determine the effects of EG and MP variables on SD.

4. RESULTS AND DISCUSSION

The analysis done in this section is carried out from two different angles. First from the perspective of the relationship between economic growth and sustainable development and second from the perspective of when monetary is introduced as an intervening variable.

Descriptive Statistics

The statistical properties of the variables are as shown in Table 1

Table 1: Descriptive Statistics

	LIFEX	LOGGCF	LOGGDP	MPR	LDR
Mean	51.38013	22.88475	54381.64	12.97826	17.38539
Median	51.79100	22.04954	58180.35	14.00000	16.89333
Skewness	-0.387695	0.084799	-0.358882	-0.172533	0.482502
Kurtosis	2.203502	1.543497	1.662642	3.433513	3.482789
Jarque-Bera	1.184153	2.060574	2.207724	0.294211	1.115804
Probability	0.553177	0.356905	0.331588	0.863203	0.572409
Observations	23	23	23	23	23

Source: Author (2025).

The average life expectancy in Nigeria during the observation period was approximately 51.38 years. The closeness of the mean to the median, which stood at 51.79, suggests a relatively symmetrical distribution. This is supported further by a modest negative skewness value of -0.39, indicating that the data were slightly skewed to the left, implying a tendency for values to be somewhat higher than the mean. The kurtosis for life expectancy was approximately 2.20, slightly below the normal level of 3, suggesting a somewhat flat distribution with fewer extreme values. Additionally, the Jarque-Bera test statistic was not significant, with a p-value of 0.553, confirming that the distribution of life expectancy does not deviate significantly from normality.

Gross capital formation, transformed logarithmically to stabilize variance and improve interpretability, had a mean value of approximately 22.88. Its distribution was nearly symmetrical, with a skewness of just 0.08. The kurtosis was flatter than a normal distribution at 1.54, suggesting a broader, less peaked spread. The Jarque-Bera statistic, again, indicated no significant deviation from normality, with a p-value of 0.357. Similarly, the log-transformed gross domestic product exhibited a mean of 54,381.64 (in billions of Naira), with a

slightly negative skewness of -0.36. This implies a minor leftward skew, reflecting a few years with relatively lower GDP compared to the norm. Its kurtosis, at 1.66, also pointed to a flat distribution. The data for GDP passed the Jarque-Bera normality test, with a non-significant p-value of 0.331.

For monetary indicators, the monetary policy rate had a mean of approximately 12.98 percent, with a median of 14 percent, suggesting a moderately tight policy environment over time. Its skewness of -0.17 and kurtosis of 3.43 pointed to a near-normal but slightly peaked distribution. The lending rate, however, showed more notable asymmetry, with a positive skewness of 0.48. This suggests a rightward tail, indicating occasional years of particularly high lending rates. Its kurtosis was 3.48, marginally leptokurtic, signaling the presence of heavier tails. Nevertheless, both monetary variables passed the normality test comfortably, with non-significant p-values from the Jarque-Bera test.

Correlations

The correlation matrix provides insights into the linear associations among the variables. Table 2 displays the correlation coefficients of among the variables

Table 2: Correlations

	LIFEX	LOGGCF	LOGGDP	MPR	LDR
LIFEX	1				
LOGGCF	-0.41038691	1			
LOGGDP	0.97977506	-0.49195944	1		
MPR	-0.16630438	0.34036738	-0.11154265	1	
LDR	-0.85172316	0.20143146	-0.79227690	0.28611951	1

Source: Author (2025).

Life expectancy has a very strong positive correlation with GDP, registering a correlation coefficient of approximately 0.98. This robust association underlines the central thesis of development economics—that sustained increases in economic output generally lead to improvements in human welfare and health outcomes. However, an unexpected finding emerged in the relationship between life expectancy and gross capital formation, which was negatively correlated at about -0.41. This suggests that increases in capital formation have not necessarily translated into improvements in life expectancy, possibly due to misallocation of capital or lagging effects in sectors like health and education.

Moreover, life expectancy was weakly and negatively correlated with the monetary policy rate, registering a coefficient of -0.17, suggesting minimal direct influence. In contrast, the lending rate had a strong negative correlation with life expectancy, at -0.85, implying that high borrowing costs may indirectly stifle personal and public investments in health and welfare, thereby dampening improvements in longevity. Meanwhile, the correlation between GDP and gross capital formation was modestly negative at -0.49, again suggesting an unexpected divergence in their trajectories. This may reflect issues related to the efficiency or sectoral direction of investments. The positive correlation between the monetary policy rate and lending rate, albeit moderate at 0.29, was in line with theoretical expectations, as lending rates often track changes in the policy rate.

Stationarity Test Result

The stationarity results, as revealed in the Augmented Dickey-Fuller test are displayed in Table 3.

Table 3: Stationarity Tests Results

ADF @ Level			
Series	T-Statistic	Prob.	Decision
LIFEX	-4.508718	0.0037	I(0)
LOGGCF	-6.004103	0.0005	I(0)
LOGGDP	-3.810454	0.0036	I(0)
MPR	-7.072134	0.0000	I(0)
LDR	-5.091231	0.0001	I(0)

Source: Author (2025)

The test confirms that all the variables were stationary at level, indicating that each series was integrated of order zero, I(0). This means there was no need to difference the data to achieve stationarity, thus justifying the subsequent application of linear regression techniques. All variables had significant ADF test statistics with p-values well below the 0.05 threshold.

Effect of Economic Growth on Sustainable Development

Table 4 contains the regression estimates showing the effects of GDP and GCF on LIFEX

Table 4: Regression Results for Model 1

Dependent Variable: LIFEX				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGCF	0.023192	0.011499	2.016933	0.0573
LOGGDP	9.58E-05	4.37E-06	21.90556	0.0000
C	45.64136	0.437266	104.3788	0.0000
R-squared	0.766727	Mean dependent var		51.38013
Adjusted R ²	0.663400	S.D. dependent var		1.561116
S.E. of regression	0.298660	Akaike info criterion		0.542089
Sum squared resid	1.783961	Schwarz criterion		0.690197
Log likelihood	-3.234022	Hannan-Quinn criter.		0.579338
F-statistic	290.5435	Durbin-Watson stat		1.867459
Prob(F-statistic)	0.000000			

Source: Author (2025).

The results showed that the coefficient of gross capital formation, though positive at 0.0232, was only marginally insignificant with a p-value just above the conventional 5 percent threshold. This suggests a limited direct influence of capital formation on life expectancy. In contrast, the log of GDP exhibited a very strong and statistically significant effect on life expectancy, with a coefficient of 9.58e-05 and a p-value of zero (0.0000). This finding emphasizes that the scale and output of the economy have a significant bearing on improvements in the quality and length of life. The model's explanatory power was quite strong, with an R-squared value

of approximately 0.77, indicating that around 77 percent of the variation in life expectancy could be explained by GDP and capital formation alone. The adjusted R-squared, which corrects for the number of predictors, was 0.66, still reflecting a high level of explanatory strength. Furthermore, the model was statistically robust, with a significant F-statistic and no sign of autocorrelation in the residuals, as indicated by a Durbin-Watson statistic close to 2.0.

Intervening Effect of Monetary Policy on Economic Growth – Sustainable Development Nexus

In the second regression model, monetary policy variables, specifically the monetary policy rate and the lending rate,

were introduced to explore their intervening effects on life expectancy. The effects are displayed in Table 5.

Table 5: Regression After Introduction of Intervening Variables– Model 2

Dependent Variable: LIFEX				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGCF	0.020279	0.011936	1.698989	0.1065
LOGGDP	0.0008.49	7.09E-06	11.98499	0.0000
MPR	-0.025974	0.019801	-1.311744	0.2061
LDR	-0.066059	0.034795	-1.898495	0.0038
C	47.78341	1.023845	46.67053	0.0000
R-squared	0.698957	Mean dependent var		51.38013
Adjusted R ²	0.574281	S.D. dependent var		1.561116
S.E. of regression	0.250357	Akaike info criterion		0.257805
Sum squared resid	1.128218	Schwarz criterion		0.504651
Log likelihood	2.035246	Hannan-Quinn criter.		0.319886
F-statistic	209.3515	Durbin-Watson stat		1.875431
Prob(F-statistic)	0.000000			

Source: Author (2025).

Interestingly, the log of GDP remained highly significant and positively associated with life expectancy, reaffirming its central role in promoting human development. However, the impact of gross capital formation diminished further, becoming statistically insignificant with a p-value of 0.1065. The inclusion of monetary indicators seemed to dilute its effect, suggesting that financial conditions may mediate the effectiveness of capital investments. Among the newly introduced variables, the monetary policy rate had a negative coefficient, indicating a potential inverse relationship with life expectancy, although it was not statistically significant. More notably, the lending rate emerged as a significant negative predictor of life expectancy, with a coefficient of approximately -0.066 and a p-value slightly above 0.0038. This lends credence to the earlier correlation findings and suggests that high borrowing costs may undermine both private and public investments in human capital.

Although the overall R-squared of this expanded model declined slightly to 0.70, the model retained statistical significance, and the Durbin-Watson statistic continued to show no signs of serial correlation. The inclusion of monetary policy variables provided new interpretive dimensions to the analysis, demonstrating how financial constraints can shape the extent to which economic gains translate into improved welfare outcomes.

Discussion on Findings

Based on the findings of the study, a clear and compelling relationship emerges between economic growth and human development in Nigeria, particularly through the lens of life expectancy. The regression analysis reveals that Gross Domestic Product (GDP) consistently exerts a strong, statistically significant positive impact on life expectancy. This suggests that as the economy expands, improvements in

healthcare access, education, infrastructure, and income levels may collectively contribute to better health outcomes and increased longevity. The strength of this relationship reaffirms the developmental principle that sustained economic growth is a vital driver of social well-being.

Conversely, Gross Capital Formation (GCF), although theoretically expected to support development, demonstrated only a marginal or statistically insignificant effect on life expectancy. This indicates potential inefficiencies in the allocation or utilization of capital investments, raising questions about the quality and targeting of such expenditures. In a context like Nigeria's, this could reflect issues such as corruption, delays in project execution, or misalignment of investments with human-centered development goals.

Monetary variables introduced into the model—namely the Monetary Policy Rate (MPR) and Lending Rate (LDR)—provided further insight. While the MPR showed no significant direct effect, the LDR displayed a strong negative correlation with life expectancy and a marginally significant negative coefficient in the regression model. This underscores the harmful role of high borrowing costs in limiting access to credit for individuals and businesses, potentially stifling job creation, access to healthcare, and overall quality of life.

Conclusively, the statistical evidence across all results points toward GDP as the most influential variable in shaping life expectancy in Nigeria, reaffirming that macroeconomic expansion holds significant promise for human development. However, the high lending rates remain a critical barrier, potentially suppressing inclusive investment and access to essential services. Gross capital formation appears to be less impactful, which could be a signal of inefficient investment or misaligned policy focus. Monetary policy, while theoretically influential, showed weaker direct effects in the models used.

These findings underscore the need for economic policies that not only prioritize growth but also ensure that such growth is inclusive, equitable, and effectively channeled toward social development.

5. CONCLUSION AND RECOMMENDATIONS

The study investigates the interplay between economic growth, monetary policy, and sustainable development in Nigeria, using life expectancy as a proxy for development. Findings reveal that GDP significantly enhances life expectancy, indicating that economic expansion promotes better living standards. However, gross capital formation has a weak impact, suggesting inefficiencies in investment. High lending rates were negatively associated with life expectancy, highlighting financial barriers to development. While the monetary policy rate showed minimal direct effect, the lending environment plays a crucial role in shaping outcomes. The study underscores the importance of inclusive growth and accessible financing in driving sustainable human development. It is therefore recommended that policymakers should ensure capital formation targets sectors that directly enhance quality of life, such as health, education, and infrastructure, to improve its developmental impact. Also, financial authorities should implement policies that reduce lending rates, such as strengthening financial institutions and improving credit risk frameworks, to promote inclusive access to capital. Moreover, economic strategies should not focus solely on GDP expansion but also on equitable distribution and social spending that directly supports human development indicators like life expectancy.

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