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Original Research Article

Nexus Between Savings and Economic Growth in Nigeria: An Econometric Analysis

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Abstract: *This study examined the nexus between savings and economic growth in Nigeria. The close connection between savings and economic growth has been a key issue in economic literature. However, the fact that differences in saving rates of different countries could be explained by their differences in the rate of economic growth cannot be overemphasized. This is due to the fact that achieving a higher level of economic growth requires higher level of investment, and investment is made possible by another variable called savings. The analytical framework of this study is based on econometric methodology encompassing the error correction model of regression analysis using data from 1980 to 2023. The researcher employed the Granger Causality test and cointegration technique to analyze the nexus between savings and economic growth in Nigeria within the period under review. The empirical results showed a long-run positive relationship between savings and economic growth in Nigeria. Thus, the researcher recommended that government should make policies that would encourage long-term savings so as to accelerate economic growth in Nigeria.*

Keywords: *Real Gross Domestic Product, Savings, Investment, Population, Interest rate.*

1. Introduction

Background of The Study

The nexus between savings and economic growth has long been a central issue in macroeconomic theory and policy, particularly in developing economies such as Nigeria. Savings is widely regarded as a critical driver of economic growth because it provides the necessary resources for investment, capital accumulation, and productivity enhancement. In theory, higher levels of domestic savings reduce dependence on external borrowing and create a sustainable path for long-term economic development (Solow, 1956; Romer, 2006).

In developing countries like Nigeria, the savings–growth nexus is especially important due to limited access to foreign capital and vulnerability to external shocks. Nigeria, as one of Africa's largest economies, has experienced fluctuating growth patterns over the decades despite its abundant natural resources. A key concern among policymakers and researchers is whether the level of domestic savings in Nigeria is sufficient to support sustained economic growth. Empirical evidence suggests that Nigeria has historically maintained a relatively low savings rate compared to emerging economies, which may constrain investment and hinder growth (World Bank, 2020; IMF, 2021).

The structure of the Nigerian economy further complicates the relationship between savings and growth. The economy is heavily dependent on oil revenues, which introduces volatility in income and affects both public and private savings behavior. Periods of oil boom often lead to increased government spending rather than savings accumulation, while oil price shocks tend to reduce national savings and slow economic growth (Adeniyi & Oyinlola, 2020). This volatility raises concerns about the sustainability of growth driven by external factors rather than domestic resource mobilization.

In addition, the efficiency of financial intermediation plays a crucial role in determining how savings are transformed into productive investment. A well-developed financial sector mobilizes savings and channels them into high-return investment projects, thereby fostering economic growth. However, in Nigeria, challenges such as limited access to financial services, low financial literacy, and weak institutional frameworks have constrained the effective mobilization and utilization of savings (Akinlo & Akinlo, 2009; Udude, 2015). Consequently, even when savings exist, they may not be efficiently allocated to productive sectors of the economy.

Moreover, macroeconomic instability—characterized by high inflation rates, exchange rate volatility, and inconsistent policy frameworks—has negatively affected savings behavior in Nigeria. High inflation erodes the real

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value of savings, discouraging households from saving in formal financial institutions. Similarly, unstable interest rates reduce incentives for long-term savings and investment decisions (Olanrewaju et al., 2015; Central Bank of Nigeria, 2022).

Despite numerous studies on the savings–growth relationship, there is still no consensus on the direction of causality between the two variables. While some studies argue that higher savings lead to economic growth, others suggest that economic growth itself generates higher savings through increased income levels. This ambiguity underscores the need for further empirical investigation, particularly within the Nigerian context where structural and institutional factors may alter the expected relationship (Abu, 2010; Adeleke et al., 2015).

Given these issues, it becomes imperative to examine the nexus between savings and economic growth in Nigeria, taking into account the role of financial sector development, macroeconomic stability, and structural characteristics of the economy. Understanding this relationship will provide valuable insights for policymakers in designing strategies to enhance domestic savings, promote investment, and achieve sustainable economic growth.

Statement of the problem

The close connection between saving and growth has been a key issue in economic literature; the possibility that differences in saving rates of different countries could be explained by their differences in the rate of economic growth.

It is evident that investment is a catalyst for industrialization and hence economic growth, investment is made possible by another catalyst called savings. Over the years, there has not been strong synergy between savings and investment in Nigeria. This problem is because of little emphasis stakeholders in the economy are giving to financial intermediation. Low level of savings translates to low level of investment, and hence, low national productivity. The inability of households, business sector and the government to increase their levels of savings may constitute a major problem to the developmental goals of the economy.

Objectives of The Study

The broad objective of this study is to examine the nexus between savings and economic growth in Nigeria within the period under review. The specific objectives include:

i. To examine the impact of savings on economic growth in Nigeria.

ii. To examine the impact of investment on economic growth in Nigeria.

iii To examine the impact of Population growth on economic in Nigeria.

1. Literature Review

Theoretical Review

This section captures the review of theories relevant to savings and economic growth. There are numerous theoretical evidence concerning the functional relationship between savings and economic growth.

Adam Smith (1776) "*Inquiry into the nature and cause of the wealth of nations"* was the first theory of growth and it advocated accumulation of capital, division of labour and specialization as recipe for growth. The theory was that productive capacity itself allowed for growth, and the improvement of capitals, couple with its increase, to allow for such a capacity was the wealth of the of the nations. This is the classical growth model.

Meanwhile, according to Solow (1960), a combination of capital deepening and technological improvement explains major trends in economic growth. An important distinction arises in growth models with regard to the effect of the saving rate. To illustrate this distinction, consider two sorts of growth models that have received wide attention in the literature: The Solow (1956)-Swan (1956) model and the Romer (1986) model. These two models specifically illustrate two alternative understandings of the role of saving rates in growth models. In one approach (illustrated here by the Solow-Swan model) the saving rate influences only steady-state and can impact on growth rates of output only temporarily. In the alternative approach (illustrated by the Romer 1986 model) the impact of the saving rate is not on steady-state output, but on the growth rate of output directly..

Rostow (1960) in his stage theory of economic growth has stipulated a savings rate of 16% as a basic pre-requisite to reach the take-off stage. Though the stage theory has no universal validity, there has been ample evidence during the period 1965-1989 to the effect that high rates of domestic savings has been accompanied by high growth rates.

Conceptual Framework

The relationship between savings and economic growth is rooted in both classical and modern growth theories, which emphasize that savings provide the funds needed for investment, leading to capital accumulation and growth.

The conceptual framework posits that savings plays a critical role in driving economic growth through its impact on investment and capital formation. In Nigeria, the effectiveness of this relationship depends largely on

financial sector development, macroeconomic stability, and institutional efficiency. While higher savings can stimulate growth, structural challenges such as low income levels, inflation, and weak financial intermediation may limit its impact.

Empirical Review

Several studies have been conducted on the relationship between savings and economic growth of different countries.

However, Attanasio et al. (2000), criticized the robustness of Caroll and Weil's results, finding that using annual data rather than the five-year average increased precision and statistical significance of the estimates as well as changing the pattern of causation.

Morande (1998) conducted a study on the relationship between savings and economic growth over the period 1960-1995 using time series data and applying Johansen-Juselius, Engle and Granger cointegration techniques and Varaince decomposition analysis for Chile, the results suggest that private savings are positively affected by economic growth and a dummy reflecting the effect of pension funds.

In a study by Nwakeze (2000) on the interrelationship between population growth rate and household income and savings in Nigeria for the period 1980-1996, she observed that the size of a household could influence savings either positively or negatively. She concluded that the larger the size of a household, the likelihood that savings will fall.

Agarwal (2001) investigated the causality between Gross Domestic Product (GDP) and saving for a sample consisting Asian economies. The researcher discovered that in most economies causality runs from GDP to savings.

Mavrotas and Kelly (2001) used the Toda and Yamamoto method to test for Granger causality. Using data from India and Sri Lanka, the relationships among gross domestic product, gross domestic savings, and private savings was examined in this study. The authors found no causality between GDP growth and private savings in India.

Also, Odhiambo (2009), investigated the causal relationship between savings and economic growth over the period 1950-2005 and applied cointegration based error correction and trivariate causality test for South Africa. The result indicate bidirectional causality of savings in the long run. The results further suggest bidirectional causality running from economic growth while causality runs from economic growth to foreign capital inflow.

AbuAl-Foul (2010), employed econometric technique to investigate the long-run relationship between real gross domestic product and real gross domestic savings for Morocco and Tunisia during the period 1965-2007 and 1961-2007 respectively. The regression exercise reveals interesting results. For instance, it was shown that whereas a long-run relationship exists between gross domestic products and savings in Morocco, there was no such evidence for Tunisia.

2. Methodology

The Bivariate Causal relationship between Savings and Economic growth in Granger causality framework is carried out based on the premise that the variables are stationary at level denoted by 1(0). If the variables are not stationary at their level value but stationary at their first difference denoted by 1(1), the next is to determine whether they are cointegrated. If the variables are not cointegrated, a practical solution is to examine the Granger causality test in first difference of the variables as demonstrated by Pravakar et al (2001).

3.2.1 Model Specification

The specification of econometric model will be based on economic theory and any available information relating to the phenomenon being studied (Koutsoyiannis 1997).

This study aims at examining the nexus between savings and economic growth in Nigeria.

Thus, the Real GDP function for the empirical analysis is presented thus:

RGDP=f(S, INV, POP)

Where;

RGDP=Real Gross Domestic Product

S = Savings

Inv = Investment

Pop = Population

The econometric form of the model is thus:

$RGDP = \beta_0 + \beta_1 S + B_2 INV + B_3 Pop + \mu$

Where, β_0 is the constant, $\beta 1$ to $\beta 3$ are the parameter estimates and μ is the error term.

3.2.3 Sources and Measurement of Data

The data used for this study is an annual time series data spanning the period 1980-2023. The following variables were used: Real Gross Domestic Product (RGDP), Savings rate (S), Investment (INV), Population (Pop). All the data were sourced from Nigeria Economic Indicators and Statistics, 2013.

3. Results

This section deals with the result of the analysis and interpretation of major findings on the nexus between savings and economic growth in Nigeria. The model was estimated with Econometric views (E-views) software using various econometric techniques to ensure that data-driven and evidence-based decisions are obtained from the study. Graphical analysis was carried out in order to observe the trend flows of the variables under consideration while diagnostic tests were conducted on the data to be sure the data is valid enough for relevant inferences to be made, the model is then estimated and interpretations of major findings are extracted.

Table 5: Summary of the Regression Result

Dependent Variable: LOG(RGDP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	170.9831	24.65862	6.934009	0.0000
LOG(S)	1.470465	0.705523	2.084218	0.0467
LOG(INV)	4.087213	1.063760	3.842233	0.0007
LOG(POP)	-48.77135	7.454005	-6.542973	0.0000
ECM (-1)	-1.86E-08	6.60E-08	-0.281058	0.7808

R-squared	0.676
Adjusted R-squared	0.628
F-statistics	14.09
Durbin Watson Statistics	1.94

Source: Extracted E-Views 7 Result (2024)

Table 6: Granger Causality Test

S does not Granger Cause RGDP	31	2.50054	0.1016
RGDP does not Granger Cause S		0.55871	0.5787
INV does not Granger Cause RGDP	31	8.52335	0.0014
RGDP does not Granger Cause INV		6.45024	0.0053
POP does not Granger Cause RGDP	31	0.09341	0.9111
RGDP does not Granger Cause POP		63.0918	1.E-10
INV does not Granger Cause S	32	2.04385	0.1491
S does not Granger Cause INV		4.51687	0.0203
POP does not Granger Cause S	32	7.33910	0.0028
S does not Granger Cause POP		0.61393	0.5486
POP does not Granger Cause INV	32	2.87937	0.0735
INV does not Granger Cause POP		21.3437	3.E-06

Source: Extracted E-Views 7 Result (2024)

4. Discussion of Findings

The study discovered through empirical findings that there is a positive relationship between savings and real gross domestic product. This implies that increase in savings promote economic growth. This could be associated with the fact that savings promote investment and investment leads to increase in economic growth. This result conforms to the economic approri expectation.

However, the magnitude of the positive relationship is shown with the value of the parameter estimate, a percent increase in savings would result to about 1.47%

increase in real gross domestic product. Saving therefore is the decision to defer consumption and to store this deferred consumption in some form of asset which will leads to increase in real gross domestic product. This is statistically significant at 5% level of significance using t-test and standard error estimate. The t-calculated is 2.08 while the standard error is 0.705 which implies that standard error of the parameter estimate is less than half of the parameter estimate is (½ * 1.470 = 0.735). Since this is justified, there is sufficient evidence to conclude that there is statistical significance between savings and real gross domestic product.

Also, there is a positive relationship between investment and real gross domestic product. It implies that increase in investment will lead to increase in real gross domestic product. Investment in capital consumption which is required to replace worn out, or failing machinery, equipment, or buildings or investment undertaken to purchase new machinery, equipment, or buildings in order to increase productive capacity will robotically increase competitiveness, and raise profits which cumulatively resulting to increase in economic growth. More so, the magnitude of this sign shows that a percent increase in investment would result to about 4.08% increase in real gross domestic product. This is statistically significant at 5% level of significance using t-test and standard error estimate. The t-calculated is 3.84 while the standard error is 1.06 which implies that standard error of the parameter estimate is less than half of the parameter estimate is (½ * 4.08 = 2.04). Since this is justified, there is sufficient evidence to conclude that there is statistical significance between investment and real gross domestic product.

It was also discovered from the result that there is negative relationship between population and real gross domestic product. This implies that a rising ratio of the population decreases the growth of real gross domestic product. This could be justified on the ground that a rising ratio of the population (infant, labour force, old) will increase the number of households above the relative infrastructure and economic resources needed to take care of the teeming population. Also, a rising ratio of the population especially the infant and old people implies an increasing dependency ratio which definitely would decrease the level of real gross domestic product. However, the magnitude of the negative relationship is shown with the value of the parameter estimate that a percent increase in population would result to about 48.77% decrease in real gross domestic product. This is statistically significant at 5% level of significance using t-test and standard error estimate. The t-calculated is 6.54 while the standard error is 7.45 which imply that standard error of the parameter estimate is less than half of the parameter estimate is (½ * 48.771 = 24.386). Since this is justified, there is sufficient evidence to conclude that there is statistical significance between population and real gross domestic product.

R-squared measures the goodness of fit of model. In the analysis, the R^-squared is 0.676% which is a good measure of fit, it shows that the independent variables account for about 67.6% systematic variation in the dependent variable (real gross domestic product) whereas the remaining 32.4% are accounted for by other factors which affect real gross domestic product but were not captured in the model. The Adjusted R-squared also showed that after adjusting with the degree of freedom, the model is still of good fit (62.8%) whereas the remaining 37.2% are other factors which affects real gross domestic product but were not captured in the model which was represented earlier as the stochastic variable or error term.

F- statistics is used to test the joint statistical significance of the parameter estimates. From the result, the f statistics value of 14.09 ($p<0.05$) showed that there is a joint statistical significance among variables used in the model.

Durbin Watson statistics is used to test for the presence or absence of positive serial correlation. Since the Durbin Watson statistics falls between zero (0) and two (2) that is (1.94). There is no evidence to show the presence of autocorrelation.

However, since the results findings suggested that there is a positive relationship between savings and economic growth in Nigeria, the relevant policy and research implication is that polices should be concentrated towards increasing savings in order to promote economic growth in Nigeria.

Comparison of Results with Previous Findings

The results through empirical findings show a positive relationship between savings and economic growth in Nigeria. This implies that increase in savings leads to an increase in Gross Domestic Product (GDP), which could be associated with the fact that savings promotes investment and investment leads to economic growth. This concurs with a similar study by Abu (2010) on the relationship between savings and economic growth in Nigeria for the period 1970-2007. The cointegration results revealed existence of long run equilibrium between savings and economic growth. Meanwhile, the causality test suggests one-way causality running from economic growth to savings implying that it is economic growth that granger-caused savings in Nigeria. However, this is in contrast with the result finding of this study as the granger causality test result shows that there is no directional relationship between savings and real gross domestic product. It indicates that savings does not granger cause real gross domestic product also does real gross domestic product not granger cause savings.

5. Conclusion

The primary purpose of this study was to investigate the nexus between savings and economic growth in Nigeria between 1980 and 2023. Granger causality test and cointegration test were conducted and the empirical results show a positive relationship between savings and economic growth in Nigeria within the period under review. This is due to the positive correlation between savings and investment and ultimately economic growth in Nigerian economy.

The results also showed that population and investment were consistent with economic theory as they showed negative relationship and positive relationship with savings respectively. Perhaps, the results of the causality test revealed that not only economic growth does not granger cause savings, but also that savings does not granger cause economic growth. This confirms the Engle and Granger (1987) results of no causality between economic growth and savings.

It was also discovered from the result that there is negative relationship between population and real gross domestic product. This implies that a rising ratio of the population decreases the growth of real gross domestic product.

Recommendations

Given the empirical findings of this study, the following recommendations are necessary:

- Government and Policy makers should make policies that would encourage long term savings so as to accelerate economic growth in Nigeria. A short-term measure is the pension funds, which may be used as guarantee for the funding of investments in the economy. The government is currently using this to meet its fiscal deficits. The financial savings that enable banks to have resources for investment is shallow and can hardly support any meaningful real investment in the economy.
- Government should employ policies that will ensure that greater part of national savings is channeled into investment to increase capital formation for rapid economic growth. It is important that the government through Public Private Partnership (PPP) encourage further investment in the economy. The investment expected for the country should be made in the areas that encourage further development of the economy.
- Government should intensify effort to reduce population growth in order to increase per capita income so as to mobilize adequate savings for economic growth in Nigeria.
- Government should put adequate infrastructure in place to attract investment in Nigeria. This is one common method of encouraging foreign direct investment (FDI). Then services and more production can take place to increase income of the people.
- The banking sector should maintain a level of interest rate that will encourage savings thereby increase the savings habit of the people.
- Government should make policies that will reduce capital flight and encourage domestic savings and investment and by extensions economic growth.
- Government should keep inflation in check so as not to discourage savings and investment in the country.
- Luxurious consumption should be discouraged by imposing taxes on certain luxury goods so as to channel more resources into investment to accelerate economic growth.

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