

## **SAVINGS AND ECONOMIC GROWTH CAUSALITY IN NIGERIA**

**DANJUMA IYAJI\***

*Department of Economics, Nigerian Army University Biu, Borno State, Nigeria*

*Phone Number: +2348064373210*

*E-mail: [danjumaiyaji@gmail.com](mailto:danjumaiyaji@gmail.com)*

**OGHENEVO FAITH ONOTANIYOHWO**

*Department of Social Sciences, School of General Studies,*

*Delta State Polytechnic, Otefe-Oghara.*

*Phone Number: +2348036716828*

*E-mail: [marvorhimsself@yahoo.com](mailto:marvorhimsself@yahoo.com)*

### **ABSTRACT**

This study examines savings and economic growth causality in Nigeria. The specific objectives are to investigate the long-run two-way cause and effect relationship between gross domestic savings, gross capital formation as proxy for investment and per capita income as proxy for economic growth in Nigeria. The data covered the period of 1981 to 2019. Unit root test for stationarity and Johansen cointegration test to ascertain long run equilibrium relationship were conducted; the study employed correlation matrix to examine the strength of the relationship and vector error correction granger causality/block erogeneity wald test with Schwarz information criterion to evaluate the direction of the relationship among the variables. The results of the study revealed that the variable in the model became stationary at their first difference, the appropriate lag for the variables is seven (7) and the cointegration result indicates that there exists a long run equilibrium relationship among the variables in the model. The correlation matrix shows that there is strong positive relationship between gross domestic savings and economic growth and also strong positive correlation between gross domestic savings and gross capital formation which served as proxy for investment. Although, the correlation between gross capital formation and per capita income is positive but it is moderate and Granger causality result revealed that, there is bidirectional relationship between the variables of interest in this study. The study thus, recommends that, an optimal stabilization policy would guarantee a dynamic long run relation between savings, investment and economic growth in Nigeria.

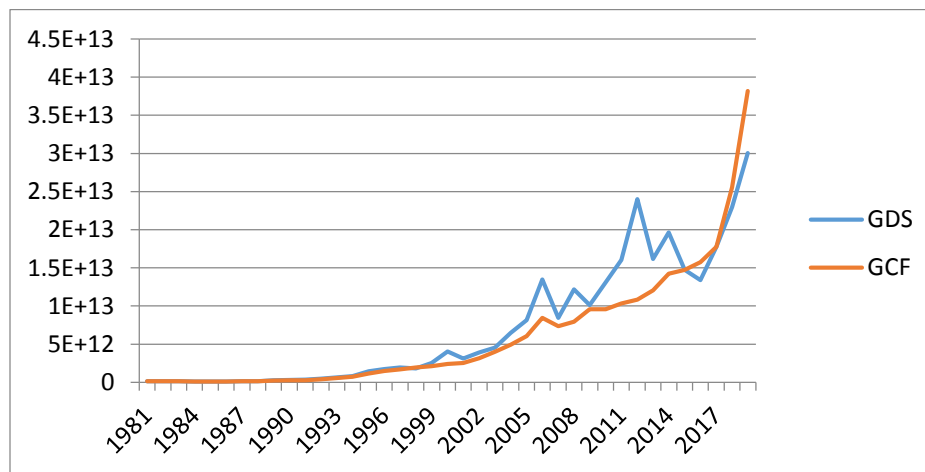
**Keywords:** gross domestic savings, investment, economic growth, Granger causality, Capital formation, Per capita income, Correlation matrix,

JEL Classification: E12, E21, E22, C22

### **1. INTRODUCTION**

Economic growth is a key drive of most economies Sub-Saharan African countries inclusive of Nigeria. Citizens want to enjoy a higher standard of living and policy makers are enthusiastic to provide that higher standard of living via economic growth. Economic growth is one of the indicators that are used as measure for the success of government in power. This is why economic research and textbooks have covered this topic extensively and politicians debate on it regularly. The cause and effect of savings on economic growth is via a multiplier process through which savings decision affect the economic growth of a nation. It is characterized by long, variable and uncertain time lags. Thus it is difficult to predict the precise effect of savings actions on the economy. But the major factor impacting economic growth in any given society is the level of capital accumulation which is a function of savings.

This Savings could either be personal savings where people avoiding to consume all their income or business savings which can be measured by the value of undistributed corporate profits or Public savings which are basically tax or oil revenues less public expenditure. Thus, gross domestic savings is aggregation of personal savings plus the business savings and public savings. These savings can remain on the bank accounts for future use or be actively invested in real sector of the economy, real estate, public infrastructure, bonds, shares and other financial instruments all things be equal, these will culminate into economic growth. But the slow rate of development in Nigeria is usually attributed to the low level of gross domestic savings, that constraint her capacity to invest in capital formation. From figure 1 below gross domestic savings from 1981 to 1999 was very low and the level of investment proxy with gross capital formation was below the savings. From the trend Nigerian economy starts experiencing saving-investment growth when the country embraced democracy from 1999 and savings lied above investment up 2015.



This could be attributed to public savings through the excess crude fund and sales of government owned enterprises. But from 2015 the trend changed where savings now lied below investment. The government at all levels began to share the excess crude fund and increased their external borrowing to execute public investment and individuals and companies could no longer save due to protracted economic recession in the country.

Todaro and Smith (2006), describe economic growth as the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of domestic output and income. In simple terms, economic growth is a long-term increase in the productive potential of an economy. Thus, the economic growth is better measured in terms of income, output, or expenditure which are the three key indicators that show whether an economy is growing, or in recession. Like many other indicators, income, output, and expenditure can also be measured in per capita (per head) terms. Per capita income is a measure of the amount of money earned per person in a country. It helps to determine the average per-person income to evaluate the standard of living for a population. So the real growth of an economy is measured in terms of per capita income.

Classical economists believed that the existence of savings is a necessary and sufficient condition for investment creation. They believed a positive relationship exists between gross domestic savings and economic growth. This positive relationship can be explained with two hypotheses. The first one assumes that increased savings may stimulate economic growth through increased investment (Bebczuk, 2000). This approach is supported by Harrod (1939), Domar (1946) and Solow (1956)

growth models. They asserted that warranted growth rate depends on the saving and investing habits of households and firms. They suggest that savings provide the funds, which are borrowed for investment purposes. The implication of their model is that economic growth requires policies that encourage savings and the underpinning philosophy is to drive savings mobilization for investment purposes. But there are some limitations to its applicability in less developed country like Nigeria where it is difficult to stimulate the desired level of gross domestic savings in the face of low income trap and ineffective financial system; meeting the savings gap by borrowing from overseas cause debt repayment burden later; diminishing marginal returns to capital accumulation exist in such that each successive unit of investment is less productive and the capital to output ratio rises; the amount of investment is just one factor affecting economic growth leaving human resource development such as education and training out their growth model and treat this human resource development as homogenously determined; so saving only is a necessary condition but not sufficient condition for economic growth, but sectoral structure like agriculture, industry and service sectors is very important which is missing in their model.

The results of empirical research by Alguacil, Cuadros, Orts (2004), Gutiérrez, & Solimano (2007) as well as by Singh (2009), provide support for the hypothesis that increased savings promote economic growth. But they stipulate that, the dynamics of the country's economic growth increases if the investment in human or material capital or in scientific research and development (R&D) grows. However, if the country has access to international financial markets, it may not necessarily develop faster as a result of gross domestic savings alone, as investment may also be financed with foreign savings (Guterries & Solimano, 2007). The magnitude of economic growth in any country is dependent upon the level of investment. The rate of investment, on the other hand, is highly dependent upon the level of gross domestic savings of a country.

The second hypothesis, on the other hand, has it that economic growth stimulates increased savings. This approach is backed up by the Keynes model (1936). Moreover, the results of empirical research carried out by Narayan and Narayan (2006) and Abu (2010) confirm this hypothesis.

The argument for this study is that, even though there is an obvious relationship between savings and economic growth, the direction of causality is not assured. Does savings cause growth or vice versa? In this study, the specific objective is to investigate the long-run two-way causal relationship between savings and economic growth in Nigeria. This inquiry about long-run causality differentiates this study from other studies conducted for Nigeria. In this study we use Keynes and Solow hypotheses to test the cause and effect between savings and economic growth for Nigerian economy.

The rest of this research is organized into five sections. Following this introduction, section two covers the literature review, while section three focuses on the data and methodology, then section four contains results and discussion and finally section five covers conclusion and policy recommendations.

## **2. LITERATURE REVIEW**

### **2.1 Empirical Review**

Abiodun, Solomon and Musbau (2021). Savings-growth nexus revisited: An empirical analysis from Nigeria, taking into account the significance of the unique characteristics of the pre- and post-democratic dispensations in Nigeria as a case study. A multivariate VECM Causality test for pre- and postdemocracy samples were carried out using data covering the period of 19 years (1981 to 1999) for pre- democracy and 20 years (2000 to 2019) for post-democracy era. In the short run, the study discovered that there was no significant causal relationship between savings and growth during the

pre-democracy period but there exists a unidirectional causality running from savings to growth in the post-democracy period. However, the study found a bidirectional causal relationship between savings and growth in the long run for both pre-and post-democracy periods. Therefore, this study concluded that savings causes economic growth in post democracy period in line with Mill– Marshall–Solow School of thought (short-run period) while both savings and growth reinforce each other in the long-run for both periods.

Reza, Michael, and Mona (2014), investigated the causality between savings and total and non-oil economic growth for Iran. They analyzed the long-run causality among the above variables in Iranian economy. With aid the Autoregressive Distributed Lag Model (ARDL) the findings indicate that, there is a positive and significant impact of savings on total and non-oil economic growth. Both types of economic growth are also found to have positive and significant effect on savings. In addition, the findings show that there is a long-run causality between savings and economic growth, and between saving and non-oil economic growth. This is an indication of two-way causality.

Contrary to their study, Misztal (2011), analyzed the cause and effect relation between economic growth and savings in advanced, emerging and developing economies. He used the method based on studies in macroeconomics and international finance as well as econometric methods (co-integration models and Granger's causality test). The findings confirmed the existence of one-way causality between gross domestic savings and gross domestic product in the case of developed and emerging economies but it was two-way causality for developing countries.

Artur and Fitim (2021), examined the impact of savings on economic growth in a developing country: the case of Kosovo from both a qualitative and quantitative methodology using the Augmented Dickey-Fuller tests, Johansen co-integration tests, and Ganger causality test. The results indicated that there is stationarity and long run equilibrium, and the error correction results showed that deposits have a significant positive impact on Kosovo's economic growth, because savings stimulate investment, production, and employment and consequently generate greater sustainable economic growth. They also found that, loans and remittances also help boost the economy of Kosovo through their direct impact on investment. This result confirms that countries whose gross domestic savings rate is high are not dependent on foreign direct investment; consequently, the risk arising from volatile foreign direct investment decreases significantly.

Dhanya (2015), investigated the role of savings in economic growth in Botswana. The study applied the Harrod –Domar growth model to the economy of Botswana. The study used Autoregressive Distributed Lagged (ARDL) model to check the existence of a long run relationship between gross domestic product and gross domestic savings in Botswana. The study further used Dynamic Ordinary Least Squares approach in order to identify dynamic long run co integration between gross domestic product and its independent variables. The findings show that there is significant relationship between savings and economic growth and the study supported Harrod-Domar growth model. Policies are suggested to accelerate economic growth in the country.

## **2.2. Theoretical Review**

The most relevant theory linking economic growth with savings is the neoclassical model inspired by Solow (1956), which suggests a connection between higher savings and economic growth in the short-run as the economic transitions between alternative steady states. Savings models are grouped into two: The Keynesian and non-Keynesian.

Also, the neoclassical growth model emphasizes capital accumulation as the source of growth i.e. higher saving rates should foster growth because higher savings imply higher capital investment. But

this can only occur in closed economies therefore, extending them to the case of small open economies with international capital markets would eliminate the effect of local savings on growth.

The motivation for this study is to gain further insight into the cause and effect that drives the connection between savings and economic growth taking into account the significance of the unique characteristics of the People Democratic Party dispensation and All Progressive Party dispensation in Nigeria as against the study by Abiodun, Solomon and Musbau (2021), that examined the unique characteristics of the pre- and post-democratic dispensations in Nigeria. When saving rate rises it means there will be more fund available for lending, then the cost of borrowing goes down and this will lead to a rise in capital accumulation and capital investment induces economic growth via a multiplier process. In particular reference to transmission mechanism from savings to economic growth in Nigeria, this study focused on testing whether or not the gross domestic savings has had significant effect on the economic growth over the sample period of 39 years from 1981-2019.

These mixed results in literature could largely be attributed to the fact that, large body of studies in literature on savings and economic growth proxy gross domestic product as a measure for economic growth but over time, however, some economists have highlighted limitations and biasness in the computation of gross domestic product vis-à-vis economic growth. This in no doubt may have largely affected the results of these previous studies in literature and it will be hard to draw a conclusion from these studies about the actual cause and effect between savings and economic growth.

Thus, the economic growth is better measured in terms of income, output, or expenditure which are the three key indicators that show whether an economy is growing, or in recession. Like many other indicators, income, output, and expenditure can also be measured in per capita (per head) terms. Per capita income is adopted as a measure for economic growth which means the amount of money earned per person in a country. Per capita income helps determine the average per-person income and disposal income of individual equal consumption expenditure plus saving. This is use to evaluate the standard of living for a population. So the real growth of an economy is measured in terms of per capita income. To fill this measurement gap left opened in literature; this study employed per capita income as proxy for economic growth.

### **3. METHODOLOGY**

The theoretical framework linking economic growth with savings is the neoclassical model inspired by Solow (1956), which suggests a connection between higher savings and economic growth in the short-run as the economic transitions between alternative steady states. Savings models are grouped into two: The Keynesian and non-Keynesian. The ensuing sections examine both models. From a theoretical point of view it should exist a positive relationship between gross domestic savings and economic growth because increase in savings could stimulate economic growth, but on the other hand, the economic growth could also stimulate the growth of gross domestic savings. To analyze the cause and effect relation between the size of savings and the speed of economic growth, the study employed correlation matrix to examine the strength of the relationship and Granger causality to evaluate the direction of the relationship among the variables which are the most frequently used methods of analyzing relations between savings and economic growth in Econometric analysis. The econometric model used in this study is based on Keynes (1936) model and Solow (1956) hypothesis. According to the Keynes model, savings (S) are the function of economic growth (Y), which can be presented by the formula below:

$$S = \beta_0 + \beta_1 Y + U_1 \quad [1]$$

Where:

S = savings

Y = economic growth,

$\beta_0$  = constant term in the equation

$\beta_1$  = savings to economic growth sensitivity coefficient t ,

$U_1$  = random component .

On the other hand, according to the Solow hypothesis, savings is a determinant of economic growth.

In this way, economic growth is the function of savings, which can be presented by the formula below:

$$Y = \delta_0 + \delta_1 S + U_2 \quad [2]$$

Where:

S = savings

Y = economic growth,

$\delta_0$  = constant term in the equation

$\delta_1$  = savings to economic growth sensitivity coefficient t ,

$U_2$  = random component .

To assess the relation between economic growth and savings in Nigeria, two econometric models capture the relations on the basis of theoretical model (1) and (2) above and the model for this study takes the form of covariance analysis using correlation matrix technique. The Cov(gds,gcf) represents covariance or correlation between gross domestic savings (gds) and gross capital formation(gcf), a proxy for investment, Cov(gds, pci) represents covariance or correlation between gross domestic savings (gds) and per capitaincome (pci), a proxy for economic growth and Cov(gcf, pci) represents covariance or correlation between gross capital formation (gcf) and per capita income (pci). Granger causality test deals with the estimation of the following expressions that are specified in equations as follow:

$$gds_t = \beta_1 + \sum_i^p \beta_i gds_{t-i} + \sum_{j=1}^p \alpha_j gcf_{t-j} + u_{1t} \quad [3]$$

$$gds_t = \delta_1 + \sum_i^p \delta_i gds_{t-i} + \sum_{j=1}^p \phi_j pci_{t-j} + u_{2t} \quad [4]$$

$$gfc_t = \eta_1 + \sum_{i=1}^p \eta_i gfc_{t-i} + \sum_{j=1}^p \theta_j pci_{t-j} + u_{3t} \quad [5]$$

The granger causality equations above implied that savings can granger cause investment and investment can also granger cause savings. Savings can granger causes economic growth and economic growth can granger cause savings. Lastly, investment can granger cause economic growth and economic growth can granger cause investment.

#### 4. RESULTS AND DISCUSSION OF FINDINGS

##### 4.1. Unit Root Test

The Johansen cointegration test is based on the assumption that the variables are in order I(1). So, before applying this Johansen cointegration test, this study determined the order of integration of all variables using the Augmented Dickey Fuller (ADF) tests. The results of the stationarity tests show that all variables are non-stationary at level but are stationary at first difference. These results are given in table 1.1 below:

**Table 1.1: ADF Unit Root Test Statistics**

Variable	Level			1 <sup>st</sup> Difference			Integratio n Order
	ADF Statistics	Prob.	Inference	ADF Statistics	Prob.	Inferenc e	
GDS	-0.531474	0.871	NS	-7.313662	0.000	S	I(1)
PCI	-1.054469	0.723	NS	-3.658015	0.009	S	I(1)
GCF	-1.875587	0.9837	NS	-4.945295	0.008	S	I(1)

**Notes:** NS = Non-stationary; S = Stationary

**Source:** Authors Computation using EVIEWS

From table 1.1 above the ADF test applied to the first difference of the data series reject the null hypothesis of non-stationarity for all the variables used in this study. It is, therefore, worth concluding that all the variables are integrated of order one I(1) i.e. all the variables attain stationarity at their first difference.

##### 4.2. Cointegration Test

In order to empirically analyze the long-run relationships and short run dynamic interactions among the variables of interest in this study, Johansen cointegration test was applied to the data and the results are shown in table 1.2 below.

##### 1.2 Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

No. of CE(s)	trace Stat.	Crv.5%	Prob.	max-eigen Stat	Crv 5%	Prob.
None	68.37183	29.79707	0.00	32.95824	21.13162	0.00
≤ 1	35.41358	15.49471	0.00	27.56625	14.26460	0.00
≤ 2	7.847335	3.841466	0.00	7.847335	3.841466	0.00

**Source:** Authors Computation using EVIEWS

To confirm the long-run cointegration among the variables, Johansen cointegration test was conducted. From Table 1.2, both the trace test and the max-eigen value test indicate that the null hypothesis of no cointegration should be rejected at 1 percent significance level. This means that there exists a long-run relationship among the variables in the model. This is one of the requirements for the use of Vector Error Correction Granger Causality/Block Exogeneity Wald Tests.

##### 4.3. Lag Length Criteria

In order to select the appropriate model of the short-run underlying equation, it is necessary to determine the optimum lag length(k) by using proper model order selection criteria such as; the Akaike Information Criterion(AIC), Schwarz Bayesian Criterion (SBC) or Hannan-Quinn Criterion(HQC).

Prior to the main estimation, the most appropriate lag length for the model was first determined using VAR Lag Order Selection Criteria. The result of the test is shown in table 1.3 below.

**Table 1.3: VAR Lag Order Selection Criteria**

Lag	AIC	SC	HQ
0	137.7106	137.8494	137.7558
1	131.5291	132.0842	131.7100
2	131.5235	132.4949	131.8401
3	131.1178	132.5055	131.5702
4	130.2040	132.0080	130.7921
5	129.2228	131.4432	129.9466
6	127.9934	130.6301	128.8529
7	127.2993*	130.3523*	128.2945*
8	127.3742	130.8435	128.5051

AIC: Akaike information criterion

SC: Schwarz information criterion

**Source:** Authors Computation using EVIEWS

The results in table 1.3 above portray different lag length criteria and the respective lag length chosen. From the final Prediction error Akaike Information Criterion, Schwarz information criterion and Hannan-Quinn information criterion this study obtained the lag length structure of seven (7) for gds, pci and gcf. The implication of the lag length selected explains the effect of the outcome of previous year on the current year. However, based on the appropriate lag length structure, this study accepted the lag order (7) for Granger causality test.

#### **4.4. Correlation Matrix**

Correlation is an effect size and so this study can analyze the strength of the correlation using the guide that Evans (1996), suggests for the absolute value of R: 0.00- 0.19 very weak, 0.20-0.39 weak, 0.40-0.59 moderate, 0.60-0.79 strong and 0.80-1.00 very strong.

**Table 1.4: Correlation Matrix**

Variable	GDS	PCI	GCF
<b>GDS</b>	1.000	0.804	0.928
<b>PCI</b>	0.804	1.000	0.675
<b>GCF</b>	0.928	0.675	1.000

**Source:** Authors Computation using EVIEWS

**Note:** GDS: Gross Domestic Savings; PCI: Per Capita Income; GCF: Gross Capital Formation.

Gross domestic savings and per capita income which is a proxy for economic growth have a very strong positive correlation of 0.804; this implies that there is a direct proportional relationship between these variables. If saving rises all things be equal in Nigeria, economic growth also rises. This is in concomitant with the theoretical view.

In addition to, gross domestic savings and gross capital formation which is a proxy for gross domestic investment have a very strong positive correlation of 0.928; it shows that there is direct proportional relationship between domestic savings and domestic investment. This means that, if Nigerian domestic savings increases, all things be equal domestic investment largely may increase also, vice versa.



In the same vein, gross capital formation a proxy for gross domestic investment and per capita income a proxy for economic growth have moderate positive correlation of 0.675; this implied that if there is a rise in domestic investment it will relative cause a rise in economic growth vice versa. The moderate correlation relationship between domestic investment and economic growth in Nigeria may largely be attributed to low domestic savings and domestic investment trap. There is very low level of public investment due corruption and poor management culture in Nigerian public service and the private investment is also largely dominated by foreign direct investment whose profits after tax are usually repatriated to the investing country.

**4.5. Granger Causality Test**

Since the Johansen cointegration test has revealed that the variables selected for this study are cointegrated, this study then employed vector error correction Granger causality/ block exogeneity wald Tests to establish the direction of cause and effect among the variables of our interest. The results of the three equations in the methodology of this study are presented in table 1.5 below.

**1.5. VEC Granger Causality/Block Exogeneity Wald Tests for Model 3**

<b>Dependent variable: D(GDS)</b>			
<b>Excluded</b>	<b>Chi-sq</b>	<b>df</b>	<b>Prob.</b>
<b>D(GCF)</b>	25.30845	6	0.0003
<b>All</b>	25.30845	6	0.0003
<b>Dependent variable: D(GCF)</b>			
<b>Excluded</b>	<b>Chi-sq</b>	<b>df</b>	<b>Prob.</b>
<b>D(GDS)</b>	84.48203	6	0.0000
<b>All</b>	84.48203	6	0.0000

**Source:** Authors Computation using EVIEWS

From table 1.5 the chi-square statistics with the probability value, this study reject the null hypothesis and state that gross capital formation as proxy for investment Granger cause gross domestic investment in Nigeria and gross domestic investment also Granger cause investment. Thus, relationship is bidirectional which does not negate the a priori theoretical expectation. This result is in concomitant with the study conducted by Mishra, Das and Mishra (2010) for Indian economy. This is contrary to the findings of a study conducted by Mohammad (2007), for developing countries.

**1.6. VEC Granger Causality/Block Exogeneity Wald Tests for Model 4**

<b>Dependent variable: D(GDS)</b>			
<b>Excluded</b>	<b>Chi-sq</b>	<b>df</b>	<b>Prob.</b>
<b>D(PCI)</b>	33.61503	6	0.0000
<b>All</b>	33.61503	6	0.0000
<b>Dependent variable: D(PCI)</b>			
<b>Excluded</b>	<b>Chi-sq</b>	<b>df</b>	<b>Prob.</b>
<b>D(GDS)</b>	29.62744	6	0.0000
<b>All</b>	29.62744	6	0.0000

**Source:** Authors Computation using EVIEWS

From table 1.6 the chi-square statistics with the probability value have shown that, this study reject the null hypothesis which indicates that gross domestic savings does not Granger cause per capita income

as a proxy for economic growth in Nigeria. This indicates that, gross domestic savings Granger cause economic growth and economic growth Granger cause gross domestic investment in Nigeria. This result is in line with the study conducted by Bassam (2010), for Morocco and Tunisia. The results shows that, there a bidirectional relationship between economic growth and gross domestic investment in Nigeria.

**1.7. VEC Granger Causality/Block Exogeneity Wald Tests for Model 5**

Dependent variable: D(GCF)			
Excluded	Chi-sq	df	Prob.
D(PCI)	27.90606	6	0.0001
All	27.90606	6	0.0001
Dependent variable: D(PCI)			
Excluded	Chi-sq	df	Prob.
D(GCF)	10.33854	6	0.1111
All	10.33854	6	0.1111

**Source:** Authors Computation using EViews

From table 1.7 the chi-square statistics with the probability value, this study reject the null hypothesis and state that there is cause and effect between economic growth and gross capital formation as proxy for investment. The result indicates that there is a strong causality between investment and economic growth that runs in both directions implying that investment drives the long term economic growth in Nigeria while improved economic growth feeds back into more public infrastructure investments. This result is in agreement with the study conducted by Wolassa (2015), for South Africa.

**5. CONCLUSIONS AND RECOMMENDATIONS**

This paper examines the empirical relationship between savings, investment and economic growth in Nigeria using the annual data for the period 1981 to 2019. For univariate time series analysis involving stochastic trends, ADF unit root test shows the variables are integrated of order one i.e. I(1) and then the Johansen’s cointegration analysis has been performed taking into account the maximum likelihood procedure. It is found that the variables selected for this study are cointegrated thereby exhibiting the long-run equilibrium relationship between them which may be interpreted as the classical economists’ equality between planned savings and planned investment.

This study, on one hand, validates the classical notion of saving-investment equilibrium through empirical findings and on the other hand, justifies the Keynes’ belief that these two are independent variables (investments being greater than savings). Furthermore, the vector error correction granger causality/block exogeneity wald test shows that there is bidirectional or feedback causality among the variables of interest in this study. Thus, from the policy makers’ perspective the study recommends that, an optimal combination of monetary and fiscal policies would go a long way in establishing a dynamic long run relation between savings, investment and economic growth in Nigeria.

**6. REFERENCES**

Abiodun, S. O., Solomon, O. O., & Musbau O. F. (2021). Savings-growth nexus revisited: An empirical analysis from Nigeria. *African Journal of Economic Review*, 9 (4), 223-237.

Abu, N. (2010). Saving economic growth nexus in Nigeria: Granger causality and cointegration analyses. *Review of Economic and Business Studies*, 3 (1), 45-49.

Alguacil, M., Cuadros, A., & Orts, V. (2004). Does saving really matter for growth? *Mexico*

- Journal of International Development*, 16(2), 76-82.
- Artur , R., & Fitim, M. (2021). The impact of savings on economic growth in a developing Country: The case of Kosovo. *Journal of Innovation and Entrepreneurship*, 10(1), 1-13.
- Bassam, A. (2010). The causal relation between savings and economic growth: Some evidence from MENA Countries. *Topics in Middle Eastern and African Economies*, 12 (3), 1-12.
- Bebczuk, R. N. (2000). Productivity and saving channels of economic growth as latent variables: An application of confirmatory factor Analysis. *Estudios de Economia*, 27(2), 17-23.
- Dhanya, J. (2015). The impact of savings in economic growth: An empirical study based on Botswana. *International Journal of Research in Business Studies and Management*, 2(9), 10-20.
- Domar, E. D. (1946). Capital expansion, rate of growth, and employment. *Econometrica*, 14 (3), 137-147.
- Evans, J. D. (1996). *Straightforward statistics for the behavioral sciences*. Thomson Brooks/Cole Publishing Co.
- Gutiérrez, M., & Solimano, A. (2007). Savings, investment and growth in the global age: Analytical and policy issues. *The AUP Visiting Scholar Working Paper Series*, 43 (2), 47-58.
- Harrod, R. (1939). An Essay in Dynamic Theory. *Economic Journal*, 49 (1), 32-47.
- Keynes, J. M. (1936). *The general theory of employment, interest and money*, Macmillan Cambridge University Press, Cambridge.
- Mishra, P. K., Das, J. R., & S K Mishra, S. K. (2010). The dynamics of savings and investment relationship in India. *European Journal of Economics, Finance and Administrative Sciences*, 12 (18), 164-172.
- Misztal, P. (2011). The relationship between savings and economic growth in countries with different level of economic development. *e-Finance: Financial Internet Quarterly, ISSN 1734-039X, University of Information Technology and Management, Rzeszów*, 7 (2), 17-29.
- Mohammad, A. (2007). Savings and investment in developing countries: Granger causality test. *The Philippine Review of Economics*, 15 (2), 99-110.
- Narayan, P. K., & Narayan, S. (2006). Savings behaviour in Fiji: An empirical assessment using the ARDL approach to cointegration. *International Journal of Social Economics*, 33(7), 82- 94.
- Reza, N., Michael, R., & Mona, T. (2014). Relationship between savings and economic growth: The case for Iran. *Journal of International Business and Economics*, 2(4), 107-124.
- Singh, T. (2009). Does domestic saving cause economic growth? A time-series evidence from India. *Journal of Policy Modeling*, 32(2), 23-41.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70 (2), 67-81.
- Todaro, M. P., & Smith, S. C. (2006). *Economic Development*. New Jersey, Pearson Addison Wesley printing press.
- Wolassa, L. K. (2015). Infrastructure investment and economic growth in South Africa: A granger causality analysis. Working Paper Series No. 160 African Development Bank, Tunis, Tunisia, 1-27.