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EFFECT OF GROSS DOMESTIC SAVINGS ON ECONOMIC GROWTH IN NIGERIA

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Abstract

In view of the disagreement among economists on the effect of savings on economic growth, this paper seeks to determine the effect of gross domestic savings on economic growth in Nigeria from 1986 to 2019 using the error correction model (ECM). The annual time series data of gross domestic product, household final consumption expenditure, gross domestic savings, general government final consumption expenditure and net export that used for this study are obtained from World Bank World Development Indicators and transformed to logarithms before they are used in the estimation of the model. All the variables except net export have significant positive impact on gross domestic product, a proxy of economic growth. The net export has insignificant negative impact on economic growth. The regression coefficient of ECM is negative and it is statistically significant at 5 percent level. We reject the classical neutrality of savings and the Keynesian paradox of thrift hypotheses and conclude that Harrod-Domar and Keynesian expansionary hypothesis effect of savings on economic growth is applicable in Nigeria. There will be accelerated and sustainable economic growth and development in Nigeria if all the incomes that are saved are channelled into investment.

Keywords: Economic growth, Gross domestic savings, Secondary data, Error correction model, Nigeria

INTRODUCTION

In both theoretical and empirical literature, there is no consensus among economists on the effect of savings on economic growth. The classical theory indicates that savings has neutral effect on economic growth. The Keynesian economic theory implies that savings has contractionary or expansionary effect on economic growth. The Harrod-Domar model suggests that savings has expansionary effect on economic growth.

The result of the investigation on the effect of savings on economic growth in Nigeria by Abu (2010) supports the classical neutrality hypothesis. The result of the investigation on the effect of savings on economic growth in Nigeria by Nwanne (2014) agrees with the Keynesian contractionary hypothesis. The result of the investigation on the effect of savings on economic growth in Nigeria by Stephen and Obah (2017) conforms to Keynesian and Harrod-Domar expansionary hypothesis.

If I may ask, does gross domestic savings has neutral, contractionary, or expansionary effect on economic growth in Nigeria? The main objective of this paper is to test the neutrality, contractionary and expansionary hypotheses effects of gross domestic savings on economic growth in Nigeria. This paper consists of five sections. The next section is literature review. Section 3 presents the methodology. The results are discussed in section 4 and conclusions are drawn in section 5.

LITERATURE REVIEW

Say (1830) states that supply creates its own demand. In other words, the income that is created in production process is always sufficient to buy all the goods and services produced. This means that the purchasing power in an economy is always sufficient to buy all the goods and services produced. That is, aggregate supply of goods and services is always equal to aggregate demand for goods and services. The idea that supply creates its own demand is known as Say's Law.

Say's Law is the basis of classical macroeconomics and it is based on self-regulating markets. The self-regulating credit or money market ensures that savings does not invalidates Say's Law. The credit market ensures that incomes that are saved by households flows into the hands of businesses that use them for investment expenditures. The classical economists believe that savings is an increasing function of interest rate and investment is a decreasing function of interest rate. Given that savings and investment depend on interest rate that is flexible in both downward and upward directions, the flexible interest rate will always adjust to equate savings by households with investment expenditures by businesses. The income that is withheld by households from circular flow of income is deposited in banks that lend it to

businesses that inject it back into the income stream as investment. The classical economics believe that whatever amount of income is saved, it will be fully offset by investment expenditures.

If savings is fully offset by investment expenditures, Say's Law will be valid and overproduction, persistent unemployment or fallen output would be impossible. Say's Law and simple theory of self-regulating markets made the classical economists to conclude that overproduction, persistent unemployment and fallen output are impossible in a capitalist economic system. In other words, the private demand is always sufficient to buy all the goods and services produced. In classical theory, there cannot be too much savings; the more savings, the more investment and the whole complex process takes place without any change in income since it is assumed that the capitalist economic system always tend towards the full employment level of output.

Keynes (1936) challenges the classical theory based on the following reasons. Income can be created in the production process but may not be used in buying goods and services. Savings may not be transmitted into investment. Although savings and investment respond to interest rate, there are other more important factors to be considered in the savings behaviours of households and investment decisions by businesses. These other more important factors can keep interest rate from performing its vital function of equating savings with investment.

For instance, the households may save in order to satisfy misery instinct, to satisfy greed, to build a reserve against unforeseen contingencies, to leave inheritance for the children, to gain economic independence, to provide for retirement, to build a reserve for speculative purposes, and to make provision for an increased standard of living. These motives for savings influence households to save even if interest rate is very low. He believes that savings is mainly determined by income rather than interest rate.

According to him, the interest rate is not an important factor to consider in the business decision to invest. Investment is mainly influenced by profit expectation and the risk associated with investment rather than interest rate. Investors are willing to under-take investment if they expect high return on investment even if the interest rate is very high. The investors will not be tempted to under-take investment if the risk associated with the investment is very high even if the interest rate is very low. The final demand, existing stock of capital and availability of new technology also play a role in the business decision to invest.

Given that other factors influence savings and investment more strongly than interest rate, Keynes concluded that savings may exceed investment at full-employment level of output, making Say's Law invalid. That is the private demand may not be sufficient to buy all the goods and services produced. In Keynes' view, general overproduction, prolonged periods of

unemployment and fallen output are possible in a competitive market economy. Hence, Keynes suggests the use of fiscal policy to the government in order to increase aggregate demand, output and employment.

When Keynes criticizes savings, he does so in the context of an economy with deficient demand due to excess savings over investment and which equilibrium output is less than the full-employment level of output. An increase in savings causes consumption expenditures to fall and this makes demand to become more deficient. The decrease in consumption expenditures causes output to fall through the multiplier process. The greater the household savings, the lesser is the income. This is what Keynesians called the paradox of thrift. Moreover, the intention to increase savings does not result to any increase in actual savings.

There are two views of Keynes with respect to the savings-investment equality. The first is the accounting or definitional equality between savings and investment that is used in national income accounting. It shows that actual savings and investment are always equal at any period of time and at all levels of income. Symbolically,

$$S_t = Y_t - C_t \quad - - - (1)$$

$$I_t = Y_t - C_t \quad - - - (2)$$

Where Y is income, C is consumption, S is savings and t is time in the current period. Since $Y_t - C_t$ is common in equations (1) and (2), we can say that savings is equal to investment. Symbolically,

$$S_t = I_t \quad - - - (3)$$

The expressions in equations (1) and (2) can be re-arranged and written as follows:

$$Y_t = C_t + S_t \quad - - - (4)$$

$$Y_t = C_t + I_t \quad - - - (5)$$

Since Y_t is common in equations (4) and (5), we can say that:

$$C_t + St = C_t + I_t \quad - - - (6)$$

Since C_t is common in equation (6), we can say that:

$$S_t = I_t \quad - - - (7)$$

Based on the accounting or definitional equality between savings and investment, Keynes states that savings and investment are always equal. He disagrees with the classical view that savings-investment equality takes place only at full employment level of output. He believes that since full employment level of output is a rare phenomenon, savings-investment equality can take place at less than full employment level of output.

The second is the functional equality between savings and investment. The savings-investment equality in the functional or schedule case is brought about by the adjustment mechanism of income rather than the classical view of the adjustment mechanism of interest rate. In this scenario, savings and investment are equal only at the equilibrium level of income. Both savings and investment are increasing functions of income. When savings is greater than investment, income falls, and when investment is greater than savings, income rises. This dynamic adjustment mechanism in income, savings and investment will continue until savings and investment are not only equal but are also in equilibrium. Keynes believes that economic growth will increase only if the savings by households is equal to investment expenditures by businesses.

According to Harrod (1939) and Domar (1946), savings increases economic growth through an increase in investment. They believe that the main purpose of savings is for investment and so when savings increases, investment increases and an increase in investment will lead to an increase in economic growth. The model is specified as follows:

$$G = (\Delta Y/Y) = (s/k) \quad - - - (8)$$

Where G is growth rate of output, Y is output or income, s is the savings rate and k is capital output ratio. The model shows that growth is directly related to savings. Increasing the savings rate will increase the growth rate of output because savings generates investment which in turn stimulates economic growth.

There are several studies on savings and economic growth in both developed and developing countries. Sinha & Sinha (1998) determine the relationship between savings and economic growth in Mexico from 1960 to 1996 using multivariate co-integration test and multivariate Granger causality test. The results reveal that there is a long run relationship between savings and economic growth. The result of Granger causality test indicates that GDP growth Granger causes the growth of both private and public savings but there is no much evidence that private and public savings Granger cause the growth of GDP. The results of vicariate causality test indicate that there is no unidirectional or bi-directional causality between savings and economic growth in Mexico.

Maite et al. (2004) investigates the causal relationship between savings and economic growth in Mexico from 1970 to 2000 using Toda and Yamamoto technique. The result of the investigation shows that higher savings Granger causes higher economic growth in Mexico. This finding implies that savings has expansionary effect on economic growth.

Masih and Peters (2010) investigate the savings-growth nexus in Mexico from 1960 to1966 using Toda and Yamamoto causality techniques and generalized variance decomposition

analysis. The results of the investigation reveal that public savings has long run relationship with economic growth. The results also show that public savings Granger causes private savings. There was no evidence of long run causality running from private savings to economic growth in Mexico.

Jagadeesh (2015) investigates the impact of savings on economic growth in Botswana from 1980 to 2013 using Auto Regressive Distributed Lagged (ARDL) model. The study applies Harrod-Domar economic growth model. The result of the investigation shows that savings has positive and significant relationship with economic growth in Botswana. This finding indicates that savings has expansionary effect on economic growth. Therefore, the result of the investigation is in support of the Harrod-Domar growth Model.

Morande (1998) determines the relationship between savings and economic growth in Chile from 1960 to 1996 using Johansen Juselius, Engle and Granger co-integration techniques and variance decomposition. The results suggest that economic growth and a dummy reflecting the effect of pension funds have positive influence on private savings in Chile.

Turan and Olesia (2014) determine the impact of savings on economic growth in Albania from 1992 to 2012 using Johansen co-integration test and error correction model. The result indicates that savings and economic growth are co-integrated. This implies that there is a stable and long-run equilibrium relationship between savings and economic growth in Albania.

Katircioglu and Naraliyeva (2006) establish the relationships among domestic savings, direct foreign investment and economic growth in Kazakhstan from 1993 to 2002 using the Granger causality and co-integration tests. The results of the investigation show that there is evidence of one-way positive relationship between domestic savings and economic growth in Kazakhstan in the long run.

Baharumshah, Thanoon and Rashid (2003) determine the relationship between economic growth and savings in five Asian countries (Singapore, South Korea, Malaysia, Thailand and Philippines) from 1960 to 1997 using vector error correction model. It was found out that except in Singapore the growth rate of savings does not have any relationship with economic growth in all the countries that are investigated.

Shahbaz and Khan (2010) determine the causal relationship between savings and economic growth in Pakistan from 1971 to 2007 using Toda and Yamamoto causality test, Autoregressive Distributed lag (ARDL) bounds test, Johannes first information maximum likelihood test and co-integration test. The result of the investigation reveals that there is an evidence of long run relationship between savings and economic growth in Pakistan. From innovative Accounting and Toda and Yamamoto techniques, the results show unidirectional causality running from economic growth to domestic savings.

Misztal (2011) examines the cause and effect relationship between savings and economic growth in developed, developing and transition economies from 1980 to 2009 using co-integration and Granger causality tests. The time series data that are used for the study are obtained from the International Monetary Fund database. The results show that there is an evidence of one-way casual relationship between gross domestic savings and economic growth in developed, developing and transition economies.

Mohan (2006) determines the relationship between domestic savings and economic growth for various economies with different levels of income. The study uses time series data for 20 countries with different levels of income to determine the relationship between domestic savings and economic growth. The results indicate that economic growth rate Granger causes growth rate of savings in 13 countries. In Indonesia and Singapore, domestic savings Granger causes economic growth. A bi-directional causality is found in five countries. The direction of causality is mixed in low income countries. The causality is from economic growth to growth of savings in all high income countries with the exception of Singapore. The main conclusion of the study is that income class of a country plays an important role in determining the direction of causality between domestic savings and economic growth.

Singh (2010) analyzes the causal relationship between domestic savings and economic growth in India from 1950 to 2002 using an Autoregressive Distributed Lag model. The results indicate that there is a bi-directional relationship between savings and economic growth. The results also show that an increase in savings and capital accumulation lead to an increase in economic growth.

Najarzadeh et al. (2014) determine the relationship between savings and total and non-oil economic growth for Iran from 1972 to 2010 using Autoregressive Distributed Lag Model. The results of their investigation shows that savings has significant positive impact on total and non-oil economic growth. Both types of economic growth have significant positive impact on savings. The results show that there is a long-run bi-directional relationship between savings and economic growth, and between savings and non-oil economic growth in Iran.

Tinaromm (2005) investigates the relationship between savings and economic growth in North Africa from 1946 to 1992 using a Vector Error Correction Model. It is found that private savings has both direct and indirect effect on economic growth. The indirect effect of private savings on economic growth is through private investment. It is also found that economic growth has a positive effect on the private savings.

Odhiambo (2009) examines the causal relationship between savings and economic growth in South Africa from 1950 to 2005 using co-integration based error correction and trivariate causality test. The results show that there is bi-directional causality between savings

and economic growth in the short run and unidirectional causality running from economic growth to savings in the long run.

Mohamed (2014) determines the causal relationship among savings, investment and economic growth in Ethiopia from 1970-2011 using Autoregressive Distributed lag (ARDL) bounds test. The result of the investigation shows that there is long run relationship among savings, investment and economic growth when GDP is taken as dependent variable. The result also show that investment has significant positive effect on economic growth in Ethiopia both in the short run and in the long run while the effect of savings on economic growth is statistically insignificant.

Mndeme (2015) analyzes interdependence among domestic investment, savings and economic growth in Tanzania from 1972 to 2012 using co-integration test and vector error correction model. The result shows that there is no correlation between savings and investment in both the short run and long run. Savings and per capita GDP are found to be positively and insignificantly correlated. Investment and per capita GDP are positively correlated in the long run. The investment shock is found to have positive long lasting effect on itself, savings and per capita GDP while savings shock dies away after short period on investment and long lasting negative impact on per capita GDP. The per capita GDP shock is found to have long lasting effect on itself, investment and savings.

Zinyurugwi and Mapfumo (2016) establish the relationship between domestic savings and economic growth in Zimbabwe from 1980 to 2015 using Engle-Granger residual based co-integration test. The result of their investigation shows that gross domestic savings does not have significant impact on economic growth in Zimbabwe.

Abu (2010) determines the relationship between savings and economic growth in Nigeria from 1970 to 2007 using Johansen co-integration test and Pair wise Granger causality test. The co-integration test shows that there is evidence of long run relationship between savings and economic growth. The causality test shows that there is unidirectional causality running from economic growth to savings indicating that it is economic growth that Granger causes savings and savings does not Granger causes economic growth in Nigeria.

Nwanne (2014) analyzes the implications of savings and investment on economic growth in Nigeria from 1981 to 2014 using ordinary least square regression model. The results of the unit root tests show that all the variables are integrated at order one. The results of the Johansen co-integration test show that there is a long run relationship among savings, investment and economic growth. The regression results show that gross domestic savings has significant negative effect on economic growth and gross domestic investment has significant positive effect on economic growth in Nigeria.

Stephen and Obah (2017) determine the impact of national savings on economic growth in Nigeria from 1990 to 2015 using Ordinary Least Square regression model. Their model is estimated with the aid of e-view 9 using the time series data that are obtained from Central Bank of Nigeria Statistical Bulletin. The result of the investigation shows that national savings has significant positive impact on economic growth in Nigeria.

The results of the investigation on the effect of savings on economic growth in Nigeria are mixed. While findings by some researchers such as Abu (2010) support the classical neutrality hypothesis, Nwanne (2014) supports the Keynesian contractionary hypothesis and Stephen and Obah (2017) support the Harrod-Domar expansionary hypothesis. Moreover, none of the researchers applies Keynesian economic growth model to Nigerian economy. This study applies Keynesian economic growth model to Nigerian economy. In other words, the Keynesian economic theory is the theoretical framework for the study.

METHODOLOGY

On the basis of Keynes (1936) model where real output depends on domestic demand and net exports, he obtained the specification:

GDP = f (HCE, GDI, GCE, NEX) - - - (9)

Where GDP is gross domestic product, HCE is household final consumption expenditure, GDI is gross domestic investment, GCE is general government final consumption expenditure, NEX is net export and f is functional notation.

Based on accounting or definitional equality between savings and investment, Keynes believes that savings and investment are always equal at any period of time and at all levels of income. So, we can conveniently substitute savings for investment so that the expression in equation (9) becomes:

GDP = f (HCE, GDS, GCE, NEX) - - - (10)

Where GDS is gross domestic savings and other variables are as previously defined. Thus, the error correction model (ECM) is:

$D[LGDP_t] = \beta_0 + \beta_1 D[LHCE_t] + \beta_2 D[LGDS_t] + \beta_3 D[LGCE_t] + \beta_4 D[LNEX_t] + \beta_5 ECM_{t-1} + E_t$ - - - (11)

Where D is the first difference operator, L is logarithms, t is time, β_0, β_1, β_2, β_3, β_4 and β_5 are parameters to be estimated, ECM_{t-1} is the error correction term, E_t is equilibrium error term with zero mean and constant variance and all other variables are as previously defined. When we used the time series data in their normal forms to conduct the pre-estimation tests and model estimation, we discover that most of the results do not conform to econometric theory because of over explosiveness of the time series data. As a result, we transform all the data to logarithms in order to reduce the over explosiveness of the time series data.

The ECM is estimated using e-view 9. The time series properties of the data are analyzed using the Augmented Dickey-Fuller (ADF) unit root test of Dickey and Fuller (1979). Test of co-integration is carried out using the Johansen (1988) maximum likelihood procedure. If the computed values of trace statistic and max-eigen statistic exceed critical values, one may reject the hypothesis of no co-integration and vice versa. Since equilibrium is a long run phenomenon, there is a possibility that the model may deviate from the long run equilibrium within the short run. In order to estimate such deviation, the most convenient approach is the error correction model.

If the coefficient of ECM_{t-1} is non zero, it shows that the model is not in equilibrium. Suppose the coefficient of ECM_{t-1} is positive, it shows that the model is diverging from equilibrium. The positive coefficient of ECM_{t-1} shows that the model will be restored to equilibrium but only after a long span of time. Conversely, a negative β_5 shows that the model is converging towards the equilibrium and it will be restored to equilibrium within the short period. Based on the theoretical framework of the study, all the regression coefficients are expected to be positive.

The empirical analysis is conducted using annual data. The time span covered is 1986 to 2017. The choice of 1986 as the base year is due to the fact that the policy of deregulation of Nigerian economy started that year. The choice of 2017 as the terminal year is premise on the fact that the time series data of the variables required for the study are available only up to that year. This study is confined within the period of deregulation in other to take into cognizance the classical view of a capitalist economic system. The data of gross domestic product, household final consumption expenditure, gross domestic savings, general government final consumption expenditure and net exports are obtained from World Bank World Development Indicators.

RESULTS

Unit Root Test

The unit root test was conducted using Augmented Dickey-Fuller (ADF) test (Table 1). All the variables are non-stationary at levels because ADF-statistic is less than test critical value at 5 percent level and p-value of each variable is greater than 5 percent. All the variables except household final consumption expenditure are stationary at first differences because ADF-statistic is greater than test critical value in absolute terms at 5 percent level and p-value is less than 5 percent. The household final consumption expenditure is stationary at second difference. The ADF test indicates that all the variables except household final consumption expenditure are integrated at order one at 5 percent level. The household final consumption expenditure is integrated at order two at 5 percent level.

Table 1. Augmented Dickey-Fuller Test.

Variables	Levels		First Differences		Second Differences		Order of Integration
	ADF-Statistic	Prob*	ADF-Statistic	Prob*	ADF-Statistic	Prob*	
LGDP	-2.3186	0.1727	-5.2181	0.0002			I(1)
LHCE	-2.4127	0.1485	-2.8978	0.0588	-3.6806	0.0117	I(2)
LGDS	-1.2385	0.6431	-5.2322	0.0002			I(1)
LGCE	-2.8767	0.0618	-3.2921	0.0258			I(1)
LNEX	-2.1193	0.2393	-4.8807	0.0005			I(1)

Test critical values: 1% level -3.7529

5% level -2.9981

10% level -2.6388

*Mackinnon (1996) one sided p-values

Co-integration Test

The co-integration test was conducted using Johansen test for co-integration vectors (Table 2). The trace statistic is greater than 0.05 Critical Value and p-value is less than 5 percent for none hypothesized number of co-integrating equations. The maximum eigenvalue statistic is greater than 0.05 Critical Value and p-value is less than 5 percent for none hypothesized number of co-integrating equations. Both trace and maximum eigenvalue tests indicate 1 co-integrating equation at 5 percent level. Both trace and maximum eigenvalue tests denote rejection of no co-integration at 5 percent level.

Table 2. Johansen Test for Co-integration Vectors

Hypothesized No. of CE (s)	Trace			Maximum Eigenvalue		
	Trace Statistic	0.05 Critical Value	Prob**	Max-Eigen Statistic	0.05 Critical Value	Prob**
None*	73.4043	69.8189	0.0251	39.8611	33.8769	0.0086
At most 1	33.5431	47.8561	0.5269	20.7994	27.5843	0.2885
At most 2	12.7437	29.7971	0.9029	11.6948	21.1316	0.5780
At most 3	1.0489	15.4947	0.9999	1.0082	14.2646	0.9999
At most 4	0.0407	3.8415	0.8401	0.0407	3.8415	0.8401

*denotes rejection of the hypothesis at the 0.05 level

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

Autocorrelation Test

The error correction model assumes that there is no autocorrelation between the error terms. The Durbin-Watson statistic is used to verify the assumption of no serial correlation, or no autocorrelation. In an application, if Durbin-Watson statistic is approximately equal to 2, one can accept the null hypothesis that there is no residual autocorrelations up to the specified number of lags. The error correction model results of D(LGDP) in table 4 shows that Durbin-Watson statistic is 1.969 which is approximately equal to 2. This result shows that there is no autocorrelation between the error terms.

Stability Test

The Cusum test is used to verify whether the error correction model is stable. The error correction model is stable if the Cusum lies within 5 percent critical bound dotted lines. As we can see in Figure 1, the Cusum lies within 5 percent critical bound dotted lines. The Cusum test indicates that the error correction model is stable at 5 percent level of significance.

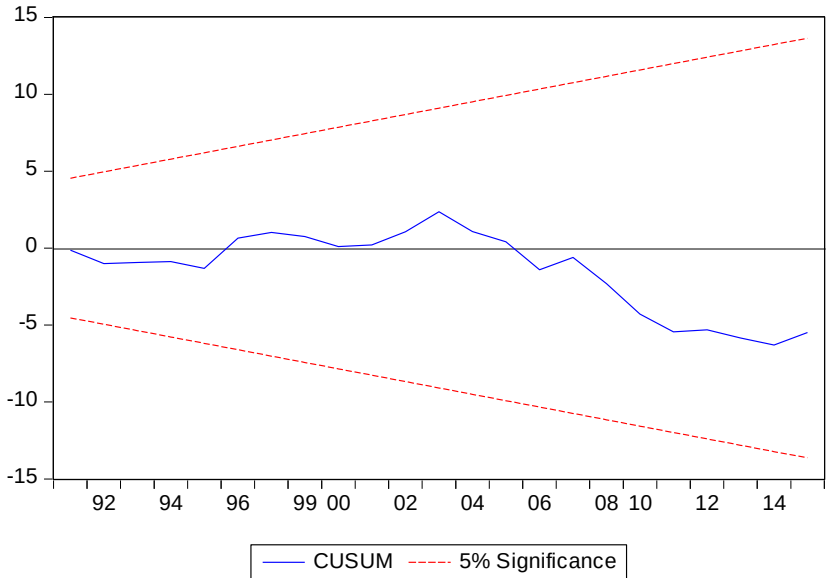

Figure 1. Cusum Test

Normality Test

The results of the VAR residual normality tests are presented in table 3. Instead of going for any rule of thumb for the acceptable ranges of skewness and kurtosis for normal distribution of data, we check Jarque-Bera test. This is because Jarque-Bera test is based on skewness and Kurtosis and so the acceptance of the null hypothesis in this test means that skewness and kurtosis are within the acceptable ranges for normality, and the rejection of the null hypothesis

in this test means that skewness and kurtosis are not in acceptable ranges for normality of the data. The Jarque-Bera (JB) statistic is 2.5838 and the computed p-value is 27.48 percent. The computed p-value of JB statistic is very high which indicates that the value of the JB statistic is close to zero. Therefore, we accept the null hypothesis that the residuals are multivariate normal.

Table 3. VAR Residual Normality Tests

Component	Jarque-Bera	df	Prob.
1	2.5838	2	0.2748
Joint	2.5838	2	0.2748

Error Correction Mechanism

The regression coefficients of the household final consumption expenditure, gross domestic savings and general government final consumption expenditure are positive and they are statistically significant at 5 percent level. These results show that economic growth increases within the period under investigation because of the increase in household final consumption expenditure, gross domestic savings and general government final consumption expenditure. The results imply that gross domestic savings has expansionary effect on economic growth in Nigeria. The finding that gross domestic savings has expansionary effect on economic growth in Nigeria conforms to Harrod-Domar model and Keynesian economic theory and it is in line with the findings of other previous researchers in this field of study [(for example, see the research work of Stephen and Obah (2017)]. This is because Keynes believes that economic growth will increase if all the incomes that are saved are channelled into investment and Harrod and Domar assume that savings is only for the purpose of investment. The Keynesian paradox of thrift and classical neutrality of savings hypotheses are not applicable to Nigerian economy. Thus, we reject the hypothesis that gross domestic savings has neutral or contractionary effect on economic growth and conclude that Harrod-Domar and Keynesian expansionary hypothesis effect of savings on economic growth holds in Nigeria. The regression coefficient of net export is negative but it is statistically not significant at 5 percent level. This result implies that net export has negative effect on economic growth in Nigeria. This result tallies with Keynesian economic theory because Keynes believes that net export has negative multiplier effect on economic growth in economies where net export is negative and it has positive multiplier effect on economic growth in economies where net export is positive. The negative net export in some periods under review has dampened economic growth in Nigeria. The regression coefficient of ECM is negative and it is statistically significant at 5 percent level because the p-value is

approximately equal to 5 percent. The negative coefficient of ECM shows that the model is converging towards equilibrium and it shall be restored to equilibrium within the short period of time.

Table 4. Error Correction Model Results of D(LGDP).

Variable	Coefficient	Std Error	t-Statistic	Prob.
C	1.3434	0.2778	4.8386	0.0002
D[LHCE(-2)]	0.7231	0.0485	14.9084	0.0000
D[LGDS]	0.1525	0.0186	8.2142	0.0000
D[LGCE(-1)]	0.1111	0.0431	2.5775	0.0210
D[LNEX(-1)]	-0.0047	0.0121	-0.3880	0.7034
ECM (-1)	-1.6782	0.8831	-2.9004	0.0538
R-squared: 0.9989	Standard error: 0.0541	F-statistic: 2851	D-W. stat: 1.969	

CONCLUSIONS

The classical neutrality of savings and the Keynesian paradox of thrift hypotheses are not applicable to Nigeria because gross domestic savings has expansionary effect on economic growth. The classical neutrality of savings hypothesis may be applicable to economies that are operating at full employment level of output and the Keynesian paradox of thrift hypothesis may be applicable to economies where savings exceeds investment. We conclude that Harrod-Domar and Keynesian expansionary hypothesis effect of savings on economic growth holds in Nigeria. This implies that savings causes a rise in income through an increase in investment and a rise in income will lead to an increase in savings and investment. There will be accelerated and sustainable economic growth and development in Nigeria if all the incomes that are saved are channelled into investment. The savings, investment and economic growth nexus stated above have not been established in this paper. Further studies should establish the order of causality among savings, investment and economic growth in Nigeria.

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