Savings-Growth Nexus Revisited: An Empirical Analysis from Nigeria

Abiodun S. Olayiwola[†], Solomon O. Okunade[⁑] & Musbau O. Fatai[‡]

Abstract

This study re-visits the ongoing debate on the savings-growth nexus in developing countries, 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 post-democracy 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, we 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, we 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. Thus, we recommend that Nigerian policy-makers and government should embark on monetary policies that would increase deposit rates to encourage more savings so as to mobilize funds from surplus-side to the deficit-side of the economy for productive investments and at the same time come up with a regulation that would reduce off-balance sheet activities of most financial institutions in the country.

Keywords: Savings; Economic growth; VECM Causality; Nigeria.

JEL Classification Codes: E21; O4; C22

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1.0 Introduction

The role of domestic savings in an economy cannot be overemphasized as it would help in achieving sustainable economic growth targets as contained in the Sustainable Development Goal (SDGs- goal 8). This is because a sustainable savings promotes growth faster than borrowed capital and as such domestic savings determines the health of a country economically, since it is widely agreed that countries that save more also tend to grow faster based on the fact that low or lack of savings is one of the most serious constraint to sustainable economic growth (UN Department of Economics and Social Affairs 2005; World Bank 2006; Akinbobola & Ibrahim, 2011; Patra, Murthy, Kuruva & Mohanty, 2017).

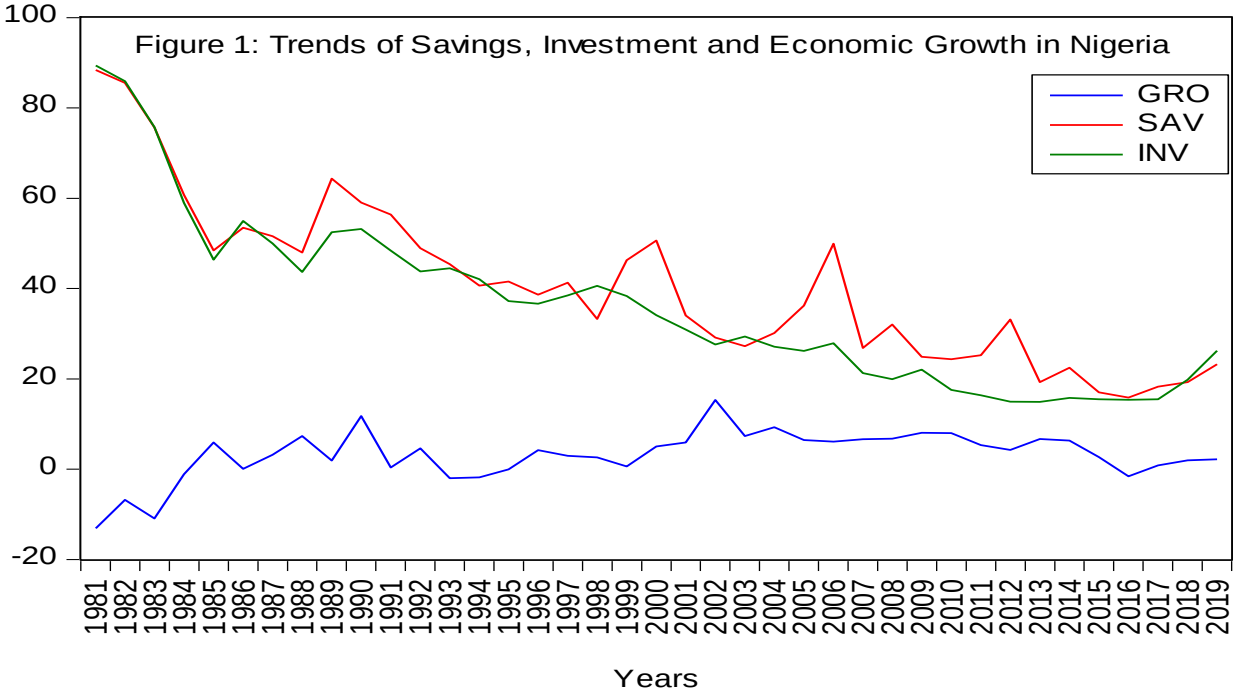
Several theories (starting with the Harrod-Domar growth theory to the neo-classical growth theory) have emphasized the role of savings in achieving and maintaining high economic growth. Harrod-Domar growth theory explains how economic growth depends on the rate of saving and the incremental capital-output ratio in the economy; the neo-classical growth theory of Solow shows how saving rate facilitates higher growth in per capita income in the transition to the steady state; and the endogenous growth models that suggest that high savings rate and increased in the size of population contributes to the long-term growth rate. Besides, there are other two schools of thought which summarized the direction of causation between savings and growth: Mill–Marshall–Solow school of thought and Marx–Schumpeter–Keynes view (Gutierrez & Solimano, 2007; Patra, *et al.* 2017).

According to Mill–Marshall–Solow perspective, invested savings is automatically translated into output growth and full employment given that prices\wages are flexible. In other words, this view suggests that savings causes economic growth through higher investment in either short-run or long- run (Jappelli & Pagano, 1994; Patra, *et al.* 2017; Joseph, Olayiwola & Yinusa, 2019: Ajisafe & Okunade, 2020). While the Marx–Schumpeter–Keynes perspective posits that investment and innovation are the two key drivers of growth not savings. This implies that savings only adjusts passively to meet the level of investment required to maintain macroeconomic equilibrium and as such leading to some levels of growth. Thus, growth causes savings and not the other way round (Carroll & Weil, 1994).

Likewise, empirical evidence also shows strong inter-linkages between savings and economic growth as well as the nexus between investment and economic growth (Bebczuk 2000; Agrawal 2001; Anoruo & Ahmad, 2001; Alguacil, Cuadros & Orts, 2004; Narayan & Narayan, 2006; Singh, 2010; Abu, 2010; Festus, 2011; Robson, 2014; Adeleke, 2014; Dhanya, 2015; Siaw, Enning & Pickson, (2017); Olayiwola & Joseph, 2020; Ajisafe & Okunade, 2020a; Agu & Omolade, 2021). Despite these empirical evidence, there is an alarming development in the Nigerian economy since 2011 that the borrowed capital (debts) keeps increasing while the savings as a percentage of GDP keeps falling steadily for a variety of reasons such as rising inflation and fall in incomes and as such economic growth faltered from its peak level and the economy recorded negative growth rate and recently, Nigeria economy going back and forth of recession (*See* Figure 1).

Therefore, revisiting savings and investment as macroeconomic variables to attain economic growth in Nigeria becomes a subject of critical consideration in this study, coupled with the fact the direction of causality among saving, investment and economic growth is highly debated in both developed and developing nations, the divergent views continue to persist (Tinaromm, 2005; Nwachukwu & Egwaikhide, 2007; Dipendra, 2009; Sothan (2014); Elias & Worku, 2015),

and no study in Nigeria has attempted to investigate and compare the direction of causation among savings, investment and growth in the pre and post democracy break periods within a trivariate framework.



Source: World Development Indicator (WDI), 2021.

According to Lutkepohl (1982), recommendations based on a bivariate model may lead to an incorrect detection of causality or even uncovering causality when it does not really exist, thus yielding spurious results and as such most of the findings on the connection between savings and economic growth; investment and economic growth; savings and investment may be dramatically reversed because trivariate framework on Granger causality results as presented in this study are more reliable and informative than bivariate framework. In the light of this, this study therefore contributes to the growing body of literature in major two ways. First, we contribute to the ongoing debate on the importance of savings and investment in achieving stable and sustainable economic growth in Nigeria using two regimes (pre and post-democracy period). Second, the issue of multivariate causality between savings, investment and economic growth as an area of research has not received much attention particularly in Africa and as such there is limited literature investigating this specific relationship among these variables of interest in trivariate model (Lutkepohl, 1982; Ajisafe & Okunade, 2020b). Therefore, it becomes an interesting enquiry by revisiting economic growth- savings and investment nexus using Nigeria as our case study. Thus, this study serves as an extension of knowledge in this regard; most importantly in the context of emerging economy in Africa. Findings from this study offer new insights to policy makers on various ways of making the macroeconomic environment conducive in promoting savings and investment in this era of political stability in other to prevent the economy from going back and forth of recession.

The remaining parts of the study are structured as follows; section two which centers on the review of empirical literature. Section three: explains the methodology and analyses the data. Section

four presents the empirical results concerning the direction of causality between economic growth and saving in the pre- and post- democracy period while summary and conclusion of the study are outlined in the section five.

2.0 Literature Review

A strand of empirical evidences on the nexus between domestic savings and economic growth for both the advanced and developing countries context has not reached at a settled conclusion. Some studies (Bacha, 1990; Otani & Villannueva, 1990; DeGregorio, 1992; Morande, 1998; Hebbel *et al.*, 1992; Oladipo, 2010; Misztal, 2011) supports unidirectional causality from saving to economic activity, while some others (Cullison, 1993; Mühleisen, 1997; Alguacil *et al.*, 2004; Lorie, 2007) supports the reverse causality. Whereas, Sinha (1996) looked at the causality between the growth rates of gross domestic saving and economic growth, and found that there was no causality running in either direction. Also, Agrawal (2000) and Jangili (2011) found causality running from saving to growth but rejected causality from growth to saving, Muhleisen (1997), Sahoo, et al. (2001), Verma & Wilson (2005), Sinha & Sinha (2008), and Verma (2007) from their studies reached the conclusion that saving does not cause growth, but growth causes saving. However, Singh (2010) found bidirectional causality between saving and growth. However, Festus (2011) observed in his study that investment has a significant positive impact on short run and long run economic growth.

Robson & Mandishekwa (2014) studied the casual relationship between investment and economic growth and the findings revealed that there is no causality from any direction between the two variables in Zimbabwe unlike the study of Mphuka (2010) which indicated that economic growth granger cause savings, even though the article argues that savings may influence the economic growth indirectly, because the savings will cause to accumulate capital and to inject the technologies from developed countries, in fact the technologies are the key to the economic growth. However, the study does not deny any other relationship between the investment, savings and economic Growth. Odhiambo (2008; 2009) proved that there is a positive relationship between savings and economic growth in both Kenya and South Africa using causality and co-integration test to analyze the relationship between the variables.

A handful of studies in Nigeria context have also intensely investigated the relationship between savings and economic growth in the last two decades. Oladipo (2009) employed the Toda and Yamamoto methodology to analyse the direction of causal relationship between savings and economic growth in Nigeria between 1970 and 2006, the findings revealed that a unidirectional causality between savings and economic growth. But the result from the study was different from what others had proved in this area. Nurudeen (2010) found out causality run from economic growth to saving, implying that economic growth proceeded and Granger causes saving. Adeleke (2014) revealed that there is a bi-directional causality exists between savings and economic growth in Nigeria.

Bakare (2011) used OLS multiple regression analytical method in the economy of Nigeria to examine the relationship between capital formation and economic growth, the test proved that the growth rate of national income will positively related to savings and capital formation, so the study emphasised the need for the government to encourage the savings to promote sustainable growth in the economy. However, none of these studies in Nigeria has attempted to factor in the impacts that structural breaks with known and unknown time (pre- and post-democratic era); and to examine the direction of causation using known structural breaks in the pre and post democracy

periods, given the fact that Nigerian economy has witnessed significant economic transformations and a paradigm shift after 1999, which is generally called the post Military regime. Against this backdrop, revisiting the nexus between savings and growth in Nigeria economy would expand the horizons of operating policy framework in the economy.

3.0 Methodology and Data Source

The direction of causation in the savings-investment-growth nexus in Nigeria can be investigated by establishing causality among these variables of interest. Hence, we follow the famous procedure of Engle & Granger (1987) to examine the short-run as well as the long run feedback among these variables. The baseline models used in this study are as follows.

According to Mill–Marshall–Solow theoretical perspective, economic growth (income) depends on savings and investment:

$$GRO_t = f(SAV_t, INV_t) \quad 1$$

In line with Marx–Schumpeter–Keynes view, savings and investment levels are determined by the level of growth in an economy.

$$SAV_t = f(GRO_t); INV_t = f(GRO_t) \quad 2$$

Where GRO_t represents the economic growth at time t, SAV_t is the savings at time t and INV_t is the investment at time t.

Linearizing equation 1 and 2, we have the following equations:

$$\ln GRO_t = \alpha_1 + \lambda_1 \ln SAV_t + \delta_1 \ln INV_t + \varepsilon_1 \quad 3$$

$$\ln SAV_t = \alpha_2 + \phi_2 \ln GRO_t + \delta_2 \ln INV_t + \varepsilon_2 \quad 4$$

$$\ln INV_t = \alpha_3 + \phi_3 \ln GRO_t + \lambda_3 \ln SAV_t + \varepsilon_3 \quad 5$$

Following Engle & Granger (1987), a Vector Error Correction Model (VECM) which is used for testing the multivariate feedback relationship among savings, investment and economic growth in Nigeria can be written in line with equation 3, 4 and 5 as follows:

$$\begin{bmatrix} \Delta InGRO_t \\ \Delta InSAV_t \\ \Delta InINV_t \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \end{bmatrix} + \sum_{m=1}^{p} \begin{bmatrix} \phi_{1m} & \lambda_{1m} & \delta_{1m} \\ \phi_{2m} & \lambda_{2m} & \delta_{2m} \\ \phi_{3m} & \lambda_{3m} & \delta_{3m} \end{bmatrix} \begin{bmatrix} \Delta InGRO_{t-1} \\ \Delta InSAV_{t-1} \\ \Delta InINV_{t-1} \end{bmatrix} + \ldots + \begin{bmatrix} \phi_{1m} & \lambda_{1m} & \delta_{1m} \\ \phi_{2m} & \lambda_{2m} & \delta_{2m} \\ \phi_{3m} & \lambda_{3m} & \delta_{3m} \end{bmatrix} \begin{bmatrix} \Delta InGRO_{t-m} \\ \Delta InSAV_{t-m} \\ \Delta InINV_{t-m} \end{bmatrix} + \begin{bmatrix} \varpi_1 \\ \varpi_2 \\ \varpi_3 \end{bmatrix} ECT_{t-1} + \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \\ \varepsilon_{3,t} \end{bmatrix} \quad 6$$

Where Δ is the first difference operator; p is the lag length; t denotes the year in the time series (t=1, 2,…..T); ε_t is a normally distributed random error term for all t with a zero mean and a finite heterogeneous variance. The ECTs are error-correction terms, derived from the co-integrating equations. Sources of causation can be identified by testing for the significance of the coefficients on the lagged variables in equation (6). First, by testing for all i in equation (6), we evaluate Granger weak causality. Masih & Masih (1996) and Asafu-Adjaye (2000) interpreted the weak Granger causality as 'short run' causality in the sense that the dependent variable responds only to short-run shocks to the stochastic environment. Another possible source of causation is the ECT

in equation (6). In other words, through the ECT, an error correction model offers an alternative test of causality (or weak exogeneity of the dependent variable). The coefficients on the ECTs represent how fast deviations from the long run equilibrium are eliminated following changes in each variable.

Annual secondary data from 1983 – 1999 and 2000 – 2019 representing pre- and post- democratic era in Nigeria respectively on economic growth (proxied by growth rate of gross domestic product), Savings (proxied by gross domestic savings as a share of GDP) and domestic investment (proxied by gross capital formation as a share of GDP) were sourced from World Bank Development Indicator Database (2021).

4.0 Results and Discussion

The first important preliminary test conducted before analyzing our data was the test of stationarity of the variables. This is presented in Table 1.

4.1 Preliminary Tests

Table 1: Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) Unit Root Tests

	ADF Test			PP Test		
Variable	**Level**	**First Diff**	**Status**	**Level**	**First Diff**	**Status**
Pre-Democratic Period (1981-1999)						
GRO	-1.9670	-4.1962**	I(1)	-1.7202	-4.0801**	I(1)
SAV	-1.2024	-9.2678*	I(1)	-0.1284	-6.2452*	I(1)
INV	-1.1704	-4.1368**	I(1)	-1.1619	-4.0258*	I(1)
Post-Democratic Period (2000-2019)						
GRO	-1.7011	-6.1962*	I(1)	-1.0208	-5.0889**	I(1)
SAV	-1.1034	-8.1678*	I(1)	-0.9285	-8.4529*	I(1)
INV	-1.1504	-5.1389**	I(1)	-1.9161	-4.5257	I(1)

Source: Authors' computation using e-view

Note: GRO, SAV and, INV represent economic growth (proxied by growth rate of gross domestic product), Savings (proxied by gross domestic savings as a share of GDP) and domestic investment (proxied by gross capital formation as a share of GDP). (*) indicates significant at 1% level, (**) indicates significant at 5% and (***) indicates significant at 10%.

This study employed the Augmented Dickky-Fuller (ADF) and Phillip-Perron (PP) tests for stationarity of the variables of study for pre- and post- democracy samples. The results in Table 1 showed that all the variables are not stationary in their level form but become stationary after passing through the first differenced process. Thus, growth, savings and investment variables were integrated of order 1 in both pre- and post- democratic periods in Nigeria.

Since all the variables of interest are stationary at first difference, I(1), this suggests cointegration among the variables in the long run. Therefore, another important preliminary test was the cointegration test. The study leveraged on the advantages and simplicity of interpretation of the Johansen cointegration test and the result was depicted in Table 2. The result indicated at least one cointegrating relationship among economic growth, savings and investment level in pre- and post-democratic era respectively. In the Table 2, the null hypotheses of no cointegration among growth, savings and investment level in pre- and post- democratic samples were rejected respectively at 5% level of significance. The unrestricted cointegration trace and Max-Eigenvalue statistics

revealed that there are cointegrating relationship among the variables, thus leading to the conclusion that the variables have long-run relationship in both pre- and post- democratic era.

Table 2: Johansen Cointegration Test Results: Unrestricted Cointegration Rank Test

	Trace			Maximum Eigenvalue		
Hypothesized No of CE(s)	**Eigenvalue**	**Trace Statistic**	**Prob.**	**Eigenvalue**	**Max-Eigen Statistic**	**Prob.**
Pre-Democratic Period (1981-1999)						
None*	0.700434	33.07299	0.0202	0.700434	20.49213	0.0061
At most 1	0.346011	12.58086	0.1311	0.346011	7.219313	0.4635
At most 2	0.270492	5.361544	0.1206	0.270492	5.361544	0.0206
Post-Democratic Period (2000-2019)						
None*	0.640160	32.10342	0.0267	0.640160	18.39773	0.0115
At most 1	0.424856	13.70569	0.0914	0.424856	9.956432	0.2148
At most 2	0.188030	3.749255	0.0528	0.188030	3.749255	0.0528

Source: Authors' computation using e-view

Note: Trace test and Max-eigenvalue indicate 1 cointegrating egn(s) at 5% level of significance. **MacKinnon-Haug-Michelis (1999) p-values.

Moreover, selecting the appropriate lag length is critical in estimating a vector autoregressive model because inferences from autoregressive model depends largely on the correct model specification. Table 3 showed the maximum lag length as selected by various criteria for pre- and post- democratic samples respectively. For pre- democratic era, all information criteria indicated an optimal lag length of 1 while various lag selection criteria gave conflicting results. Thus, we employed the AR root test to arrive at the most stable lag length criterion.

Table 3: ***Johansen Cointegration Test Results: Unrestricted Cointegration Rank Test***

Lag	LogL	LR	FPE	AIC	SC	HQ
Pre-Democratic Period (1981-1999)						
0	-158.833	NA	37268.56	19.03913	19.18617	19.05374
1	-139.025	30.29376*	10732.01*	17.76766*	18.35581*	17.82613*
2	-130.459	10.07792	12847.20	17.81869	18.84796	17.92100
Post-Democratic (2000-2019)						
0	-147.33	NA	9630.368	17.68590	17.83294	17.70052
1	-128.772	28.38240*	3212.437*	16.56146	17.14961*	16.61993
2	-120.293	9.975657	3885.109	16.62272	17.65198	16.72503
3	-108.523	9.693098	4038.191	16.29681*	17.76719	16.44297*

Source: Authors' computation using e-view

Note: * indicates lag order selected by the criterion; LR, FPE, AIC, SIC and HQ indicate sequential modified LR test statistic, Final Prediction Error, Akaike Information Criterion, Schwarz Information Criterion and Hannan-Quinn respectively..

The AR root test (*See* Figure 2 and 3) displayed that lag one is stable inside the AR root circle for both pre- and post- democratic samples respectively. Hence, lag length one (1) was more appropriate in line with Schwarz Information Criterion for model estimation and therefore used in the study.

Figure 2: Inverse Roots of AR Characteristic Polynomial for Post-Democratic Era

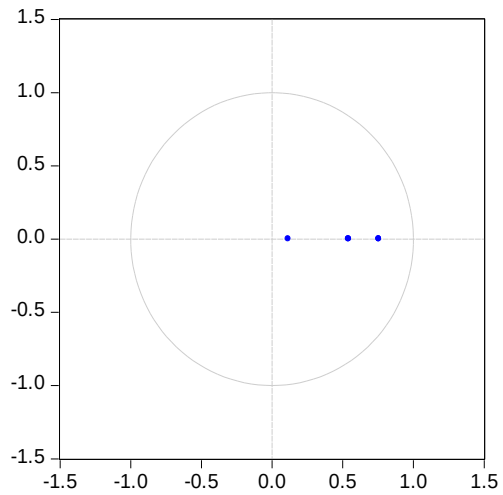
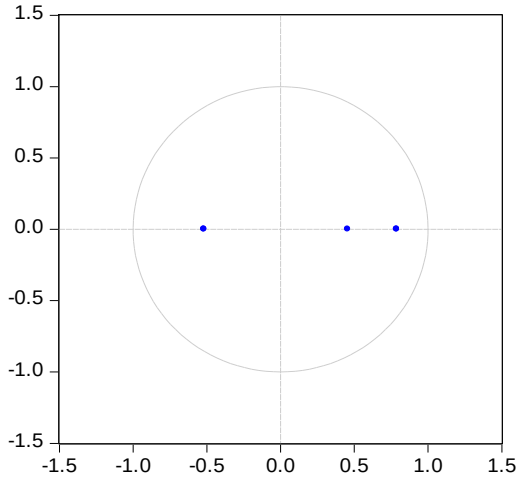


Figure 3: Inverse Roots of AR Characteristic Polynomial for Pre-Democratic Era



4.3 Multivariate VECM Causality among Growth, Savings and Investment

The presence of long run relationship or cointegration among the variables of the model confirms the existence of at least one causal relationship, but the direction of such causality is yet unknown. The causality is established through the multivariate VECM Causality test for pre- and post-democracy samples. The causality test in this study was carried out by first estimating a VECM model since there exists a minimum of one cointegrating relationships as showed in Table 2 with lag interval of 1 as identified in Table 3 for pre- and post- democracy samples and confirmed by the stability tests (*see* Figure 2 and 3). The VECM causality test was carried out in order to understand the savings-investment-growth causal relationship for pre- and post- democratic periods in Nigeria. The results of VECM Causality tests for pre- and post- democracy were presented in Table 4. In growth equation, the short-run results showed that savings proxied by gross domestic savings as a share of GDP did not cause economic growth in the pre-democratic period. This is the position of Marx–Schumpeter–Keynes school of thought which identified investment and innovation as the two key drivers of growth not savings. It also depicted Keynes' position about short run economic phenomena. However, it caused growth in the post- democratic era at 1% level of significance.

Theoretically, the post- democracy result is in line with the Mill–Marshall–Solow perspective which argued that invested savings translated into output growth and full employment through higher investment in either short-run or long- run. The result is in line with the empirical findings of Oladipo, (2010); Misztal (2011) and Patra, *et al.* (2017). Thus, the study validates Marx–Schumpeter–Keynes school of thought in the short run while it shows the strength of Mill–Marshall–Solow's position in the long run. Conversely, the results showed that domestic investment proxied by gross capital formation as a share of GDP caused growth for pre- democracy sample at 10% level of significance but it revealed negative causal relationship running from investment to growth in Nigeria. Meanwhile, the investment level failed to engender growth in the post- democratic period in the short run although the relationship improvingly appeared to be positive. Moreover, both savings and investment jointly caused growth in the long run for pre- and

post- democratic era respectively. This supports the study of Festus (2011) who observed that investment determined growth in short run and long run.

In savings equation, both growth and investment did not cause savings in the short run for pre- and post- democratic era. This result supports the findings of Agrawal (2000) and Jangili (2011) who rejected causality from growth to saving. However, both growth and investment jointly caused savings in both periods. The implication of the long run causality is that the increase in the level of investment cum sustained economic growth have significant effects on savings in Nigeria. In investment equation, the short run results showed that the level of domestic savings determined or caused investment level in the short run and long run for pre- democratic period while both savings and growth failed to have significant causal effects on investment level in short run and long run respectively for the post- democratic period in Nigeria. The implication is that both savings and growth have not been domestically invested in the economy to stimulate any meaningful impact on investment level in the post- democratic era. This is an important pointer to the low level of domestic investment in social and infrastructural facilities in Nigeria.

Table 4: Multivariate Vector Error Correction Model Causality Tests
Pre-Democratic Periods (1981-1999)

Dependent Variables	Short run			Long-run ECT(-1)
	Δ GRO	**Δ SAV**	**Δ INV**	
GRO	--------	0.4768 [0.1281]	-0.6247*** [0.0750]	0.5127* [0.0017]
SAV	0.0215 [0.9442]	--------	-0.1323 [0.7762]	0.7079* [0.0013]
INV	0.0129 [0.9577]	0.8503** [0.0145]	--------	0. 6284* [0.0004]
Post-Democratic Periods (2000-2019)				
Dependent Variables	**Short run**			**Long-run ECT(-1)**
	Δ GRO	**Δ SAV**	**Δ INV**	
GRO	--------	0.2643* [0.0049]	0.3071 [0.2812]	0.5277* [0.0007]
SAV	0.8067 [0.1459]	--------	-0.4074 [0.6153]	0.9271** [0.0296]
INV	0.1533 [0.4882]	0.0965 [0.3511]	--------	0.2747 [0.1048]

Note 1: GRO, SAV and, INV represent economic growth (proxied by growth rate of gross domestic product), Savings (proxied by gross domestic savings as a share of GDP) and domestic investment (proxied by gross capital formation as a share of GDP) respectively. Notes 2: Figures in the squared parentheses "[ ]" represent probabilities values of the Chi-square. Note 3: *, **, and *** indicate causality at 1%, 5% and 10% level of significance respectively.

4.6 Diagnostic Tests for the model

Checking the robustness of the estimated model is conventional in empirical research, and this was done by examining few diagnostic tests. Thus, a number of diagnostic statistics related to the model were investigated which include serial correlation test, heteroscedasticity test, regression specification Error test and stability test.

4.6.1 Testing for Serial Correlation, Heteroscedasticity and Regression Specification Error

To test for the presence of homoscedasticity in the model, the R-squared value in the Arch test in Table 5 accept the null hypothesis of homoscedasticity and reject the alternative hypothesis of presence of heteroscedasticity since the probability value is greater than 5%. In addition, Breusch-Pagan test of serial correlation states the null hypothesis of no serial correlation which is tested against the alternative hypothesis of serial correlation comparing the R-squared (Obs*R-squared) with its corresponding probability value (Pro. Chi-squared). The Obs*R-squared has a value of 2.2763, while its corresponding p-value has a value of 0.6812 which is greater than 5%, we accept the null hypothesis that there is no evidence of serial correlation in the model. To test for model specification error, the study chooses the Ramsey Reset Test. In the Reset test, the F-statistic value is checked with its corresponding probability value. We reject the null hypothesis if this probability value is less than 5%. From Table 5, since the probability value of 0.9122 is greater than 0.05, at the 5% significance level, we accept the null hypothesis which suggests that the model is correctly specified.

The results of cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests for structural stability were reported in Figure 3 and 4 in order to be sure that the estimated regression coefficients are not biased. As evident in Figures 3 and 4, we found that the estimated parameters of the regression equations are stable since neither the CUSUM nor CUSUMSQ test statistics exceed the lower and upper bounds at the 5% level of significance.

Table 5: ARCH Heteroscedasticity Test

F-statistic	0.0309	Prob. F(2,17)	0.5101
Obs*R-squared	0.0333	Prob. Chi-Square(2)	0.2112

Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.5871	Prob. F(1,26)	0.6812
Obs*R-squared	2.2763	Prob. Chi-Square(1)	0.7877

Ramsey RESET Test

	Value	Df	Probability
t-statistic	0.1345	18	0.9122
F-statistic	0.0321	(1, 18)	0.9201

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	4.5421	1	4.7105
Restricted SSR	0.0772	18	0.0045
Unrestricted SSR	0.0772	17	0.0047

Source: Author's Computation, 2021

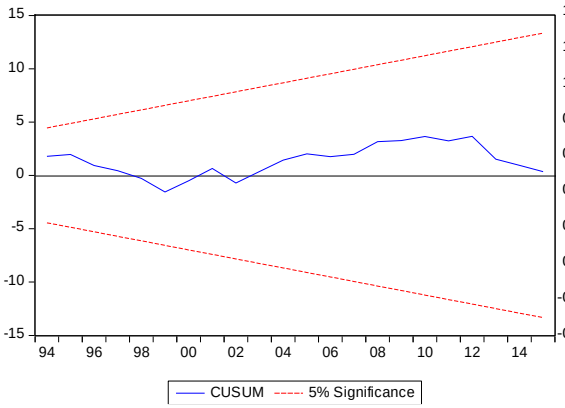


Figure 1: CUMSUM Test

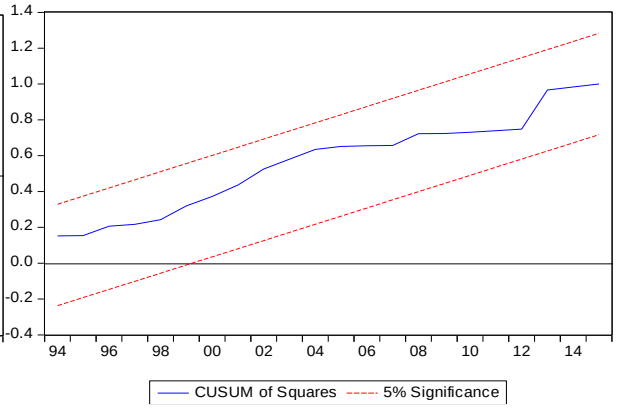


Figure 2: CUMSUM of Square Test

4.0 Conclusion and Policy Recommendations

This study re-visits the ongoing debate on the savings-investment-growth nexus in developing countries using Nigeria as our case study, and we also take into account the significance of the unique characteristics of the pre- and post- democratic dispensations in Nigeria. Although, the role of domestic savings in an economy has been well documented to be helpful in achieving sustainable economic growth in line with the targets of Sustainable Development Goal (SDGs), in the pre- democracy era, we discovered that there were no causality running either from savings to growth or vice versa in the short run but there exists a unidirectional causality running from savings to growth in the short run for the post- democracy period. Meanwhile, our findings revealed a bidirectional causal relationship between savings and growth in the long run for both pre- and post-democracy periods. Therefore, this study concludes that savings causes economic growth in post democracy compared to pre- democracy era (short-run) while both savings and growth reinforce each other in the long run for both periods. The policy implication is that the policy-makers and government should embark on some sensitization policies that would help to mobilize funds from surplus side to the deficit side of the economy for productive investments and at the same time come up with regulations that would reduce off-balance sheet activities of most financial institutions in the country.

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