



POLAC ECONOMIC REVIEW (PER)
DEPARTMENT OF ECONOMICS
NIGERIA POLICE ACADEMY, WUDIL-KANO



SAVINGS, INVESTMENT AND ECONOMIC DEVELOPMENT IN NIGERIA

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Abstract

The study investigated the relationship between savings, investment and economic development in Nigeria for a period of 33 years (1990 to 2022). The specific objectives of the study were to find out whether total consumption from GDP, Net Investment in Government non financial assets, government spending consumption expenditure and household final consumption expenditure (Private consumption), consumer price index and GDP deflator significantly affect economic development in Nigeria. To achieve this, the autoregressive distributed lags (ARDL) was employed for the analysis of data. The results obtained indicate that, in the short run, lagged GDPPC has significant positive impact on economic development; domestic savings (DSAV) has an insignificant negative impact on economic development, while lagged value of D(DSAV(-1)) has significant negative impact on economic development. On the basis of the long run, it was found that domestic savings (DSAV) has a weak negative effect on economic development; while investment (INV) and consumption level (CONS) have a strong negative and positive relationship with economic development. On the other hand, inflation rate (INFL) and interest rate (INTR) have weak negative effect on economic development in Nigeria in the long run. The study therefore recommends that, government and regulatory authority should create enabling environment for domestic investment to rise through the adoption of macroeconomic policies that will boost investment opportunities in the economy. This step is capable of ensuring that domestic investment has the much needed positive impact on economic development in Nigeria.

Keywords: Consumption, Economic Development, Investment, Savings

1. Introduction

There has been ongoing debate on investment, savings and growth relationship in the economic development literatures from time immemorial and up till this moment no consensus has been reached. The classical school believes that savings represent limited financial means to execute investments and the two become equilibrated by interest rates in the long run. It simply implies from the perspective of the classical economists that shortage of savings can adversely affect economic growth. On the contrary, the Keynesian school of thought believes that

investment will produce its own savings that is necessary and needed for its own funding and not the way the classical economists see it. Over the years in Nigeria, most of the positive economic growth recorded by the economy has not been reflective of the domestic investment and savings at the particular period of time (Olmomola, 2016). This has thrown more questions than answer as to the relationships among the three. For decades, there have been concerns about the crucial role of investment and mobilization of savings in the sustenance and reinforcement of economic growth in developing economies. Studies have shown that savings,

investment and economic development are closely linked (Barro, 1997; Agu, 2015; Khan and Reinhart, 1990).

Nevertheless, a number of studies paid more attention to the nexus between investment and economic growth (Liu et al., 2002; Roy and Mandal, 2012; Temiz and Gokmen, 2014; Iamsiraroj, 2016). For example, Fabry and Zeghni (2002) observed that the economies that have rapid growth rate have the tendency of experiencing high investment. Recent financial crisis and the shock in oil prices in oil international market have triggered the interest of many oil producing economies to the importance of investment due to it hypothesizes positive impacts on economic growth. Many developing countries have poor and unsustainable economic development because they have history of poor savings and investment. This poor growth performance consequently, leads to a decline in investment and savings, thus worsening the already precarious balance of payments position. Attempts to correct external imbalances by reducing aggregate demand may lead to a cycle of further decline in investment expenditure, aggravating the problem of unsustainable growth and declining savings and the rate of investment (Khan and Vilanueva, 1991; Tochukwu, 2018). National savings influence investment while substantial investment positively impacts on economic growth with its overall effects in creating employment in the economy (Agu, et al., 2015; Firebaugh, 1992). Aside this, savings and investment are important factors that combine demand and useful assets to impact on economic development of the economy. In addition, savings and investment speed up and maintain the course of development and productivity through capital creation. Therefore, the main objective of this study is to examine the impacts of savings and investment on economic development in Nigeria and to make some recommendations for further strategies to grow Nigeria's economy.

2. Literature Review

Savings, investment and economic development have been examined severally by different researchers with

mixed results. This study examined previous empirical works from research works.

Odhiambo (2008) investigated the relationship between savings and economic growth in Kenya for a period of 15 years (1991 to 2005). Employing the Granger Causality between savings, fiscal deficient and economic growth, the results revealed that there is Granger Causality between economic growth and savings, and that savings are a significant stimulator for financial sector development.

Baharumshah, Thanoon and Rashid (2003) examined impact of savings on economic growth in five Asian countries such as Singapore, Malaysia, South Korea, Thailand and Philippines for the 1960 to 1997. Using the VECM econometric technique, the findings revealed that level of growth of savings was not the reason for economic growth in Granger sense in all the countries examined except for the case of Singapore. Tinaromn (2005) examines the relationship between savings and economic growth in North Africa for the period 1946 – 1992.

Okere and Ndugbu (2015) examined macroeconomic variables and savings mobilization in Nigeria for the period 1993 to 2012. Using the OLS, the result from the empirical analysis revealed a strong, positive relationship between the selected exogenous macroeconomic variable and domestic savings.

Okwori, Sule and Abu (2016) constructed a highly simplified model to highlight the effect of macroeconomic variables in aggregate demand and the multiplier effect on the Nigeria economy. Quarterly data between 2009 and 2014 were used and the OLS technique was employed to examine this effect in the aftermath of the global financial recession. The study found out that the adverse effect of the global financial crises was minimal on national income in Nigeria. The comparative analysis reveals that the Nigerian economy performed better in the post global financial recession era than in the preceding period. Consumption, investment, Government Expenditure and balance of trade contribute positively to the growth of aggregate

demand within the study period; however, the level of instrument in Nigeria was not significant.

Gaps in Literature

From the above empirical literature reviewed, it was observed that most of the works were carried out in other parts of the world, for instance, (Baharumshah, Thanoon and Rashid, 2003; Odhiambo, 2008) in Kenya and Tinaromn (2005) in South Africa. Only the works of Okeke and Ndugbu (2015); and Okwori, Sule and Abu (2016) were done in Nigeria to the best of our knowledge. Since then a lot must have taken place in the country, Nigeria which invariably created a gap in knowledge. Thus, this study will close this gap by using up to 2022 data from Nigeria.

3. Methodology

The study employed the longitudinal research design which involved investigating phenomena in terms of relationships using real world historical data or information. The population of the study is the Nigerian economy. The sample size was the aggregate savings and investment in Nigeria which is hypothesized to positively impact economic development in Nigeria overtime. A census approach was utilized on aggregate data on the population.

3.1 Model Specification

The model for this study was based on the neo-classical theory of economic growth/development is based on the collective works of Tobin, Swan, Solow, Meade, Phelps and Johnson (1956). According to the theory, economic development is determined with the help of certain factors, such as stock of capital, supply of labor, and technological development over time: Hence, in this study, those factors are slightly modified to include domestic savings, investment, consumption inflation and interest rate. The model was stated in its functional form as follows:

$$GDPPC = f(DSAV, INV, CONS, INFL, INTR) \dots (1)$$

However, the long run econometric form of the Autoregressive Distributed Lag model (ARDL) model

was stated thus:

$$GDPPC = \alpha_0 + \alpha_1 DSAV_t + \alpha_2 INV_t + \alpha_3 CONS_t + \alpha_4 INFL_t + \alpha_5 INTR_t + u_t \dots \dots \dots (2)$$

The short run effect equation (Autoregressive Distributed Lag model) was given as;

$$GDPPC = \alpha_0 + \alpha_7 ECM(-1)_t + \epsilon_t \dots \dots \dots (3)$$

Where:

GDPPC = GDP Per Capita (a proxy for economic development)

DSAV = Domestic Savings

INV = Investment

CONS = Consumption Level

INFL = Inflation Rate

INTR = Interest Rate

u_t = Error term

The Apriori expectations of the model are $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5 > 0$

3.2 Method of Data Analysis

In this study, three methods were used for the analysis of data and are unit root test, correlation coefficient and the Autoregressive Distributed Lags (ARDL). The correlation coefficient provides the background characteristics of the data set; while the augmented Decay fuller unit root test was used to test for the stationarity property of the data set in order to avoid spurious regression results. The Autoregressive Distributed Lags (ARDL) technique was employed for the main estimation of the data. The method was developed by Pesaran and Shin (1999), which provides a number of advantages over standard cointegrating testing. The approach, in particular, flourishes when the datasets had a limited degree of freedom. Finally, post regression test of Breusch-Godfrey serial correlation test is used to ensure the absence of serial correlation in the model.

Table 1: Measurement of Variables

S/N	Variables	Definition	Type of Variable	Measurement	Source	Apriori sign.
1	GDPPC	GDP Per Capita	Dependent Variable	Economic Development (GDP per capita is gross domestic product divided by midyear population)	World Bank Data for All Countries/World Governance Indicator.	
2	DSAV	Domestic Savings	Independent	Gross domestic savings are derived by deducting final consumption expenditure (total consumption) from GDP	World Bank Data for All Countries/World Governance Indicator.	+
3	INV	Investment	Independent	Net investment in government nonfinancial assets such as inventories, fixed assets, valuables, non-produced assets and consumption of fixed capital.	World Bank Data for All Countries/World Governance Indicator.	+
4	CONS	Consumption	Independent	government spending consumption expenditure and household final consumption expenditure (private consumption)	World Bank Data for All Countries/World Governance Indicator.	+
5	INFL	Inflation Rate	Independent	As consumer price index	World Bank Data for All Countries/World Governance Indicator.	-
6	INTR	Interest Rate	Independent	The lending interest rate adjusted for inflation as measured by the GDP deflator.	World Bank Data for All Countries/World Governance Indicator.	-

4. Results and Discussion

In this study, the data for the years 1990 to 2022 were collected on the variables of interest. The data presented below are the original data from World Bank Table 2 Table showing Economic development (GDPPC), gross domestic product divided by mid year population, Domestic saving (DSAV) (deduction of final consumption expenditure (Total consumption) from

GDP, Investment (INV) Net investment in government non-financial assets such as inventories, fixed assets, valuables, non-produced assets and consumption of fixed capital, consumption (CONS) government spending, consumption expenditure and household final consumption expenditure (private consumption) inflation rate (INFL) consumer price index, interest rate (INTR) the lending interest rate adjusted for inflation-measured by the GDP deflator.

Table 2: Unit Root Test for Variables in Levels

(Panel 1)		In Levels		(Panel 2)		At First Difference	
Variable	ADF Test Statistic	95% Critical ADF Value	Remark	ADF Test Statistic	95% Critical ADF Value	Remark	
GDPPC	-0.890700	-2.963972	Non-Stationary	-6.919091	-2.967767	Stationary	
DSAV	-1.454113	-2.960411	Non-Stationary	-7.518919	-2.960411	Stationary	

INV	-3.571026	-2.957110	Stationary	-7.323287	-2.960411	Stationary
CONS	-0.454027	-2.960411	Non-Stationary	-6.353327	-2.963972	Stationary
INFL	-2.670184	-2.960411	Non-Stationary	-4.591729	-2.960411	Stationary
INTR	-3.399823	-2.960411	Stationary	-6.593569	-2.960411	Stationary

Source: Author's Compilations 2023.

4.1 Correlation Analysis

The results of the correlation matrix for the relationship between savings, investment and economic development in Nigeria was presented in table 2. Indeed, it is seen that GDP per capita (GDPPC) has a strong positive correlation values of 0.84053 and 0.90959 with domestic savings (DSAV) and consumption level (CONS); and a moderate negative correlation values of -0.41591 and -0.41340 with investment (INV) and inflation rate (INFL) respectively. On the other hand, domestic savings (DSAV) had a strong positive correlation value of 0.84499 with consumption level (CONS), and a weak negative and moderate correlation values of -0.38602 and -0.43684 investment (INV) and inflation rate (INFL); while inflation rate (INFL) had a high negative correlation value of -0.82685 with interest rate (INTR). The conclusion here was that the data set exhibits the

absence of multicollinearity.

4.2 Bound Test for Cointegration

The bounds test result (for cointegration) was carried out in order to test for existence of a long run relationship among the variables. Accordingly, the null hypothesis under this bounds test was that no levels relationship exist. Therefore, if the calculated *F*-statistic was greater than the critical value for the upper bound *I*(1), then we can conclude that there is cointegration (i.e there is long-run relationship); but if it falls below the lower bound *I*(0), no cointegration exist. Thus, the results from Table 3 shows that the *F*-statistic value of 3.655466 is greater than the upper bound *I*(1) value of 3.38 at the 5% significance level. Thus, we conclude that a long run relationship exist among the hypothesized variables in the model.

Table 3: Bounds Test for Cointegration Result

Test Statistic	Value	Significant	I(0)	I(1)
F-statistic	3.655466	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Author's Compilations 2023.

4.3 The ARDL Error Correction Regression Result (Short Run Result)

The short-run behaviour of savings and investment in the light of economic development in Nigeria was captured within an error correction model (ECM) in Table 4. The Autoregressive Distributed Lags (ARDL) approach is used for the ECM. The R-Bar squared criterion was used for the selection of the parsimonious equation. The results show a strong diagnostic outcome; the R-squared value of 0.70 is very high and it indicated that over 70 percent of the systematic variation in economic

development over the short term was explained by short term movements in the explanatory variables including the ECM. Even the R-Bar squared value of 0.67 is also very high.

In terms of the individual coefficients, it was seen that the coefficient of the lagged value of GDP per capital (GDPPC) was significant at the 1 percent level. This simply suggests that previous value of GDPPC significantly impact economic development in Nigeria than the current value. It therefore follows that, policy

makers and government must keep close watch on immediate/past value of GDPPC and must ensure that all policy decisions regarding development plan of Nigeria must factor in the behaviour of previous GDPPC.

The coefficient of domestic savings (DSAV) had an insignificant negative relationship with economic development; it failed the 5 percent significant level. This suggested that in the short run, domestic savings (DSAV) does not significantly impact economic development, rather, it even has the tendency of reducing it as suggested by the negative sign. However, the lagged value of DSAV significantly and inversely related to economic development. Meaning that, as the level of previous domestic savings rises, economic development reduces by approximately $-1.38E-07$ percent. This

probably means that there are linkages in the system and also domestic savings are not completely directed at the real sector of the economy.

The coefficient of the error correction (ECM) term (represented by $CointEq(-1)^*$) had the correct negative sign and is also significant at the 1 percent level. This goes to show that any short-term deviation of the hypothesized variables from equilibrium in the short-run, can be restored in the long run. The high value of -0.237094 of the error correction term means that adjustment to equilibrium in the long run is moderate. The ECM term shows that about 23 percent of long run adjustment to equilibrium is made during the first year. The DW statistic value of 2.05 shows the absence of autocorrelation problem in the model.

Table 4: ARDL ECM Results

ECM Regression			
Case 2: Restricted Constant and No Trend			
Variables	Coefficient	T-Ratio	Prob.
D(GDPPC(-1))	0.604491	6.116111	0.0000**
D(DSAV)	-7.37E-08	-1.463439	0.1589
D(DSAV(-1))	-1.38E-07	-2.395038	0.0265*
CointEq(-1)*	-0.237094	-5.767560	0.0000**
$R^2 = 0.70$	$\bar{R}^2 = 0.67$		D.W.= 2.05

Source: Author's computations 2023. Note: ** sig at 1% level.

4.4 ARDL Long Run Results

Since the bounds test result for cointegration earlier conducted in Table 3 indicated the existence of a long run relationship among the variables, we therefore conduct the ARDL long run test. The result is presented in Table 5 below. A close examination of the table revealed that the coefficient of domestic savings (DSAV) is positively signed and failed the 5 percent level of significance. This means that, in the determination of economic development in Nigeria, domestic savings (DSAV) does not play any significant role. Those of investment (INV) is negative and passed the 5 percent significance level; meaning that investment (INV) is a significant determinant of economic development in the long run. However, the negative sign suggests that, as investment level increases, it decreases the level of economic development in Nigeria by approximately -

$3.73E-06$ percent. The probable reason for the negative impact of investment on growth could be that most investment in the country are not majorly on real sector of the economy, probably they are mainly in financial assets which are easily repatriated out of the economy.

The coefficient of consumption level (CONS) is positively signed and passed the 1 percent significance level. In other word, the variable indeed plays significant role in the determination of economic development in Nigeria in the long run. It is seen that as consumption level increases, economic development increases by $4.01E-07$ percent approximately. This is further confirmation that Nigeria as a country is a consumption economy and not a productive one, and it shows that more savings made in the economy in the long run are purely directed at consumption, hence, savings could not

positively impact economic development.

The coefficients of inflation rate (INFL), interest rate (INTR) are both negative and failed the 5 percent level of significance, suggesting that they do not play significant role in economic development in Nigeria in the long run and within the investigating period. This is a wake-up call to the government and policy makers in the

country to refine-tune current macroeconomic policy to the one that will encourage Nigerians to save and at the same time invest in the domestic economy by reducing interest rate and effectively control inflation. Doing this will not only help to prevent massive capital flight but also attract foreign investments into the domestic economy.

Table 5: ARDL Long Run Result

Levels Equation			
Case 2: Restricted Constant and No Trend			
Variables	Coefficient	T-Ratio	Prob.
DSAV	5.05E-07	1.452552	0.1619
INV	-3.73E-06	-2.423707	0.0250*
CONS	4.01E-07	3.431187	0.0026**
INFL	-1422.304	-1.943216	0.0662
INTR	-2283.725	-1.883505	0.0743
Constant	203258.1	9.085179	0.0000

Source: Author's computations 2023. Note: ** sig at 1% level; * sig at 5% level.

4.5 Breusch-Godfrey Serial Correlation LM Test

To test whether the residuals from the model are serially correlated in the estimation, we used the Breusch-Godfrey Serial Correlation LM Test as indicated in Table 6 below. Indeed, from the result, since the null

hypothesis is that the residual are serially uncorrelated, and the F-Statistic p-value of 0.7586 indicates that we will fail to reject the null. Therefore, the residuals are serially uncorrelated.

Table 6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.097198	Prob. F(1,19)	0.7586
Obs*R-squared	0.152689	Prob. Chi-Square(1)	0.6960

Source: Author's Compilation (2023)

4.6 Discussion of Findings

The short run and long run results of domestic savings (DSAV) seem to contradict each other, in that while it was weak and negatively signed at the short run, it was however positively weak in the long run. It therefore follows that DSAV is not relevant for achieving economic development in the short run in Nigeria. This does not align with theory that DSAV should positively affect growth because, a higher domestic saving equally suggests less consumption, which could also result in more capital investment and, in turn boost economic development. The long run result completely agree with

the null hypothesis of a no significant relationship between domestic savings and economic development. This finding agrees with those of Elbadawi and Mwega (2000) who concluded an insignificant relationship between domestic savings and economic development. It however disagreed with those of Udude (2015) and Ominyi and Okoh (2017) who find a significant relationship between domestic savings and development.

Domestic investment and consumption level are very central to achieving economic development in Nigeria. This was demonstrated by their significant relation with

GDPPC. This further attest to the fact that, to boost economic development, investment and consumption level must be properly aligned. This result is rather surprising because, theoretically, an increase in investment, being an integral component of aggregate demand, should be a boost to economic development both in the short run and in the long run. But the reverse is the case in this study. This view was also collaborated by Pettinger (2019) that aggregate investment influences the productive capacity of the economy. The probable reason for this result might be due to the pattern of investment in the country which might majorly be on financial assets (which are risky and highly mobile) rather than real assets in the real sector of the economy. On the other hand, there is a relatively high consumption rate in Nigeria and that is why it significantly impact economic development. Thus, governments should be more proactive in ensuring sustained consumption level to constantly enhance economic development. This finding agrees in all respect with those of Alper (2018), Rahman, Zaman and Górecki (2021) who found a significant positive relationship between consumption level and economic growth in BRICS countries. The findings however disagreed with those of Ekeocha, Ogbuabor and Penzin (2020) who submitted a non-significant relationship between aggregate consumption and economic development in Nigeria.

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5. Conclusion and Recommendations

The study therefore concluded that, in the determination of economic development in Nigeria, investment (INV) and consumption level (CONS) are the major factors to be considered in the long run. Based on the findings of this study, the following specific recommendations are made:

First, since the findings of the study has shown that domestic investment does not have significant impact on economic development in Nigeria, it therefore follows that government and regulatory authority should create enabling environment for domestic investment to rise through the adoption of macroeconomic policies that will boost investment opportunities in the economy. This step is capable of ensuring that domestic investment has the much needed positive impact on economic development in Nigeria.

Second, there is the need for proper approach and management of interest rate in Nigeria by monetary authority due to the weak inverse relationship between interest rate, inflation rate and economic activities both in the short run and in the long run. The reason being that the tendency for higher interest rate to weaken investment is evidence in its negative sign in the study. As interest rate rises, it becomes difficult to secure funds at a favourable rate in the money market, hence, investors turn their attention to the stock market and this tends to raise the level of inflation.

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