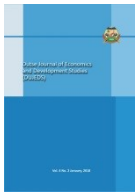
DUTSE JOURNAL OF ECONOMICS AND DEVELOPMENT STUDIES (DUJEDS)
DEPARTMENT OF ECONOMICS AND DEVELOPMENT STUDIES
FEDERAL UNIVERSITY DUTSE
E-Mail: dujeds@fud.edu.ng



THE NIGERIAN ECONOMY: AN EMPIRICAL ANALYSIS

BUBA, M. Soba **Department of Business Education, Federal College of Education, Yola, Adamawa State - Nigeria.**

Abstract
The Nigerian economy is at crossroads manifested through rising unemployment rates and low GDP growth rates as well as low investment cum savings rates. Hence the study sought to analyse the effects of some macroeconomic variables on the economic growth of Nigeria during the period of 1981-2015. To achieve the stated objectives of the study, an economic growth model was formulated on the basis of functional linear relationships with the identified predictor variables. The fitted multiple regression linear model adopted the ordinary least squares (OLS) techniques of data analysis, and the mix stationarity of the time series data sets of the growth model informed the decision to apply the autoregressive distributed lags (ARDL) methods of data analysis. The study relied on secondary sources of time series data obtained mainly from Central Bank Nigeria, National Bureau of Statistics and National Population Commission for the formulated multiple regressions Growth Model. The outcome of the empirical investigations for the Growth Model evinced that there were direct positive relationships between economic growth and the regressors namely gross domestic savings, foreign direct investment, private domestic investment and human capital. But the results established an inverse relationship between economic growth and population growth rates. Also, the bound tests indicated the existence of a long-run relationship between growth and the predictor variables. In essence the study provided a better and broad understanding of the determinants of economic growth in Nigeria. The study also recommended among others that government should resuscitate the productive base of the economy through appropriate monetary, fiscal and exchange rate policies to improve the economy's capacity to achieve the desired level of economic growth. Industrial capacity utilization should also be improved to bolster the contribution of the manufacturing sector to the GDP, and also incentives be provided to both domestic and foreign investors by government for the subsistence of firms and businesses and raise the investment/GDP ratio to the level recommended by the World Bank.

Keywords: Economic Growth, Investment, Human Capital, Population Growth, Savings
JEL Classification: B22; C32

Introduction

Historically, Nigeria's journey to nationhood started in 1914 with the amalgamation of the Northern and southern protectorates by the British Colonial Government. From 1914 till when the country gained independence in 1960, the economy of Nigeria had been under the tutelage of the British Government being a colony and a satellite state of the British Empire. During the colonial period, the economy of Nigeria was mainly driven by the export sub-sector since the country wholly relied on cash crops such as cotton, groundnuts, rubber, cocoa beans and palm kernel among others which were produced as raw-material for industries in Europe. The income from the export of these cash crops was used to run the indirect rule of the British Government especially in the Northern part of the country and also to finance the needs of government officials in the South. However, the excess gotten from the export of these cash crops was also used to develop infrastructure particularly rail lines which were needed to convey agricultural produce from the hinterland to the country's seaports for exports to Europe.

Therefore, before the discovery of crude oil in commercial quantities in the country around 1956, Nigeria had depended solely on cash crops such as

cocoa, palm oil and kernel, cotton, groundnuts etc. as major sources of foreign exchange and government revenue. According to World Bank Report in Udeaja and Onyebuchi (2015), 'Nigeria was the world's largest exporter of groundnuts, the second largest exporter of cocoa and palm produce and an important exporter of rubber, cotton, and hides and skin'. The country also boasts of a lot of food crops such as rice, sorghum, maize, millet, cassava, yams, cowpea, and beans among many others. Also Nigeria is blessed with a lot of ruminants and non-ruminants animals as well as abundant supply of poultry resources. Hence, Nigeria has a great opportunity of achieving self-sufficiency in food production especially if the leadership of the country harnesses the abundant agricultural potentials of the nation. It is undeniably true that the Nigerian agricultural sector still predominates in the provision of employment to the country's large population of labour force. Besides, the sector also provides essential raw-materials to industries and contributes substantially to the export sub-sector of the economy. However, the agricultural sector is still being dominated by peasantry farming practices as large-scale mechanized agricultural practices have not been fully exploited in the country. The presence of inadequate agricultural mechanization might have seriously led to the sector's dismal contribution to the economy's GDP.

The lacklustre contribution of the agricultural sector to the GDP could also be attributed to the presence of poor state of infrastructure especially in the rural economy where the bulk of the peasant farmers are found. Besides, the agricultural sector is beset with myriad of problems of inadequate provision of essential agricultural inputs like improved seeds, chemicals etc. and the vagaries of natural calamities such as pests, insects, birds and drought among others.

None the less, the agricultural potentials of the country were relegated to the background after the discovery of crude oil in commercial quantities in the country. This is because the petroleum sector has replaced the agricultural sector to become a leading source of both foreign exchange and revenue to the government.

The Nigerian oil and gas sector has been in the limelight since the time it became a major contributor to the country's GDP. According to Anyanwu (1997) the mining sector in Nigeria dominated by petroleum has assumed greater importance by becoming a major contributor to the nation's GDP. Nigeria, a member of the oil Cartel, OPEC, is ranked the sixth nation among countries exporting crude oil to the international market. This development has influenced the economic growth and development of the nation over the years. The national income of Nigeria had snowballed in recent times due to the astronomical increase in the nation's earnings from crude oil. Consequently, the gross national saving had risen sharply.

However, the Nigeria's economy did not feature among the economies that had achieved sustainable growth in a period of 25 years according to the World Bank Report of 2008. During the observed period of 1982 to 2007, the World Bank report highlighted the factors that had led to the achievement of sustainable growth by only 13 countries in the world. These countries achieved an annual average growth rate of 7% for the period of 25 years. The countries that had achieved this feat included Botswana, the only African country in the league, and others such as Brazil, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Malta, Oman, Singapore Taiwan and Thailand. Many factors were adduced to explain the reasons behind the economic successes of these countries. The report indicated that these countries were able to achieve this feat due to substantial savings and accumulated financial resources that were channelled towards investment and capital formation. The countries also provided free economic systems with favourable global competitiveness and ranking suitable for external trade and globalization. Besides, these countries established a propitious business and economic clime through stable polity and good leadership geared towards achieving appropriate reforms and policies thereby also ensuring macroeconomic stability, minimal inflation rate, budgetary discipline and sound macroeconomic policies. However, this paper is structured into five sections. Following the introductory section, is section two which is the literature review, methodology is section three, section four is the results and discussions and section five concludes the paper.

Contextual Perspective: Nigeria and the Global Economy

Economic growth is a paramount policy objective of modern economies. Shaw (1974) argues that 'the objective of advanced economic growth has been accorded more and more attention by economists, laymen and statesmen alike'. He opined that the 'growth objective was coveted both for its strategic as well as its welfare implications'. To achieve this economic policy objective, many countries all over the world have experimented with various paradigms of economic growth. Economic growth is as an off-shoot of saving and investment activities of the private sector, the driving force in the realization of economic growth, with government providing the required enabling environment for the survival of the sector. The USA, a leading world economy is being dominated by market capitalism in which the private sector

controls the economic process of the country. Similarly, most powerful economies such as Canada, France, Germany, Japan and even emerging economies such as Singapore, Malaysia and South Korea are driven by the private sector (Rosser and Rosser, 2004). In fact the world's second largest economy, China, also embraced some ideals of market capitalism. The post-Mao era in China witnessed a lot of economic policy oscillations; however, according to Rosser and Rosser the Chinese economy is 'trending toward Marketization and opening up the economy to the outside world'.

In the same vein, the Nigerian Economy is also market-driven with the private sector playing a pivotal role in the economic progress of the country. With the introduction of Structural Adjustment Programme (SAP) in 1986, the economy of Nigeria witnessed a spate of privatization and commercialization of companies hitherto being under the control of the public sector. Alkali (1997) paraphrased that 'a systematic program of privatization and commercialization was vigorously pursued, leaving most public-owned businesses either privatized or commercialized'. This development increased the participation of the private sector in the economy and led to a spike in economic activities. Also the Government of Nigeria has adopted various fiscal, monetary and foreign exchange rate policies to ensure that the country achieves the objectives of sustainable economic growth.

However, Nigeria has had varying experiences of growth due to a number of reasons. The unpredictable and unstable economic growth pattern of the country has been attributed to factors such as instability in the international oil market, mismanagement and corruption as well as the inability of past regimes to diversify the economic base of the nation. The country's economic woes have also been ascribed to political instability, mounting foreign debt burden and increasing debt servicing obligations. The rising foreign debt burden in particular has hamstrung Nigeria's economic progress and generated debilitating effects on the economy generally due to its adverse consequences on the ability of the government to pursue the desired economic growth objectives of the nation (Jibrin, 2016, Soba, 2005).

Also investment is an important variable driving economic growth in a country. However, in Nigeria aggregate investment expenditure as a proportion of the country's GDP has been falling steadily over the years. A peak value of 29.9% was recorded in 1976 which plummeted to just 1.2% in 2001. This low investment GDP ratio trend has continued over the years. Nigeria's current average investment ratio of 11% has been dismally lower than the recommended minimum of 20% of a country's GDP to enable it achieve sustainable economic growth in line with the recommendation of the World Bank. The country's low investment ratio as a proportion to its GDP could not be compared with figures obtained from emerging economies like Singapore, South Korea and Malaysia which had 35%, 38% and 41% respectively (Duruechi and Ojiegbe, 2015). Hence the country's low investment ratio might have been partly responsible for the recent slowdown in economic progress of the nation.

Unfortunately, with the persistent upheavals in recent times in the international oil market and the global economic melt-down that affected America and Europe in 2009, the fortunes of the Nigerian economy declined which manifested in unprecedented lull in the country's capital market. Negative economic growth indicators such as rising unemployment rate, increase inflation rate and a decrease in GDP growth rates were recorded thereby culminating to economic recession in 2016.

Empirical Review

Nigeria is a nation endowed with a lot of natural resources. The country relies on natural resources such as petroleum and solid mineral resources with a vast supply of labour employed in both public and private institutions. Certainly, the presence of vast natural resources and good institutions in a country is expected to promote economic growth. In this regard, Garba, Bello, Abdullahi and Abubakar (2016) empirically examined how institutions and Nigeria's vast natural resources affected the economic growth of the country over the period 1960 to 2014. In their study, the authors employed co-integration approach and error correction model, using contract intensive money and the ratio of oil export to nominal GDP as proxies for institutions and natural resources respectively. The estimated results of the study evinced that both natural resources and good institutions had 'a significant positive long-run influence on economic growth in Nigeria' during the observed period. Hence, the study concluded that for a sustainable long-run economic growth of the country, the government should promote maximum and efficient utilization of the nation's natural resources and also ensure the application of the rule of law to enhance the efficient performance of institutions in the country.

Furthermore, there is a general consensus that 'growth does not take place in a vacuum'. Also it is undeniably true that growth patterns vary from one country to another. The reason for this is not far-fetched. There are many factors driving growth in any country, and Nigeria is no exception. In this

connection, Essien (2001) used the ordinary least square (OLS) estimation of a parsimonious error correction model to analyse the determinants and performance of economic growth in Nigeria. In the model, he identified real GDP per worker as dependent mainly on capital and certain macroeconomic and structural variables. He used stock of capital as a proxy for gross capital formation and employment in both public and private sectors to mimic labour input in the model. Other explanatory variables of the model included change in price, real exchange rate, debt burden and total exports. His empirical investigation revealed that the dependent variable and the specified explanatory variables were co-integrated. However, in relation to capital, the results indicated that it 'accounted for a greater share of variation in output in the short-term than in the long-term'. Hence, there was a highly significant causality between economic growth and capital.

The results also indicated that price changes had negative impact on growth in the model such that one per cent rise in price level is associated with less than proportionate reduction in productivity growth. Besides, the findings indicated that real exchange rate depreciation and trade provided an impulse to growth. Both exchange rate depreciation and trade produced a significant positive relationship with economic growth. However, debt over-hang according to the model evinced a highly significant negative relationship with economic growth because according to him 'debt is a heavy tax on investment and growth'. Therefore, the study concluded that sustainable growth results from investment in capital and total factor productivity.

Also in a recent study of the causes of economic growth in Nigeria, Uwakaeme (2015) investigated the nexus between economic growth and some of its determinants such as fiscal deficit, inflation and trade openness. His studies revealed that the sluggishness and volatile fluctuations in Nigeria's economic growth could be partly explained by government fiscal indiscipline and persistent rise in the price level, which according to him 'are major contributing factors that have adversely influenced economic growth in Nigeria'. However, his study evinced that 'trade openness though positively related to GDP, has a weak impact on growth'. Also in relation to the above findings, Muritala (2011) had earlier delved into the effects of changes in the general price level, using inflation rates as proxy, on the economic growth of Nigeria as well as how private investment affected real growth in the country basing on data collected between 1981 and 2006. The study relied on the ordinary least square (OLS model) estimation technique and came up with findings indicating the existence of a negative relationship between inflation rates and real gross domestic product, GDP growth rate in the country. However, the results obtained also indicated a positive relationship between investment levels and real GDP growth rates. Hence he concluded that rising investment levels in Nigeria led to positive economic performance during the period of the study.

In a similar study, Udeajaa and Onyebuchi (2015) examined some determinants of economic growth in Nigeria. The authors came up with the findings that, variables such as domestic savings, openness to trade, government expenditures on education and health as some of the causes of economic growth in the country. Surprisingly, their study found out that 'infrastructure does not drive economic growth in Nigeria', which according to them could be 'explained by the deplorable state of electricity in the country despite the enormous monetary expenditure in the sector'. However, their study also found out that foreign direct investment had a negligible positive effect on growth which could be attributed to the presence of increasing level of insecurity in the country. However, in relation to government expenditure, Dogo, Okpanachi, Muhammad, Umolu and Ajayi (2013) examined the relevance of the Wagner's Hypothesis on Nigeria's economic growth using quarterly data for period between 1982 and 2012. The study relied on the fully modified ordinary least square (FMOLS) estimation techniques and modelled real government expenditure during the observed period as a function of real gross domestic product within the same period. The study found evidence in support of the Wagner's Hypothesis in Nigeria and came up with empirical evidence to support the existence of a long-run equilibrium relationship between economic activity and real government expenditure in Nigeria. Hence, the study concluded that government should direct its expenditure programs towards growth-enhancing activities to achieve economic progress in the country.

Furthermore, the Nigeria's economy is dependent strategically on oil, and the country uses its enormous gas resources as a source of energy for the economy. Hence, Kayode (2015) delved on the causality between economic growth and energy use in Nigeria at aggregate total energy level as well as at the disaggregated level. The various energy components he studied in relation to economic growth were natural gas, crude oil, electricity consumption and coal. His findings, using the autoregressive distributed lag (ARDL), revealed that there exists long-run co-integration among output (GDP), labour, capital, real exchange rate and energy use in Nigeria at the two levels mentioned earlier. His study also indicated the

existence of Granger causality between GDP and electricity consumption in the country. Therefore, in his words 'the result confirms that long-run unidirectional causality runs from each of crude oil consumption, electricity consumption and coal consumption to economic growth'. However his study showed that there was no causality between energy growth and each of natural gas consumption and total energy consumption. Also Adeleke, Olowe and Fasesin (2014) investigated the impact of foreign direct investment on Nigeria's economic growth during the period between 1999 and 2013. The study used regression analysis of the ordinary least squares estimation technique. The authors came up with findings which revealed that economic growth was directly correlated to foreign direct investment during the period of the study. In other words, the coefficients of the regression analysis were positively signed indicating a positive relationship between foreign direct investment and economic growth in Nigeria. The findings corroborated similar study carried out by Solomon and Eka, (2013) which also empirically examined the relationship between foreign direct investment and growth in Nigeria that produced results indicating a positive relationship existed between foreign direct investment and economic growth in the country.

Methodology

The study used the simple Cobb-Douglas production function in the form of $Q = AL^{\alpha}K^{\beta}$, in which Q equal to economic growth (proxy with real GDP) , and L and K represent labour (population growth) and capital measured by gross capital formation(investment) respectively. The letter A in the function captured the effects of other factors of production or measures total factor productivity. Since A captures TFP therefore through it the study measured the other variables of the model not specified above in the Cobb-Douglas production function in line with the work of N'Zue (2011).

Therefore, on the basis of these assumptions the study formulated the following economic growth model.

Where: RGDP= Real Gross Domestic Product (Economic Growth)

GDS= Gross Domestic Saving
FDI= Foreign Direct Investment
PGR= Population Growth Rate
INV = Private Investment
HCA= Human Capital
μ_t = Error Term.

Model Specification

$$\Delta lnRGDP_{t=}\alpha_0 + \emptyset_1 lnRGDP_{t-1} + \emptyset_2 lnGDS_{t-1} + \emptyset_3 lnFDI_{t-1} + \emptyset_4 lnPGR_{t-1} + \emptyset_5 lnINV_{t-1} + \emptyset_5 lnHCA_{t-1} + \sum_{i=1}^{k1} \sigma_{1i}\Delta ln\, RGDP_{t-1} + \sum_{i=0}^{k2} \gamma_{2i}\Delta ln\, GDS_{1t-i} \sum_{i=0}^{k3} \varepsilon_{3i}\Delta ln\, FDI_{2t-i} + \sum_{i=0}^{k4} \emptyset\Delta lnPGR_{3t-i} + \sum_{i=0}^{k5} \vartheta_5\Delta ln\, INV_{4t-i} + \sum_{i=0}^{k6} \vartheta_6\Delta ln\, HCA_{4t-i} + \mu_t$$

The study relied on the empirical secondary data obtained from the Central Bank of Nigeria (CBN), National Population Commission (NPC) and the National Bureau of Statistics (NBS) for the period of 35 years from 1981-2015. The study employed the multiple regression and ARDL modelling techniques to estimates the short-run and long-run coefficients of the fitted economic growth model. The ARDL Model was deemed suitable for our purpose in the present study because of its relevance in variables with mix stationary of I (0) and I (1) i.e. integrated of order zero and one respectively. Also in the words of Pesaran and Shin (1999) 'appropriate modification of the order of the Autoregressive Distributed Lag (ARDL) Model is sufficient to simultaneously correct the residual serial correlation and problem of endogenous regressors'.

Analysis of the Results

Table 1: ADF Unit Root Results Test for the Economic growth model in Nigeria

Variables	ADF at level 1(0)	Critical Value (5%)	ADF at First diff. 1(1)	Critical Value (5%)	Remarks	Prob. ADF 1(0)	Prob. ADF (1)
RGDP	-4.1258	-4.2529			1(0)	0.0136**	
PGR	-1.2092	-4.2529	-4.7652	-4.2627	1(1)	0.8926	0.0029*
GDS	-3.7841	-4.2529			1(0)	0.0299**	
INV	-4.6881	-4.3393			1(0)	0.0045*	
FDI	-3.9542	-4.2529			1(0)	0.0203**	
HCA	-3.5265	-4.2529	-5.3521	-4.2967	1(1)	0.0524	0.0008*

Source: Author's Computation Using E-view 2018.

* And** represent 1% and 5% level of significance respectively.

The results of unit root test for economic growth model were contained in the above table. The results of Augmented Dickey-Fuller (ADF) revealed that all the variables of the model were stationary at most 5 per cent as indicated by their probability values of 0.0136, 0.0029, 0.0299, 0.0045, 0.0203 and 0.0008. The result further indicates that real gross domestic product (RGDP), gross domestic savings (GDS) private investment (PRI) and foreign direct investment (FDI) were stationary at level I (0) while population growth rate (PGR) and human capital (HCA) became stationary at first difference 1(1). The Augmented Dickey-Fuller (ADF) statistics for all the variables are less than the critical values in negative direction and the mix stationarity at level and first difference leads to the estimation of the data using Autoregressive Distributed Lag (ARDL) method.

Table 2: Multiple ARDL Regression Results of the Economic growth model

Autoregressive Distributed Lag Estimates

Selected Model: ARDL(1, 1, 0, 0, 1, 2) Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGDP(-1)	0.145677	0.127587	1.141788	0.2664
GDS	0.872346	0.996014	0.875837	0.3910
GDS(-1)	2.227905	1.061729	2.098375	0.0481
FDI	0.196293	0.940221	0.208773	0.8366
PGR	-5.956537	1.580533	-3.768689	0.0011
INV	9.286978	3.331840	2.787342	0.0110
INV(-1)	-9.998575	2.664574	-3.752411	0.0012
HCA	0.995420	1.022269	0.973736	0.3413
HCA(-1)	0.425410	1.038050	0.409817	0.6861
HCA(-2)	2.109099	1.043236	2.021689	0.0561
C	-18.50270	12.97010	-1.426566	0.1684
@TREND	-0.909234	0.345368	-2.632651	0.0156

R-squared	0.755978	Mean dependent var		5.072424	
Adjusted R-squared	0.628158	S.D. dependent var		5.038938	
S.E. of regression	3.072688	Akaike info criterion		5.358270	
Sum squared resid	198.2696	Schwarz criterion	5.902455		
Log likelihood	-76.41146	Hannan-Quinn criter.			5.541372
F-statistic	5.914363	Durbin-Watson stat			1.936314
Prob(F-statistic)	0.000251				

*Note: p-values and any subsequent tests do not account for model Selection.

Source: Author's computation using e-view 9, 2018.

The table above contains multiple regression results for economic growth in Nigeria.
The estimated economic growth function coefficients derived from the table are given as follows:

RGDP= -18.5027+ 2.2279GDS+0.1963FDI-5.9565PGR+9.2870INV+2.1091HCA
Adjusted R^2 = 0.628158

The coefficient of gross domestic savings at lagged one (GDS(-1)), population growth rate (PGR), private investment (PRI), human capital at lagged two (HCA(-2)) and the trend were found statistically significant at five per cent, one per cent, one per cent, ten per cent and five per cent respectively as indicated by their probability values of 0.0481, 0.0110, 0.0012, 0.0561 and 0.0156 whereas the coefficients of foreign direct investment (FDI) and the constant were found statistically insignificant as indicated by their probability values of 0.8366 and 0.1684. The coefficients of gross domestic savings at lagged one (GDS (-1), foreign direct investment (FDI), population growth rate (PGR), and human capital at lagged two (HCA (-2)) were obtained as 2.2279, 0.1963, -5.9565, 9.2870 and 2.1091 respectively. This result implied that as gross domestic savings (GDS), foreign direct investment (FDI), private investment (INV), and human capital (HCA) increases by one unit, economic growth (RGDP) will increase by 2.2279, 0.1963, 9.2870 and 2.1091 units respectively. This is consistent with the theoretical expectation of this study.

On the other hand, an increase in population growth rate (PGR) will reduce economic growth (RGDP) by -5.9565 per cent which is also consistent with the theoretical expectation of this study. The F-statistics value of 5.9144 which measured the joint significance of the parameter estimates was found to be statistically significant at one per cent level as indicated by the corresponding probability value of 0.000251. This implies that gross domestic savings at lagged one, foreign direct investment, population growth rate, private investment and human capital were jointly and significantly deriving economic growth in Nigeria. The R^2 value of 0.7560 (75.60%) implied that 75.60 per cent total variation in economic growth (RGDP) was explained by gross domestic savings (GDS), foreign direct investment (FDI), population growth rate (PGR), private investment (INV) and human capital (HCA) in Nigeria. Coincidently the adjusted R^2 0.6282 was found also to be high after adjusting for the degree of freedom implying that the model is fit and reliable for policy. This further indicated economic growth was significantly explained by gross domestic savings (GDS), foreign direct investment (FDI), population growth rate (PGR), private investment (INV) and human capital (HCA) in Nigeria. This result therefore, suggests that gross domestic savings, foreign direct investment, population growth rate, private investment and human capital were the major derivers of economic growth in Nigeria.

The Durbin-Watson statistic 1.9363 was found to be greater than R^2 0.7560 indicating that the model is non-spurious (meaningful).

Table 3: ARDL Bounds Test for Co-integration
Null hypothesis: No long run relationship exists

Test Statistic	Value	K
F-statistic	5.855260	5

Critical Value Bounds

Significance	lower Bound	upper Bound
10%	2.49	3.38
5%	2.81	3.76
2.5%	3.11	4.13
1%	3.50	4.63

Source: Author's computation using e-view 9, 2018.

The results of estimated long run relationship using the Autoregressive Distributed Lag (ARDL) Bound Test were contained in Table above. With the F-Statistic Value of 5.8553 which was found to be greater than the higher bound at 1% indicates that long run relationship exists between economic growth (RGDP), gross domestic savings (GDS), foreign direct investment (FDI), population growth rate (PGR), private investment (INV) and human capital (HCA) in Nigeria. Hence the results reveal the existence of co-integration among the variables. The results make it expedient to estimate the long-run coefficients of the growth model as shown in the following table.

Table 4: Long-run Coefficients Estimated for Economic Growth
Model Using ARDL Method.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDS	3.628899	1.579722	2.297175	0.0320
FDI	0.229764	1.106610	0.207629	0.8375
PGR	-6.972232	1.900297	-3.669023	0.0014
INV	0.832937	2.648565	0.314486	0.7563
HCA	4.131845	2.045207	2.020257	0.0563
@TREND	-1.064274	0.408055	-2.608162	0.0164

Source: Author's computation using e-view 9, 2018.

Co-integration = GDP - (3.6289*GDS +0.2298*FDI -6.9722*PGR +0.8329*INV +4.1318*HCL -1.0643*@TREND)

The estimated coefficients indicate the rate of change of the dependent variable due to changes in the explanatory variables in the long-run. The coefficients reveal positive and significant impact of gross domestic savings (GDS) and human capital (HCA) on economic growth in the long-run at 5% and 10% level of significance respectively. The population growth rate (PGR) impacts negatively and significantly on economic growth in the long-run while foreign direct investment (FDI) and private investment (INV) show positive and insignificant effects on economic growth in the long-run.

However, in order to arrive at the speed of adjustment and the short-run effects of the variables on economic growth, the selected ARDL (1 1 0 0 1 2) was employed to get the error term of the ECM based on the automatic AIC and SIC selection criteria. The following is the formulated error correction model (ECM) for economic growth.

$$\Delta lnRGDP_{t=}\alpha_0 + \sigma_{1i}\Delta lnRGDP_{t-1} + \gamma_{2i}\Delta lnGDS_{1t-i} + \varepsilon_{3i}\Delta lnFDI_{2t-i} + \emptyset\Delta lnPGR_{3t-i} + \vartheta_5\Delta lnINV_{4t-i} + \vartheta_6\Delta lnHCA_{4t-i} + \sigma \mathrm{ECM(t-1)}$$

Table 5: Error Correction Model for the Selected Short-run ARDL
Dependent Variable: RGDP
Selected Model: ARDL(1, 1, 0, 0, 1, 2)

Co-integrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Δ***ln***GDS	0.824810	0.737974	1.117667	0.2763
Δ***ln***FDI	0.287877	0.674769	0.426631	0.6740
Δ***ln***PGR	-5.795942	1.924412	-3.011798	0.0066
Δ***ln***INV	9.474114	2.291596	4.134286	0.0005
Δ***ln***HCA	1.006948	0.684522	1.471023	0.1561
Δ***ln***HCA(-1)	-2.169747	0.830262	-2.613328	0.0162
C	-19.65685	2.770501	-7.095052	0.0000
ECM(t-1)	-0.865149	0.123090	-7.028575	0.0000

Results of Error Correction Model for the Selected Short-run ARDL
Source: Author's computation
using e-view 9, 2018.

The table above contains coefficients of gross domestic savings (GDS), foreign direct investment (FDI), population growth rate (PGR), private investment (INV) and human capital (HCA) in Nigeria. The coefficient of the error correction term was found to be negative and significant at 1 per cent significance level indicating that short-run relationship exists between economic growth rate (RGDP), gross domestic savings (GDS), foreign direct investment (FDI), population growth rate (PGR), private investment (INV) and human capital (HCA) in Nigeria. The coefficients indicate positive and statistically significant effects of private investment and human capital on economic growth in the short-run while the results indicate that population growth rate had significant negative effect on economic in the short-run. The coefficients also evince positive and statistically insignificant effects of gross domestic savings and foreign direct investment on economic growth in the short-run.

The value of the ECM term of -0.8652 implies that the economy will adjust back to equilibrium by 87 per cent annually. The coefficients also confirm the ARDL result in the sense that gross domestic savings (GDS), foreign direct investment (FDI), private investment (INV) and human capital (HCA) impacted positively on economic growth in Nigeria while population growth rate (PGR) impacted negatively on economic growth in Nigeria during the specified period.

Conclusion and Recommendations

In conclusion, it is clearly evident from the findings of the study that economic growth in Nigeria was significantly and jointly influenced by the identified explanatory variables. Changes in the economic variables namely gross domestic savings, private investment, foreign direct investment, human capital and population growth accounted for a significant variation in economic growth during the period of the study. The study revealed that economic growth in Nigeria had a positive relationship with private investment, savings,

foreign direct investment and human capital, however, and it varied negatively with the population growth rate.

It is recommended that:

1. Government is advised to provide incentives through the formulation of favourable monetary, fiscal and exchange rates policies to attract both domestic and foreign investors. For instance tax holidays for investors and reduction of import duties on essential industrial inputs could go a long way to improve the situation.
2. The development of the money and capital markets is propitious to the achievement of economic development goals. The government is advised to strengthen these markets to enhance the process of savings mobilization and the channelling of investible funds to aid the development of the economy.
3. The current Economic Recovery and Growth Plan (ERGP) of the Federal Government should incorporate national population growth plan as its component and provide measures to tackle the problems of rising dependency ratio and youth unemployment in the country so as to assuage the negative effects of rapid population growth on the economy.
4. Nigeria should devote a substantial portion of the country's budgetary expenditure on education and training so as to achieve the desired level of human capital for a sustainable economic development of the country.

References

Adeleke, K.M; Olowe, S.O. and Fasesin, O.O. (2014): Impact of Foreign Direct Investment on Nigeria Economic Growth, *International Journalof Academic Research in Business and Social Sciences*, Volume 4, Number 8, August 2014, PP 234-242.

Alkali, R .A. (1997): The World Bank and Nigeria, Cornucopia or Pandora's Box, Kaduna Nigeria, Baraka Press and Publishers Ltd.

Anyanwu, J.C. (1997): The Structure of the Nigerian Economy (1960-1997), Onitsha, Nigeria, Jeane Education Publishers Ltd.

Dogo, M.Y., Okpanachi, U.M., Muhammad, A.A. , Umolu, C.V. and Ajayi, K.J. (2013): Government Size and Economic Growth in Nigeria: A Test of Wagner's Hypothesis, *Central Bank of Nigeria, Economic and Financial Review,* Volume 51, Number 3, September, 2013, PP 57-88.

Duruechi, A.H. and Ojiegbe, J.N.(2015): Determinants of investment in the Nigerian Economy: An Empirical Approach, *International Journal of Financial Research,* Volume 6, Number 4, 2015, PP 217-227.

Essien, A.E. (2001): Nigeria's Economic Growth: Performance and Determinants, *Central Bank of Nigeria Economic and Financial Review*, Volume 40, Number 3 , September, 2001, PP 16-39.

Garba, T., Bello, U., Abdullahi, H. and Abubakar, M. (2016): Institutions, Natural Resources and Economic Growth: An Application of Co-integration with Structural Break on Nigerian Dataset, *Central Bank of Nigeria,Economic and Financial Review,* Volume 54, Number 4, December, 2016, PP 1-27

Jibrin, A. (2016): A Website Post, dated 5/9/2016, By Abdulmumini Jibrin, Former Chairman, Committee on Appropriations, House of Reps, Federal Republic of Nigeria.

Kayode, E.O. (2015): Empirical Analysis of the Relationship between Economic Growth and Energy Consumption in Nigeria, *International Journal ofEconomy, Management and Social Sciences*, Volume 4, Number 10, October, 2015, PP 469-480.

Muritala, T. (2011): Inflation, Investment and Economic Growth: Empirical Evidence from Nigeria, *Research Journal of Finance and Accounting,* Volume 2, Number 5, PP 68-76.

N'Zue, F.F. (2011): Economic Freedom and performance in EOWAS Countries: A Dynamic Panel Data Approach, *Africa Journal of Economic Policy*, Volume 18(2) PP 28-53.

Pesaran, P.H. and Shin, Y. (1999): An Autoregressive Distributed Lag Modelling Approach to Co-integration Analysis, in Proceedings of the Econometric and Economic Theory in the 20th Century, the Ragnar Frisch Centennial Symposium, S. Strom Ed; Cambridge University Press, New York, USA,1999.

Shaw, G.K. (1974): An Introduction to the Theory of Macroeconomic Policy, London, Martin Robertson and Co. Ltd.

Soba, B.M. (2005): The Nigeria's Foreign Debt Albatross: A critical Dimension, *The Nigerian Academic Forum*, Volume 9, Number 1, October, 2005, PP 84-91

Solomon, H.C. and Eka, O.O. (2013): Impact of Foreign Direct Investment on the Telecommunications Sector on Nigerian Economy, *International Journal of*

Modern Social Sciences, Volume 2, Number 3, PP 195-215.

Udeajaa, E. A. and Onyebuchi, O. K.(2015): Determinants of Economic Growth in Nigeria: Evidence from Error Correction Model Approach, *Journal of Developing Country Studies,* Volume 5, Number 9, 2015.

Uwakaeme, O. S. (2015): Economic Growth in Nigeria: An Empirical Investigation of Determinants and Causal Relationship (1980-2012*), American Journal of Economics*, Volume 5, Number 1, 2015.

World Bank (2008): World Bank Development Report, the Growth Report: Strategies for Sustained Growth and Inclusive Development, Oxford University Press.

APPENDIX : VALUES FOR ECONOMIC GROWTH MODEL

YEARS	REAL GDP GROWTH RATES	POPULATION GROWTH RATES	GROSS DOMESTIC SAVINGS	PRIVATE INVESTMENT	FDI	HUMAN CAPITAL
1981	-2.29	1.7	792.7	18220.6	584.9	165.4
1982	-2.70	1.7	951.8	17145.8	2193.4	187.9
1983	-7.05	1.7	1929.5	13335.3	1673.6	162.2
1984	-1.10	1.7	1544.2	9149.8	1385.3	198.9
1985	9.52	1.7	1533.7	8799.5	1423.5	258.6
1986	2.45	1.7	1412.3	11351.5	4024.0	262.7
1987	-0.57	1.7	4742.2	15228.6	5110.8	225.0
1988	7.36	1.7	4572.7	17562.2	6236.7	1458.8
1989	7.67	1.7	552.3	26825.5	4692.7	3011.8
1990	13.02	1.7	5849.9	40121.3	10450.2	2402.8
1991	-0.81	2.0	8087.0	45190.2	5610.2	1256.3
1992	2.26	3.2	17378.6	70809.2	11730.7	291.3
1993	1.28	3.2	29911.1	96915.5	42624.9	8882.4
1994	0.22	3.2	21432.6	105575.5	7825.5	7382.7
1995	2.16	3.2	2029.8	141920	55999.3	9746.4
1996	0.83	3.2	26012.9	204047.6	5672.9	11496.2
1997	6.44	3.2	43145.5	242899.8	10004.0	14853.5
1998	2.94	3.2	22416.4	242256.3	32434.5	13589.5
1999	0.41	3.2	77602.4	231661.7	4035.5	43610.7
2000	5.45	3.2	107523.4	331056.7	16453.6	57956.6
2001	8.45	3.1	102854.5	372135.7	4937.0	39882.6
2002	21.35	3.0	104048.6	499681.5	8988.5	80530.9
2003	10.23	3.0	63645.7	865876.5	13531.2	64782.2
2004	10.48	2.9	141777.5	863072.6	20064.4	76524.7
2005	6.51	2.9	50573.8	804400.8	26083.7	82795.1
2006	6.03	2.6	56007.2	884756.0	41734.0	87294.6
2007	6.45	2.8	82452.6	898969.0	4324.86	107529.4
2008	6.41	2.8	114731.1	892445.0	4659.16	163900
2009	7.0	2.8	168256.7	1202736.4	3810.25	137120
2010	8.0	2.8	85009.2	1423164.5	3810.25	170800
2O11	5.3	2.8	85408.6	1269428.4	5304.11	335800
2012	4.20	2.8	95841.6	1016997.4	3199.90	348400
2013	5.50	2.8	97501.7	1162386.3	6740.00	390420
2014	6.20	2.8	129433.5	1191482.0	6793.92	343750
2015	2.80	2.8	119259.1	1131353.2	6841.48	325190

Source: Derived from 1. CBN, STATISTICAL BULLETIN, GOLDEN JUBILEE EDITION, DEC; 2008
2. CBN, ANNUAL STATISTCAL BULLETIN, DECEMBER, 2010 and 2015.
3. NATIONAL POPULATION COMMISSION, FEDERAL SECRETARIAT YOLA OFFICE, NIGERIA.