

External Sector and Nigeria's Economic Growth (1990-2022)

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ABSTRACT

This study examined the impact of external sectors on Nigeria's Economic growth from 1990 to 2022. The paper utilised aggregate annual time series data of the Nigerian Economy. The data were analysed using the unit root test, the bound co-integration test, and the short-run error correction model test. The test for stationarity using the Augmented Dickey-Fuller (ADF) showed that all the variables were stationary after first differencing, i.e., integrated of order (1). The analysis revealed that imports, exchange rate, and foreign direct investment are negatively related to real gross domestic product. Exports are positively related to economic growth in Nigeria within the study period. Also, except for exports, all the other explanatory variables – imports, exchange rate, and foreign direct investment did not impact significantly on real gross domestic product in Nigeria within the research period. Based on these findings, it recommends, among others, that the government should encourage export diversification of non-oil sector exports, promoting agriculture and manufacturing sub-sectors of the economy. The Nigerian government should encourage private investors to import more capital goods to boost production in the local economy.

Keywords: *External sector, economic growth, imports, exports, exchange rate and Foreign Direct Investment*

INTRODUCTION

The external sector plays a crucial role in the growth and development process of any economy, whether it is developed or developing. This is because the external sector is a network of economic activities a country has with other countries. It reflects the transactions between the residents of an economy and the rest of the world. On the other hand, economic performance, proxied by GDP, depends on the interplay of various factors and sectors in an economy, one of which is the external sector. The external sector can either be in a state of stability or instability, in deficit or surplus. An ideal external sector is stable and in equilibrium over time; this situation occurs when inward payments from activities are

exactly equal to outward payments (Gbosi, 2015). The major indicators of the external sector, according to Mordi *et al.* (2010), are the exchange rate, external debt, and exports. Other indicators include foreign exchange earnings, imports, foreign direct investment, and balance of payments. The exchange rate as a performance indicator of the external sector is the number of units of a country's currency required to purchase one unit of another country's currency. External debt is the funds borrowed from foreign or external lenders, including foreign commercial banks, individuals or organisations, foreign governments, or international financial institutions and agencies for expenditure items in the economy.

Historically, the structure of the external sector has remained relatively unchanged since the 1960s. For instance, the export sector has been characterised by the dominance of one export commodity (Mordi, Englama and Adebuseyi, 2010). According to them, from the sixteenth Century to the nineteenth century, palm oil was the dominant export commodity and later rubber, timber, cocoa and groundnut were exported. The export of crude oil began in 1958, although it was not the main export at that time. However, in the mid-1970s, a shift occurred following the oil price shock in the international market, after which crude oil exports dominated the export sector.

Mordi, Englama and Adebuseyi (2010) further stated that during the period between 1970 and 1985, crude oil export accounted for about 93 percent in 1986-1998, while the share of non-oil exports declined from an average of 7 percent from 1970-1985 to 4 percent in 1986 and dropped further to 2.4 percent from 1999-2006. Mordi *et al.* (2010) also observed that the liberalisation of trade and exchange rate regimes in 1986 did not impact much on the non-oil export performance, even though the non-oil sector expanded slowly, many traditional exports disappeared, such as palm oil, groundnut, ginger, hides and skins, etc.

Meanwhile, there is no gainsaying the fact that the external sector of an economy mirrors the relative strength of the economy. But some of the major problem that hindered the attainment of increase in economic growth, have been attributed to under performance of the external sector aggregates such as low export, exchange rate volatility and excessive reliance by the federal government on external borrowings from the banking system, particularly the world bank and the international monetary fund (IMF) to finance its large and unsustainable fiscal deficits (Obayori, 2016). The imbalances in the external sector of the Nigerian economy suggested that the government needed to stimulate economic growth and development. Conversely, Obida and Nurudeen (2010) asserted that GDP growth averaged approximately 6.0% in the period 1971-1980. The adoption of the Structural Adjustment Programme (SAP) of 1986, however, had a positive impact on the economy as the negative growth rate was reversed. For instance, the GDP grew at an average of 4.03% between 1986 and 1998. However, the average growth rate from the third quarter of 2015 to the last quarter of 2016 is negative, indicating that the Nigerian economy witnessed a

recession. And as no economy can operate in isolation, it constantly interacts with the rest of the world. Interactions, such as trade, act as a catalyst for growth. Therefore, there is a need to evaluate the impact of the external sector aggregates on Nigeria's economy.

EMPIRICAL REVIEW OF LITERATURE

Literature exists on external sector variables and economic performance. Ifionu and Ogbuagu (2007) examined an econometric evaluation of exchange and external sector performance in Nigeria under regulation and deregulation. They tested BOP on exchange rate, external debt burden, external debt service, external reserve, and exchange rate regime using the model and the OLS regression technique. They found that external sector performance was better under a deregulation regime than during a regulated regime. Akinbobola and Oyetayo (2010) examined the impact of real exchange rate on domestic output growth in Nigeria using data covering the period 1986-2004. They found that the real exchange rate has a direct impact on output growth, after a considerable lag.

Ajayi and Oke (2012) investigated the effect of external debt burden on economic growth and development and found that the external debt burden hurts national income. Ghosa (2012) applied the Engle and Granger test of co-integration and ECM to find the short-run dynamics. The major finding of the study is that external sector liberalisation is negatively related to economic growth in the long run but positively related in the short run. Ijeoma (2013) examined the impact of the debt on selected macroeconomic indicators in the Nigerian economy. Secondary data on external debt stock, external debt service payment, exchange rate, gross domestic product, and gross fixed capital formation for the period 1980-2010 were drawn from the Debt Management Office, CBN, and Statistical Bulletin and analysed using Linear regression. The study found that Nigeria's external debt stock has a significant effect on its economic growth.

Azeez, Dada and Aluko (2014) examined the effect of international trade on the economic growth of Nigeria in the 21st century from 2000 to 2012. The study adopted the ordinary least squares (OLS) estimation technique. The study revealed that international trade has a significant positive impact on economic growth. Imports, Exports, and trade openness have a significant effect on the economy. The study recommends that the government should reduce over-dependence on oil exports, increase and diversify its export base to earn more revenue. Arodoye and Iyoha (2014) examined the nexus between foreign trade and economic growth in Nigeria using quarterly time-series data from the first quarter of 2010. The study employed a vector autoregressive modeling technique for the analysis. The study found a stable, long-run relationship between foreign trade and economic growth. The study therefore recommends the adoption of trade expansion policies as a means of accelerating economic growth in Nigeria.

Adeleke, Olowe and Fasesin (2014) analysed the impact of foreign direct investment on Nigeria's economic growth from 1999 to 2013. The study employed the ordinary least squares (OLS) estimation technique for analysis. The result of the analysis revealed that economic growth is directly related to the inflow of foreign direct investment, and it is also statistically significant at 5% level.

Saaed and Hussain (2015) investigated the impact of exports and imports on the economic growth of Tunisia from 1977 to 2012. The study used Granger causality and Johansen co-integration approaches for the analysis. The study found that economic growth was found to granger cause import and export was found to Granger cause import. Also, the Johansen co-integration result is a long-run relationship among the variables. Adeleye, Adoteye and Adewuyi (2016) examined the impact of international trade on economic growth in Nigeria from 1985 to 2012. The study employed regression analysis as the method of analysis using co-integration and error correction modeling techniques to analyse the relationship. The study found that total export (TEX) remains positive and significant, which means Nigeria is running a monoculture economy where only oil is the driver of the economy. Hamdan (2016) examines the effect of exports and imports on economic growth in the Arab countries from 1995 to 2013. The study found that exports and imports had a positive effect on economic growth in the Arab countries. It is an important indicator for measuring the efficiency and effectiveness of the work element in achieving a certain level of output in the production process. There is a need to increase imports of technology to increase labour productivity, which can directly promote economic growth and thus improve the standards of living in Arab countries. Bakari (2016) found that there is no relationship between exports, imports and economic growth in Canada.

From the literature reviewed, it was observed that only a few studies have examined the effect of external sector aggregates on the economic performance of countries; most of the works reviewed foreign trade and economic growth, import and economic growth, export and economic growth and so on. For instance, Bakari (2016) investigated the relationship between exports, imports and economic growth in Canada. Handan (2016) focused on the effects of exports and imports on economic growth in the Arab countries.

METHOD

Multiple regression analysis was used in the study. Time series data spanning from 1990 to 2022 was sourced from the Central Bank of Nigeria statistical bulletin.

Model Specification

To investigate the impact of the external sector on economic performance in Nigeria, the model was specified thus:

$$RGDP = f(IMP, EXPT, EXR, FDI) \quad (1)$$

Where:

RGDP = Real Gross Domestic Product (proxied economic growth)

EXPT = Exports

EXR = Exchange rate

FDI = Foreign direct investments

IMP = Imports

The model in its econometrics linear form can be written as

$$RGDP = \beta_0 + \beta_1 IMP + \beta_2 EXR + \beta_3 EXR + \beta_4 FDI + U \quad (2)$$

Where:

β_0 = Constant intercept

U = Stochastic or random error terms

$\beta_1 - \beta_4$ = Coefficients of associated variables.

The theoretical expectations about the signs of the coefficients of the parameters are as follows: $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 < 0$ and $\beta_4 > 0$

Since the data for the analysis is time series, the augmented Dickey-Fuller (ADF) unit root test was employed to ensure data stationarity and avoid the problem of spurious regression. A bound test was applied to determine the existence of a long-run equilibrium relationship among the variables.

Descriptive Statistics

Table 1 presents the summaries of the descriptive statistics for the variables used in this study. It shows the mean, median, maximum, minimum, standard deviation and normality distribution of all variables.

RESULTS AND DISCUSSION

Table 1: Descriptive statistics for individual variables

	RGDP	IMP	EXPT	EXR	FDI
Mean	4239006	5418349	6933547	129.4604	1.928812
Median	38378.80	2800856	7246535	128.6516	1.983588
Maximum	71387.83	20519192	19910534	358.8108	4.620790
Minimum	21462.73	45717.90	109886.1	8.037808	0.183786
Std Dev	19161.30	5867869	6267035	97.17704	1.025232
Skewness	0.305256	1.118084	0.475723	0.681661	0.526959
Kurtosis	1.471543	3.462690	1.918963	2.834844	3.335068
Jarque – Bera	3.499003	6.735429	2.678773	2.435986	1.579726
Probability	0.173861	0.034468	0.295823	0.295823	0.453907
Observation	31	31	31	31	31

Source: Author's computation from E-view 10

The outcome of the descriptive statistics for the variables captured in Table 1 reveals that the average RGDP, IMP, EXPT, EXR and FDI for 31 years of the study are N42390.06 billion, N5418349 billion, N6933547 billion, 129.46% and N1.928812 billion, respectively.

The maximum and minimum RGDP recorded during the 31 years study are N71387.83 billion and N21462.73 billion, import of N20519192 billion and N45717.90 billion, and export N19910534 billion and N109886.1 billion, respectively. Concerning the detection of normality for each of the variables, the probability value of the Jarque-Bera statistics showed that all variables were normally distributed except for import. The skewness depicts that all the series are positively skewed. Also, only the series of imports and Foreign Direct Investment are platykurtic as the kurtosis is above 3. The study found that RGDP, EXPT, and EXR are leptokurtic.

Unit Root Test

The results of the unit root test using the Augmented Dickey-Fuller (ADF) are presented in Table 2 below:

Table 2: Results of ADF Unit Root Test

ADF RESULT				
Variable	Level	First Difference	Order of integration	Decision
RGDP	-3.0395 (-2.9810)	N/A	I(0)	SS
EXPT	-1.4968 (-2.9540)	-3.3949 (-2.9571)	I(1)	SS
IMP	5.1175 (-2.9810)	N/A	I(0)	SS
EXR	1.3447 (-2.9571)	-3.7928 (-2.9671)	I(1)	SS
FDI	-1.9783 (-2.9639)	-8.3196 (-2.9677)	I(1)	SS

Note: critical value of 5%, ss = stationary

Source: Author's computation using E-view 10

From the table above, real gross domestic product (RGDP) and import (IMP) were stationary at a level as their respective ADF statistics were greater than their corresponding critical value at 5%, export (EXPT), exchange rate (EXR), and Foreign Direct Investment (FDI) only became stationary after differencing once. Conclusively, the series are mixed order of integration, with no two I (2) promoting the adoption of the single equation ARDL model.

The Co-integration test

The results of the co-integration test using Pesaran's bound test approach are presented in Table 3 below:

Table 3: Bound Test Based on F – Statistics

Significance	I(0) Bound	I(1) Bound	Statistics
10%	2.2	3.09	F-Stats = 15.02
5%	2.56	3.49	
2.5%	2.88	3.87	K=4
1%	3.29	4.37	

Null Hypothesis: No of long-run a relationship exist); Level of significance of 10%, 5%, 2.5% and 1% respectively K=number of regressors

Source: Author's computation using E=view 10

We adopted the Persaran et al (2001) bound test approach to ascertain if there is a co-movement between the considered variables. Table 3 shows the bound test approach to long-run determination between the series of interest. As evidenced from Table 3, the F-statistic (15.02) is greater than the upper bound value at 5% level of significance (3.49). In place of the above, we conclude that there is a long-run relationship between the Gross Domestic Product, imports, exports, exchange rates, and Foreign Direct Investment, or that move together in the long run.

The behavior of the explanatory variables in the long-run is captured in table 4 below:

Table 4: ARDL Long Run Result

Variable	Coefficient	Std. Error	T-stat	Prob
IMP	0.001030	0.001570	-0.656418	0.5584
EXPT	0.003359	0.000927	3.624223	0.0361
EXR	112.5995	31.29032	3.598542	0.0368
FDI	4187.981	2067.358	2.025764	0.1359
C	5229.965	7176.227	0.728790	0.5189

Source: Author's Computation Using E-view 10.

Table 4 reveals a negative relationship between imports and Gross Domestic Product during the study period, and in clear consonance with theoretical expectations. As shown in the table, a one per cent increase in imports will decrease real Gross Domestic Product by 0.001% in the long run, although it was found to be statistically insignificant. The result

discloses a positive and significant relationship between exports (EXPT) and Real Gross Domestic Product (RGDP) in the long run, as a unit increase in exports (EXPT) will increase Real Gross Domestic Product by 0.003% and it was revealed to be statistically significant. This is also in conformity with theoretical expectations. Similarly, a positive but insignificant relationship was reported to exist between foreign direct investment (FDI) and real gross domestic product (RGDP) in the long run. This positive relationship also conforms to theoretical expectations.

The Short-Run Result

The table below provides the short-run ARDL model selected automatically using the Schwarz information criterion (sic).

Table 5: Short-Run ARDL Model

Variable	Coefficient	Std. Error	t-stat	Prob
$\Delta(\text{IMP})$	9.50610	4.85605	1.97022	0.1434
$\Delta(\text{IMP}(-1))$	-0.00051	6.64831	-8.31844	0.0036
$\Delta(\text{IMP}(-2))$	-8.02852	9.60131	-0.86273	0.4517
$\Delta(\text{EXPT})$	-1.49106	4.70612	-0.03165	0.9767
$\Delta(\text{EXR})$	-0.00095	0.00001	-9.11634	0.0028
$\Delta(\text{EXR}(-1))$	-0.00069	8.62131	-8.03719	0.0040
$\Delta(\text{EXR})$	14.82910	3.42708	4.32702	0.0223
$\Delta(\text{EXR}(-1))$	-8.66104	3.55533	-2.43606	0.0928
$\Delta(\text{FDI})$	366.5357	74.0137	4.95226	0.0158
$\Delta(\text{FDI}(-1))$	-895.6515	95.60164	-9.36858	0.0026
ECM_{t-1}	-0.411854	0.026562	-15.5053	0.0006

$$R^2 = 0.79$$

$$\text{Adjusted } R^2 = 3056.78$$

$$F - \text{statistics} = 3056.78$$

$$\text{Prob. (F-stat)} = 0.000008$$

In the short term, import (IMP) is lagged one and two years, and it was found to hurt real gross domestic product (RGDP), but significant in period one, but statistically insignificant in periods one & two. Export (EXPT) as revealed by the table above indicates a negative impact on RGDP in the current, lagged one, and lagged two periods and was found to be statistically insignificant except for lagged one, whose probability value (0.0028) is less than the 0.05 level of significance. The ARDL equilibrium correction model (ECM) revealed the

R-square coefficient of 0.79, implying that 79 per cent of the variation in the outcome variable (RGDP) is accounted for jointly by the explanatory variables, with the residual of 21 per cent by variables omitted from the model but captured by the error term.

The coefficient of the lagged error correction term is negative and significant at 1% level of significance, supporting the result of the bound test of co-movement between the variables. The coefficient of -0.41 is suggestive that the convergence of the model to long-run equilibrium occurs at a speed of 41%, and the speed of adjustment of the model is 41%. It also means temporal adjustments will be corrected at a speed of 41%.

Table 6: Diagnostic Test

Test/Hypothesis Tested	Test type	Test-stats	Prob.	Decision
Residual Normality (Residuals are normally distributed)	Jarque-Bera	0.2446	0.8846	Accept
Serial Correlation (no serial correlation)	Breusch – Godfrey LM Test	4.2173	0.3256	Accept
Heteroskedasticity (Homoscedasticity)	Brusch-pagan Godfrey	1.5344	0.4100	Accept

Note: (Hypothesis is in null forum).

From the table above, the outcome of the diagnostic test carried out on the error correction model is. As evidenced by the test, the error term is normally distributed, with no evidence of autocorrelation. The result of the normality test showed that the residuals are normally distributed, as the probability value of the Jarque-Bera statistics of 0.8846 is greater than the 0.05 level of significance, thus leading to the non-rejection of the null hypothesis. The Breusch-Godfrey LM test shows the absence of autocorrelation as the probability value of the LM test statistic is greater than the 5% level of significance. The outcome of the ARCH test of heteroscedasticity led the study to reject the null hypothesis of homoscedasticity. Hence, the test showed the presence of a constant variance.

The stability of the model was ascertained using the cumulative sum (CUSUM) and the cumulative sum (CUSUM) of squares. The plot of both tests. The plots of both tests showed that the statistics are within the 5% critical bounds, as shown in Figures 1 and 2, suggesting that the estimated model is stable and no structural break exists.

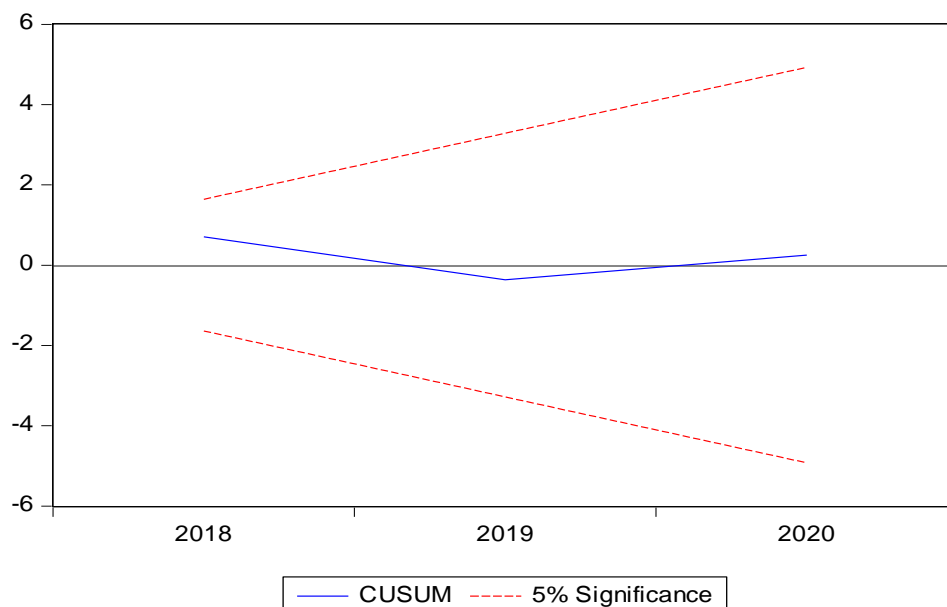


Figure 1: Plot of cumulative sum of square

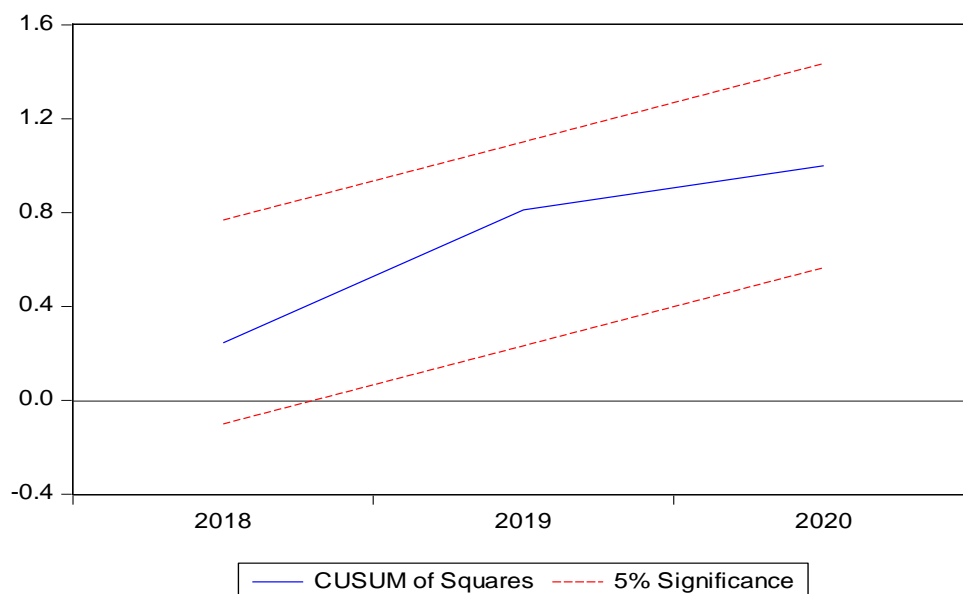


Figure 2: Plot of cumulative sum of squares of recursive residuals

CONCLUSION AND RECOMMENDATION

This work examines the impact of external sector economic performance in Nigeria from 1990 to 2022. Time series data were collected from secondary sources on real GDP (RGDP), a proxy for economic performance, imports (IMP), exports (EXPT), exchange rate (EXR), and foreign direct investment (FDI). The data were analysed using descriptive statistics, unit root test, co-integration, and the error correction mechanism (ECM) technique of analysis to estimate the model. The result revealed that IMP, EXR, and FDI were negatively related to real gross domestic product. EXPT was positive for the real gross domestic product in Nigeria. Also, except for export (EXPT), all the other variables, import, foreign direct investment, and exchange rate, did not significantly impact the real gross domestic product in Nigeria during the period of the research study.

Based on the above findings, the study recommends the following:

1. Since there is a positive relationship between export (EXPT) and real gross domestic product (RGDP), the government should encourage export diversification of non-oil sector exports. This can be achieved through promoting the output of the agriculture and manufacturing sub-sectors of the economy.
2. The government should encourage private investors to import more productive capital goods to boost production to satisfy local demands.
3. The Nigerian government should encourage FDI inflows by implementing the Nigeria Investment Promotion Commission Act, which allows foreign investors to own up to 100% equity in Nigerian subsidiaries and conduct any business in Nigeria, with some exceptions.
4. The government should stabilise exchange rate management policy and excessive depreciation of the Naira; ensure international competitiveness of tradable goods, relative price stability, and avoid inconsistent fiscal policies.

REFERENCES

- Adeleke, K. M, Olowe, S. O, and O. O. (2014). Impact of Foreign Direct Investment on Nigeria Economic Growth. *International Journal of Academic Research in Business and Social Sciences*, 4(8), 234-242.
- Adeleye, J. O., Adeteye, O. S. and Adewuyi, M. O. (2015) Impact of International Trade on Economic Growth in Nigeria (1988-2012). *International Journal of Financial Research*, 6(3), 163-172.

- Ajayi, L and Oke, M. (2012). Effect of External Debt on Economic Growth and Development of Nigeria. *International Journal of Business and Social Science*, 3(12), 1112-1119.
- Akinbobola, D. T. and Oyetayo, O. J. (2010). Econometric Analysis of Real Exchange Rate and Domestic Output Growth in Nigeria. *International Journal of Academic Research*, 2(1), 20-29.
- Arodoye, N. L. and Iyoha, M. A. (2014). Foreign trade economic growth nexus: evidence from Nigeria. *CBN Journal of Applied Statistics*, 5(1), 121.
- Azeez, B. A. Dadu, S. O. and Aluko, O. A. (2014). Effect of International Trade on Nigerian Economic Growth: The 21st Century Experience. *International Journal of Economics, Commerce and Management*, 2(10), 1-8.
- Bakari, S. (2016). Impact of Exports and Imports on Economic Growth in Canada: Empirical Analysis Based on Causality. MPRA Paper No: 75910, 1-18.
- Gbosi, A. N. (2015). *Contemporary Macroeconomic Problems, Stabilization Policies* (2nd Edition). Spirit and Truth Publishers.
- Ghosa, L. R. (2012). The external sector and economic growth in India. *The International Association of Research in Income and Wealth*, 1(2), 20-32.
- Hamdan, B. S. S (2016). The effect of exports and imports on economic growth in the Arab countries: A panel data approach. *Journal of Economics Bibliography*, 3(1), 100-107.
- Ifionu, P. and Ogbuagu, A. (2007). An econometric evaluation of exchange rate and external sector performance in Nigeria (1975-2005) *The Nigerian Academic Forum*, 13(2), 75-82.
- Ijeoma, N. B. (2013). An empirical analysis of the impact of debt on the Nigerian economy. *An International Journal of Arts and Humanities* 2(3), 165-191.
- Mordi, C., Englama, A. and Adebuseyi, B. (2010) *The Changing Structure of the Nigerian Economy* (2nd edition). Atisele Vanessa Cards cp.

Obayori, J. B. (2016) Fiscal policy and unemployment in Nigeria. *The International Journal of Social Sciences and Humanities Invention* 3(2), 1887-1891.

Obida, G. and Nurudeen, A. (2010). The long-run effects of fiscal deficits on economic growth in Nigeria, 1970-2008. *The Nigerian Journal of Economic and Management Studies*, 4(2), 7-20.