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THE LONG-RUN STABILITY OF NIGERIAN ECONOMIC STRUCTURE

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ABSTRACT
Nigerian economy is structurally defective because of its dependent on oil. Issues such as inadequate infrastructures, obstacles to smooth trade, unstable economic policies distort the structure of the economy and translate to economic instability. Sustained economic growth is critical to economic stability which this study was aimed to analyze. Secondary data was used for the study which was obtained from Central Bank of Nigeria (CBN) statistical bulletin and was analyzed using inferential statistics. Results revealed the existence of stationary relationship between the selected economic sectors at 5% level of significance. The negative coefficient (-0.047895) of Nigerian Gross Domestic Product (NGDP) indicated the existence of long-run relationship between the NGDP and the selected economic sectors and the Error correction model (ECM) value of -0.3414224 connoted long run instability in the economic structure. The result also revealed agricultural and oil sectors as the drivers of the Nigerian economy.

Keywords: Economic, Error correction model, Nigerian, Stability, Structure.

INTRODUCTION
The growth, performance and stability of any economic sector depend on the viability of macro-economic policies operating in the economy. Nigeria's economic policies rest on the basic aim of securing for her citizens economic welfare and prosperity. This requires adequate supply of goods and services to support rising standard of living, sufficient employment and income opportunities for the masses which generate effective demand for these goods and services and enable them to enjoy the benefit of development. Notwithstanding, there is always switching cost of economic policies, requiring that socio-economic situation directs policy paramountcy.

At the time of independence in 1960, Agriculture was the steering wheel of the Nigerian economy employing more than 80% of the working population. The sector contributed over 60% to the nation's Gross Domestic Product (GDP) and provided almost 100% of the economy's food requirement, raw materials to industries and served as the major source of the country's income (Abah *et al.,* 2015). The beginning of Nigeria's self-government up to middlemost of 1970s witnessed swift upsurge in industrial capacity output, as the contribution of the manufacturing sector to GDP grew from 4.8% to 8.2% (Adedipe, 2004). Contrariwise, this order changed when oil became vital to the entire world. The mammoth input of agricultural and manufacturing sectors to the economy has lost its footing into a systematic turn down. The significant addition by the Nigeria's agricultural sector to GDP of 56% between 1960 and 1964 slipped down to about 47% between 1965 and1969 and descending to 42% in 2006 and dropping more from 25.28% to 20.85% between 2007 and 2017 (World Bank Statistics, 2018). Contribution of manufacturing sector to GDP also falls from 24.34% in 2007 to 20.85% in 2017. The consistent decline in the measure of agricultural and manufacturing

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sector shows that the productivity of the Nigeria's agricultural and industrial productivity is serious falling.

The emergence of oil between 1956 and mid-1970s brought about shift of focus from policies that favors agricultural and other non-oil sectors but paying much attention the oil sector. The era of the oil boom made Nigeria a victim of monolithic economy and a constant importer of economic goods. Thus, always fall into serious problems when oil earnings decreased with lower international prices. Most Nigerians are keen and adapted to oil and oil money to the degree that any change in state of affairs at the international oil market would bring about an instant reaction from both the populace and policy makers (Adegbie *et al*; 2019).

The broad objective of the study is to predict the stability of Nigeria's economic structure. The specific objectives were to: (i) analyze the degree of relationship that exists between selected economic sectors (agriculture, oil, industry, trade and service sectors) and their influences on the overall economic performance; (ii) predict the long-run stability in the structure of the economy and (iii) determine the sectors that drive the Nigeria's economic growth.

MATERIALS AND METHODS

Sources of Data

The study made use of secondary data which were obtained from central bank statistics bulletin (CBN) for the period of 37 years 1981-2018. Nigeria's gross domestic product (NGDP) was used as proxy for economic growth as well as the overall economic structure, agricultural gross domestic product (AGDP) was used to represent the contribution and performance of agricultural sector. The performance and contribution of oil gross domestic product (OGDP), Industry Gross Domestic Product (IGDP), Trade Gross Domestic Product (TRGDP) and Service Gross Domestic Product (SGDP), respectively.

Method of Data Analysis

Analytical tool employed were Johansen cointegration analysis, error correction model (ECM) and Granger causality.

1. **Unit Root Test:** When investigating integration economic sectors, the study first examined each series for evidence of non-stationarity in order to confirm that co-integration approach is the appropriate tool (Bonsu *et al.*, 2011). Augmented Dickey Fuller (ADF) test was used to test the stationarity of the data collected. The ADF equation estimated by OLS is rooted in a model with a constant as follows:

$$D(P_t) = \beta + \delta P_{t-1} + \alpha_1 \sum_{t-1}^{n} D(P_{t-1}) + \varepsilon_t \quad \ldots(1)$$

where;

D is the differencing operator; P_t is the price variable of interest and $\mathcal{E}_t$ is a white noise process. The unit root test is stated as:

H_0: $\delta = 0$ (P_t is non-stationary or has a unit root)

H_1: $\delta \neq 0$ (P_t is stationary or has no unit root).

2. Granger Causality Test: Granger causality test was used to determine economic sector(s) that derive the Nigera's economy. It was carried out to determine the direction of causality. When two economic sectors are co-integrated and stationary, one can go ahead to carry out the Granger causality test. This is because one granger causal relationship must exist in a group of co-integrated series (Chirwa, 2000). When Granger causality run one way (uni-directional), the economic which Granger-causes the other is tagged the exogenous sector. It could also be bi-directional which means that both sectors influence each other (e.g., X

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causes Y and Y also causes X). The Granger model used in this study is presented by:

$$\Delta P_{it} = \sum_{i=1}^{m} a_i \Delta P_i(t-1) + \sum_{j=1}^{n} a_j \Delta P_j(t-1) + \ell_i \quad \ldots(2)$$

where;
m and *n* are the numbers of lags determined by a suitable information criterion (Akaike). Rejection of the null hypothesis indicates that sector *j* Granger-cause sector i. The hypotheses under the Granger causality can be stated as: H_o: performance of one economic sector does not affect the other.

RESULTS AND DISCUSSION

Unit Root Test

Unit root test was carried out to check for stationarity of NGDP, AGDP, OGDP, IGDP, TRGDP and SGDP using Augmented Dikey Fuller test (ADF). The test is used to show whether GDPs of selected sectors are stable or unstable. Unit root test was carried out for all the sectors under study. The result of the analysis shows that at levels, the P-value for the coefficients in all the sectors were not significant at 5% level. The null hypothesis H_0: ɗ=0 was therefore accepted. The series in all the sectors had a unit root in levels. This is interpreted to mean the GDP series in all the sectors were not stationary and that GDP series of the previous period influenced the current series. To make them stationary, their first differences were taken. Table 1 reveals that the P-value for the coefficients of AGDP, OGDP, IGDP and SGDP sectors were significant at 5% level. Therefore, the null hypothesis of the existence of unit root can be rejected, meaning that the GDP series are stationary at first difference I (1). The TRGDP sector became stationary in second difference I (2).

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Table 1: Results of unit test in first and second difference at 5% using Augmented Dickey Fuller (ADF)

Sector	First difference							Second difference						
	Intercept		Intercept and trend		None		Order of integration	Intercept		Intercept & trend		None		Order of integration
	ADF	P-value	ADF	P-value	ADF	P-value	I(1)	ADF	P-value	ADF	P-value	ADF	P-value	
NGDP	-6.323185	0.0000	-6.331061	0.0000	-6.373688	0.0000	I(1)							
AGDP	-5.421671	0.0001	-5.649223	0.0002	-3.685403	0.0005	I(1)							
OGDP	7.353703	0.0000	-7.229616	0.0000	-7.248793	0.0000	I(1)							
IGDP	6.924854	0.0000	-7.149717	0.0000	-7.176018	0.0000	I(1)							
TRGDP	-3.075187	0.0375	-3.137945	0.1132	-2.854247	0.0058	Not stationary	-6.459022	0.0000	-6.540691	0.0000	-6.564012	0.0000	I(2)
SGDP	-3.560371	0.0118	-3.844550	0.0254	-2.936183	0.0058								

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Johansen Cointegration Results

To examine the hypothesis that there are r co-integrating vectors, the max test was performed. Table 2 reports the results for the Johansen max-Eigen statistic based on the smallest value of AIC. Comparing the max-Eigen statistic with the corresponding critical values, it can be seen that the null hypothesis of no co-integrating relationship between the selected economic can be rejected at 5% level of significance. There are five (5) co-integrating equations suggesting that stationary relationship do exist among the five economic sectors**.**

Table 2: Results of Co-integration analysis for economic sectors

Null hypothesis	Alternative hypothesis	Max-Eigen statistic	5%critical value	P-values
$r = 0$	$r > 0$	55.73573*	33.87687	0.0000
$r \leq 1$	$r > 1$	34.88039*	27.58434	0.0048
$r \leq 2$	$r > 2$	24.60630*	21.13162	0.0155
$r \leq 3$	$r > 3$	15.20677*	14.26460	0.0354
$r \leq 4$	$r > 4$	4.110375*	3.841466	0.0426

*Denotes rejection of null hypothesis at 0.05 level

Long-Run Relationship from Error Correction Model

The error correction model (**ECM)** was constructed in order to analyze the long-run effects of the GDPs of selected economic sectors on NGDP. The result is presented in Table 3. The result pointed out that the coefficient (-0.047895) of NGDP has a negative sign and significant at 10% level. The implication of this is that there is the existence of long-run relationship between the NGDP and the selected economic sectors. The coefficient of multiple determinations (R^2) is 79%, suggesting that the variation in GDP of the economic sectors explained 79% of the changes NGDP. The result shows an ECM value of -0.3414224 connotes that any distortion in the structure of the economy caused by changes in various economic sectors would get adjusted at the speed of 34%. It can be deduced from the result that in the long run whenever there is a little shock in the structure of the Nigeria's economy, it will take as long as two and half years to get adjusted. Meaning Nigeria's economic might not be stable in the long-run. This result is similar to Adams (2019) that Nigeria's economy is through turbulence and is heading to total collapse if necessary is not taken.

Table 3: Long-run estimates from error correction model (ECM)

Variable	Coefficient	Std-error	t-statistics
NGDP(-1)	-0.047895	0.24760	-0.9343
AGDP(-1)	6.886325	6.51978	1.05622
OGDP(-)	0.122604	4.10262	0.02988
IGDP(-1)	1.363501	3.72127	0.36641
TRGDP(-1)	3.810894	9.06184	0.42054
SGDP(-1)	-2.897931	5.60881	-5.5166
R^2	0.79		
Ecm	-0.3414224		

Granger Causality for Selected Economic Sectors

Pairs of economic sectors were investigated for the evidence of granger causality Table 4. The granger causality dictates the direction of influence between two co-integrated economic sectors. The result shows that there are six cases that exhibited unidirectional causality. In these

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cases, agricultural sector dictates the performances of trade and service sectors; oil sector dictates the performances of industrial and service sectors; trade sector dictates the performance of service sector while, none of the economic sectors depend on service sector. It could be deduced from the result of the finding that agricultural and oil sectors dictate the performance other economic sectors and therefore the drivers of Nigeria's economic growth. This is in-line with the finding of Moses and Olomu (2015) that Nigeria's economic growth is dependent on oil and agriculture sectors.

Table 4: Pairwise Granger Causality Tests

Null Hypothesis	**Obs**	**F-statistics**	**Prob.**
D(OGDP) does not Granger Cause D(AGDP)	35	1.04494	0.3642
D(AGDP) does not Granger Cause D(OGDP)		0.62079	0.5443
D(IGDP) does not Granger Cause D(AGDP)	35	1.25611	0.2993
D(AGDP) does not Granger Cause D(IGDP)		0.68680	0.5109
D(TRGDP) does not Granger Cause (AGDP)	35	0.26624	0.7680
D(AGDP) does not Granger Cause D(TRGDP)		19.3020	4.E-06
D(SGDP) does not Granger Cause D(AGDP)	35	1.36021	0.2720
D(AGDP) does not Granger Cause D(SGDP)		3.66498	0.0377
D(IGDP) does not Granger Cause D(OGDP)	35	1.57239	0.2242
D(OGDP) does not Granger Cause D(IGDP)		0.03217	0.9684
D(TRGDP) does not Granger Cause D(OGDP)	35	1.25069	0.3008
D(OGDP) does not Granger Cause D(TRGDP)		3.68127	0.0372
D(SGDP) does not Granger Cause D(OGDP)	35	2.38936	0.1089
D(OGDP) does not Granger Cause D(SGDP)		2.63579	0.0882
D(TRGDP) does not Granger Cause D(IGDP)	35	0.11850	0.8887
D(IGDP) does not Granger Cause D(TRGDP)		2.63828	0.0880
D(SGDP) does not Granger Cause D(IGDP)	35	0.43162	0.6534
D(IGDP) does not Granger Cause D(SGDP)		1.09600	0.3472
D(SGDP) does not Granger Cause D(TRGDP)	35	0.98068	0.3868
D(TRGDP) does not Granger Cause D(SGDP)		2.67222	0.0855

CONCLUSION AND RECOMMENDATIONS

The study investigated the stability of Nigerian economic structure in the long-run. The result revealed the selected economic sectors are co-integrated; this has led to the rejection of null hypothesis that performance of one sector does not influence the other. There were six (6) cases of unidirectional relationship existing between the sectors. The also predicted the existence of long run relationship between Nigerian Gross Domestic Product (NGDP) and the selected economic sectors. Based on the speed of adjustment of distortion, the study concluded the Nigeria's economic structure is likely to be unstable in the long-run.

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