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An Empirical Investigation for the Nexus between Agricultural Sector Export Base and Economic Growth in Nigeria

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Abstract: - *In this study, the researcher provides a fresh attempt to investigate the link between the agricultural export base and economic growth in Nigeria, using annualized data on selected variables that span through 1980 to 2017. The Johansen cointegration method was adopted and the corresponding VEC model specification was estimated using the OLS technique. The estimation results reveal that cointegrating relationship exists between economic growth, agricultural raw material exports and food exports. Long run influence run from these variable to economic growth; however, while agricultural raw material exports has inverse long run multiplier effects, food exports exhibit positive long run multiplier effects. To the contrary, in the short run positive dynamic influence runs from both agricultural raw material and food exports to economic growth.Therefore, we conclude that that agricultural exports do not have positive impact on growth in the long run go-ahead./*

I. Introduction

The non-oil sector of most developing countries, constitute the panacea to sustainable economic growth and development success. The significance of export activities in transforming the less developed and emerging economies into a realm of economic growth cannot be over emphasized. Exports as a component of external trade play substantial role not only for developing countries but also for the advanced economics of the world. The advanced countries mainly export capital and final goods. While the less developed economies export, agricultural raw materials and food, mining and semi-finished goods needed by industries. The export-led growth hypothesis stipulates that an increase in export of a country will definitely result to an increase in economic growth. The argument follows that the export sector generates positive externalities on non export sectors via efficient management styles and improved management techniques (Feder, 1983).

Generally, it is noted that export enlarges productivity by offering potentials for scale economies, Krugman (1997) and finally export alleviates foreign exchange constraint and provides greater access to the international markets, Olayiwole (2000). The hypotheses generally stresses that exports broaden economic growth since it can boost employment, expand profit, increase productivity and promotes accumulation of external reserve thus allowing countries to maintain favourable balance of payment. Countries with large export base develop more rapidly than those with high import base. By implication, a well diversified export base triggers per capital income, unemployment reduction and economic transformation whereas an economy with non diversification of her export base inhibits its potential to takeoff or maintain a high and sustained economic success. Usman and salami (2008) noted that export trade can turn an underdeveloped economy to a more prosperous economy. Further exporting activities expand aggregate demand through the process of the multiplier effect of economic activities.

Exports play very pivotal growth roles in every economy, hence Ricardo (1817) pointed out that foreign trade is highly beneficial to a nation. Therefore developed nations with the realization of this critical growth factor, pursue and articulate export led growth strategies aimed at increasing the volume, varieties of products for export and the level of national output.

In the same vein, most less developed countries of the world are yet to achieve economic prosperity due to structural challenges that limits economic growth and employment creation. Although myriads of factors have been adduced for the poor performance of the less developed economies as noted by Jhingan (2011), where he opined that underdeveloped countries are characterized with general poverty, underdeveloped natural resources, high unemployment, economic backwardness, lack of enterprise/ initiative, insufficient capital equipment etc. In addition to the aforementioned factors is the non diversification of economic products and growth sources of developing countries.

Nigeria unfortunately since the 1970's have been a mono cultural economy precariously dependent on crude oil as its key revenue source and major export commodity, which is in variance with the non oil export led strategy which was prevalent in the country prior to the 70's. In 2014, Nigeria became Africa's largest economy and the 26th largest in world, Africa's highest oil exporter and the world's tenth largest oil producing country yet the full indicators of underdevelopment still remain very prevalent in the country. CBN (2010) notes that Nigerian economy is heavily dependent on natural resources: oil and gas constituting 98% of total export, 80% of government revenues and about 20% of gross domestic product. Osuntogun etal (1997) observed that a factor crucial to the lack of economic progress is in the lack of economic diversity. The growth of the Nigerian non oil export has been very sluggish in the post independence era, it averaged about 2.3% during 1960 to 1990 but in relative terms declined systematically as the proportion of the total export fell from about 40% in 1970 to about 2% in 2006 after a marginal increase of about 5% in 2010 due to the introduction of export expansion grant (EEG), non oil export however declined further from $3billion in 2013 to $1.6 billion in 2015. Similarly, IMF (2016) bemoaned Nigeria's export as suffering from neglect describing the country as the worst performer among sub Saharan African economies. Onodugo (2013), Iyoboyi and Na-Allah (2015), Eyayu (2014) and Olayiwola and Okodua (2013), Alisana and Roderik (1999), have all shown that what would rescue developing countries especially Nigeria is in export diversification. In view of this, the study focus on the response of economic growth to agricultural and food exports in Nigeria. The rest of the paper is structured as literature review, data and model specification, results, conclusive remark/recommendation.

II. Literature Review

Omran (2015) Investigated on economic determinants of non oil exports in Sudan for the period of 1990 through 2012 with the application of the OLS technique. The result Indicate that real GDP, exchange rate and trade openness were discovered to have impact on non oil export in the Sudanese economy. The study concludes that exchange rate regime is a key factor that retards non oil export in Sudan.

Ezike and Ogege (2012) studied on the Nigerian foreign trade policy and its impact on non oil exports with data sourced from the central bank of Nigeria statistical Bulletin for the time 1970 to 2010. The study employed the least squares regression method in it analysis. The statistical result unveils that there exist a retarding effect of trade policies on non oil export on the Nigerian economy.

Olayiwola and Okodua (2013) did a causality analysis of foreign direct investment, Non oil export on economic growth. The study utilizes the variance decomposition and impulse response frame work in addition to the causality test. The finding of the causality regression uncovers a unidirectional causality emanating from FDI to non oil exports. The variance decomposition and the impulse responds methodology adopted reveals that three variables on the average and at early phase of out of sample forecast time exhibited a dormant response after seven years within out of samples forecast time.

Eyayu (2014) modified the determinants of Agricultural exports in sub Sahara Africa using panel data with fixed effects estimation method. The panel data covers the scope of 47 sub-Saharan countries spanning the period 2000-2008. The panel study reveals that supply side factors such as real gross domestic product, lagged by real GDP of the exporting economy and agricultural input lagged conforms to theoretical expectation and is significant to Agricultural exports. The per capital income of region tends to be negative and statistically related to total export of Africa (SSA).

Iyoboyi and Na-Allah (2015) adopted the autoregressive distributed lag method on effects of policy and institutions on non oil-exports in Nigeria using time series data for the period 1961 – 2012. The analysis reported that money supply (MS) and exchange rate (Exr) proves to be correlates of non oil exports and significant in the short run. The variable fiscal deficit, interest rate, constraints on executive and trade openness are statistically related to non oil export performance in Nigeria via the short and long run analysis.

Onodugo et'al (2013) while studying on the non oil export and its relationship to economic growth employed time series econometrics frame work on 1981 – 2012 data. Methodologically, the research uses augmented production function-APF alongside cointegration technique and the endogenous growth model in carrying out the econometric tests. Based on the output of the regression, non-oil export turns up to be extremely weak and infinitesimally positive on growth rate of the Nigerian economy.

Mkpado (2013) examined the effects of different aspects of service trade and the Nigerian non oil sector with secondary time series within 1980-2010. Data series were regressed using correlation, regression and descriptive statistical analysis. The study uncovered that aggregate service trade has increased from #1126.59 million in 1980 to #3076.19 million in 2010. In the relationship, a significant correlation was noticed between total value of service trade and various components of service trade only that other service trade & was signed negative. Further most road network, domestic government capital expenditure on services, domestic service GDP and agricultural credit positively explain the fluctuations in export of services.

Ali e'tal (2010) documented the factors determining non oil exports in the Iranian economy with the application of ADF unit root measurement and the long run model analysis of co integration. The regression output reveals that the changes in gross domestic product can be explained by oil and non oil expert revenues as they denoted with a positive and significant sign. The trend variable and inflationary rate had negative but significant effects on non oil exports, and private sector consumption.

Anthony and Somiara (2010), carried out a research on the impact of macroeconomic variables on non-oil export performance in Nigerian, from 1986-2010. The study used Ordinary Least Square technique (OLS). The result showed that exchange rate, government capital expenditure and government recurrent expenditure have impacted and contributed greatly to non-oil export. While the agricultural sector, manufacturing sub-sector and interest rate did not greatly impact and contribute to non-oil export during the period of the study. They therefore recommended that investment should be increased in non-oil export (agriculture and manufacturing sector) since the result shows that they are related to macroeconomics variables used except the interest rate.

Oyetade et al applied multivariate long run mechanism to analyze agricultural export cum oil exports on growth rate of the Nigerian economy. Secondary time series data were used alongside ordinary least squares (OLS), Granger causality test, Augmented Dekey fuller test and co integration test. The study outlines that the series are stationary. Furthermore, oil and agricultural port exhibited positive characteristics to the growth of real GDP within the time frame. While the descriptive statistics and the long run test were within normality.

Adeniyi and Saidi (2014) utilize the bound test methods to examine the link between determinants of non oil with data series from central bank of Nigeria bulletin and World Bank statistics between 1970 to 2012. The bound test of co integration technique establishes that there is a significant effect emanating from non oil export to economic growth both in the long and short run analysis. The study recommends that boosting the level and significance of the non oil export sector is necessary for a country like Nigeria.

III. Data And Model

3.1. Data

The researcher proposes to collect data on the variables of interest, which are GDP, agricultural raw material exports and food exports, from the Central Bank of Nigerian (CBN) statistical bulletin; over a sampling period of 40 years ranging from 1976 to 2015.

3.2. Model Specification

The interrelationships between GDP, agricultural raw material exports and food exports can be defined as.

$$GDPGR_t = a_{01} + a_{11}LGDPGR_t + ... + a_{1p}L^pGDPGR_t + b_{11}LAGEXP_t + ... + b_{1p}L^pAGEXP_t + c_{11}LFOEX_t + ... + c_{1p}L^pFOEX_t + v_{1t} \quad (1)$$

$$AGEXP_t = a_{02} + a_{21}LGDPGR_t + ... + a_{2p}L^pGDPGR_t + b_{21}LAGEXP_t + ... + b_{2p}L^pAGEXP_t + c_{21}LFOEX_t + ... + c_{2p}L^pFOEX_t + v_{2t} \quad (2)$$

$$FOEX_t = a_{03} + a_{31}LGDPGR_t + ... + a_{3p}L^pGDPGR_t + b_{31}LAGEXP_t + ... + b_{3p}L^pAGEXP_t + c_{31}LFOEX_t + ... + c_{3p}L^pFOEX_t + v_{3t} \quad (3)$$

Where the variables GDPGR, AGEXP and FOEXare GDP growth rate, agricultural raw material exports and food exports respectively. In a very simple way the VAR (P) system above can be redefined as.

$$y_t = a_0 + a_1Ly_t + ... + a_pL^py_t + bx_1 + cx_2 + u_t ; u_t \sim MWN(0, \Sigma_{u_t}) \quad (4)$$

$$(1 - a_1L - ... - a_pL^p)y_t = a_0 + bx_1 + cx_2 + u_t \quad (5)$$

$$a(L)y_t = a_0 + bx_1 + cx_2 + u_t \quad (6)$$

Where x_1 and x_2 are inflation and interest rate respectively, the VAR polynomial is given as $\theta(L) = 1 - \sum_{i=1}^{p} \theta_i L^i$. The absolute values of all the root of this polynomial must be less than one ($1 - \sum_{i=1}^{p} \theta_i L^i < 1$) or all the roots must lie in the unit cycle for the VAR process to be stationary and ergodic.

IV. Results

The results begin with the test of unit root, which is reported in table 4 below

Table 1-ADF Unit Root Test wrt GDPGR, AGEXP, FOEXP, INF and INS

Variable	ADF-Stat	5% CV	P-Value
DGDP	-8.49	-5.35	<0.01
DAGEXP	-11.52	-4.44	<0.01
DFOEXP	-5.24	-4.88	0.03
DINF	-7.16	-4.44	<0.01
DINS	-7.09	-4.44	<0.01

Source: Author's Computation

The break point ADF unit root test is conducted to verify the order of integration of each variable. The outputs of the test are the ADF statistics, the 5 percent critical values and probability value, which are presented in table 1. The null hypothesis here is that the series is not stationary or the series has a unit root. This hypothesis is rejected, if the ADF statistic is larger than the associated critical value at 5 percent in absolute form or the associated probability value is less than 5 percent (0.05). Mere looking at the table, the ADF statistics are -8.49, -11.52, -5.24, -7.16, -7.09, -5.14, -4.52, and -5.85 respectively for GDPGR, AGEXP, FOEXP, INF, and INS, the associated 5 percent critical values are -5.35, -4.44 , -4.88, -4.44, and -4.44, In this regard, the null hypothesis of a unit root is rejected because in absolute term, the ADF statistics are larger than the critical values at 5 percent. This simply means that GDP, agricultural exports, food exports, inflation, and interest rate spread are stationary at first difference or they are simply I(1) variables. Based on this result, the meaningful technique for estimation is Johansen multivariate cointegration method, which is reported in table 2.

Table 2-Long Run Cointegration Test on GDPGR, AGEXP and FOEX

Hypothesized No CE(s)	Eigen-Value	Trace-Stat	5% CV	P-Value
Panel-A				
None *	0.449598	32.57533	29.79707	0.0233
At most 1	0.318148	12.87082	15.49471	0.1196
At most 2	0.007058	0.233730	3.841466	0.6288

Hypothesized No CE(s)	Eigen-Value	Max-Eigen-Stat	5% CV	P-Value
Panel-B				
None	0.449598	19.70451	21.13162	0.0782
At most 1	0.318148	12.63709	14.26460	0.0890
At most 2	0.007058	0.233730	3.841466	0.6288

Source: Author's Computation

Table 2 displays the results of the trace test in panel A and maximum Eigen test in panel B. The largest Eigen value is approximately 0.007, meaning that the system of the equations is stable. The trace value or statistic in the first row (32.58) is larger than the 5 percent critical value (29.80). Therefore, the null hypothesis of no cointegration is rejected. However, in the second row, the critical value (15.49) is larger than the trace statistic (12.87), meaning that the null hypothesis that there is one vector or cointegrating equation cannot be rejected. With reference to maximum Eigen test, the null hypothesis that there is no cointegration is not rejected because in the first row the trace statistic (19.70) is not larger than the critical value (21.13) at 5 percent. Thus, based on the trace test there is evidence of cointegration and long run relationship between economic growth, agricultural raw material exports and food exports in Nigeria. The next important question is what is the nature of this long run relationship? In table 3, the answer to this question is provided.

Table 3-Nature of the Long Run Relationship between GDP, AGEXP and FOEXP

Variable	Coefficient	Std-error	T-value
AGEXP(-1)	-2.351545	-0.7111	[-3.30715]
FOEXP(-1)	3.590443	0.875	[4.10316]

Source: Author's Computation

The long run coefficient with respect to agricultural raw material exports is -2.33 and the associated t value -3.31. This means in the long run agricultural raw material exports will decrease significantly with increase in GDP. Therefore, if agricultural raw materials are used for local production to boost GDP, exportation of raw material declines, while GDP increases. The long run coefficient of food exports is positive and significant. In the long run, a rise in exportation of food exerts an increase in GDP. The disequilibrium in the long run must be corrected otherwise, long run relationship does not exist. The correction mechanism is referred to error correction model (ECM). I estimate the ECM coefficient along with short run dynamic coefficients, and the values of these coefficients are presented in table 4.

Table 4 -Dynamic Short Run Relationship between GDP, AGEXP &FOEXP, and the ECM Coefficient

Variable	Coefficient	Std-error	T-value	P-Value
ECM(-1)	-0.454631	0.186308	-2.440210	0.0169
DGDP(-1)	-0.044223	0.184978	-0.239070	0.8117
DAGEXP(-1)	0.131237	1.196149	0.109716	0.9129
DFOEXP(-1)	1.251364	0.720299	1.737284	0.0861
INF	0.063720	0.057163	1.114706	0.2683
INS	-0.021359	0.366081	-0.058345	0.9536

Source: Author's Computation

Table 4 uniquely presents the coefficients of short run dynamic variables- DGDP(-1), DAGEXP(-1), DFOEXP(-1) and ECM coefficient. The dynamic coefficient of GDP at lag 1 is negative. This means an increase in previous GDP could lead to decrease in current GDP in the short run. While previous agricultural raw material exports and food exports influence current economic growth positively. Hence, in the short run dynamic changes in the exportation of agricultural raw material and food could lead to positive changes in economic growth. In addition, inflation marginally influences growth positively, but interest rate spread exerts growth inversely. The ECM coefficient is negative -0.45, suggesting that any disequilibrium can be corrected at the speed or rate of 45 percent within a year. In view of this, there is long run dynamic causality or influence running from food exports and agricultural raw material exports to economic growth. Nigeria can take advantage of this influence, and strategize how she will survive when revenue from oil must have declined abysmally in the future.

V. Conclusive Remark and Recommendation

Based on the findings, the study concludes that except there is diversification to non-oil export sector, long run growth cannot be sustained in Nigeria. Like the developed world, the long run co-movement of these variables is concluded necessary for the growth of Nigerian economy. Also we conclude that in the long run, agricultural raw material exports, impact economic growth negatively but on the contrary food exports poses direct influence on growth. It has been ascertained in the literature that all raw material or semi-finished good exporting countries are broadly classified as less developed countries, while almost all finished good exporting countries are either developed or second world emerging economies. Based on this, the exportation of raw materials and intermediary goods yields 'negative externality' that is capable of reducing GDP growth rate in Nigeria. Therefore, we recommend that Nigerian government, as a matter of fact and urgency, should consider agricultural subsector of the economy. This consideration should include provision of subsidies on agricultural inputs like fertilizers, hybrid seeds, weed killer chemical and tractors, to mention but a few; acting as guarantor to local farmer to obtain credits from conventional deposit money banks and creation of agricultural credit bank, specifically empowered by government to create only agricultural credits of varying and flexible maturities

Reference

[1]. Central Bank of Nigeria (1999). A diagonostic Study of the Nigerian Non-Oil export sector: Findings and Recommendation.

[2]. Ezike J.E and Ogege S. (2012) Nigerian foreign trade policy: Its impact on non-oil exports. Journal of Economics and International Finance Vol. 4(8), pp. 192-200.

[3]. Jhingan M. L. (2011) The Economics of development and planning, Vrinda publishers, India. 40th edition.

[4]. Krugman P. R. Obstfeld M. & Melitz M. J. (2013) International Economics: Theory and policy, Pearson Education Limited, England, 9ed.

[5]. Olayiwola, K and Okodua, H. 2010. Foreign Direct Investment, Non-Oil Export, and the Economic Growth in Nigeria: a causality analysis, Ota Nigeria: Covenant Faith University.

[6]. Osuntogun, A., Edordu, C. C. and Oramah, B. 0. (1997), "Potentials for diversifying Nigeria's non-oil exports to non-traditional markets". AERC Research Paper 68, November.

[7]. Usman 0. A. and Salami A. 0. (2008) "The Contribution of Nigerian Export-Import (NEXIM) Bank towards Export (non-oil) Growth in Nigeria (1990-2005)", International Business Management 2(3): 85-90.