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THE CONTRIBUTION OF NONOIL EXPORTS TO ECONOMIC GROWTH IN NIGERIA

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Abstract: This paper examined the contribution of non-oil exports to economic growth in Nigeria from 2000 –2020. The increasing clamour for the diversification of the Nigerian economy from oil, the rising level of prices and slow growth rate of GDP informed the choice of carrying out this study. The objectives of the study were to; examine the effect of rubber and plastic export on economic growth in Nigeria; determine the effect of hide and skin export on economic growth in Nigeria; and examine the effect of wood and charcoal export on economic growth in Nigeria. Semi-annual secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin and analysed using the Auto Regressive Distributed Lag (ARDL) model after conducting basic analyses like: descriptive statistic and the unit roots test. The unit root test results showed that: some variables were stationary at order zero, while some at order one, which satisfied the requirement for using ARDL model. The ARDL test showed that; there is a long-run relationship between nonoil exports and economic growth in Nigeria during the period of study. Furthermore, in the short-run, rubber and plastic export, wood and charcoal export, hide and skin export are positively related with economic growth. Based on these findings, the study recommended amongst others that, there should be increased investment in the real sector to stimulate non-oil exports

Key Words: Charcoal, Exports, Economic, Growth, Nonoil, Plastic, Rubber

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1.0 INTRODUCTION

Foreign trade is perceived as a dynamic force, which by widening the extent of the market and scope of the division of labour, permits a greater use of machinery, stimulates innovations, overcomes technical indivisibilities, raises the productivity of labour, and generally enables the country to enjoy increasing returns and economic development. Of major benefit is the opportunity that trade offers for the exchange of goods with less growth potential for goods with more growth potential, thereby quickening the progress that results from a given effort on the savings side. An obvious example is the opportunity to import capital goods and materials required for development purposes. The importation of technical know-how and skills is an indispensable source of technological progress and importation of ideas in general is a potent stimulus to development. Not only is this vital for economic change in itself but also for political and socio-cultural advances which may be the necessary preconditions of economic progress.

Although Nigeria, like most developing countries, has in the past fifty-five years had modest increases in its foreign trade, nevertheless, the economic growth effects have been minimal. This is because this has not resulted in the meaningful transformation of the Nigerian economy. The economy is essentially monocultural, with crude oil being the basic export. Agricultural sector occupied significant positions in the early 1960s have been relegated to the back ground as from the mid-1970s, as a result of increased output from oil sector. As the major export, large revenue is generated which has made the economy to focus on the sector and ignored other sectors as well as potential revenue that can be generated these other sectors. There is need to diversify the Nigerian economy away from the oil sector to the non-oil sector because the non-oil sector has the potential to propel the economy toward growth and development.

According to Onwualu (2012) the value chain approach to agriculture alone has the potentials to open up the economy and generate various activities which are capable of creating jobs and enhancing industrialization and thus makes the non-oil sub-sector to hold the aces for future Nigerian sustainable economic growth. Expanding the non-oil export to get rid of one-product economy has been known as a solution for economic development in oil producing countries of which Nigeria is one and also the sixth largest oil producing and exporting country in the world (Imoughele & Ismaila, 2015; Zubair, Salihu & Gyang, 2021).

Statement of the Problem

Nigerian economy has been characterized as a mono cultural economy, relying heavily on revenues from crude oil export for the growth of the economy since the 1970s. The oil sector is known to contribute over 90% of export earnings to Nigeria. Moreover, the oil export earnings are concentrated in the hands of almost one percent of the Nigerian population, dominated by expatriates and members of the political class who control production and the proceeds respectively (Matthew, Charles, Dorothy & Suleiman, 2017). The worse scenario is that the oil-sector is disconnected from other sectors of the economy and thus offers little or no multiplier effect to the economy as a whole. Thus, this mono-culture situation has brought untold hardship on the people of the country in terms of high rate of poverty, unemployment and increase in general price level.

One major problem with the over reliance on oil exports is the fact that, its price often fluctuates. This implies that the dynamics of the Nigerian economy is at the whims and caprices of the price of oil (Enoma & Isedu, 2011). This means that any structural distortion in the foreign economies capable of causing change in oil price directly

affects Nigerian economy. A classic example is what is presently happening to the Nigerian economy characterized by a fall in exchange earning, a fall in GDP, depletion of external reserve. The continued unimpressive performance of the non-oil sectors in the economy and the vulnerability of the external sector thus dictate the urgent need to diversify the economy back to the abandoned non-oil sectors in order to boost the nation foreign earnings through non-oil exports. This is because before the advent of oil, the non-oil sectors like the agriculture and the mining sectors were known to be the driven force of Nigeria's exports which accounted for over 66% of Nigeria's total export and contributed immensely to the growth of Nigeria's economy in the 1960s (Ogunkola, Bankole, & Adewuyi, 2008; Matthew et al, 2017).

This scenario therefore provided a justification to find out if non-oil exports do contribute to economic growth in Nigeria. Thus, the specific objectives of the study were to; examine the effect of rubber and plastic export on economic growth in Nigeria; determine the effect of hide and skin export on economic growth in Nigeria; and examine the effect of wood and charcoal export on economic growth in Nigeria. This study used semi-annual data which covers the period of 2000-2019. Meanwhile, the choice of the period of investigation is based on the availability of data on non-oil exports. The remaining parts of this study examined the literature review, the methodology, results and discussion as well as conclusion and recommendations.

2.0 LITERATURE REVIEW

2.1 Concepts of Non-Oil Exports and Economic Growth

Non-oil exports are those commodities excluding crude oil (petroleum products), which are sold in the international market for the purpose of revenue generation. The Nigeria's non exports sector is structured into four broad constituents which are the agricultural exports, manufactured exports, and solid mineral exports (Matthew et al, 2017; Akeem, 2011). The non-oil exports products are unlimited as they include agricultural crops, manufacturing goods, solid minerals, entertainment and tourism services etc. (Abogan, Akinola, & Baruwa, 2014). This explains non-oil export in the context of this study. Akeem (2013) defined the non-oil sector of the Nigerian economy as the whole of the economy less oil and gas sub-sector. It covers agriculture, industry, solid minerals and the services sub-sector, including transport, communication, distributive trade, financial services, insurance, government, etc. This definition is sufficient for the purpose of this study.

On the other hand, economic growth as used here refers to increase in the total goods and services produced in an economy. Pritzker, Arnold and Moyer (2015) identified Gross Domestic Product (GDP) as the economic indicator which measures the value of the goods and services produced in an economy in a given time period. They stated that GDP is a measure of the economy's output and is a measure of current production, not sales. Thus GDP, is the market value of all final goods and services produced in a country in a given time period and it indicates an economy's performance (economic growth). When a GDP is measured using the current market prices it is called a nominal GDP, but when a certain base year is used for the calculation of a GDP, it is called a real GDP. That is the GDP that is used for the purpose of this study.

2.2 Absolute Advantage Trade Theory

Absolute advantage theory means the ability of a country to produce a larger quantity of a good with the same amount, of resources as another country. The country's absolute advantage may be due to the nature of its resources or to its production skills. According to Smith, each nation benefits by specializing in the production of

goods that it produces at a lower cost than the other nation, while importing the good it produces at a higher cost. This will increase specialization, world output and the gains from trade. According to this theory, foreign trade is a positive-sum game, because both countries involved will benefit from trade. Thus, a nation need not gain at the expense of other nations, as all nations could gain simultaneously (Mankiw, 2009; McCombie & Brue, 1993)

International trade in Nigeria dates back to the pre-colonial era, where the geographical entity now known as Nigeria comprised kingdoms and empires traded what they had in abundance with other kingdoms across West Africa, and sometimes, even north of the Sahara. Historians who record this period observe that this trade across frontiers increased the welfare of the people by providing them with a variety of items that could not be produced within.

With colonization came a new era of trade. Nigeria, being a geographical area endowed with arable land, was poised to be the agricultural hub of West Africa. Between the 1900s and the 1960s, Nigeria traded predominantly in agricultural products. Trade volumes further increased in the years that followed the discovery of crude oil in 1956, as income from sale of oil bolstered foreign exchange earnings.

2.3 The Export-led Growth Theory

The export-led growth hypothesis which is the main determinant of overall economic growth of any country has its main arguments based on the fact that export growth may affect total factor productivity through dynamic spillover effects on the rest of the economy (Akeem, 2011). According to the theory, there are several ways in which exports can potentially cause an increase in productivity. An expansion in exports may promote specialization in production of export products which in turn may boost productivity levels and may cause the general level of skills to rise in the export sector. This then leads to a reallocation of resources from the (relatively) inefficient non-trade sector to the higher productive export sector. This productivity change leads to output growth (Todaro & Smith, 2012).

The core theoretical criticism of the export-led growth model among others is that it suffers from a fallacy of composition whereby it assumes that all countries can grow by relying on demand growth in other countries. When the model is applied globally in a demand-constrained world, there is a danger of a beggar-thy-neighbour outcome in which all try to grow on the backs of demand expansion in other countries, and the result is a global excess supply and deflation (Palley, 2002). Not with standing this criticism, the ELGH is still relevant to this study because it emphasizes export as the key determinant of economic growth.

2.4 Empirical literature

Hafsat et al. (2020) determined the impact of non-oil export on economic growth in Nigeria with the use of Auto regressive distributive lag (ARDL). The finding of the study revealed that, there is a positive and significant relationship between non-oil export and economic growth in Nigeria. While the other finding revealed a long-run relationship between agricultural output and economic growth in Nigeria. Meanwhile, in their analysis, they disaggregated non-oil export but failed to do same to oil export.

Familusi (2020) used descriptive analysis to examined the challenges of the promotion of non-oil export in Nigeria. The findings revealed that; weak infrastructure undermines the promotion of non-oil export in Nigeria. Also, poor access to finance and lack of continuity in export policies discourage the promotion of non-oil export, thereby undermining the performance of non-oil sector export. From the findings, it was recommended that government should make provision for infrastructure

to promote non-oil export in Nigeria and also create an enabling environment such as finance that will enhance the promotion of non-oil export in Nigeria.

Olowo et al. (2020) The study used ARDF method to analyzed the sectorial contributions of non-oil revenue to economic growth in Nigeria from 1981-2018. Auto-regressive distributed lag model was the main estimation technique applied. The study found that environmental sector revenue was positive and its contributions to economic growth was not significant. the information and communication technology and financial sectors' revenue contributed positively and were significant to economic growth in Nigeria. The study, thus, implies that the sectorial contributions of non-oil revenue undermined. It is concluded that sectorial contributions of non-oil revenue were positive and significant to economic growth in Nigeria. Therefore, the non-oil sector should be more funded and well equipped to ensure good outputs and contributions; government should review environmental factors and policy that may spur the economy significantly.

Uzonwanne (2020). The study examined the role of non-oil exports to the economic growth of Nigerian economy from 2010-2017. The ARDL result showed that hides and skins; rubber and plastic export, and textile and textile article shave positive but not significant to real GDP which was used as a proxy for economic growth. There is bi-directional flow of causality between the real GDP and the non-oil export. Therefore, the study, recommended that the economy should be diversified to get rid of one product export

Okezie and Azubike (2016) evaluated the contribution of non-oil revenue to government revenue and economic growth in Nigeria from 1980-2014. They used secondary data for the study. The data was analyzed using Ordinary Least Square Regression method. The result revealed a positive and significant contribution of non-oil revenue to economic growth.

Raheem, Raheem and Adeniyi (2013) examined the linkage between economic growth and non-oil export using time series data for Nigeria over a period of 1970-2010, employing both Simultaneous Equation Model (SEM) and a single equation model. Gross domestic product, non-oil exports, agriculture and industrial sector were used in the analysis. The result showed that non-oil export and agriculture performance are negatively associated with growth. It was also found that the industrial sector performance and population growth are good determinant of economic growth. They failed to consider inflation, and trade openness in their analysis.

3.0 METHODOLOGY

This section presented the methodology adopted in testing both the economic and econometric theories as regards the subject matter. Thus, the econometric techniques of unit root test proposed by Dickey and Fuller (1979). As well as the Auto Regressive Distributed Lag (ARDL) model were used to determine the impact of non-oil export on economic growth in Nigeria. The data for the study is essentially sourced from secondary sources from 2000-2019. This includes relevant publications of the Central Bank of Nigeria (CBN) statistical bulletin, CBN statements of account and annual reports as well as National bureau of statistics publications for relevant years.

3.4 Technique of Data Analysis

This study adopted both descriptive statistics and econometrics approaches. The econometrics method covers unit root test, Auto Regressive Distributed Lag {ARDL) approaches. The reason for using the ARDL model is because, the study proposed that the variables of study will be stationary at order zero, I(0) and order one, I(1). Meanwhile, the ARDL model help to determine the long-run and short-run variation in each of the

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independent on the dependent variables. Similarly, Laurenceson and Chai (2003) opined that, the ARDL is often preferred to other estimation techniques because, it allows for sufficient numbers of lags in a general-to-specific modelling approach to adequately capture the data generating process.

Model Specification

Theoretically, the study was anchored on the export-led growth hypothesis which stated that, export growth may affect total factor productivity through dynamic spillover effects on the rest of the economy. Empirically, the study is cast in line with the work of Matthew, Charles, Dorothy and Suleiman (2017) whose model on the contribution of non-oil export to economic growth in Nigeria in 2017 is in this form; GDP = f (NOL, EXG). Where; GDP is gross domestic product, NOL is non-oil export and EXG is exchange rate. But the current study used a disaggregated approach by decomposing non-oil export in order to obtain a more robust analysis of the contribution of non-oil export to economic growth. Thus, in the attempt to analyze the contribution of non-oil export to economic growth in Nigeria, the estimated model was stated as;

RGDP=f (RPX, HSX, WCX) (1)

The linear form of the model is stated thus;

$RGDP_t = \beta_0 + \beta_1 RPX_t + \beta_2 HSX_t + \beta_3 WCXt + U_1$ (2)

The estimated model was represented in an ARDL Log-Linear long-run and short-run forms as follows:

$$\Delta LnRGDP_t = qo + y_1 LnRGDP_{t-1} + y_2 LnRPX_{t-1} + y_3 LnHSX_{t-i} + y_4 LnWCXX_{t-1} + \sum_{i=1}^{p} b_1 \Delta LnRGDP_{t-1}$$

$$+ \sum_{i=1}^{n} b_2 \Delta LnRPX_{t-1} + \sum_{i=1}^{n} b_3 Ln\Delta HSX_{t-1} + \sum_{i=1}^{n} b_5 \Delta LnWCX_{t-1} + e_{1t} \quad (3)$$

Where; RGDP = Real Gross Domestic Product, RPX= Rubber and Plastic Export, HSX= Hide and Skin Export, WCX = Wood and Charcoal Exports, t = Time Frame, t_{-1} = Lag Period, qo = constant term, y_1- y_3 = long run multipliers, $b_1 – b_3$ = short dynamic coefficients of the regressors

Δ= first difference operator, n = maximum lag lengths, e_{1t} = white noise, Ln = natural logarithm

More importantly, the general-to-specific error correction models (ECM) formulated from the ARDL model in equations (4) as follow:

$$\Delta \mathrm{Ln}RGDP_t = V1 + \sum_{i=1}^{K} f_1 \Delta \mathrm{Ln}RGDP_{t-i} + \sum_{i=1}^{k} f_2 \Delta \mathrm{Ln}RPX_{t-i} + \sum_{i=1}^{k} f_3 \Delta \mathrm{Ln}HSX_{t-1} +$$

$$\sum_{i=1}^{k} f_4 \Delta \mathrm{Ln}WCX_{t-i} + \delta ECMt - 1 + U_{2t} \quad (4)$$

Where; V_1- = Constant term, f_1-f_4= short run effects of changes, k= optimal lag lengths, ECM = error correction term lagged for one period, Φ and ψ= error correction coefficients which measures the speed of adjustment, U_t = Random disturbance term

A priori Expectation

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On the apriori, it is expected that; $y_1 > 0$, $y_2 > 0$, $y_3 > 0$, $y_4 > 0$, and $y_5 > 0$; $f_1 > 0$, $f_2 > 0$, $f_3 > 0$, and $f_4 > 0$

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics of the Variables

The descriptive statistics helps to determine the characteristics and nature of the variables under consideration by considering the measure of central tendency and dispersion as well as the measure of symmetry. The measures of central tendency such as mode, mean and median identified the central point or value of a dataset. The measures of dispersion such as standard deviation which describes the spread of data around a central mean value. While, the measures of symmetry such as kurtosis and skewness are a measure of symmetry, or more precisely, the lack of symmetry. A distribution, or data set, is symmetric if it looks the same to the left and right of the center point. Kurtosis is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution. A standard normal distribution has kurtosis of 3 and is recognized as mesokurtic. An increased kurtosis (>3) can be visualized as a thin "bell" with a high peak whereas a decreased kurtosis corresponds to a broadening of the peak and "thickening" of the tails. Thus, Kurtosis >3 is called leptokurtic and <3 is known as platykurtic.

Table 1: Analysis of the Descriptive Statistics for the Variables

	RGDP	RPX	HSX	WCX
Mean	50945.16	736.4623	824.5703	856.8203
Std. Dev.	15904.96	227.3082	413.8032	517.0598
Skewness	-0.266790	1.314321	1.680069	1.938942
Kurtosis	1.610864	5.718745	5.060658	5.833107
Jarque-Bera	3.690678	23.83555	25.89473	38.44079
Probability	0.157972	0.000007	0.000002	0.000000
Observations	40	40	40	40

Source: Computed by the researcher's from E-Views 12.

Note: *RGDP=Real gross domestic product, RPX= Rubber and plastic export, HSX= Hide and skin export, WCX= wood and charcoal export*

The analysis of descriptive statistics of the series in Table 1 indicated that; the approximate mean of real gross domestic product (RGDP) is ₦50945billion; while the corresponding standard deviation is ₦15905billion. On the other hand, the approximate mean of rubber and plastic export (RPX) is ₦736million while the corresponding standard deviation is ₦227million. Hide and skin export (HSX) is approximately ₦825 million, while the corresponding standard deviation is ₦414million. Similarly, the approximate mean of wood and charcoal export (WCX) is approximately ₦857million while the corresponding standard deviation is ₦517million. Based on the analysis above, the standard deviation all the variables converged around their means (were within their respective means); thus, all the variables were normally distributed.

The Skewness test result showed a mixture of positive for the variables. Specifically, RGDP, RPX, HSX, and WCX were positively skewed. Thus, positive skewness means that the tail on the right side of the distribution is longer or fatter. Thus, the mean and median will be greater than the mode. While negative skewness occur when the tail of the left side of the distribution is longer or fatter than the tail on the right side.

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Moreover, based on the analysis of the kurtosis; only RGDP is platykurtic relative to normal, since the approximate value for kurtosis which is; 1. 6108, is less than 3. This suggested that the variables have short and thin tails, and their central peaks are lower and broader. Meanwhile, RPX, and WCX all have leptokurtic distributions relative to normal, since their approximate values for kurtosis are more than 3. This indicated a flatter than normal distribution and the variables have large tails. That is, their central peaks are higher and sharper. However, the probability of Jarque-Bera statistics suggested that the null hypotheses of normal distribution for RPX, and WCX were rejected at 5% level while the null hypotheses of RGDP, was accepted at 5% level. Therefore, the study concluded from the statistical properties of the time series that the variables were largely not normally distributed, which may have resulted from the problem of unit root. This necessitated stability via ADF unit root test.

4.2 Stationarity Test Results

This unit root test conducted via the Augmented Dickey Fuller (ADF) established the order of integration or stationarity of the variables. The ADF test was conducted based on constant and time trend; at level and first difference at 5 percent critical values. The stationarity status of the data series are presented in Table 2

Table 2: Results of ADF Unit Root Test for the Model

Variables	Unit Root Test @ Level		Unit Root Test @ First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
RGDP	-3.430650	-2.93898	Stationary @ level		1(0)
HSX	-4.008704	-2.93898	Stationary @ level		1(0)
RPX	-1.086725	-2.95402	-3.686617	-2.954021	1(1)
WCX	-2.257360	-2.93898	-5.564746	-2.941145	1(1)

Source: Computed by the researcher's from E-Views 12.

Note: *RGDP=Real gross domestic product, RPX= Rubber and plastic export, HSX= Hide and skin export, WCX= wood and charcoal export*

The test of stationarity via the Augmented Dickey Fuller (ADF) unit root test for the variables in the estimated model showed that three variables (RGDP and HST) were stationary at level or order zero. This is because the ADF test statistic value is greater than the critical value at 5%. However, variables such as RPX and WCX which were not stationary at level were differenced once and became stationary at first differences; 1(1). Given that some of the variables were integrated of order 1(0) and some 1(1); the requirement to fit in an ARDL model to test for long-run relationship is satisfied.

4.3 ARDL Bounds Test for Cointegration

The ARDL Bounds test for co-integration help to determine the long run relationship among the variables in each of the estimated models. In order to do this, the Pesaran and Shin ARDL Bounds test for co-integration was applied in order to determine if the null hypothesis of no co-integration is rejected or otherwise. The result of the ARDL bounds test is presented in Table 3.

Table 3: ARDL Bounds Test for the Estimated Model

Model	**F-Statistic =** 4.317323
F(Log(RPX), Log(HSX), LOG(WCX)	K = 3

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Critical Values	Lower Bound	Upper Bound
10%	2.45	3.52
5%	2.86	4.01
1%	3.74	5.06

Source: Computed by the researcher's from E-Views 10.

Note: *RGDP=Real gross domestic product, RPX= Rubber and plastic export, HSX= Hide and skin export, WCX= wood and charcoal export*

The co-integration test using real gross domestic product (RGDP) as the dependent variable showed that the F-statistic value of 4.317323 is higher than the upper bound critical value of 4.01 at 5% level of significance using restricted intercept and no trend in specification for the model. The result showed that all the explanatory variables which measures non-oil export (RPX, HSX and WCX) as well as RGDP have long-run relationship in Nigeria.

4.4 ARDL Estimates and Long run Parameters for the Estimated Model

The ARDL estimates and long-run parameters for the two model is presented in Table 4

Table 4: Estimated ARDL Long-Run Coefficients for the Estimated Model

Dependent Variable: Log (RGDP) ARDL (3, 2, 2, 0)

Regressors	**Coefficient**	**t-Statistic**	**P-Value**
Log(RPX)	0.288846	0.535000	0.5974
Log(HSX)	0.127918	0.301094	0.7658
Log(WCX)	0.530114	1.695268	0.1024
C	12.893754	5.603777	0.0000

Source: *Researchers' Computed Result from (E-views 12)*

Note: *RGDP=Real gross domestic product, RPX= Rubber and plastic export, HSX= Hide and skin export, WCX= wood and charcoal export*

Table 4 showed the estimated ARDL long-run coefficients to determine the relationship between non-oil export and real gross domestic product (economic growth) in Nigeria. The estimated result showed that rubber and plastic export (RPX) has positive relationship with real gross domestic product (economic growth) in Nigeria. This means that, a percentage increase in rubber and plastic export (RPX) will increase real gross domestic product (economic growth) by 28.88%. The estimated result showed that hide and skin export (HSX) has positive relationship with real gross domestic product (economic growth) in Nigeria. This means that, a percentage increase in hide and skin export (HSX) will increase real gross domestic product (economic growth) by 12.7918%. The estimated result showed that wood and charcoal export (WCX) has positive relationship with real gross domestic product (economic growth) in Nigeria. This means that, a percentage increase in wood and charcoal export will increase real gross domestic product (economic growth) by 53.0114%. Meanwhile, the values of the t-statistic for all the explanatory variables were not statistically significant in explaining the level of growth in the long-run in Nigeria during the period of study.

4.5 Short-Run Auto Regressive Distributed Lag (ARDL) Estimates for the Estimated Model

The essence of the error correction estimate of the ARDL model was to determine the dynamic short-run behaviors of the independent variables and as well determine the

speed of adjustment of the estimated model. The ARDL estimates and short-run parameters for the model is presented in Table 5

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Table 5: Error Correction Representation for the Estimated Model
Dependent Variable GDP; ARDL Selected Lags (3, 2, 2, 0)

Regressors	Coefficients	t-Statistic	P-Value
Log(RGDP)	0.236997	1.487509	0.1494
Log(RPX)	0.236997	1.487509	0.1494
Log(HSX)	0.028368	1.959438	0.0613
Log(WCX)	0.013513	2.046650	0.0483
C	0.014214	1.498065	0.1466
ECM (-1)	-0.029912	-3.496731	0.0018
R-squared = 0.8615	Prob(F-statist) = 0.0000	Durbin-Watson Stat	= 1.465258

Source: *Researchers' Computed Result from (E-views 12)*
Note: *RGDP=Real gross domestic product, RPX= Rubber and plastic export, HSX= Hide and skin export, WCX= wood and charcoal export*

The short-run dynamic model presented on Table 5 showed that the coefficient of determination (R-squared) is 0.8615. Meaning that, the dynamic model is a good fit. Thus, the variation in real gross domestic product brought about by the explanatory variables is about 86%. Therefore the explanatory power of the estimated model is 86%. To buttress the result of R^2, the overall model is significant; given the probability value of f-statistic (0.0000) which is less than 5% level of significant. Thus, the explanatory variables are significant in explaining increase in real gross domestic product (proxied for economic growth) in Nigeria during the period of study.

As a matter of fact, one of the importance parameter in the estimated ARDL short-run model is the coefficient of the ECM, which theoretical must be negative and statistically significant. From the estimated model, the coefficient of ECM has the hypothesized negative sign and statistically significant at 5% level. Thus, the deviations from the short-term in real GDP adjusted to long-run equilibrium with the speed of 2.99%. This showed that the disequilibria in RGDP in the previous year were corrected for in the current year at a speed of 2.99%. Moreover, the approximate coefficient of the Durbin Watson (DW) test is 1.5 which is not too far from 2.0; based on rule- of-thumb implies that, the model is free from positive first order correlation. Thus, the explanatory variables in the model are not serially dependent (correlated). Therefore, the model is valid for policy making and implementation.

In the meantime, the coefficient of rubber and plastic export (RPX) is positively related with real gross domestic product (RGDP) but statistical not significant. This means that percentage change in rubber and plastic export will increase real gross domestic product (RGDP) by 23.6997%. But given that the probability value of the t-statistic (0.1494) for the coefficient of rubber and plastic export is greater than the p-value at 5%; the study concludes that there is no significant relationship between rubber and plastic export and real gross domestic product (RGDP) during the period of study. Thus, the null hypothesis of no significant relationship is upheld and the alternative hypothesis rejected. The implication of this result is that, despite the positive contribution of revenue from rubber and plastic export to increase in real gross domestic product (RGDP) in the Nigerian economy, the impact has not significantly boosted economic growth to the desired level during the period of study. The finding corroborated the scholarship of Omesi, Ngoke and Ordu (2020), who concluded that non-oil revenue contributes

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positively to the economic growth and development of Nigeria in both short and long run perspective.

Similarly, the coefficient of hide and skin export (HSX) is positively related with real gross domestic product (RGDP) but statistical not significant. This means that percentage change in hide and skin export will increase real gross domestic product (RGDP) by 2.8368%. But given that the probability value of the t-statistic (0.0613) for the coefficient of hide and skin export is greater than the p-value at 5%; the study concludes that there is no significant relationship between hide and skin export and real gross domestic product (RGDP) during the period of study. Thus, the null hypothesis of no significant relationship is upheld and the alternative hypothesis rejected. The implication of this result is that, despite the positive contribution of revenue from hide and skin export to increase in real gross domestic product (RGDP) in the Nigerian economy, the impact has not significantly boosted economic growth to the desired level during the period of study. The result is in support of the study of Onodugo, Ikpe and Anowor (2013), in their investigation of the impact of the non-oil exports to the growth of Nigerian economy between 1981 and 2012, and revealed a positive but insignificant impact of non-oil exports in and economic growth in Nigeria.

The coefficient of wood and charcoal export (WCX) is positively related with real gross domestic product (RGDP) and statistically significant. This means that percentage change in wood and charcoal export will increase real gross domestic product (RGDP) by 1.3513%. But given that the probability value of the t-statistic (0.0483) for the coefficient of wood and charcoal export is less than the p-value at 5%; the study concludes that there is a significant relationship between wood and charcoal export and real gross domestic product (RGDP) during the period of study. Thus, the null hypothesis of no significant relationship was rejected and the alternative hypothesis accepted. The implication of this result is that, the positive contribution of revenue from wood and charcoal export to real gross domestic product (RGDP) in the Nigerian economy, has significant impact on economic growth during the period of study. The finding is in line with the work of Ifenacho, Omoniyi and Olufunke (2014) investigated the effect of non-oil export on the economic development in Nigeria and averred that, non-oil export exhibits a significant positive relationship with growth and per capita income.

4.6 Post Estimation Tests Results

The study employed the Breusch-Godfrey (B-G) Lagrange Multiplier (LM) test for serial correlation and normality test, heteroschedasticity test, Wald test, stability test and normality test as the post-estimation tests to validate the ARDL short and long run estimations tests.

Table 6: Post-Estimation Tests Results for Serial Correlation, Heteroschedasticity, Stability and Wald Tests

Test type	Test Stat.	P-Value	Critical Value
Serial Correlation	Chi Square (X^2)	0.0919	0.05
Heteroscedasticity	Chi Square (X^2)	0.6268	0.05
Stability	t-Statistics	0.7515	0.05
Wald Test	F-Statistics	0.0000	0.05

Source: *Researchers' Computed Result from (E-views 12)*

The various diagnostic test results conducted to validate the estimated long and short runs ARDL model in both direct tax and indirect models are presented in Table 6.

Based on the serial correlation, using Breusch-Godfrey test LM test, to test the null hypothesis of no serial correlation, against the alternative hypothesis of serial

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correlation in the estimated ARDL short run and long-run model at 5% level. The result showed that, serial autocorrelation does not exist in the estimated ARDL model. This is because the chi-square p-values for models which is 0.0919 is greater than the critical value probability of (0.05). In the same way, Heteroskedasticity test which determine whether or not the variance of the residuals in an estimated model is homoscedastic. This was carried out on the estimated model using the Autoregressive Conditional Heteroskedasticity (ARCH) test. The Autoregressive Conditional Heteroskedasticity (ARCH) result presented in Table 4.7 showed that in the ARDL model, heteroskedasticity is not a problem. This is because the chi-square p-value for the model which is; 0.6268 is greater than the critical value probability of (0.05). Also, the stability test results showed that the estimated ARDL model is stable. This is because the t-statistic p-values in models are greater than the critical value probability of (0.05).

Based on the Wald test conducted to determine if the explanatory variables are significant in explaining the dependent variable in an estimated model. This was done by comparing the f-statistic p-value with the critical value at 5%. The null hypothesis of no significant relationship was rejected in favour of the alternative if the probability of f-statistic is greater than the p=value at 5%. From the estimated models, all the probability of f-statistic value is less than the critical p-value at 5%. Thus, the alternative hypothesis which states that the explanatory variables are significant in explaining the depended variables in the ARDL estimated model was accepted.

4.6.1 Normality Test Results for the Estimated Model

The Jarque-Bera statistic is applied to examine whether the error term in the model is normally distributed. Thus, the probability of Jarque-Bera statistic is compared with the critical p-value at 5 per cent significance level. The null hypothesis is upheld if the probability of the Jarque-Bera statistic is greater than the critical p-value at 5 per cent significance level

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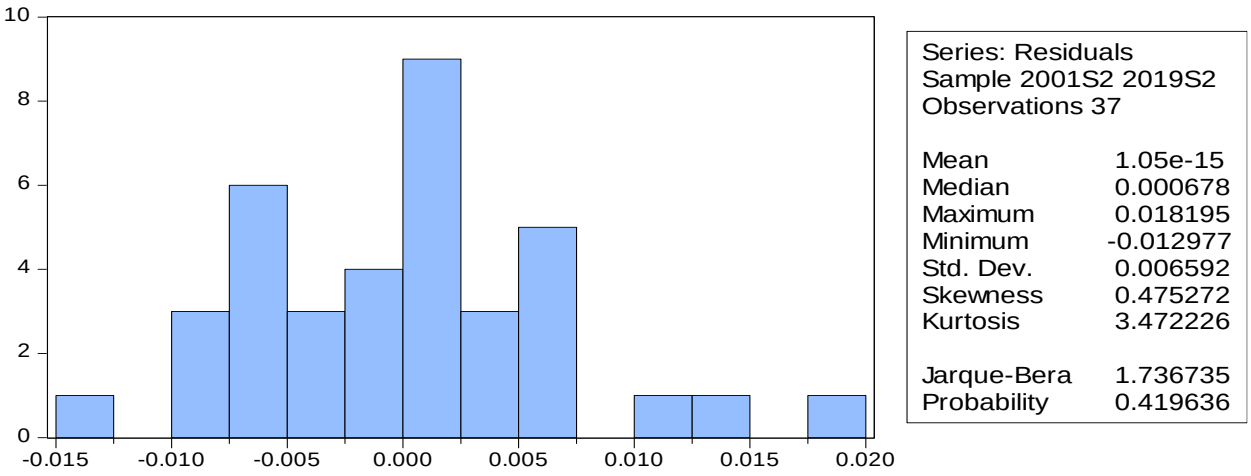

Figure 1: Normality Test for the Estimated Model

The normality test result in Figure 1 showed that, the error term is normally distributed at 5% level of significance. This is because, the probability value of the Jarque-Bera statistic is 0.419636; and this value is greater than 5% critical value. Meaning that, the Jarque-Bera statistic hypothesis of normally distributed residuals in

the model is accepted.

5.0 CONCLUSION AND RECOMMENDATIONS

The study used the Autoregressive Distributed Lag (ARDL) model to examine the contribution of non-oil exports to economic growth in Nigeria and concludes that, in the long-run, nonoil exports measured with rubber and plastic export, wood and charcoal exports; hide and skin exports all have positive relationship with real gross domestic product (economic growth) in Nigeria. Similarly, in the short-run, rubber and plastic export, wood and charcoal export, hide and skin export are positively related with economic growth. Thus, if the non-oil sector is properly managed, it is well endowed with the capacity to improve the revenue base of the country. Based on the empirical findings, the paper made the following recommendations; (i) The various components that make up the non-oil sectors such as: agriculture, mining, service, and manufacturing sectors, should be given urgent developmental priority in terms of infrastructural provision because of their immediate returns to the economy. (ii) Policies that aimed at boosting the level and significance of the nonoil export should be proposed, in order to maintain export competitiveness. That is, the non-oil export of the country should be well packaged for international acceptance. (iii) The exchange rate, interest rate and inflation policy of the government should also be properly managed by monetary authorities. This is because of the chain relationship existing between these monetary variables with the non-oil sector, which together impact on the growth of the economy. (iv) The non-oil sector should be developed to enhance the revenue base of the country as an alternative source of foreign receipt. Thus, the over reliance on oil proceeds by the economy which in recent times have proved not to be stable should serve as a "red light" for policymakers on the need to diversify the country's revenue sources.

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