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Economic Diversification and International Trade: A Focus on Oil and Non-oil Export in Nigeria

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Abstract: The study assesses economic diversification and international trade focusing on oil and non-oil export in Nigeria. It suggests that for a country to diversify its economy, the country has to diversify its export base since export has been considered as an engine of growth of any economy. Nigeria as a developing country, should not depend majorly on one export commodity at a time but should integrate other sectors, thereby, diversifying the economy. The study uses the Stock-Watson dynamic Ordinary Least Square (DOLS) over the period of 1981-2018. The results from the model therefore, encourages the Nigerian government to develop interest in the non-oil sector of the economy by strengthen its legislation and supervisory framework, so as to ensure maximum contributions from all sectors of the economy. This measure will help reduce over dependence on petroleum export, expand and diversify the Nigeria's export base and therefore, protect the economy from being extremely vulnerable to external shocks.

Keywords: Economic Diversification, Stock-Watson, International Trade, Export, DOLS, Nigeria.

JEL Code: F4, O1, O4, Q3

1. INTRODUCTION

Owing to the poor economic performances of a number of developing economics in the world, economic diversification in recent times has gained much attention. These developing economies are characterized by primary-

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product export and mono product export, so they tend to specialize in exporting these primary products instead of secondary and tertiary activities. They failed to observe that primary-product exports have been characterized by relatively low income elasticity of demand and inelastic price elasticity (Todaro & Smith in Mejia, 2011).A country's degree of diversification is usually considered as dependent upon the number of commodities within its export mix as well as on the distribution of their individual share (Ali & Siegel in Mejia, 2011). Therefore, a broader export base coupled with special promotion of these commodities with positive price trends should be beneficial for growth.

Before the discovery of oil, agricultural sector used to be the leading sector of the economy providing both food and cash crops for the entire economy, but the discovery of crude oil in commercial quantity in Nigeria, changed the structure of the economy thereby, neglecting the agricultural sector and making the economyheavily dependent on the production of crude oil. In 2000, oil and gas export accounted for more than 98% of export and about 83% of federal governmentrevenue (Odularu in Afolabi, 2011). The growth of the Nigeria's non-oil export has been sluggish in the post-independence period. It averaged about 2.3% during 1960 to 1990 but in relative terms, declined systematically as proportion of total exports fell from 40% in 1970 to about 5% in 2010 (Abogan, Akinola and Baruna, 2013), thus from dependence in agricultural products to over dependence on oil product. This condition has not allowed for even growth in the economy of Nigeria since some sectors have been allowed to grow while growth has been impended in other sectors (Adesoji & Sotubo, 2013).Nigeria has failed to allow the non-oil sectors to thrive alongside the oil sector, leading to imbalance the economy.

The introduction of the structural Adjustment program (SAP) in 1986 with its major aim as diversification of the Nigeria's economy, made no significant progress in the achievement of this aim rather the economy is still excessively dependent on petroleum exports while the degree of openness of the economy has been increased (Iyoha, 2002).

It has been argued that the reasons for the Africa's dismal economic performance among other things are export enclavismand dependence on one primary commodity export. In the light of this poor economic performance, diversifying export remains major concern for policy makers in many countries (Collier & Gunning, 1999). Nigeria is a natural resources abundant country, revenue from oil production increased from ₦166.6.00 million in 1970 to ₦1, 591,675.00 million and ₦ 6,530,430.00 million in 2000 and 2008 respectively. The huge revenue from oil presented net wealth and thus provided opportunity for increased expenditure and investment;

however, the huge revenue complicated macroeconomic management and also made the economy highly oil dependent (Akinlo, 2012). Inspite of the huge rent from oil, the economy still grapples with many problems; including high and rising level of unemployment rate,declining manufacturing production, high and rising level of poverty and poor infrastructural development (Akinlo, 2012). Since oil alone cannot give Nigeria as a country the expected growth and development inspite of its high price and income elasticity, it is high time other areas are considered to ensure economic diversification.

Therefore, the objectives of this study are to examine the contributions of oil and non-oil exports to the growth of total export in Nigeria and how diversifying the Nigeria's export base can help attain economic diversification, considering the present economic situation in Nigeria.

2. CONCEPTUALIZATION

For the purpose of this study, *export* is defined as surplus goods and services of a country that are sent to other countries in world for sale (Afolabi, 2011) it is a catalyst necessary for overall development of an economy (Abou-Strait in Adesoji *et al*., 2013). It creates avenue for foreign capital to flow into a country (Ricardo in Adesoji *et al* 2013). **Oil export** is crude oil Export and can be defined as surplus from (crude) oil of a country that are sold to other countries in the world, oil export is part of visible export that includes; bonny light oil, farcodo crude oil, Quaibo crude oil, Brass river crude oil (Afolabi, 2011) it would be measured as a ratio of the total export.**Non-oil export** can be defined as those visible and invisible exports which do not form part of oil export but contributes to the growth of the total export, it includes; manufactured products, agricultural products, services, solid mineralslike tin; coal, columbite etc. This would also be taken as a ratio of the total export.

Economic Diversification refers to the development of other sectors of the economy in order to make them of stronger and more successful. It means harnessing the potentials of other sectors of the economy (Ekene, 2018). Economic diversification demands active participation in wide range of sectors, firmly integrated into different reforms, which are better able to generate robust growth potentials (Uzonwanne, 2015). Economic diversification can also refer to as process of expanding the range of economic activities both in the production and distribution of goods and services.It is the widening of the economy to create opportunities for diverse economic activities to create a broad-based economy (Anyaehie & Areji, 2015). It provides job for wide spectrum of people and stabilized the economy against economic fluctuations.For instance, a diversified economy

will stabilize the Nigeria's economy against the vagaries of oil market and provide opportunities for the satisfaction of needs and aspirations of her population (Anyaehie & Areji, 2015).

International Trade also known as foreign trade refers to trade between two or more countries that is; trade between nations and it involves exchange of goods and services among different nations. Since no country can produce all commodities required by its citizens, it is necessary for that country to import commodity which it cannot product or those it can only produce at higher cost. International trade can be bi-lateral or multi-lateral. Bi-lateral trade happened when one country agrees to exchange a particular quantity of goods and services in exchange for a particular amount from another country, that is to say that the trade involves only two countries, but in multi-lateral trade each country buys and sells which ever other countries chooses. Suffice to say is that multi-lateral trade leads to greater volume of trade than that which is guided by series of bi-lateral agreements.

2.1. Argument for and against natural resource abundance beneficial to growth

The conventional idea prior to 1980 was that natural resources had positive impact on the development of a country. This view was shared by many development and neoliberal economists and a resurgence of new view in the 80s that claimed that nature of resources abundant was not a blessing to developing economies (Akinlo, 2012).

Those in favour of natural resources abundant as a blessing argued that natural resources endowments would assist developing countries to transit from the stage of under development to that of developed countries like Britain, United States and Australia. Their view was that huge foreign exchange earnings from oil exports, apart from being used for exporting raw materials, intermediate and capital goods for production in the non-oil sectors could equally assist in boosting the foreign resources of the oil exporting countries. The accumulation of foreign resources can be seen as collateral which the oil producing economies can use in attracting foreign investment (Dooley, Folkerts-Landu & Garberin Akinlo, 2012).They further argued that the huge revenue from oil enables the government of the oil producing countries to spend and invest massively without recourse to taxation and that if properly utilized, could serve as a "big push" for development.

Owing to the dismal performances of most oil-rich countries in the 80s, the idea that natural resource abundance was a blessing to development was questioned by scholars. They argued that natural resource abundance

is not beneficial to growth, that an exogenous unexpected increase in foreign exchange revenues from natural resources, arising from increase prices or output, will precipitate a real exchange rateappreciation and, thus a drop in output and unemployment in the non-resource traded good sector, often manufacturing (Esfahani, Mohaddes& Pesaran in Akinlo, 2012), a situation referred to as "Dutch Disease". They further argued that the revenue from natural resources especially oil is very volatile, as they are driven by sharp and significant fluctuations in prices over relatively short periods of times, and that the resource-rich countries may suffer "resource curse" due to reduced returns to human investment, precipitated by natural resource exploitation (Gylfason in Akinlo, 2012).

2.2. Theories of International Trade

The Classical Theory of International Trade based on the concept of absolute advantage was proposed by Adam Smith in 1976, he state thatstock of human, man-made and natural resources rather than stock of precious metals were the true wealth of a nation and he further argued that the wealth of nation can be expanded if the government would abandon mercantilist control, and he showed that trade can make a nation better off without making another worse-off (Debel in Afolabi, 2011).

The Theory of Comparative Advantage was articulated by David Ricardo in 1817 to replace the principle of absolute advantage. He stated that a country should specialize in the production of commodities that it can produce at the lowest relative cost; it should export those commodities which it has in abundance. This theory focuses more on relative productively differential rather than absolute productively differential. The theoryof comparative advantage emphasizes that greater output level is obtainable when countries specialized in accordance with their relative comparative advantage (Thirlwall, 2003).

The Factor Endowment Theory of external trade was propounded by Eli Hecksher and Berti Ohlin, this theory stated that in different relative proportion, countries have different endowment of factors of production; some are capital abundant while some are labour abundant. This theory argued that Cash country has a comparative advantage in that commodity which uses the country's abundant factor. Capital abundant countries should specialize in the production and export of capital intensive commodities while labour abundant countries should specialize in the production and export of labour intensive commodities. It therefore, encourages third world countries to focus on their labour and land intensive primary product exports. However, it also argued that by exchangingthese primary products for manufacturing goods of the developed countries,

third world nations could realize enormous benefits obtained from trade with rich nation (Debel in Afolabi, 2011).

The prebisch-singer hypothesis was introduced by Prebisch in 1950 and singer in 1949, these hypothesis was based on the assumption that in the long-run, less developed economies relying on primary commodity exports would have the tendency of facing decline in the terms of trade relative to the industrialized economy that rely on manufacturing exports. This theory further argued that the ratio of primary commodities prices compared to manufactured goods would experience a decline over time due to the reduced elasticity of incomeand low total factor productivity for primary productsrelative to manufactured commodities (Cashin and McDermott, 2002). Due to the difference in elasticity, the hypothesis suggested that instead of over dependence on natural resources, the developing economies should take advantages of their transitory improvement in their terms of trade.

2.3. Empirical Literature

Afolabi (2011) investigated the impact of oil export on economic growth in Nigeria from 1970-2006 using sample size of 36years, the ordinary least squares regression adopted, hefound a positive relationship between domestic consumption, negative relationship between labour total productions and real GDP, therefore oil export has significant impact on economic grow in Nigeria.

Adesoji and Sotubo (2013) examined the performance of non-oil export in Nigeria from 1981-2010using OLS and the study revealed that non-oil exports have performed below expectations and that the Nigerian economy is still far from diversifying from crude oil export.

Uzonanne (2015) assessed how diversification of the economy would enhance stable and viable economic growth in Nigeria, using the Neo-classical Growth Model, secondary data and descriptive statistical method in 2015. It was found that the Nigerian economy needs to diversifyinto various sectors of the economy so as to attain solid economic growth.

Agosin (2007) investigated whether export diversification has any explanatory power in a standard empirical model of growth.Cross-sectional data in 1980-2003 periods considered for a sample of Asian and Latin American countries was employed.It suggested that export growth by itself does not appear to be relevant for growth while export growth together with diversification appear to be relevant.

Imbs and Wacziarg (2003) analyzed the evolution sectoral concentration over time and in relation to the developmental level in a wide set of

developed and developing countries using sectoral data. The evidence provides support to the hypothesis that "poor countries tends to diversify and it is not until they have grown to relatively high level of per capita income that incentive to specialize takesover as the dominant force, thus their sectoral concentration followed a U-shaped pattern in relation to per capita income.

Abogan *et al.* (2013) examined the significant role of non-oil export on economic growth in Nigeria from 1980-2010 using an ordinary least squares method involving error correction mechanism and over-paramentization. Their analysisrevealed that the variables are cointegrated, also that the impact of non-oil exports on economic growth was moderate and not all that heartening as a unit increase in non-oil export impacted positively by 26% on the productive capacity of goods and services in Nigeria.

3. DATA AND METHODOLOGY

3.1. Data

In this paper we intend to investigate the contributions of oil and non-oil export to growth of total export in Nigeria. Given our desire to capture this relationship, we sourced our data from the Central Bank Statistical bulletin 2018 using yearly data from 1981 to 2018. The variables we believe could measure the relationship of our study were adopted and will be discussed in subsequent sections of this work.

3.2. Model Specification

In order for us to really capture the objective of this study, we adopted the dynamic Ordinary Least Square proposed by (Stock and Watson, 1993). This approach has certain advantages over both the OLS and the maximum likelihood procedures, and it is an improvement of the OLS by coping with small sample and dynamic sources of bias. The Johansen method, being a full information technique, is exposed to the problem that parameter estimates in one equation are affected by any misspecification in other equations. According to (Ahmed Al-Azzam and David Hawdon 2000), the Stock Watson method is, by contrast, a robust single equation approach which corrects for regressor endogeneity by the inclusion of leads and lags of first differences of the regressors, and for serially correlated errors by a GLS procedure. In addition, it has the same asymptotic optimality properties as the Johansen distribution. This same method was applied by (Masih and Masih, 1996a) in their study of the estimation of Chinese Coal demand, and we are adapting and extending their approach here.

The Stock Watson Dynamic OLS is therefore specified below as thus;

$$RGDP_t = X_t M' + \sum_{i=-m}^{i=m} \phi_i \, \Delta OILEXP_{t-i} + \sum_{i=-n}^{i=n} \omega_i \Delta NONOILEXP_{t-i} + \sum_{i=-j}^{i=j} \delta_i \Delta CURACBAL_{t-i} + \sum_{i=-i}^{i=l} \theta_i \, \Delta EXCHR_{t-i} + \varepsilon_t$$

Where

$M = [C, \alpha, \beta, \gamma]$, $X = [1, OILEXP_t \; NONOILEXP_t \; CURACBAL_t \; EXCHR_t]$

And M, n, j, L are the lengths of leads and lags of the regressors.

RGDP is the real gross domestic product, EXCHR is the exchange rate, OILEXP is the oil export revenue, NONOILEXP is the non-oil export revenue and CURACBA is the current account balance.

4. EMPIRICAL FINDINGS AND DISCUSSION

In adopting the Stock Watson Dynamic OLS model, there are necessary pre-test estimation that needs to be done so we can be very sure that all conditions are satisfied and these tests are discussed in this section of the paper.

4.1. Stationarityand Cointegration Test

By determining the order of integration of the variables and to be sure that the series are integrated of order I(0) and I(1) but not I(2), a unit root test was carried out using the Augmented Dickey Fuller test (ADF) on these variables.The decision rule for no unit root is that the ADF test statistic must be greater than the Mackinnon critical value for the series to be stationary. The result of these tests is discussed based on the results below;

Table 4.1: Unit Root Test

Variables	*ADF Test Stat*	*Mackinnon Critical Value @5%*	*P-value*	*Order of Integration*	*Assessment*
OILEXP	-6.034240	-2.945842	0.0000	I(1)	Stationary
NONOILEXP	-6.408415	-2.945842	0.0000	I(1)	Stationary
EXCHR	-4.216145	-2.945842	0.0021	I(1)	Stationary
CURACBA	-5.176297	-2.943427	0.0001	I(0)	Stationary
RGDP	-6.050438	-2.945842	0.0000	I(1)	Stationary

Source: Eviews Computation

The result in table 4.1 shows the unit root test carried out for all the variables in the model using the augmented dickey fuller test statistic. The

result in the above table reveals that all the variables (OIL EXP, NONOILEXP, EXCHR, and CURACBA) were all integrated of order I(1), that is they were all stationary at first difference. The only exception to this is current account balance (CURACBA) which is stationary at level, meaning it is integrated of order I(0).

Table 4.2: Cointegration Test

Hypothesized No of CE(s)	*Eigenvalue*	*Trace Stat*	*0.05 Critical val*	*Prob***
None*	0.508791	78.60412	69.81889	0.0084
Atmost 1*	0.480846	53.72309	47.85613	0.0127
Atmost 2*	0.378126	30.77866	29.79707	0.0384
At most 3	0.298045	14.15302	15.49471	0.0788
At most 4	0.049232	1.766990	3.841466	0.1838

Source: Eviews Computation

There is evidence of Cointegration found among variables in the model from applying the johansen Cointegration test and this can be seen in table 4.2 above. The decision rule for Cointegration is based on the trace statistics being greater than the critical value at the 5% level of significance. This shows that there are at least 2 co-integrating equations present and hence there exist a long run relationship between the variables in the model.

4.2. The Stock Watson Dynamic OLS Results and Interpretation

The stock Watson estimates for oil export and non-oil export contributions to gross domestic product appears on table 4.2.1. The model was estimated using up to 2 lags and 2 leads and the insignificant lags and leads were dropped. From the result, we found evidence to suggest that both oil export revenue and non-oil export revenue both had positive and significant contributions to economic growth in Nigeria during the study period. An increase in oil export revenue by 1% led to about 6.88% increases in economic growth in Nigeria at the 5% level of significance. This result is in line with that of (Afolabi 2011) who also found a positive and significant relationship between economic growth in Nigeria despite adopting a different model (OLS) from the DOLS used in this study. Also an increase in Non-oil export by 1% led to about 0.052% increases in economic growth in Nigeria. Though the increase in growth is small it is also statistically significant at the 5% level of significance. This result is in line to that of Adesoji and Sotubo (2013) who found positive contributions to growth.

Current account balance was found to be contributing to growth positively and statistically significant at the 5% level with a t-stat of 3.27.

From the result, a 1% increase in the current account balance will lead to about 0.0049% increases in economic growth for Nigeria.

Exchange rate was found to have a positive sign which could be said to be contrary to the expected sign, but in general it was statistically significant at the 5% level with a t-statistic of 7.3. This means that an increase in the exchange rate by 1%, it will lead to an increase in economic growth by 0.33%.

Table 4.2.1: The Stock Watson Dynamic OLS Result Estimates (Depend.Var=LRGDP)

Variables	*Coefficient*	*Standard errors*	*t-statistic*	*Prob*
CURACBAL	4.90E-06	1.50E-06	3.274415	0.0113
NONOILEXP	0.000523	4.51E-05	11.58435	0.0000
OILEXP	0.068861	0.011015	6.251428	0.0002
EXCHR	0.003357	0.000459	7.320193	0.0001
C	9.398522	0.038002	247.3196	0.0000
R-SQUARE	0.998790			

5. CONCLUSION AND POLICY RECOMMENDATION

The purpose of this study was to investigate international trade and how we can advise on economic diversification based on the result with focus on oil export and non-oil export revenue. This was analyzed using yearly data for all the variables from 1981 to 2018 and we adopted the Dynamic OLS when it was discovered that Ordinary Least Squares suffered from serial correlation in our model.

Non-oil export was found to contribute positively to growth in the study and its contribution was minimal suggesting its negligence over the years as a result of the concentration in oil revenue. The variable was significant at the 5% level of significance, implying that we recommend the government of Nigeria should diversify in non-oil produce such as agricultural products since it was found that revenues from this sector could actually improve growth in Nigeria. We therefore recommend that the government increase resources and concentration towards non-oil products so as to diversify the economy.

Improving export and imports will indirectly improve the country's current account balance and this in this study was found to contribute positively and significantly to growth. This implies that more should be done by the government through encouraging more exports from the agricultural sector and other non-oil sectors in order to improve the current account balance. They could encourage and give out more export license to exporters, reduce export duties and taxes so as to improve exports more than imports in Nigeria.

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