Economic Diversification and Economic Growth: Evidence from Nigeria

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Abstract

In this work, the researchers examine and attempt an answer to the big question; to what extent can Nigeria gain from diversifying the economy? In doing this, the researcher employed time series data spanning about thirty-one years' period (1980 – 2011). Using the error correction mechanism (ECM), the result points to the fact that, Nigeria could tap from her largely untapped trade potentials for sustained gains, both in the short run and long run. Our findings indicate the fact that this can greatly be achieved through conscious efforts at diversifying the economy, encouraging large-scale industrialization of the non-oil (real) sector of the economy, emphasizing deepening technology in every trade and investment discourse, sustaining the recent improvements in the agricultural sub-sector, amongst other factors.

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1. Introduction

Nigeria did not begin trade with oil. Though its emergence in Nigeria's traded goods bundle was greeted with great hopes, which has sufficed, it appears as nothing beyond hope was envisaged. This thinking emanates from the fact that its damaging economic and environmental impacts seems to be intractable. The gains from oil trade, without doubt, cannot be overemphasized, amidst its volatile nature in the economy, resulting from its exogenous price component.

An emerging trend suggests that in the last years the economy has been growing without job creation and poverty reduction. Expectedly, attention of scholars had shifted towards non-oil export as a remedial for this quagmire. Our major concern (as in Onodugo, 2013; Baghebo, 2012 and Ekaette, 2009) with the Nigeria's 'oil-dependent economy' is this issue of economic growth without, at least non-proportionate increase, in job creation and poverty reduction. Bawa and Mohammed (2007) and Baridam (2008) also share the same worry in terms of benefit returns. The ready explanation to this economic paradox is that the oil sector that produces about 80% of export earnings is in the hands of less than one percent of the Nigerian population. Expatriates and members of the political class who control production and the proceeds, respectively, dominate it. Worse still, the sector is disconnected from other tiers and sectors of the economy and thus offers little or no linkage and multiplier effect to the economy as a whole. This is why the local-content approach of Goodluck Jonathan administration should be applauded, if it would be driven with sincerity.

The statistics from the nation's finance ministry, according to Ojiabor (2014) and Durodola (in Williams reports, 2014), shows that oil constitutes between 80 per cent to 87 per cent of revenue and 95 per cent of our export earnings. This can be a blessing or a curse because it provides a large revenue stream in good times but also puts the country at the mercy of cyclical prices at burst times. Drop in oil prices has the potential of leaving the government with the choice between spending cuts, affecting public infrastructure or a damaging deficit – a fact that must be taken serious.

The good news is that oil can be used to reduce a country's dependence on oil. By investing energy profits in projects in the downstream oil sector and manufacturing, it is possible to diversify sources of revenue and break oil's dominance of the economy. "Even more importantly, investing in strong and successful manufacturing industries stops Nigeria from exporting valuable resources overseas when they can be turned into something more precious at home while providing jobs for Nigerians at the same time – multiplying the benefit to the national economy" (Ojiabor, 2014).

It is important to note that Nigeria's natural resources are not limited to minerals. By adopting a development model that capitalises on all of Nigeria's assets, which include (but not limited to) agricultural resources, vast energy reserves, a large labour force, and a huge local customer base – the country can be 'self-sufficient' and prosperous. Asu (2013) quotes Femi Adesina, as saying that Nigeria needed to envision and evolve a nation beyond oil or it could 'perish'. "Nigeria must now diversify, or die. For well over four decades, we have run a mono-product economy." This argument agrees with our worry that Nigeria has allowed the easy money from oil to strangulate other 'cash cows' like agriculture, solid minerals, tourism and many others, leaving our economy susceptible and volatile. A diversification effort that is commitment – driven, focused and targeted becomes in dispensable.

The Nigeria's approach to trade was wholistic before independence. Peasant farmers produced for

domestic needs, while communities, partners, produced for exports. Jobs were created at all levels, the citizens were all involved and creativity was greatly enhanced. This facts align with the argument of Ekpo and Umoh (2014) that:

> *Before independence in 1960, the economy was characterised by the dominance of exports and commercial activities. There was no viable industrial sector. After independence, agriculture continued as the mainstay of the economy. In spite of fluctuations in world prices, agriculture contributed about 65 per cent to GDP and represented almost 70 per cent of total exports. Agriculture provided the foreign exchange that was utilised in importing raw materials and capital goods. The peasant farmers produced enough to feed the entire population. The various Marketing Boards generated much revenue, the surplus of which was used by government to develop the basic infrastructure needed for long-term development. The main thrust of policy was to maximise the benefits of the export-led development strategy.*

The problem therefore was the weak industrial base, which resulted in exporting most of those outputs in their primary states. In this work therefore, the objective is to take a closer look at the big question: *to what extent can Nigeria gain from economic diversification?* This would involve assessing the impact of trade diversification on the economy thereby considering what would have been the gains of trade for Nigeria, as well as suggests a way forward based on findings. We intend to achieve these through a brief, but revealing literature review, analyze and test the available data using a simple macroeconomic model. The composition of this work is made of five sections viz; section one introduces the work, the review of literature is taken in section two, methodology and model specification is presented in section three while the results presentation and interpretation of findings are done in section four. In section five, the conclusion and policy options are presented.

2.   Review of Relevant Literature
The entire literature is flooded with unique arguments on the subject of interest we are assessing. For clarity and sequence of facts, we shall partition this section into empirical review, theoretical review and ideological assessment.

2.1. Empirical Literature
The importance of export trade as been argued and established as the engine of economic growth, being that it enhances employment generation through the development of export oriented industries, increase foreign exchange earnings and improves balance of payment position of any economy. Some studies in the literature support this claim. For instance, Onayemi and Ishola (2009) report that elaborate historical increase in income per capita is better achieved under export promotion policy. Other studies have provided empirical validation of the view that growth performance is more satisfactory under export promotion, examples; Ayomide (2011), Basher (2012), Adekunle (2012), Adeloye (2012), Egwakhide (2012). This supports earlier findings by Kruegor (1928), Bhawati (1978), and Papageorgious, at al (1991), each of whom had earlier reported that, sustainable increase in income per capita is better achieved under export promotion policy. Usman (2010) who discovered that an insignificant non-oil export and exchange rate would slow down economic growth given that non-oil export for previous years positively affects growth, agreed with this conclusion.

Baghebo and Atima (2013), in their work, *"The impact of petroleum on economic growth in Nigeria"*, found negative impacts for oil and corruption on the growth of the economy. To this extend, the resource curse theory is proven to be true in Nigeria. Other facts as to why resource-rich country might suffer resource curse are drastic fall in returns to human investments, precipitated by natural resource exploitation and poor economic management that leads to inefficient allocation of resources, as supported by Gylfason (2001) and Rosser (2006). Kareem, at al (2012), employing co-integration analysis, found a negative impact in the short run, of FDI flow into the oil sector on economic growth. They also discovered a relatively small impact of domestic capital formation compared with that of FDI in the oil sector. This they saw, as evidence of dominant role of foreign investors in the oil sector. The implications are exogenous control, capital flight, brain drain and large-scale technical and skilled unemployment and gross underdevelopment of indigenous technological base.

In the same vein, Olayiwola and Okodua (2013), within the framework of export-led growth (ELG) hypothesis, found a unidirectional causality running from FDI to non-oil exports, employing causality analysis in their work titled, *"Foreign Direct Investment, Non-oil Exports, and Economic Growth in Nigeria: a Causality Analysis."* This agrees with streams of evidences in the literature, showing supports, in Nigeria, that the bulk of FDI inflow into the country goes to the oil sector of the economy. Some of these evidences include Adedokun (2012), Bagbebo (2011), and Dominic (1999). From the perspective of efficiency-seeking FDI, foreign capital

always aims at taking advantage of cost-efficient production condition and non-oil sector of the Nigerian economy would have been the better for this, if it were made viable. Olayiwola and Okodua (2013), in view of their findings, therefore emphasize that an encouragement of non-oil exports is a necessity for an effective FDI in Nigeria. The argument by Olayiwola and Okodua (2013), based on the background of ELG, focused on the expansion and robustness of the non-oil sector as the strength to driving export, if gains from trade must be realised from that sector. Feder (1982), Esfahani (1991), Helpman and Krugman (1985), Krugman (1997), also hold this opinion, though with varying degrees of assertions, views and reflections. Others are Lucas (1988), Romer (1986; 1989), Grossman and Helpman (1991; 1995), Edwards (1992) and Alisana and Rodrick (1999).

The United Nations Conference on Trade and Development, UNCTAD (2007) reports that FDI flow to Africa has increased from $9.68 billion in 2000 to $1.3 trillion in 2006. The UNCTAD World Investment Report (2006) shows that FDI inflow to West Africa is mainly dominated by inflow to Nigeria, who received 70% of the sub-regional total and 11% of Africa's total. Out of this Nigeria's oil sector alone, receive 90% of the FDI inflow. This also underlines the weak disposition and non- viability of the non oil sector of the Nigerian economy. However, it is not out of place to agree with Olayiwola and Okodua (2013) assessment that the performance of the Nigerian non-oil sector export has been relatively impressive in recent times. For instance, the International Monetary Fund (IMF) (2008) is of the view that the robust non-oil sector growth in the 2007 fiscal year had offset the drag from a decline in oil production in the Niger Delta, thus boosting growth in the Nigerian economy. In addition, aggregate output growth measured by the gross domestic product (GDP), according to the Central Bank of Nigeria (CBN) (2007), economic report for third quarter of 2007, was estimated at 6.05 per cent, compared with 5.73 per cent in the second quarter. The growth was driven by the nonoil sector, which was estimated at 9.47 per cent. This growth was driven mainly by major agricultural activities such as yam, Irish and sweet potatoes, groundnuts and maize.

Adedokun (2013), who found a positive behaviour, both in the short and long run, for FDI flow to the oil sector, vis-a-vis economic growth (which is a slightly different result), also concluded, in line with the foregoing, that the primary determinant of foreign exchange earnings is changes in the world crude oil prices. The conclusion of Adedokun (2013), again, speaks for the exogenous control[1] argument.

Employing Time Series Econometric Model, Onodugo, Marius and Anowor (2013), found a weak and infinitesimal impact of non-oil export in influencing rate of change in level of economic growth in Nigeria. The study argues that the situation reflects neglect of the non-oil sector and its capacity to create viable international trade windows. They blame the situation on Nigerian economy precariously leaning on the fragile leg of crude oil for several decades. The fallout of this is the fact that, the economy was growing without job creation and poverty reduction for several decades, Onodugo (2013). This assertion agrees with the behaviour reflected in the trend analysis of data in Onodugo, Marius and Anowor (2013). What all these facts reveal is that the dynamics of the economy is at the whims and caprices of the price of oil, which for the most part, has been volatile, Enoma and Mustafa (2011).

It is clear therefore, that the adverse consequences of over dependency on oil trade heightened the need and call to diversify Nigerian economy away from oil towards the direction of non-oil export trade. Proponents of this increased proportion of non-oil export argue that the non-oil trade has great potentials to propel Nigerian economy to the desired growth and development. For instance, Onwualu (2012) maintains that the value chain approach to agriculture 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 Nigeria's sustainable economic growth.

On the efforts of government, Onodugo, Marius and Anowor (2013) have this to say;

> *Successive Nigerian governments on its part have shown efforts over the years to grow the non-oil export trade by establishing supportive policies. Some of these policies, with varying degrees of successes, include but not restricted to, protectionism policy in the mode of import substitution, policy of industrialization in the 1960s, trade liberalization policy (this took the form of Structural Adjustment Programme) of the mid 1980s and export promotion policy of 1990s, which was executed through intensified policy support to Small and Medium Scale Enterprises (SMEs), to enhance productivity and subsequently, export of local products.*

There are scholars at the other end of the divide, who are sceptical about the possible significant positive impact of non-oil export trade on growth. They argue that since the economy is currently largely oil-dependent what

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[1] Exogenous control is the author's explanation of a situation where an economy depends on external manipulations, such as externally determined prices, etc., for her major economic and policy decisions.

should have made sense is to increase the local content and technology transfer profile of the sector and ensure effective management of the proceeds from oil for development. Though the debate and polemics are still on, a critical look at the conclusions points to the same fact we try to argue.

We take the above position because, available evidence point to noticeable increase in the contribution of non-oil sector to the growth of the Nigerian economy for some time now. The following are clear examples; Soludo, (2007); Olayiwola and Okodua, (2010); Aigbakham, (2008). Specifically, The Central Bank of Nigeria (CBN) attributed the growth in Nigeria's Gross Domestic Product (GDP) from 6.9 per cent in third quarter 2012 to 7.1 per cent in the fourth-quarter of the same year to the increase in the contribution of the non-oil sectors, particularly the industrial sector (NBS, 2012). In its report titled *"Economic Report Fourth-Quarter 2012"* CBN submits that non-oil receipts stood at N589.98 billion (24.4 per cent of the total). Adekunle (2012) had predicted that Nigeria has the potential to realize N310bn from non-oil export by the end of 2013.

The issue of pricing in Nigeria's oil economy is a problem factor that is a recurring decimal. Arinze (2011) saw a positive relationship between oil prices and inflation. He noted that the shocks associated with oil prices shocks the entire economy, making the economy extremely vulnerable. He called for conscious diversification of the economy and the expansion of the non-oil sector of the Nigerian economy. Moses (2011) also holds the same assertion in terms of FDIs flow into the extractive (OILFDI) and non-extractive (NONOILFDI) sectors. Though there was more FDIs flow into the extractive sector, the non-extractive sector proved to have significant impact on the growth of the economy. Based on this outcome, Moses(2011) strongly advise government and all stakeholders to encourage FDI into the non-oil sector that has more economic returns in the form of human capital development, employment and local contents than the extractive sector dominated by expatriates. He however stressed the need to encourage the strengthening of local content policy the more in the extractive industry to harness the gains of that sector in terms of economic growth and development.
Others who have align with this thinking include, Abogan, Akinola, Baruwa (2014), Adenugba and Dipo (2013).

2.2. Theoretical Issues
Amongst other trade theories, we take a very brief consideration of a few with direct relevance, beginning with Mun's and Davenant's ideologies.
2.2.1. Mun and Davenant
Davenant's concern had been the problem of weak industrial base, which resulted in exporting most of the outputs in their primary states. He argued that gold was not the only source of wealth that can be available to any nation, that a nation can create baskets of wealth, through diversification. As being explained by Oser and Blanchfield (1975), Davenant believed that eclectic approach to trade, which should include agricultural production and industrial revolution, could create more wealth, as these increase export, with finished and semi-finished goods as the major content. He believed that this approach to trade creates a more sustained wealth than a mono (gold) economy. Other advocates for economic diversification (i.e increased emphasis on the development of non-oil sector and trade) include Jonathan (2013)[1], Naidoo (2014) to mention but a few.
Ekpo and Umoh (2014) would agreeit is safe to say that Nigeria tried Davenant's approach and it worked (though with some institutional defects) in the pre-oil era. According to them,

> *Raw materials, comprising agricultural produce and minerals were exported to the industrialised nations. The industrial sector continued on the pioneer industries schemes of the 1950s. Import Substitution Industrialisation (ISI) strategy was adopted. Consequently, various consumer items, which were hitherto imported, were produced domestically. Protective measures like tariffs, quotas, etc. were in place to ensure that domestic industries were allowed to grow. In the short run, jobs were created …*

It is important to mention that, though Mun was not a core bullionist, according to Oser and Blanchfield (1975), he aligned with Davenant on the issue of industrialisation, which agrees with Ekpo and Umoh (2014) above, hence our interest in his contributions as it relates to our argument.
2.2.2. The Classical Trade Theory
According to the classical trade theory, countries are better able to gain and sustain development if each devotes resources to the generation of goods and services in which they have an economic advantage, Smith (1776); Ricardo (1817) also cited in Morgan and Katsikeas (1997) and Dogon-daji and Muktar (2012). The theory thus explains the scenario where a country generates goods and services in which it has an advantage not only for consumption locally but also exports (the surplus) and imports those goods and services in which they have an economic disadvantage. Economic advantages and disadvantages usually arise from country differences in factors such as resource endowments, labour, capital, technology or entrepreneurship.

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[1] Former President Jonathan's address to Nigerian population in China July 12, 2013, http://www.premiumtimesng.com/news

The classical trade theory, therefore, contends that the basis for international trade and sustainable development can be traced to differences in production characteristics and resource endowments which are founded on domestic differences in natural and acquired economic advantages Morgan and Katsikeas, (1997). Specifically, the theory was based on the principles of comparative cost advantage and specialisation, which lead to gains for the trading partners Umo, (2007). One of the weaknesses of this trade theory is that investment resources are not internationally mobile, i.e. only commodities can move and investment decisions are taken on a national basis (Caballero et al). In today's world, capital is highly mobile across national boundaries, and likewise technology (Caballero et al). That in itself can be considered as additional trade advantage.

2.2.3. The Factor Proportion Theory

The factor proportion theory on the other hand is able to give an explanation for difference in advantage exhibited by trading countries. As explained by the theory, countries tend to generate and export goods and services that harness large amounts of abundant production factors that they possess, while they import those that need large amounts of production factors which are relatively scarce (Heckcher and Ohlin, 1933) cited in (Morgan and Katsikeas, 1997). The theory explains the concept of economic advantage in the context of endowment and costs of factors of production. This theory supports the expectations on Nigeria, given its large human, material and mineral resource potentials, to be a potential trade driver and leader, enjoying all its gains in all sectors.

2.2.4. Product Lifecycle Theory

The Product Life Cycle Theory was developed in line with some developments to do with the changing commercial realities like the role played by technological progress and multinational enterprises in trade and sustainable development of their home countries. The theory suggests that a trade cycle emerges where a product is produced by a parent firm, then by its foreign subsidiaries and finally anywhere in the world where costs are at their lowest possible terms, Vernon, (1966); Wells (1968, 1969) Morgan and Katsikeas (1997). It also explains how a product may emerge as a country's export and work through the life cycle to ultimately become an import Morgan and Katsikeas (1997). According to the theory, technological innovation and market size are very critical for gaining in international trade and of course sustainable development. It is clear from theory, therefore, that Nigeria with such a robust market size has clear advantage that should enhance trade gains, *ceteris paribus*.

3. Research Methodology and Model Specification

The linkage of oil and non-oil trades[1] with economic growth has been at the front burner of development literature in recent times. Our focus is on examining how non-oil trade affect economic growth in Nigeria. We invoke Endogenous Growth Theory in doing this. The application of endogenous growth theory has only emerged properly not too long ago from the works of Moosa (2002), Devarajan et al. (1996) (as cited in Abogan, Akinola and Baruwa (2014). However, one of the pioneer contributions in its original sense was the work of Barro (1990) and later Futagam et al. (1993) (all cited in Abogan , Akinola and Baruwa (2014)). Barro made use of the endogenous growth model to find a linkage between public revenues, spending and economic growth, which is to be linked with the relationship that exist between non-oil export and economic growth in Nigeria in this research work. Adedokun (2012) also adopted the endogenous growth model in analysing oil export and economic growth in Nigeria between 1975 –2009. This model was employed based on the fact that, it emphasizes the role of exports on long-run growth through technological innovation and learning from abroad.

Using a production function approach, it states that the growth rate of output (GDP) is principally determined by the following factors: The rate of growth of gross labour and/or the rate of growth of its quality, multiplied by the labour income share; the rate of growth of gross capital input and/or the rate of growth of its quality, multiplied by the capital income share; and change in technology or total factor productivity (TFP).

This is given as:

$$Y = f(K^{\phi_1}\ L^{\phi_2}\ A) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Equation (1) above is an Augmented Cobb - Douglas production function where: **Y** = growth rate of GDP; **L** = labour; **K** = capital formation / investment; and **A** = total factor productivity (TFP), which is regarded as efficiency parameter. This production function, which has been widely applied in the analysis of foreign direct investment (FDI) and trade impact on growth, assumes unconventional inputs such as FDI, trade openness, exchange rate, and inflation. This is along with the conventional inputs of labour and capital in the model. Furthermore, it is assumed implicitly that, FDI, trade openness and other factors, which are exogenously determined, establish the behaviour of TFP (Bhagwati, 1978; Edwards, 1998). Thus, the TFP is specified as:

$$A_t\ = f(\ Nnt_t\ ,OLt_t\ ,NnFDI_t\ ,OlFDI_t\ ,Tr_t\ ,Xr_t\ ,Inf_t\ )\dots\dots\dots\dots\dots\dots\dots (2)$$

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[1] The trade here is considered in the literature in terms of oil and non-oil exports. However, this work considers trade holistically, to give room for deeper assessment of the gains.

Where Nnt = non-oil trade, OLt = oil trade, $NnFDI$ = non-oil FDI, $OlFDI$ = oil FDI, Tr = trade openness, Xr = exchange rate, and Inf = inflation rate.

The above expression indicates the incorporation of other determinants of economic activities, which include the key variables considered in this study. These include; non-oil trade and oil trade (as key variables), trade openness, non-oil FDI, oil FDI, exchange rate and inflation rate as intervening variables. Equation (1) above can therefore be as stated below for purpose of stability:

$$Y_t = \gamma_t . K_t^{\varphi_1} . L_t^{\varphi_2} . Nnt_t^{\varphi_3} . Olt_t^{\varphi_4} . NnFDI_t^{\varphi_5} . OlFDI_t^{\varphi_6} . Tr_t . Xr_t . Inf_t \dots\dots\dots\dots\dots (3)^1$$

We specified equation (3) in econometric form thus;

$$InY_t = \gamma_t + \varphi_1 InK_t + \varphi_2 InL_t + \varphi_3 InNnt_t + \varphi_4 InOlt_t + \varphi_5 InNnFDI_t + \varphi_6 InOlFDI_t + \varphi_7 Tr_t + \varphi_8 Xr_t + \varphi_9 Inf_t + \omega_t \dots \dots\dots\dots(4)$$

γ_t represents a constant parameter, ω_t denotes the stochastic disturbance term and the rest of the variables remain as earlier defined. The φ_i are elasticities of the above defined variables and a priori signs are expected to be positive but indeterminate in the case of inflation.

Equation (4) is generalised thus;

$$InY = \gamma_t \sum_{\substack{j=1 \\ i=1}}^{n} \varphi_i In(x_j) + \omega_t \dots\dots\dots\dots (5)$$

Where (x_j) represents the vector of all the repressor in equation (4) and (φ_i) represents the vector of the parameters in equation (4).

3.1. Analytical/Estimation Technique

This work made use of the econometric approach in estimating the relationship between the variables specified in the model above. The Ordinary Least Square (OLS) technique was used in obtaining the numerical estimates of the coefficients in the equation using e-views 8. As is standard in the literature, the OLS method was chosen because of its property of being best linear unbiased estimator (BLUE). In order to avoid the misleading characteristics of time series macroeconomic variables which, in most cases, are non-stationary in regression analysis, we examined the time series properties of all the variables under investigation using the Augmented Dickey-Fuller (ADF) and Phillip-Perron unit root tests. We employed the Johansen Cointegration test technique to ascertain whether the variables are cointegrated, that is, if there is long run equilibrium relationship among the variables. The third stage methodology we employed was the error correction mechanism, using the Error Correction Model (ECM). This approach agrees with Egwaikhide (2012).

Following the above, the ADF test involves running the following regression:

$$\Delta Y_t = \rho_1 + \rho_2 t + \theta Y_{t-1} + \sum_{i=1}^{m} \varphi_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots (6)$$

Where Y_t represents the relevant variables under investigation and ε_t is a random error term. The optimal period of lag is selected large enough (using the Akaike information criterion) to render the residual ε_t not auto-correlated (i.e. reduce white noise as much as possible). The ADF equation is specified with constant and trend[2]. The null hypothesis is that the time series has a unit root ($H_0 : \vartheta = 0$) and the alternate is that the time series is trend stationary ($H_1 : \vartheta < 0$). The null hypothesis of non-stationarity is rejected if the computed Dickey-Fuller statistic is greater than critical Dickey-Fuller value. Akpan (2011) followed this same procedure.

However, due to the likelihood of structural changes that might have occurred in the period under investigation, the ADF test might be biased in identifying integrated data. This shortcoming, as Akpan (2011) assert, is overcome by the PP test developed by Perron (1997). According to Herzer, et al (2004) (cited in Akpan, 2011), this test evaluates the time series properties in the presence of structural changes at unknown points in time and, thus, endogenises this structural break.[3] The equation is specified, invoking Akpan (2011) approach, as: $t_\theta^* =$

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[1] Kareem et al. (2012) take the same position in estimating a similar model and attempting stability therewith.
[2] The basis for the model (6) above is an extraction from Gujarati (5th ed., 2009) opinion.
[3] Most of the clauses are that of Akpan (2011)

$$t_{\bar{\pi}} \left[\frac{\gamma_0}{f_0}\right]^{\frac{1}{2}} - \frac{K(f^0 - \gamma^0)[se(\hat{\pi})]}{2f_0 \frac{1}{2} s} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(7)$$

Where $\hat{\pi}$ is the estimate, and $t_{\bar{\pi}}$ is the t-ratio of π, $se(\hat{\pi})$ is the coefficient standard error, and s is the standard error of the regression equation. Also, γ_0 is a consistent estimate of the error variance, while f_0 is the residual spectrum at frequency zero.

3.2. Data Description and Sources

The regressand (Y) is proxied by real GDP growth rate, while the regressors are; stock of capital (proxied by gross fixed capital formation as a ratio of GDP), labour stock (proxied by size of the population employed). Others are non-oil trade, oil trade, non-oil FDI (proxied by share of FDI flows to non-oil sector) and oil FDI (proxied by share of FDI flows to oil sector). Other independent variables are trade openness (proxied by total trade as a ratio of GDP), exchange rate and inflation rate. The study used annual data (from 1980 – 2011) sourced from secondary sources, mainly Central Bank of Nigeria (CBN) Statistical Bulletin, of various years, United Nations Conference on Trade and Development(UNCTAD) and National Bureau of Statistics(NBS) various years.

4. Empirical Results

The data diagnostic test results for properties of the data used in the study is presented in tables 1 and 2. The results of the unit root test are reflected in table 1. The results from the two consistently used test statistic indicate that, for ADF, all variables are non – stationary at level, but stationary at first difference, and that at 1 percent level of significance. However, inflation shows a mixed situation. It is found to be stationary both at levels and at first difference, at 10 percent and 1 percent level of significance respectively. In the case of PP test, some of the variables are stationary at levels, while others are at first difference. For instance, RGDP, Oil FDI and Non-oil FDI, are stationary at levels, while Non-oil trade, Oil trade, Capital formation, Labour, Trade openness, Exchange rate and Inflation are stationary at first difference. They are all examined in terms of their P. values[1].

The results informed our proceeding to checking for evidence of cointegration among the variables. The results are as expressed in table 2. This result shows evidence of cointegration in the model, thereby giving us the impetus to reject the null hypothesis (of no cointegration) using the trace and max-eigen statistic.

Table 1: Unit Root Test Results

Variable	ADF Statistic		PP Statistic		Decision
	Level	1st Diff.	Level	1st Diff.	
lnY	-1.7274(0.7138)	-39.1057 (0.00)***	-8.5743 (0.000)***	-	1(1)/1(0)
lnK	-2.6006(0.2826)	-4.0485(0.0041)***		-4.3236(0.00)***	1(1)
lnL	-2.0658(0.5437)	-4.9058(0.0004)***	-2.0134(0.5714)	-5.8882(0.00)***	1(1)
lnNnt	-2.4736(0.3378)	-5.9410(0.00)***		-5.9000(0.00)***	1(1)
lnOlt	-2.2323(0.4557)	-6.9030(0.00)***		-6.8178(0.00)***	1(1)
lnNnFDI	-2.1008(0.5231)	-10.6115(0.000)***	-4.9575(0.0019)***	-	1(1)/1(0)
lnOlFDI	-2.3848(0.3794)	-3.0916(0.0388)**	-3.9472(0.0217) ***	-	1(1)/1(0)
Tr	-3.1011(0.1237)	-5.2437(0.0012)***		-10.7288(0.00)***	1(1)
Xr	-2.0308(0.5623)	-5.0285(0.0017)***	-2.0308(0.5623)	-5.02881(0.00)***	1(1)
Inf	-3.2435*(0.0954)	-5.4830(0.0001)***	-2.6208(0.2742)	-9.5818(0.00)***	1(0)/1(1)

Note: *, **, *** *denote significances at 10%, 5% and 1% respectively. Values in bracket for ADF- and PP-Statistic are P- values. All tests include individual intercept.*

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[1] The P. value represents the exact level of significance of the variable. It is the exact value at which the null hypothesis is rejected. See Gujarati (2009).

Table 2: Summary of Johansen Cointegration Test Results

	Trace Test		Maximum – Eigen Test		
Hypo. No. Of CE(s)	Critical Value	Trace Statistic	Hypo. No. of CE(s)	Critical Value	Max-Eigen Statistic
r=0*	197.3709	445.496(0.00)***	r=0*	58.4335	152.965(0.00)***
r<1*	159.5297	293.000(0.00)***	r<1*	52.3626	88.5705(0.00)***
r<2*	125.6151	204.4304(0.00)***	r<2*	46.2314	63.7147(0.003)***
r<3*	95.7536	40.7157(0.00)***	r<3*	40.0775	56.2271(0.004)***
r<4*	69.8188	84.4885(0.00)***	r<4*	33.8768	38.2164(0.0142)***
r<5	47.8561	46.2720	r<5	27.5843	24.6831
r<6	29.7970	21.5889	r<6	21.1316	21.1316
r<7	15.4947	8.1599	r<7	14.2646	14.2646
r<8	3.8414	0.4390	r<8	3.8414	3.8414

Note: *r represents the number of hypothesized cointegrating equations.* * *denotes the actual cointegrated equations and* *** *denotes asymptotic significance at 5% significant level. The values in brackets are the P-Values.*

The result therefore clearly suggests the existence of (long run) equilibrium relationship among the variables, pointing further to the fact that a short run dynamic under the error correction framework is required. Again, as is conventional in econometric literature, existence of a long run relationship gives the grounds for evaluating the short run distortions embodied in the equilibrium relationship. Furthermore, it is economically sensible to be conscious of the fact that, for any equilibrium relationship, there could be short run disequilibrium. To examine the short – run dynamics in the model, we reparamatized equation (4) as error correction model (ECM) and the result of the consequent estimation is presented in table 3. This model helps to show the distortions in long run equilibrium relations caused by shocks in the model as well as the duration required for such disequilibrium to be corrected. Technically, it indicates the time taken for short run disequilibrium to adjust back to long-run equilibrium.

The result of the short-run dynamics presented in table 3 provides clues that trade could be gainful to an economy such as that of Nigeria, irrespective of some conflicting signs. In general, the ECM term conform to theoretical sign and that significantly. This expresses the fact that the speed of adjustment is reasonably fast. The Adjusted R-squared shows that 76.62 percent variation in real GDP (Y) is jointly explained by the modelled variables. This picture reasonably suggests that the model adequately explains trade gains in Nigeria in the light of the measured relationship. The F-statistic indicates the overall significance of the model, pointing to the fact that it is a good fit. Though Durbin-Watson (D-W) statistic suggests the presence of partial serial correlation in the model, the Jarque-Berra (J.B) F-statistic holds a statistically significant situation, implying that the estimated residuals are normally distributed. In addition, Breusch-Godfrey LM test suggests that there is no serial correlation in the residuals; hence, we uphold the null hypothesis of no serial correlation in the model. However, the regression specification (RESET) test indicates a case of omitted variables. This could be largely attributed to the inconsistent and outright unavailability of data to directly measure or proxy most of Nigerian microeconomic variables.

Examining the result of the model (in table 3 as estimated) non-oil trade (*Nnt*) indicates significance, though with negative elasticity. Usman (2010) saw a positive but insignificant situation. This evidence throws up two important facts; a complete neglect of the non-oil trade activities, which expected, should form a large chunk of the country's wealth. Kareem, et al. (2012) arrived at similar finding for Nigeria.

Table 3: Dynamic Short-run Result

Variable	Dependent Variable: ΔlnY_t	
	Coefficient	Standard Error
Constant	0.0995[**]	0.0469
ΔlnK_t	-0.0161	0.1168
ΔlnL_t	0.4713[**]	0.1328
$\Delta lnNnt_t$	-0.4400[*]	0.2294
$\Delta lnOlt_t$	0.2859[**]	0.1363
$\Delta lnNnFDI_t$	0.0644	0.0455
$\Delta lnOlFDI_t$	0.00365	0.0634
ΔTr_t	0.00128	0.0094
ΔXr_t	-0.0018	0.0025
ΔInf_t	-0.00025	0.0022
ECM(-1)	-1.07325[***]	0.1218
R-sqd.	0.8468	-
Adj.R-sqd	0.7662	-
F-statistic	10.5045[***]	0.0000
D-W	1.5225	
AIC	-0.5118	
SIC	0.0018	
JB`	1.5205	0.4198
B.G LM Test		
F-Statistic	0.9137	0.4198
RESET	86.040[***]	0.0000

Note:***, **, * indicates significance at 1%, 5% and 10% levels respectively. Δ denotes first difference operator.

The second fact is drawn from the point that, though the variable shows a negative relationship, the statistical evidence indicates significance. This explains the fact that if the non-oil (real) sector were given the required attention, it would have influenced the economy significantly. This agrees with Moses (2011). On the other hand, oil trade indicates positive sign and some level of significance, but only explains about 28.59 percent of the changes in the economic wellbeing of the country. This is explained by the fact that technology, prices and large part of labour in that sector are all exogenously influenced, and the domestic economy having little or no control over these macroeconomic variables in most cases. Moses (2011); Kareem, et al (2012); Arinze (2011); Abogan (2014), etc., support this stance.

From the foregoing therefore, it is clear that a call for conscious diversification, pragmatic stimulation and committed real sector investment in the economy is not out of place, if a guaranteed future is contemplated. This is in line with the call by Gylfason(2011) and also vindicates Mun and Davenant in their believe that only through trade diversification can a nation build up real wealth, stimulate industrialization in its economy and develop its people, Oser and Blanchfield (1975).

However, capital (K) moved against a priori sign and was insignificant. It shows that 10 percent increase or injection of capital into the economy would bring about an insignificant 1.61 percent increase in the overall wellbeing of the nation, meaning that a large part of injections are diverted, while others are inadequately utilized. Other factors such as inadequate capital mobilization and investment (occasioned by some institutional factors such has policy defects, corruption, etc.), capital flight through the oil sector, amongst others, account for this outcome. Given the fact that Nigeria's productive sector is grossly weak, capital stock inadequately managed, and underutilized, it is clear why the relationship, in this case, is negative. The bulk of capital employment in Nigeria is in the oil sector and this capital and the consequent output are not completely domesticated. Akpan (2014) also found an insignificant (though positive) relationship between capital formation and economic growth, when considering the gains of globalization in the case of selected sectors in Nigeria. Labour (L) on the other hand was well – behaved and statistically significant. It indicates that a 10 percent

increase in labour employment, would produce about 44 percent rise in the economic wellbeing of Nigerians. This explains the fact that Nigeria's abundant human resource would have been of immense productive advantage to Nigeria if all facets of the nation's resources were properly harnessed, with targets on long-term progress that is diversified and versatile.

In the case of non-oil FDI (*NnFDI*) and oil FDI (*OlFDI*), we saw a positive but insignificant result as indicated in table 3 above. The insignificance of these variables in explaining changes in the nation's GDP could be associated with the time lag needed for their impacts to become visible. This notwithstanding, the regression line shows that if adequately utilized, FDI that flows into the non-oil sector would accrue much trade benefit to Nigeria than its counterpart flow to the oil sector of the economy. It indicates that given the right macroeconomic environment, a percentage rise in the flow of non-oil FDI, would result in about 6.44 percent improvement in the general wellbeing of the economy. This is opposing to about 0.37 percent expected improvements from the oil FDI flows. In addition, trade openness and inflation rate (which are part of the control variables in the model) reflect the a priori signs except exchange rate, which is negative. However, they were all statistically insignificant. This shows that the effects of these variables in Nigeria's trade cannot be said to be really pronounced. This of course could be attributed to a generally weak non-oil trade balance, which is the only trade path in Nigeria's trade bundle that could be endogenously manipulated.

5. Conclusion and Policy Options

In this paper attempts were made at answering the big question: *to what extent can Nigeria gain from economic diversification?* Employing time series data for the period 1980 – 2011, econometric result based on error correction modelling framework shows that the way to go in maximizing gains from trade is conscious and honest efforts at diversifying the economy. The findings indicate that trade diversification offers Nigeria windows of operating a strong, versatile and stable economy, if taken seriously with commitment. The policy options reflected by our results are very clear.

First, the negative sign obtained in the case of non-oil trade elasticity, though statistically significant, points to the fact that the neglected sector has the potential of being responsible for about 44 percent growth in Nigeria's total trade bundle. This could have also meant a general improvement in the national economy by that proportion. A call for conscious policies that encourages diversification of the entire economy is necessary. This has to do with (but not limited to) building a conducive macroeconomic environment for a thriving trade regime[1], building a strong institutional framework that can sustain gains. Moreover, it is important to highlight the fact that conscious, effective and committed attempt to diversify would not be clearly achievable without industrial revolution.

Secondly, the fact that oil trade elasticity is positive and significant would mean a desirable contribution, but a closer look will reveal that the ratio of its contribution to GDP is far less than what would have been lost through the neglect of non-oil trade, in fact, up to about 15.41 percent. This shows that over-reliance on oil is an economic mistake because the failure of the non-oil sector to contribute significantly to the economic growth (due to all facets of underdevelopment and underutilization of resources) cannot be traded-off by input from the oil sector as our findings have shown. This vindicates Mun and Davenant on their position on trade. They believe that a nation can only benefit from trade if it encourages export of intermediate and finished goods and not primary produce. They believe that this kind of trade will be a product of diversification and for diversification to be possible; they placed emphasis on production and industrialization. In addition, labour indicates a positive and significant trend, showing that the enormous human resource available can be harnessed effectively for potential trade gains. Industrialization and the development of the entire productive sector (which is the engine room of the real sector and beneficial trade balance) can find the abundant human resource stock a very useful tool for progress.

Moreover, the insignificance of the FDIs reflects inappropriate and/or underutilization of these flows. There is therefore a call for appropriate policies that will ensure that these flows are adequately harnessed for both short-term and long-term benefits. The econometric result associated with the impact of trade openness index (which indicates globalized trade possibilities), exchange rate and inflation were insignificant. However, trade openness and inflation show correct signs. The behaviour of trade openness highlights the necessity of adopting less restrictive (but gradual and systematic) trade channels, which would result in reaping the benefits of global trade. Though Nigeria appears to have, recorded remarkable success in this direction, through various trade liberalisation policies such as trade arrangements at the international, regional and sub-regional stages, there is a call for sustained progress.

In conclusion, it is important to mention that this work does not intend to overlook the efforts of government towards stimulating real sector progress. It is clear that successive governments have made

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[1] This point does not attempt a play-down on the efforts of different administrations (including President Jonathan's) at trade liberalization and a liberalized trade environment.

concerted efforts, like in the case of the immediate – past administration; the emphasis is on strategic and systematic approach to ensure visible evidence. Targeted efforts should therefore be directed towards industrialization. This should be done through the creation of necessary infrastructures and opening up to investment opportunities that are technologically driven, with heavy industrial base. The right macroeconomic environment should be created to encourage sustained investment. The progress made in developing a working and activity-driven agricultural sub-sector, in recent times, should be progressive and sustainable. In addition, the right political and social environment that symbolizes a committed and total battle against corruption and insecurity should be ensured.

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