Growth of Non-Oil Sectors: A Key to Diversification and Economic Performance in Nigeria

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Abstract
Informed by the monolithic economy since 1980's which has been persistently threatened by the instability in crude oil prices in the international market , government has come to terms with the growing need for economic diversification. This paper examined the growth of Non-oil sector to act as a key to diversification and performance of the economy. To achieve this objective, we employ the tool of Auto-regressive Distributed Lag (ARDL) and VECM Granger causality model to estimate the short run and the long run parameters as well as the direction of causation of the variables. The data for the analysis were sourced from Central Bank of Nigeria (CBN) statistical bulletin, National Bureau of Statistics and World Development Indicators CD Rom. The Ng-Perron unit root test confirmed that the variables have a combination of I(0) and I(1) which justifies the reason for adopting ARDL. The results confirmed the existence of cointegration among the variables. The granger causality results showed that agricultural component, manufacturing component and telecommunication component are statistically significant and Granger-caused economic growth at 5 percent significance level. The long run parameters indicated that agriculture and telecommunication components are positively contributing to GDP, manufacturing components turned out negative though significant. This is an indication of un-explorative nature and the neglect of the sector. The Error Correction Mechanism which shows the speed of adjustment from short to long run is negative, statistically significant and hovered around144.6%. In order to attain the path of growth of the economy, we recommend that the government should realise effective macro-economic policies along with momentous improvements in the structure and functioning systems of governance for stabilising economic growth along with the diversification of the economy and economic reforms towards the development of the non-oil sectors.
Keywords: Economic performance, Non-oil sector, Diversification, Oil sector, GDP

1.0 Introduction

The non-oil sector of the Nigerian economy can generally be described as those groups of economic activities which are outside the petroleum and gas industry or not directly linked to them. These include: telecommunication services; financial sector (banking and insurance) services; tourism service (hotels, restaurants, parks, carnivals, movies; wholesale and retail trade; Health services; export trade; agricultural activities; mineral activities; power(conventional and renewable); Manufacturing; environmental services(cleaning, waste collection and recycling); R&D activities; ICT, etc. (Adulagba, 2011 &Onwualu, 2012). Each of these activities consists of various businesses which engage a large chunk of the population. For instance, Tourism consists of hotels and restaurants, resorts/recreation parks, cultural activities, carnivals, movie industry, arts and crafts, comedy, etc. When viewed from this background, the general assumption that the non-oil sector refers to agricultural and mineral activities is misplaced and makes the assessment of the sector narrow (Onwalu, 2012; Dauda, Asinbo, Akinbode, Saka &Salihu, 2009)

Informed by the monolithic economy since 1980's which has been persistently threatened by the instability in crude oil prices in the international market , government has come to terms with the growing need for economic diversification. This economic transformation has become necessary to address the challenges of rising unemployment and social crisis by expanding the horizon of employment generating activities especially in the non-oil sector where the potentials remain great and largely unexploited. Government has, at various periods, put in place various policies which have impacted positively on the sector and contributed to the current growth status.

It must, however, be averred that, without the mobilization of long-term savings to support the consolidation of future growth and development, there cannot be any sustainable economic development. Accordingly, to achieve inclusive growth, macro-economic stability and sustainable development of the Nigerian economy, we must begin to de-emphasize the habit of consumption and ostentatious living as a nation (i.e. consuming what we do not produce) and imbibe the culture of savings and wealth creation, based on increased

productivity/output, value addition, economic diversification and self-sustenance. We cannot achieve sustainable development as long as the economy depends on just one product. The sole dependence of the economy on crude oil export as the main source of revenue and foreign exchange earner puts the country in a risky position that makes it vulnerable to oil price volatilities. Consequently, there is the urgent need to move away from the present monolithic economy, diversify the country's economic base, within and away from crude oil, and explore other sources of revenue (Onwalu, 2009, 2012).

It is pertinent to note that, while crude oil constitutes only 20 per cent of the country's Gross Domestic Product, it accounts for over 80 per cent of government revenue and 90 per cent of its foreign exchange earnings. What this implies is that, once the global oil market sneezes, the Nigerian economy catches cold! The rapidly changing dynamics and volatility of the oil market has, therefore, underscored the need for rebuilding national fiscal savings. This has become imperative, more so, in view of the recent report that Nigeria may be exposed to potential oil price shock due to the combination of new supplies coming on stream from non-members of the organization of Petroleum Exporting Countries, as well as lower imports from the United States (our largest market). The concomitant effect will be a squeeze on revenues from oil exports. In fact, in the last one month, there has been over 24 per cent decline in the price of oil in the international market. Nigeria is one of the many countries which have long been a mono cultural economy, depending on the exportation of crude oil as its main source of foreign exchange earnings. Unfortunately, many of its citizens still live in poverty in spite of the huge resources from oil (Asuntogun, 1997 & Onuba, 2012).

The need for the diversification of the Nigerian economy from over-dependence on oil to cannot be over emphasized, especially going by the unstable and fluctuating global oil prices in order to minimize the country's vulnerability to macro-economic risks, such as production fall, fall in demand and price, and also a run out of reserves (Olorunfemi & Raheem, 2008), Although efforts are currently being made by the Nigerian government towards diversifying its economy through other sectors.

Eighty five percent of Nigeria's revenue is derived from oil (Ameh, 2009). Nigeria was a major exporter of cocoa, palm oil, rubber and groundnuts up to the 1960s; but by the year 2000, the economy had become excessively dependent on oil forcing the decline in the agricultural sector. To buttress the dependency of Nigeria on oil, Usman Shamsudeen in (Ameh, 2009) reported that of the N3, 915.56 billion total revenue derived in June 2008, N3, 133.00 billion was derived from oil. In spite of the abundant oil, Nigeria is very poor and this has been attributed to corruption, government mismanagement and failure to diversify the economy [African Review, 2004; Spenceley, 2008]. (Raj, 2002) argued that Nigeria offers largely untapped potentials for other sectors which need to be aggressively pursued. The importance of non-oil sectors to economic growth, national development and poverty reduction cannot be over emphasized (Raj, 2002), and has the potential of providing livelihood strategies for the poor (Tunde, 2012).

For rapid development in the Nigerian context, there is the need to move from the mono-cultural economy in order to put development as explained above at all tiers of government and to be able to measure up with other nations. In addition to the benefits earlier discussed, Nigeria stands to have better infrastructure and likely reduction in poverty from non-oil sectors development.

A review of the Federal Government revenue profile in the last half-decade showed that oil earnings accounted for over 80.0 per cent of the foreign exchange earnings, while the non-oil sector, despite its improved performance, contributed less than 20.0 per cent (CBN, 2008), thus revealing the extent of the vulnerability of the economy to swings in the price of oil in the international market. The renewed emphasis on the production of alternatives to fossil-fuel energy, such as solar, wind and bio-energy in the advanced economies, would reduce oil demand and further weaken Nigerian earnings. Thus, in the absence of concerted efforts to shore-up and widen the revenue base, there will be reduction in crude oil revenue and excess crude oil receipts savings in the coming years.

The performance of the non-oil export sector in the past three decades leaves little or nothing to be desired, in spite of the efforts to promote non-oil exports in Nigeria. The share of non-oil export in the country's total export earnings has remained very low and it was 1% in 2008 (CBN, 2013). The policy concern over the years has therefore been to expand non-oil export in a bid to diversify the nation's export base (Adedipe, 2004). The diversification of the Nigerian economy is necessary for important reasons. First, the volatility of the international oil market with the attendant volatility of government revenue gives credence to any argument for diversification of exports. Secondly, the fact that crude oil is an exhaustible asset makes it unreliable for sustainable development of the Nigerian economy (Utomi, 2004).

The continued unimpressive performance of the non-oil sector and the vulnerability of the external sector thus dictate the urgent need for a reappraisal of the thrust and contents of the development policies and commitments to their implementation. Indeed, the need for a change in the policy focus and a shift in the industrialization strategy is imperative, if Nigerian economy is to be returned to the path of sustainable growth and external viability. This raises the question of the role of the non-oil export in the economic growth of the country and what factors are responsible for the performance/or otherwise of the non-oil sector. This calls for

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new thoughts and initiatives, which is the essence of this paper. This paper is divided into five sections: Following the introduction in section I is the literature review in section II. Section III takes a look at the potentials, growth and performance of the non-oil sector under different policy regimes. Section IV is the methodology and data analysis. Section V concludes the paper with suggested policy recommendations.

2.0   Theoretical issues
2.1   Potentials of the non-oil sector
The potentials of the sector are great as shown by the Table 1. For instance, Nigeria has established itself as the largest telecom market in Africa, the tourism industry had an expansive capacity in terms of revenue and employment generation valued in excess of N1tn and it is currently generating about N150bn yearly, with 300,000 workers in its employ (Alabi, 2011). Direct employment in the non-oil export companies alone is estimated at about 200,000 while indirect employment in the agriculture sector which gains from the market linkages provided by the exporting companies is estimated at over ten million(Udoh, 2012).

Table 1: The potentials of non-oil sectors in Nigeria

S/N	ECONOMIC GROUP	DESCRIPTION OF ACTIVITIES
1	Agriculture	Cultivating, harvesting, handling, processing, storage, distribution of various crops(cocoa, oil palm, sesame seeds, groundnut, maize), rearing, processing and distribution of livestock, fishery and domesticated animals.
2	Manufacturing	Various activities in the ten sectors of MAN: Production, packaging, distribution lines, marketing, export line, etc.
3	Environmental Services	Cleaning of offices and homes, urban waste collection and recycling, street cleaning, energy generation from waste, etc.
4	Building and Construction	Metal works, supplies of building materials, block and roofing works, plumbing and electrical, finishing (tiling, paintings, decorations, gardening, etc.)
5	Health Activities	Hospitals, Pharmacies, pharmaceutical industries, drug supplies, accessory services (equipment maintenance, equipment supplies, etc.)
6	Mineral Activities	Exploration, mining , processing , marketing, mineral testing, transportation, etc.
7	Power	Power generation and distribution, meter reading, production and supply of electrical accessories, installations, maintenance, renewable energy investments(solar, wind and hydro) etc.
8	Telecommunication Services	Telecommunication engineering services, installations, telephone wholesale and retail services, marketing services, etc.
9	Financial Sector	Banking, insurance, installation maintenance , marketing services, transportation, etc.
10	ICT	Business centers, corporate communication, defense and security communication, installations and maintenance, satellite services, internet services etc.
11	Wholesale and Retail	Warehouses, major distributors, supermarkets, corner shops, kiosks, open market shops, various forms of retail (mobile trading, internet trading etc.)
12	R&D Activities	Contract R&D, market driven R&D, R&D management (commercialization of R&D results, linkage management, fund sourcing consultancy etc.

Source: Adopted from Onwualu (2012).Growth and Development of the Nigerian Non-Oil Sector: Key to Successful Economic Diversification. Presentation at the 51 AGM/Conferenceof NACCIMA, Sagamu, Remu, Ogun State. www.panafricancapitalplc.com

2.2 The performance of Nigerian non - oil sector under different policy regimes
The Nigerian Government has displayed determination over the years to grow the non-oil sector of the economy by putting in place supportive policies and incentives. These policies have been targeted at encouraging the diversification of the economy. These policies can be categorized into three, namely: Protectionism policy, Trade liberalization policy and Export promotion policy. To evaluate the growth pattern of the non-oil sector, it is necessary to look at how the non-oil sector has performed under these policy regimes.

2.2.1 Protectionism policy era
In the early 1960s and late 1970s, agricultural production was encouraged by the removal of agricultural export and sales taxes and by the increased tariffs on agricultural imports. Agricultural inputs, particularly fertilizers, were subsidized. By 1982, all exports, except cotton and all food crops were positively protected (Oyejide, A. 1986).

The Pre – SAP era featured an era of import substitution industrialization. The policies under the era

was aimed at expanding the industrialization-base, enhancement of cash crop exports, encouraging farmers to expand their farms and increase the production of cash crops with guaranteed external markets by the marketing boards, adjustment in the demands for foreign exchange, introduction of trade barriers (regulation of import licensing and import tariffs) to control imports. The ultimate goal was to protect domestic industries that were set up to produce import substitutes.

The customs tariff structure was deliberately discriminatory, biased in favour of capital goods and raw materials. Items considered as luxury goods were either put on import prohibition list or had very high import tariffs placed on them. Protectionism ended in 1974 with the removal of restrictions on import. By the Third National Development Plan (1981 – 1985) trade policies were relaxed due to falling oil revenue and decline in foreign exchange.

2.2.2 Trade liberalization policy era

Trade policies since 1986 have been aimed at liberalization of the economy as well as achievement of greater openness and greater integration with the world economy. The policies thus ranged from abolition of marketing boards, to introduction of the second tier foreign exchange market (SFEM), various export expansion incentive schemes, establishment of the Nigeria Export- Import Bank etc. Thus, in July, 1986, the Structural Adjustment Programme (SAP) was introduced to tackle the problem of imbalances in the economy and thereby pave way for stable growth and development. The Export Incentive and Miscellaneous Provisions Decree of 1986 were promulgated to encourage exports. As a result of the various policy supports, significant growth was experienced in the agricultural, telecommunication and business sectors (Analogbei, 2000).

2.2.3 Export promotion policy era

The restoration of democracy from 1999 witnessed a rapid transformation of the non-oil sector, following intensified policy support to SMEs to enhance the export of their products.

In all considerations, current government policies are aimed at facilitating the diversification of the economy. One of the incentive policies in this regard has been the Export Expansion Grant (EEG) Scheme, which operates under the legal context provided under the Export (Incentives and Miscellaneous Provisions) Act 1986. The export grant is given to exporters to cushion the impact of infrastructural disadvantages faced by Nigerian exporters and make our exports competitive in the international market. No incentive has been as effective as the EEG in encouraging exports in the non-oil sector (Adeloye, 2012). The Nigerian Export Promotion Council (NEPC) is responsible for the administration of the policy.

Realizing the importance of the policy in promoting non-oil exports, government subjected the EEG policy to reform in 2006 with technical assistance from international consultants, Price Water House Coopers. The scheme was streamlined to make it more effective by categorizing export products according to their degree of value addition and processing and rewarding those companies which generate higher export growth and new investment in export capacity building (Adeloye, 2012)

Consequent upon these reforms, informed industry position put it that the growth in non-oil exports from $1billion in 2006 to $2.3billion in 2010. Following the EEG policy emphasis on value addition, exporting companies embarked on forward integration and made heavy investment in plant and machinery to add value to indigenous commodities. There have been a clear shift towards export of processed and value added products (Adeloye, 2012).

Cocoa Export : Decades ago, Nigeria was known to be an exporter of raw cocoa, but now, Nigeria exports cocoa products, such as cocoa cake, cocoa liquor, cocoa butter and cocoa powder (Adeloye, 2012).

Leather Export: The country banned the export of wet blue (leather in semi-finished stage) almost a decade ago, which led to huge investment in tanneries to export finished leather and recently, articles of leather (Adeloye, 2012).

Cashew Export: From an exporter of raw cashew, Nigeria now exports processed cashew.

Sesame Seed Export: Nigerian de-hulled sesame seeds are now being exported to Japan.

Seafood Export: The industrial trawling industry invested in highly capital intensive trawlers for on-board processing of wild shrimps and cold chain to embark on export of highly perishable products.

Innovative Exports: One of the most innovative stories has been the export of re-cycled polyester fiber produced in the most environmentally sustainable manner as a result of which Nigeria has become the largest exporter of polyester staple fiber in Africa, destined for European market.The re-cycling fiber plant in Lagos, according to the NEPC, provides direct and indirect employment to 2,000 Nigerians (Adeloye, 2012).

2.2.4 Exports under African growth & opportunity Act (AGOA)

It is interesting to observe how persistent efforts of Nigerian exporting companies have led to the acceptance of their products in some of the highly quality conscious customers and markets. Consider a few examples. Ten years after AGOA (African Growth & Opportunity Act) was passed by USA to allow duty free access to products from sub-Saharan Africa, Nigerian exports seem to have achieved a breakthrough. Today, Nigerian products such as cocoa beans and butter, dried-split ginger, leather, woven sacks and technically specified rubber (TSR) are being exported to the US. Hibiscus flowers are also being exported to USA.

Reform of the Textile Sector: As a result of the Bank of Industry's intervention in the textile industry, the remaining textile mills have embarked on re-tooling of their equipment. Accordingly, some companies, apart from accessing funds for machinery refurbishment and upgrading, have been going for industrial or technical skills upgrade to have some competitive edge. Nigerian textile products, such as cotton textiles comprising wax prints, cotton yarn and fabrics are exported to West and Central Africa and EU (Adeloye, 2012).

Cluster development: A very positive fall out of the non-oil export expansion has been the emergence of export processing clusters. Challawa industrial estate in Kano has emerged as a major export cluster with modern tanneries situated in this zone (Yusuf, 2012).

Annual exports from this industrial zone which also has an integrated textile mills are estimated at over $700 million. Likewise, cocoa processing clusters have emerged in south Western part of the country, rubber processing in Sapele in Delta State and large scale shrimp processing in Lagos. The private companies located in these clusters have invested in plant and machinery and infrastructure, almost substituting the role of the government, to meet international quality standards and provide employment to hundreds of thousands directly and indirectly (Yusuf, 2012).

Boosting foreign exchange earnings: Boosting export earnings become even more pertinent today in view of weakening exchange rate of Naira and shrinking foreign exchange reserves. According to an NEPC official who is familiar with the past export trends, "a positive feature of the EEG scheme has been the tendency on the part of exporters to operate through official channels which compliments CBN efforts to discourage the unofficial forex market in Niger(Yusuf, 2012)

These developments have impacted positively on economic indices in recent times. According to the 2012 Economic Outlook Report by the National Bureau of Statistics (NBS), the non-oil sector grew at 9.07% in Q4 2011 higher than the 8.93% recorded in Q4 2010, (Table 2).

The report also stated that the non-oil sector continued to be a major driver of the Nigerian economy in the fourth quarter of 2011. When compared with the corresponding quarter in 2010, the sector recorded 9.07 percent growth in real terms as indicated in figure 1. This growth was largely driven by improved activities in the telecommunications, Building & construction, Hotel & Restaurant, Business services and other sectors. The performance of the major industries in the non-oil sector in the fourth quarter of 2011 is further analyzed to give a better understanding of their contributions to the Nigerian economy (NBS, 2014).
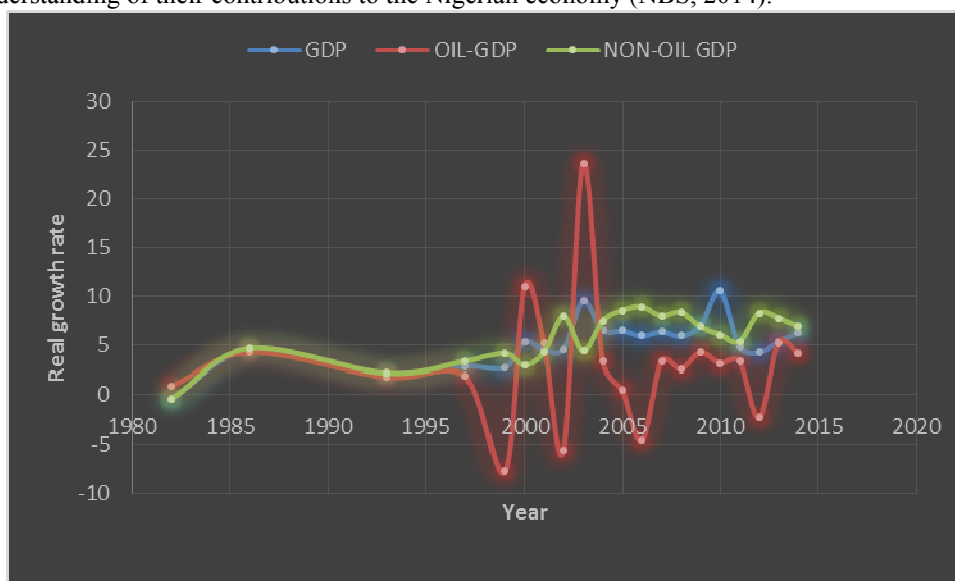

Figure 1.0: Oil and non-oil real GDP growth rate at 2010 constant price

Figure 1.0 shows the trend of oil and non-oil real GDP growth rate. While oil real GDP growth rate has been fluctuating during the period, non-oil real GDP growth rate has been stable. The fluctuation in oil GDP growth is as a result of the dwindling oil prices in the international market.

Table 2: Contribution to GDP (selected sectors) 4th Quarter 2013

S/N	Sector	Contribution to GDP
1	Agriculture	39.49
2	Manufacturing	7.07
3	Telecom/Postal Service	5.6
4	Building and Construction	1.99
5	Crude Petroleum and Natural Gas	13.54
6	Real Estate	1.64
7	Solid Minerals	0.34
8	Finance and Insurance	2.92
9	Wholesale and Retail	19.87
10	Business and Other Services	0.81
11	Others	6.22

Source: National Bureau of Statistics, 2013

Non-oil export earnings by Nigerian exporters rose by 29.7 per cent, to US$666.5 million from the level in the preceding quarter. The development was attributed largely to the rise in the prices of all the commodities traded at the international commodities market (CBN, 2010).

According to Table 3,the following trends were observed:

Real GDP growth rate: averaged 2.9% in 1993/99, doubled to 6.1% in 2000/2006, 2003/2005 growth rate exceeded the prescribed 6.5% under the Millennium Development Goals (MDGs). The growth was driven by the non-oil sector, except for 2000 and 2003, during the period, oil GDP growth was lower than aggregate GDP growth.

Non-oil GDP growth, on the other hand, was much higher than aggregate GDP growth, especially for 2002, and 2004/2006.

Table 3: Aggregate and sectoral real GDP growth rate 1982-2014

Year	Total GDP	Oil GDP	Non-Oil GDP	Agriculture	Manufacturing	Tel Comm.	Education	Buss. Other Service
1982/85	-0.4	0.9	-0.4	4.7	-2.0	7.4	2.3	9.5
86/92	4.5	4.3	4.7	5.0	4.0	1.5	2.3	2.6
93/96	2.1	1.8	2.2	3.3	2.4	3.6	1.8	3.7
97/98	2.9	1.9	3.4	4.1	-1.8	5.5	1.7	4.3
1999	2.8	-7.81	4.2	5.3	3.4.	5.2	1.7	19.9
2000	5.4	10.99	3.0	3.0	3.4	6.1	1.6	8.0
2001	4.6	5.2	4.3	3.9	14.48	29.9	1.6	10.0
2002	4.63	-5.61	7.96	4.2	10.09.	13.3	1.6	15.1
2003	9.57	23.70	4.44	6.64	5.66	85.1	7.9	13.1
2004	6.58	3.37	7.50	6.50	10.00	85.0	7.0	26.5
2005	6.51	0.50	8.59	7.06	9.61	85.4	14.01	19.8
2006	6.0	-4.63	8.93	7.14	9.51	31.88	12.35	7.67
2007	6.4	3.4	8.0	6.27	8.89	34.67	10.77	10.69
2008	6.0	2.6	8.4	5.88	7.85	34.73	10.00	9.89
2009	7.0	4.3	6.9	5.82	7.56	34.83	8.71	9.76
2010	10.6	3.2	6.1	5.64	7.50	34.96	9.89	10.03
2011	4.9	3.4	5.4	3.97	7.55	32.09	9.65	10.19
2012	4.3	-2.3	8.3	9.66	8.19	9.94	18.27	14.21
2013	5.4	5.3	7.8	10.0	8.0	NA	NA	NA
2014	6.3	4.2	6.9	21.0	9.0	NA	NA	57

Source: NBS (2014). The Nigerian Statistical Fact Sheets on Economic and Social Development, Abuja (November and CBN (2014) Statistical Bulletin.

According to Table 3, thesectoral growth profile shows two outstanding sectors, Telecommunications and Educational Services.

2.3 Challenges and constraints

Onwualu(2009), identifies key impediments to the growth of the non-oil sector as follows:

• Weak Infrastructure – a national challenge

• Supply side constraints – due to low level of technology. This constraint is particularlyprominent in the agricultural sector

• Low level of human capital development - general

• Weak Institutional framework - general

• Poor Access to finance – general

3.0   Methodology

Based on the literature reviewed and the theoretical framework, this section is preoccupied with the methodology of the research by formulation of models to capture the relationship between GDP and non-oil export in Nigeria. The use of Auto Regression Distributed Lag (ARDL) bound testing approach to co integration will be adopted to estimate the parameters and to test the validity of the pollution haven hypothesis. The Co integration and Error Correction framework have proved to be successful tools because it captures the long-run equilibrium relationship as well as short-run variations and dynamics. Data relied upon in this research are purely secondary obtained from the central bank of Nigeria (CBN), National Bureau of Statistics (NBS), World data bank (World Development Indicators). In line with the theoretical framework, the model for the research is:

$GDP_t = \beta_0 + \beta_1 AGR_t + \beta_2 MAN_t + \beta_3 TEL + \epsilon_i$…………………………………… (1)

Where GDP_t–Real Gross Domestic Product at

AGR_t - Agricultural component of Non-Oil

MAN_t - Manufacturing component of Non-Oil

TEL_t - Solid Telecommunication component of Non-Oil

ϵ_i - Error term

$\beta_0, \beta_1, \beta_2, \beta_3$ – Constants, expected to be greater than zero

3.1. Bound Testing Approach

The use of the bounds technique is based on three validations. First, Pesaran,Shin and Smith (2001) advocated the use of the ARDL model for the estimation of level relationships because the model suggests that once the order of the ARDL has been recognised, the relationship can be estimated by OLS. Second, the bounds test allows a mixture of I(1) and I(0) variables as regressors, that is, the order of integration of appropriate variables may not necessarily be the same. Therefore, the ARDL technique has the advantage of not requiring a specific identification of the order of the underlying data. Third, this technique is suitable for small or finite sample size (Pesaran, Shin and Smith, 2001).

Following Pesaran, Shin and Smith (2001), we assemble the vector autoregression (VAR) of order *p,* denoted VAR (*p*), for the following growth function:

$$Z_t = \mu + \sum_{i=1}^{p} \beta_i z_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

where z_t is the vector of both x_t and y_t, where y_t is the dependent variable defined as economic growth (GDPt), x_t is the vector matrix which represents a set of explanatory variables i.e., Agriculture component of non-oil (AGRt), Manufacturing component of non-oil (MANt) and telecommunication component of non-oil (TELt) and *t* is a time or trend variable. According to Pesaran Shin and Smith (2001), y_t must be I(1) variable, but the regressor x_t can be either I(0) or I(1). We further developed a vector error correction model (VECM) as follows:

$$\Delta z_t = \mu + \alpha t + \lambda z_{t-1} + \sum_{i=1}^{p-i} \gamma_t \Delta y_{t-i} + \sum_{i=1}^{p-1} \gamma_t \Delta x_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

Where Δ is the first-difference operator. The long-run multiplier matrix λ as:

$$\lambda = \begin{bmatrix} \lambda_{YY} \lambda_{YX} \\ \lambda_{XY} \lambda_{XX} \end{bmatrix}$$

The diagonal elements of the matrix are unrestricted, so the selected series can be either I(0) or I(1). If $\lambda_{YY} = 0$, then *Y* is I(1). In contrast, if $\lambda_{YY} < 0$, then *Y* is I(0).

The VECM procedures described above are imperative in the testing of at most one cointegrating vector between dependent variable y_t and a set of regressors x_t. To derive model, we followed the postulations made by Pesaran, Shin and Smith(2001) in Case III, that is, unrestricted intercepts and no trends. After imposing the restrictions $\lambda_{YY} = 0, \mu \neq 0$ and $\alpha = 0$, the GIIE hypothesis function can be stated as the following unrestricted error correction model (UECM):

$$\Delta(GDP)_t = \beta_0 + \beta_1(GDP)_{t-1} + \beta_2(AGR)_{t-1} + \beta_3(MAN)_{t-1} + \beta_4(TEL)_{t-1} + \sum_{i=1}^{p} \beta_5 \Delta(GDP)_{t-i} +$$

$$\sum_{i=1}^{q} \beta_6 \Delta(AGR)_{t-i} + \sum_{i=1}^{r} \beta_7 \Delta(MAN)_{t-1} + \sum_{i=1}^{s} \beta_8 \Delta(TEL)_{t-i} + \mu \dots \dots (4)$$

Where Δ = is the first-difference operator and u_t is a white-noise disturbance term.

Equation (4) also can be viewed as an ARDL of order (p, q, r, s). Equation (4) indicates that economic growth tends to be influenced and explained by its past values. The structural lags are established by using minimum Akaike's information criteria (AIC). From the estimation of UECMs, the long-run elasticities are the coefficient of one lagged explanatory variable (multiplied by a negative sign) divided by the coefficient of one lagged dependent variable (Bardsen, 1989). The short-run effects are captured by the coefficients of the first-differenced variables in equation (4).

After regression of Equation (4), the Wald test (F-statistic) was computed to differentiate the long-run relationship between the concerned variables. The Wald test can be carry out by imposing restrictions on the estimated long-run coefficients of economic growth, agricultural component, manufacturing component and telecommunication component. The null and alternative hypotheses are as follows:

$H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (no long-run relationship)

Against the alternative hypothesis

$H_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ (a long-run relationship exists)

The computed F-statistic value will be evaluated with the critical values tabulated in Table Ciii (iii) of Pesaran, Shin and Smith. (2001). According to these authors, the lower bound critical values assumed that the explanatory variables x_t are integrated of order zero, or I(0), while the upper bound critical values assumed that

x_t are integrated of order one, or I(1). Therefore, if the computed F-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between economic growth and its determinants. Conversely, if the computed F-statistic is greater than the upper bound value, then economic growth and its determinants share a long-run level relationship. On the other hand, if the computed F-statistic falls between the lower and upper bound values, then the results are inconclusive.

4.0 Results and discussions

The standard Ng-Perron (2001) unit root test was exercised to check the order of integration of these variables. The results obtained are reported in Table 1. Based on the Ng-Perron test statistic, it was initiated that out of the four variables, two have unit root i.e., GDPt and TELt while AGRt and MANt are stationary at levels. Noticeably, the mixture of both I(0) and I(1) variables would not be possible under the Johansen procedure. This gives a good justification for using the bounds test approach, or ARDL model, which was proposed by Pesaran, Shin and Smith (2001).

Table 3: Ng-Perron unit root estimation

Variable	MZa	MZt	MSB	MPT
LogGDPt	1.0245	0.6784	0.6622	106.624
LogAGRt	-8.1831***	-0.5125	0.4332	12.9709
LogMANt	-8.8937**	0.4522	0.5060	22.4409
LogTELt	-0.2418	-0.0841	0.3477	12.3158
ΔLogGDPt	-15.1411***	-2.7150	0.1793	6.2293
ΔLogAGRt	-10.8734**	-2.3108	0.2125	2.3359
ΔLogMANt	-13.5116**	-2.5506	0.1887	1.9972
ΔLogTELt	-12.1586**	-2.4298	0.1998	2.1523

Note: The null hypothesis is that the series is non-stationary, or contains a unit root. The rejection of the null hypothesis is based on MacKinnon (1996) critical values. The lag length are selected based on SIC criteria, this ranges from lag zero to lag two. *, ** and *** indicate the rejection of the null hypothesis of non-stationary at 1%, 5% and 10% significant level, respectively.

Having examined the time series characteristics of our data, the next step is to examine the long-run relationships among the variables. However it is a pre-requisite to select an appropriate lag length before proceeding to the ARDL cointegration test. To test the existence of cointegration, ARDL bounds tests approach is applied. The appropriate lag length for the series and to compute the F-statistics for cointegration, we consider lag 1, based on the minimum values of FPE, AIC, SBC and HQ criterion (Table 4)

Table 4: Laglength selection criteria for cointegration

Lag	LogL	LR	FPE	AIC	SC
0	-899.8488	NA	2.48e+20	58.3128	58.4978
1	-7.53.4380	245.5924	5.57e+16	49.8992	50.8243
2	-714.8541	54.7641*	1.37e+41*	48.4422*	50.1074*

Endogenous: LogGDPt, LogAGRt, LogMANt, LogTELt
Exogenous: Constant
Note: * indicates lag selection by the criteria

The ARDL bounds testing results are shown in Table 5. The calculated F-statistics of all underlined variables (i.e., Gross Domestic Product, agricultural output, manufacturing output and telecommunication output) fall outside the critical bounds at the 1 and 5 percent levels of significance. The exception was telecommunication, which is level. This result shows that we have three co-integrating vectors and confirms the presence of a long-run relationship between the variables over the period of 1981–2013. In all cases, the calculated F-statistics are greater than the 1 percent upper bound critical values provided by Pesaran, et al. (2001). Therefore, the null hypothesis of no co-integration can be rejected, implying that a long-run equilibrium relationship exists between Gross Domestic Product, agricultural output, manufacturing output and telecommunication output in Nigeria.

In Table 5 the results of the bounds co-integration test demonstrate that the null hypothesis of against its alternative is easily rejected at the 1% significance level. The computed F-statistic of 11.5844 is greater than the upper critical bound value of 5.61, thus indicating the existence of a steady-state long-run relationship among GDPt, AGRt, MANt and TELt.

Table 5: Bounds test for cointegration analysis

Equation	Optimal lag length	F-statistic	X^2_{Normal}	X^2_{ARCH}	X^2_{Reset}	X^2_{Serial}
F_{GDP}/GDP(AGR,MAN,TEL	2,1,1,1	11.5844	0.2042	2.8556[1]	2.6329[1]	1.0578[2]

Critical value	Lower Bound Value	Upper Bound Value
1%	4.29	5.61
5%	3.69	4.89
10%	2.72	3.77

Note: Computed F-statistic: 11.5844 (Significant at both 0.01 and 0.05 marginal values).Critical Values are cited from Pesaran, Shin and Smith (2001), Table CI (iii), Case 111: Unrestricted intercept and no trend.

The estimation of Equation (4) using the ARDL model is reported in Table 6. Using Hendry's general-to-specific method, the goodness of fit of the specification, that is, R-squared and adjusted R-squared, is 0.634 and 0.557 respectively. The robustness of the model has been definite by several diagnostic tests such as Breusch- Godfrey serial correlation LM test, ARCH test, Jacque-Bera normality test and Ramsey RESET specification test. All the tests disclosed that the model has the aspiration of econometric properties, it has a correct functional form and the model's residuals are serially uncorrelated, normally distributed and homoscedastic. Therefore, the outcomes reported are serially uncorrelated, normally distributed and homoscedastic. Hence, the results reported are valid for reliable interpretation and policy implication.

Table 6: Estimated model based on equation (4) (Long and short run estimates)
Dependent Variable: ΔLog (GDPt)

Variable	Coefficient	Standard error	t-statistic	Probability
$LogAGR_{(t-1)}$	3.5444*	0.7750	4.5733	0.0003
$LogMAN_{(t-1)}$	-2.5682**	0.4607	-2.3931	0.0478
$LogTEL_{(t-1)}$	10.3377**	2.8078	2.1331	0.0004
C	135.2678	69.0705	1.9584	0.0668
$ECM_{(t-1)}$	-1.4466**	0.4193	3.4501	0.0020
$\Delta LogGDP_{(t-1)}$	0.5687	0.0555	4.3926	0.0004
$\Delta LogAGR_{(t-1)}$	-0.6033	0.2386	-1.0882	0.2917
$\Delta LogMAN_{(-1)}$	3.9040**	0.6905	2.4272	0.0266
$\Delta LogTEL_{(t-1)}$	1.9651	1.0435	1.0093	0.3270

4.1 Model criteria / Goodness of Fit:
R-square = 0.636; Adjusted R-square = 0.557; Wald F-statistic = 8.05 [0.0000]*
4.1.1 Diagnostic Checking:
JB = 4.4865 [0.1061]; LM-1 = 1.154 [0.3117]; LM-2 = 0.450 [0.503]; LM-3 = 0.491 [0.691]; ARCH (1) =

0.1567 [0.8558]; ARCH-2 = 0.0503 [0.9511]; ARCH-3 = 0.1122 [0.9455]; White Heteroskedasticity = 1.2271 [0.1710]; Ramsey RESET = 1.3794 [0.1800]

*, ** and *** indicate significance at 0.01, 0.05 and 0.10 level respectively. Probability values are quoted in square brackets. MA and ARCH denote LM-type Breusch-Godfrey Serial Correlation LM and ARCH test, respectively, to test for the presence of serial correlation and ARCH effect. JB and RESET stand for Jarque-Bera Normality Test and Ramsey Regression Specification Error Test, respectively.

The estimated coefficients of the long-run relationship between GDPt, AGRt, MANt and TELt are expected to be significant, that is:

$$\log(GDP)_t = 135.2678 + 3.5444 * \log(AGR)_t - 2.5682 * \log(MAN)_t + 10.3377 \log(TEL)_t$$

The result of equation (4) and Table 6 indicate that both agricultural component and telecommunication components have a positive impact on economic growth. Manufacturing component however has a negative impact on growth due to the neglect of the sector over the years. If there is one percent increase in agricultural and telecommunication components, economic growth increases by 3.544 percent and 10.377 percent respectively. This analysis demonstrates that, in the long-run, both components contribute to the growth of Nigerian economy, as both variables have positive and significant effect on economic growth over the period under review.

4.2 Short run dynamics and error correction model

The short run dynamics among the variables are explored by employing vector error correction mechanism (VECM). Error correction model allows the introduction of previous disequilibrium as independent variables in the dynamic behavior of existing variables. Table 6 presents the short run dynamic relationship and the set of short run coefficients in the vector error correction model. VECM associates the changes in real economic growth (GDP) to the change with the other lagged variables and the disturbance term of lagged periods. The coefficient of the speed of adjustment is negative and statistically significant at 5 percent. This shows that there is 144.6 percent point adjustment taking place each year towards the long run periods. From table 6, the past year of GDP impacted positively on the current GDP, however the relationship between past GDP and the current is inelastic, therefore, an increase in the past year GDP causes current GDP to increase by 0.568 units. Considering agricultural component, the immediate past records of agricultural component had a positive impact on economic growth due to the fact that apart from oil, agriculture contributes significantly to the economy. Agriculture was the main stay of Nigerian economy prior to the discovery of oil. Therefore a large chunk of the population especially in the rural areas still depends on agriculture. Also the immediate past record of manufacturing component had a negative impact on economic growth. This shows that as manufacturing component increases economic growth also decreases. This is a pure indication of un-exploration of the manufacturing sector. The past records of telecommunication component had a positive impact on GDP and significant at 5%. This is owing to the fact that the potentials of service sectors through the inflow of telecommunications in Nigeria has been explored and utilized over the years.

Table 7: Long-run elasticities and short-run causality of economic growth in Nigeria: based on equation (4)
Panel (I). Long-run causality test (Wald t-statistic)

Variable	Coefficient
LogAGRt	*4.5743 *[0.0003]*
LogMANt	*-2.3931**[0.0285]*
LogTELt	*2.2890**[0.04788]*

Panel (II). Short-run causality Test (Wald F-statistic):

ΔLogAGRt	*ΔLogMANt*	*ΔLogTELt*
11.2890*	*3.1814****	*1.1199*
[0.0008]	*[0.0670]*	*[0.3492]*

*, ** denote significant at 1% and 5% level. Figures in brackets refer to marginal significance values.

The dynamic short-run causality among the relevant variables is shown in Table 7, Panel II. The causality effect can be acquired by restricting the coefficient of the variables with its lags equal to zero (using Wald test). If the null hypothesis of no causality is rejected, then we wrap up that a relevant variable Granger-caused economic growth. From this test, we initiate that the independent variables i.e. agricultural component, manufacturing component and telecommunication component are statistically significant to Granger-caused economic growth at 1 and 5 percent significance level. To sum up the findings of the short-run causality test, we conclude that causality runs from agricultural component, manufacturing component and telecommunication componentto economic growth respectively in the long run. Whereas short run causality indicates that only agricultural component and manufacturing component granger cause economic growth.

5.0 Conclusion, policy implications and recommendations

This paper examines the contribution of non-oil sectors performance on economic growth of Nigeria with the view of diversifying the economy for an all-inclusive growth, using time series data from 1981-2013 by employing bound test to co integration approach. The analysis demonstrates that in the long-run, both agricultural component and telecommunication component increase economic growth by almost 3.544 percent and 10.337 percent respectively. While in the long-run, the results indicate uni-directional causality from all the independent variables (AGRt, MANt and TELt) to economic growth (GDP). It is a manifest that economic growth is sensitive to changes in the independent variables.

However the result shows only small marginal contribution to GDP and even negative contribution of manufacturing component to GDP due to the over reliance on oil while neglecting the other sectors of the economy. In addition the volatility of the international oil market with the attendant volatility of government revenue gives credence to any argument for diversification of the economy couple with the fact that crude oil is an exhaustible asset makes it unreliable for sustainable development of the Nigerian economy. Therefore, the government should realise effective macro-economic policies along with momentous improvements in the structure and functioning systems of governance for stabilising economic growth along with the diversification of the economy and economic reforms towards the development of the non-oil sectors.To achieve inclusive growth, macro-economic stability and sustainable development of the Nigerian economy, we must imbibe the culture of savings and wealth creation, based on increased productivity/output, value addition, economic diversification and self-sustenance. Other recommendations include the following:

1. Review and strengthen existing policies and incentives to support the growth of the non-oil sector.
2. Improve the current state of infrastructures since the operation of SMEs which constitute the bulk of the non-oil sector of the economy rely on steady supply of electricity.
3. Allocate sufficient budget to R&D since innovation and competitiveness of the sector depends on it.
4. Consider the introduction of a special stimulus package to encourage investments in the non-oil sector of the economy, with particular emphasis on the mineral and tourism sectors where huge capital requirement has continued to discourage investment.

REFERENCE

Adedipe, B. (2004), "The impact of oil on Nigeria's economic policy
formulation". A paper presented at the conference on Nigeria: Maximizing pro-poor Growth: Regenerating the Socio-economic Data Base, organized by Overseas Development Institute in collaboration with Nigerian Economic Summit Group, 16th/17th June.

Adeloye, L.(2012). Non-oil exports: role of incentives and challenges.*Punch 24 February*, 2012.

Adulagba, D., 2011, Executive Director/CEO, NEPC in Onuba, I., 2012,Non-oil Export Trade, Punch, April 16, 2012

Africa Review (2004). *The economic and business report 2003/04:*Walden Publishing Ltd.

Aigbokhan, B. E.(2008). Growth, inequality and poverty in Nigeria.*United Nations Economic Commission for Africa (UNECA),* Addis Ababa, Ethiopia.

Alabi, S. 2011. *Nigerian Daily*, March, 2011

Ameh, E. (2009). Oil price slump and imperative of diversifying the economy. *Business Day* Online 12 January 2009.Available from http://www.businessonline.com accessed on 16/12/201

Analogbei, F. C. O. (2000). "Trade reforms and productivity in Nigeria":Proceedings of the Ninth Annual Conference of the Zonal Research Units of CBN.

Central Bank of Nigeria (2013), *Statistical Bulletin*, Golden Jubilee Edition, December, 2013.

Central Bank of Nigeria (2014), *Annual Report* and Financial Statement for the ended December.

Dauda, T. O;Asiribo O. E.; Akinbode, S. O.; Saka, J. O.; and Salihu, B.

F. (2009). An assessment of the roles of irrigation farming in the Millennium Goals. May, 2009

Adesoji S. A., Farinde A. J., Ajayi, O. A. (2006). Assessment of the training needs of fadama farmers for future agricultural extension work development in Osun State, Nigeria J. Appl. Sci 6(15):3089-3095

NBS, 2014 and Q1 – Q3, 2011. Gross Domestic Products for Nigeria.November, 2014

NINCID (Nigerian National Committee on Irrigation and Drainage, 2009): Directory: Country Profile – Nigeria downloaded from http://www.icid.org/cp-nigeria.html.

Ng, S. and P. Perron (2001). "Lag length selection and the construction of unit root tests with good size and power," Econometrica, 69, 1519-1554.

Onwualu, A.P. (2012).Growth and development of the Nigerian non-oil sector: key to sucessful economic diversification. Presentation at the 51 AGM/CONFERENCE OF NACCIMA, Sagamu, Remu, Ogun State.

Onwualu, A. P. (2009). Beyond oil: diversification options. Presented At The Leadership Newspaper Conference Held At International Conference Centre, Abuja, Nigeria, 28th April,2009

Onwualu, A. P., 2012, Agricultural Sector and National Development: Focus on Value Chain Approach. Presented at the 5TH Edition of the Annual Lecture of Onitsha Chamber ofCommerce. 24th May, 2012

Onuba, I., 2012, Non-oil Export Trade, Punch, April 16, 2012

Osuntogun,A., C. C. Edordu, B. O. Oramah. (1997). Potentials for diversifying Nigeria's non-oil exports to non-traditional markets. AERC Research paper 68. African Economic Research Consortium, Nairobi, November, 1997.

Olorunfemi, F. & Raheem, U.A. (2008). Sustainable tourism development in Africa: the imperative fortourist/host communities' security sustainable development in Africa, 10: 201-220.

Oyejide, A. 1986. "The effect of trade and exchange rate policies on agriculture in Nigeria. October, 1986

Raj, K. (2002). Modern dictionary of tourism. New Delhi: Ivy Publishing House.

Spenceley, A. (2008). Responsible tourism: critical issues for conservation and development: throwbidgeUk Cromwell Press www.panafricancapitalplc.com(2011).Telecommunications industry in Nigeria – a decade of phenomenal growth and investment potentials Pan African Capital Plc. 9th September, 2011.

Tunde, A. M. (2012). Harnessing tourism potentials for sustainable development: a case of Gurara waterfalls in Nigeria. Sustainable Development in Africa, 14(1), 119-133.

Udoh, F., 2012. Diversifying the Economy through Non-oil Exports.Leadership Newspapers, 13 – 05 – 12.

Utomi, P. (2004). "The curse of oil'. a paper delivered for Heinrich Bo11 Foundation Oil Conference by Lagos Business School, May.

Yusuf, I.A., (2012). How Non-oil Exports Drive Economy. *The Nation Newspapers*, 26/02/12.