Effect of Agricultural, Manufacturing And Services Sectors Performance In Nigeria, 1980-2011

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Abstract

The effect of non-oil components export on the economic growth in Nigeria continue to be debated and tested in order for turning around of the nation's economic outlook for the future good, by strengthen non-oil export growth and success and also promote a non-oil export culture. This paper extends the previous empirical studies on the issue providing some evidence from time series data period over 1980 – 2011. In this study, the dependent variables were agricultural, manufacturing and services sector whereas the independent variable is the gross domestic product (GDP). The model was tested using unit root test, ordinary least square (OLS), serial correlation LM test and heteroskedasticity test to analyze the significant contribution between the dependent and independent variables. The result shows that agricultural and services sector of non-oil export component contributed significantly to the economic growth (GDP) of Nigeria. Also the result presents that there is no correlation and heteroskedasticity problem. Finally this paper draws some policy implications for the further studies to focus on the non-oil export component in Nigeria so has to ensure a turnaround of the nation's economic outlook (growth).

Keywords: Non-Oil Export, Gross Domestic Product, Agricultural, Manufacturing and Services Sector.

1. Introduction

Nigeria as a developing country has been grappling with the realities of developmental process not only politically and socially but also economically. Nigeria is today identified as one of the 30 of the World's most important economies and the 7th fastest-growing economy in the world during 2009 with 6.9 percent (CBN, 2011). A large amount of Nigeria's exchange income has been provided by non-oil exports during last decade before this pattern changed when oil suddenly became of crucial importance to the world economy through its supply-price nexus, as shown in Table 1.

Table 1 shows the percentage contribution of the oil and non-oil sectors to the gross domestic product of the country's economy. It shows the percentage trend of the sectoral contribution to the Gross Domestic Product (GDP) at the constant prices of 1990.

In the 1960s, agriculture was the main stay of the economy and the greatest foreign exchange earner. Agricultural products constitute the bulk of Nigeria's non-oil exports. The shares of these products both processed and unprocessed in total value of non-oil exports is as high as 70 per cent (CBN, 2011). The agricultural products include cocoa, groundnut, palm produce, rubber (natural), cotton and yarn, fish and shrimps. Other components of the non-oil exports include manufactured products, services and solid minerals. While the manufactured products and solid minerals include processed agricultural products, textiles, tin metal, beer, cocoa butter, plastic products, processed timber, tyres, natural spring water, soap, detergent and fabricated iron rods. The non-oil commodities market experienced an export boom between 1960 and 1970. Their fortunes declined in the early 1980s when the international primary commodity markets collapsed with the associated deterioration in the terms of trade. Resulting mainly from the policies adopted during the structural adjustment programme (SAP), non-oil exports increased owing mainly to increase in the Naira price of the export commodities. This was, however, short-lived as international demand for Nigeria's non-oil exports remained weak (Okoh, 2004).

However the prime position occupied by agriculture was overtaken by the oil sector by the mid-1970s. In the circumstances, Nigeria's export earnings increased approximately from USD 216, 000 in 1960 to USD 9 million in 1980. The Nigeria economy since then has been highly dependent on proceeds from oil, which constitutes over 90 percent of total foreign exchange earnings required from financing several national development projects and the value of non-oil exports has been on the declining side. Invariably, whenever oil prices rise or fall, the fortune of increased or reduced revenue will automatically manifest itself on the economy of Nigeria. Nigeria experienced substantial capital inflow largely in the form of oil sector earnings. The large oil revenue coupled with the accumulation of reserves in major foreign currencies became enabling factor in the decision to revalue the naira (Adeyemi, 2004).

The need for expansion of non-oil exports in Nigeria is therefore necessary on the fact that crude oil which is Nigeria's main source of foreign exchange is an exhaustible asset and which can't be relied on for sustainable development; this thereby raises number of questions as stated under the research questions.

However, the mono-culture nature of the economy makes Nigeria's export earnings susceptible to the vicissitudes of the international oil market whereby the weakness in the economy manifested with the oil glut. Yet, Nigeria's spectacular growth in economic and market terms has been the help of the country's non-oil exports, which recorded 8.61 percent growth in 2009, despite the Nigeria's enormous potential in this sector has not been scratched.

A review of the federal government revenue profile in the last half decade showed that oil earnings accounted for over 80 percent of the foreign exchange earnings while the non-oil sector, despite its improved performance contributed less than 20 percent, thus revealing the extent of the vulnerability of the economy to swings in the price of oil in the international markets. The renewed emphasis on the production of alternatives to fossil- fuel energy, such as solar, wind etc, would reduce oil demand and further weaken Nigerian earnings. 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 desirable in spite of the efforts to promote non-oil exports in Nigeria. For these reasons if Nigerian economy is to be returned to the path of sustainable growth and external viability indeed, there is the need for a change in the policy focus and a movement to the industrialization sector. Thus raising 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 of the non-oil sector.

Several works have been done on the structure of the Nigerian economy in which each having gaps of limited sectoral coverage, scope (the effects of reforms on the structure) or the data relied upon for their analyses were dated. Most of them especially the recent ones focused more on an assessment of the impact of reform programmes on macro-economic stability (Adedipe, 2004). The recent work by the Central Bank of Nigeria (CBN, 2011) puts most of the structural issues in perspective of supporting data as evidence. However the Nigeria Sectoral Contribution to GDP is showed as in figure 1.

2. Literature Review

Several works have been done on the structure of the Nigerian economy in which each having gaps of limited sectoral coverage, scope (the effects of reforms on the structure) or the data relied upon for their analyses were dated. Most of them especially the recent ones focused more on an assessment of the impact of reform programmes on macro-economic stability (Adedipe, 2004). The recent work by the Central Bank of Nigeria (CBN, 2011) puts most of the structural issues in perspective of supporting data as evidence.

Currently, Nigeria exports over 90 different non-oil products to over 103 countries across the globe. Nigeria's non-oil exports which can broadly be classified into three: agricultural produce, manufactured exports and solid minerals has great potentials. It is only of recent that the export potential of solid minerals was brought to the fore. The interest to promote non-oil exports was borne out of not just its huge potentials for foreign exchange earnings, but also for its employment generation and poverty reduction capability through the extensive backward linkages it offers as well as the desire to diversify the country's production base. Therefore, though the oil sector is important, the fact still remains that a small part of the country's overall vibrant and diversified economy.

The role of exports in economic growth and the relationship between them have been the subject of a wide range of theoretical and empirical studies in international trade and economic development field. The argument concerning the role of exports as one of the main determinant factors of economic growth goes back to the classical economic theories by Adam Smith and David Ricardo (Abou-Stait, 2005).

Adam Smith identified three major sources of growth which are: Growth in the labor force and stock of capital; Improvement in the efficiency with which capital is used in labour through greater division of labor and technological progress and Promotion of foreign trade that widens the market and reinforces the other two sources of growth. David Ricardo, one of the greatest theoretical economists like Adam Smith put much less interested in economics growth than his theory of value and distribution; yet still consider his individual theory of growth in the formation of the generalized version because of his post in the classical school. Nevertheless, this section also will review widely the accepted framework which is growth accounting.

It was discovered that there are various empirical studies that have: confirmed the strong association between exports and economic growth, analyzed the role of exports in the economic growth and addressed the important issue of export composition. However, some studies provided a useful framework for analyzing the relationship

between exports and economic growth and large among the empirical studies are with regards to the statistical techniques used.

3. Materials and Methods

3.1 Research Design

This research involves quantitative analysis of the variables, adopting the method of Ordinary Least Square (OLS) econometric statistical technique. The econometric model to be used to examine this study is gross domestic product (GDP) as dependent variable whereas agricultural, manufacturing and service component are considered as independent variables. The data for this study would be extracted mainly from secondary sources, such that data will be sourced from publications of the Central Bank of Nigeria (CBN) such as Statistical Bulletin and the Central Bank of Nigeria Annual Report and Statement of Accounts 2012. Also data sourced from internet research and publications of the National Bureau of Statistics will be employed.

3.2 Estimation Procedure

The model estimation will be done through the use of the ordinary least square (OLS) method of estimation. The data analysis will be done with the appropriate tool based on the economic theory that was developed to overcome the problems of spurious correlation often associated with non-stationary time series data.

3.3 Model Specification

$$Y_t = C_0 + C_1 NOEagr_t + C_2 NOEman_t + C_3 NOEser_t + U_t$$

Where:

Y_t = Gross Domestic product for current year

$NOEagr_t$ = Agricultural component of Non-oil export

$NOEman_t$ = Manufacturing component of Non-oil export

$NOEser_t$ = Services component of Non-oil export

C_0, C_1, C_2 and C_3 = constants

U_i = error term

3.4 Apriori Expectation and Justification of the Variables in the Models

Economics postulations suggest that increase in all the non-oil component export such as agricultural sector, manufacturing sector and services sector will bring about increase in gross domestic product. Simply the increase in non-oil component export will positively affect the gross domestic product which is based on the economic postulation that an increase in non-oil component export in Nigerian economy will be directly transmitted into the economy or increase in the value of economic growth. However based on the foregoing, the expected signs of regression coefficients in the equation are: $C_1, C_2, C_3 > 0$

4. Result and Discussion

The results and findings are presented in three sections discusses an empirical test and analysis of the data sourced for the study using the economic approach which are: Augmented Dickey-Fuller (ADF), Kwiatkowski-Philips-Schmidt-Shin (KPSS) and Philips- Perron (PP) test for stationary of series, Ordinary least square (OLS), Breusch-Godfrey serial correlation LM test and Breusch- Pagan- Godfrey heteroskedasticity test. An econometric equation is estimated to test the hypotheses.

4.1 Data Analysis of Empirical Result

The annual time series data for the period 1980 to 2011 as presented to test the hypotheses in this study.

Hypothesis One:

The agricultural sector of non-oil component export has not contributed significantly to the economic growth of Nigeria; thus H_0: $B_1 = 0$

Hypothesis Two:

The services sector of non-oil component export has not contributed significantly to the economic growth of Nigeria; thus H_0: $B_2 = 0$

Results of Unit Root Tests

This study used three standard tests for unit root, namely the Augmented Dickey-Fuller (ADF), Philips-Perron (PP) and Kwiatkowski-Philips-Schmidt-Shim (KPSS) to test the order of integration of the variables, knowing that the stationary test of the time series is needed in order to avoid the problem of spurious regression. Table 1 shows the combined results of the ADF, PP and KPSS unit root test, which relieved there level of stationarity taking into consideration two types test constant without trend and constant with trend.

Results of OLS

The ordinary least square regression yields the following results from table 3;

R^2 (R-squared) is a measure of overall goodness of fits in the result which is at the high value of 0.99 or 99 percent; meaning that the proportion explained by the independent or dependent variable is 99 percent while the remaining 1 percent is explained by the error term (U_i). Adjusted R-squared other hand allows for degree of freedom which is also at 99 percent.

It was revealed that all the independent variables (NOEagr and NOEser) are positive and statistically significant with the t-statistics of 3.177154 and 3.697483 respectively.

Results of Serial Correlation LM Test

The Breusch-Godfrey serial correlation LM test show that $n.R^2 = 3.275828$ and the Prob. Chi-Square(2) which is 0.1944 is insignificant. This means that the estimated model have no autocorrelation problem.

Results of Harvey Heteroskedasticity Test

The Harvey test of heteroskedasticity show that n.R2 = 12.41565 and the Prob.Chi-Square(3) which is 0.0061 is significant and indicating an heteroskedasticity problem. Since there is heteroskedasticity problem, logarithm of the estimated model is therefore taken to correct the problem. Hence the Harvey test of heteroskedasticity show that n.R2 = 3.608368 and the prob.Chi-Square(3) which is 0.3070 is insignificant. This therefore means that the estimated model has no heteroskedasticity problem.

5.Summary, Recommendations and Conclusion

The main purpose of this study was to examine the effect between economic growth and some non-oil export sector during the period over 1980-2011 in Nigeria. Efforts have been made to base the present work on reasonable empirical and theoretical foundations. Besides the discussion of potential effects of non-oil export sector and gross domestic product on the Nigerian economy, a reasonable growth model and econometrics model is specifies and a time series data for recent period have been used.

This work has vividly examined the structures of the non-oil export in Nigeria by discussing each sectorial contribution of non-oil export to the gross domestic product of the country Nigeria. Also the effect of non-oil export sectors on Nigeria's economic growth was carried out based on the focus on three particular sector of non-oil export that is agriculture, manufacturing and services which are all found to be significant i.e contributing greatly to the Nigeria's economic growth.

5.1   Conclusion

The unit root test carried out on both the dependent and independent variables was conducted to examine their stationarity; in which all proved to be stationary at different levels. Result of ordinary least square conducted was to examine the effect that all the independent variables has on the dependent variable and also to measure the overall goodness of fits in the result. This study used auto/serial correlation LM test to examine the estimated model whether there is autocorrelation problem; in which the estimated model has no autocorrelation problem. Also the study examined heteroskedasticity test on the estimated model; in which the model has no heteroskedasticity problem.

Results reveal that the economic growth in Nigeria is significantly influenced by non-oli exports sector. Based on this result, thereby conclude that agricultural sector, manufacturing sector and services sector of non-oil export component has being contributing significantly to the economic growth of Nigeria.

5.2   Recommendations

The finding of this study shed some light about the effect some of the non-oil export component that is agricultural sector, manufacturing and services sector on the economic growth of Nigeria, which subsequently may also stimulate interests in further analysis. Since this study only use data for 31years, future researchers should have a larger data.

However, the findings of this research highlight the importance of the non-oil export sector and indicated that these sectors need to be promoted to enhance further economic growth since the non-oil sector has a positive significant effect on economic growth.

Therefore, recommended that for Nigeria's economic outlook to turn around there is need for us to strengthen non-oil export growth and success and promote a non-oil export culture. Finally, in order for Nigeria to achieve non-oil export success, it is important that the government provide supportive policies and incentives and help in the awareness raising and export training programmes which are keys to helping active and potential non-oil exporters understand foreign markets and enhance the export culture.

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Table 1: GDP Sectorial Contribution

Sector	1960 (%)	1970 (%)	1980 (%)	1990 (%)	2000 (%)	2010 (%)	2011 (%)
Agriculture	64.1	47.6	30.8	39.0	35.7	40.8	40.2
Manufacturing	4.8	8.2	8.1	8.2	3.4	4.2	4.2
Oil (Crude petroleum)	0.3	7.1	22.0	12.8	47.5	15.9	14.8
Solid mineral	0.8	0.9	2.2	0.3	0.3	0.3	0.4
Services	12.2	20.2	19.5	10.3	10.2	10.1	10.3
Others	17.8	16.0	17.4	29.4	2.9	28.7	30.1

Source: Central Bank of Nigeria Statistics (CBN), 2011.

Table 2:

ADF,PP AND KPSS UNIT ROOT TEST

Variable and	ADF		PP		KPSS		Result
	Constant	Trend and Constant	Constant	Trend and Constant	Constant	Trend and Constant	
GDP_{LEVEL}	4.9586***	3.88551**	11.1540***	10.4798***	0.60359**	0.19158**	I (0)
$Agri_{LEVEL}$	7.10055**	3.74420**	8.36618***	5.50617***	0.61368**	0.19158**	I (0)
Man_{LEVEL}	1.21186	3.41412*	3.70297***	0.21726	0.65998**	0.19365**	I (0)
Ser_{LEVEL}	1.86217	3.97284**	5.23599***	1.86541	0.59052**	0.18876**	I (0)

Notes: *****, **, *** denotes rejection of the null hypothesis of a unit root at the 1%, 5%, and 10% significance level. No asterisk indicates that the series is non-stationary

Table 3: Results of OLS

$$Y_t = c + c1NOEagr_t + c2NOEman_t + c3NOEser_t + U_t$$

$$GDP = 184066.3 + 1.700670NOEagr - 7.019538NOEman + 5.423778NOEser + U_t$$

Dependent Variable: GDP
Method: Least Squares
Date: 05/12/13   Time: 00:59
Sample: 1980 2011
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	184066.3	266828.3	0.689830	0.4960
AGRICULTURE	1.700670	0.535281	3.177154	0.0036
MANUFACTURING	-7.019538	4.193417	-1.673942	0.1053
SERVICES	5.423778	1.466884	3.697483	0.0009

R-squared	0.992507	Mean dependent var	7107013.
Adjusted R-squared	0.991704	S.D. dependent var	10577780
S.E. of regression	963431.6	Akaike info criterion	30.51086
Sum squared resid	2.60E+13	Schwarz criterion	30.69408
Log likelihood	-484.1737	Hannan-Quinn criter.	30.57159
F-statistic	1236.293	Durbin-Watson stat	1.869411
Prob(F-statistic)	0.000000		

Figure1: sectoral structure of Nigeria economy
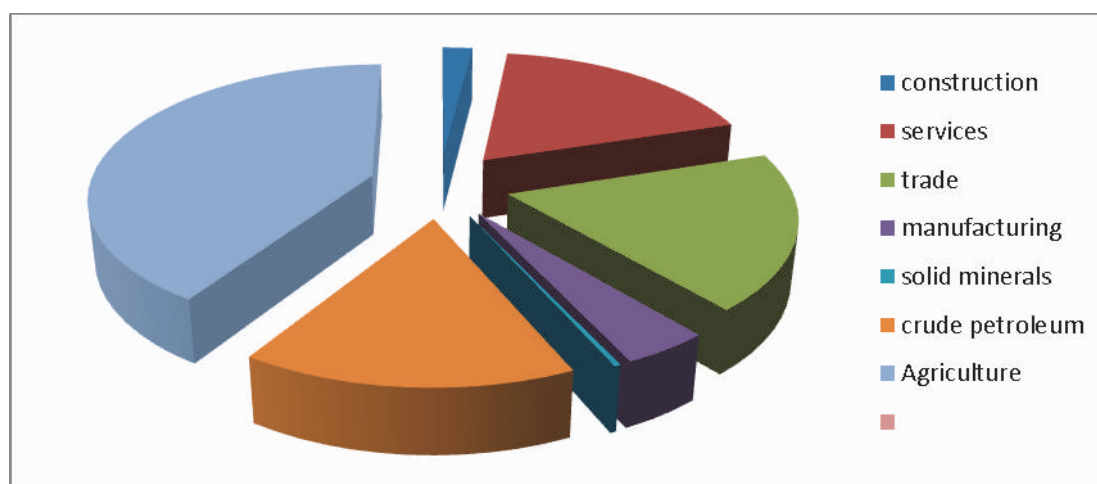
Source: CBN Annual Report, 2012

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