

**EFFECT OF NON-OIL COMPONENTS EXPORT ON THE  
ECONOMIC GROWTH IN NIGERIA**

**By**

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**Thesis Submitted to**

**Othman Yeop Abdullah Graduate School of Business**

**Universiti Utara Malaysia**

**In Fulfillment of the Requirement for the Degree of Master of Economics**

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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).

## **ABSTRAK**

Kesan bagi komponen eksport bukan minyak ke atas pertumbuhan ekonomi di Nigeria terus dibahaskan dan diuji dalam usaha memulihkan keadaan ekonomi negara untuk kebaikan masa hadapan, dengan meningkatkan pertumbuhan eksport bukan minyak dengan jayanya dan juga menggalakkan budaya eksport bukan minyak. Kajian ini meliputi kajian empirikal terdahulu berkaitan dengan isu dengan menyediakan beberapa bukti menggunakan data siri masa bagi tempoh 1980-2011. Dalam kajian ini, pembolehubah bersandar adalah pertanian, pembuatan dan sektor perkhidmatan manakala, pembolehubah bebas adalah keluaran dalam negara kasar (KDNK). Model ini telah diuji menggunakan ujian punca unit, kaedah kuasa dua terkecil (OLS), ujian siri korelasi LM dan ujian heteroskidastisiti untuk mengkaji nilai signifikan di antara pembolehubah bersandar dan bebas. Hasilnya menunjukkan bahawa sektor pertanian dan sektor perkhidmatan komponen eksport bukan minyak memberi nilai signifikan yang ketara kepada pertumbuhan ekonomi (KDNK) Nigeria. Selain itu, hasil menunjukkan tiada korelasi dan masalah heteroskidastisiti. Akhir sekali kertas ini mengemukakan beberapa implikasi dasar supaya kajian pada masa hadapan memberi tumpuan kepada komponen eksport bukan minyak di Nigeria dan juga memastikan pemulihan prospek ekonomi negara (pertumbuhan).

## **DEDICATION**

This research work first of all is dedicated to God Almighty for giving me the strength and the ability to carry out this work, and for His mercy and favor I have been receiving even from the past years. Also, I dedicate it to my parents for their support and assistance they have been rendering unto me in diverse ways.

## **ACKNOWLEDGEMENTS**

It is hard to successfully complete a research without the support of others. I would like to take this chance to express my unreserved deep and sincere gratitude to my supervisor, Dr. Shri Dewi a/p Applanaidu for her kind encouragement, support, patience and time in putting me through during the process of this research work. She provided me with invaluable guidance and continuous advice on my studies.

Special thanks also go to my father Deacon E.A Oyetade and my mother Doctor E.M Oyetade for their understanding, encouragement and financial supports, which has enabled me to successfully complete my postgraduate study in UUM. Also thanks to my sisters and brothers for their understanding, care, moral, assistance and encouragement in finishing my master's program. Without their encouragement and understanding it would have been impossible for me to complete this work.

Also special thanks to all my lecturers, friends and members of the University Utara Malaysia for their information, help and guidance. Their assistance really means a lot to me. Finally, I remain deeply appreciative to everyone involved who has given inspirations and guidance whether directly or indirectly during my study. Thank you all for being part. God bless you (Amen).

## TABLE OF CONTENTS

	<b>Pages</b>
<b>PERMISSION TO USE.....</b>	<b>ii</b>
<b>ABSTRACT.....</b>	<b>iii</b>
<b>ABSTRAK .....</b>	<b>iv</b>
<b>DEDICATION.....</b>	<b>v</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>vi</b>
<b>TABLE OF CONTENTS.....</b>	<b>vii</b>
<b>LIST OF TABLES.....</b>	<b>x</b>
<b>LIST OF FIGURES.....</b>	<b>xi</b>
<b>ABBREVIATIONS.....</b>	<b>xii</b>
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.2 Problem Statement.....	3
1.3 Research Questions.....	4
1.4 Research Objectives.....	5
1.5 Research hypotheses.....	5
1.6 Significant of the Study.....	6
1.7 Scope of the Study.....	8
1.8 Organization of the Study.....	8

<b>CHAPTER TWO: NIGERIA’S ECONOMY OVERVIEW.....</b>	<b>9</b>
2.1 Introduction.....	9
2.2 Definitions of Terms.....	12
2.3 Structure of Nigeria Economy.....	13
2.3.1 Nigerian Oil Sector.....	16
2.3.2 Structure of Nigeria’s Non-oil Exports.....	21
2.4 Structural adjustment program.....	22
<b>CHAPTER THREE: Literature Review.....</b>	<b>25</b>
3.1 Introduction.....	25
3.2 Theoretical Framework.....	26
3.2.1 Aggregate growth Accounting.....	27
3.3 Empirical Findings.....	29
3.4 Conclusion.....	33
<b>CHAPTER FOUR: Research Methodology.....</b>	<b>34</b>
4.1 Introduction.....	34
4.2 Data Collection.....	34
4.3 Model Specification.....	35
4.4 Estimation Procedure.....	35
4.4.1 Unit Root Tests.....	36



4.4.2 Ordinary Least Square (OLS).....	39
4.4.3 Autocorrelation Test.....	43
4.4.4 Heteroskedasticity Test.....	44
4.5 conclusion.....	45
<b>CHAPTER FIVE: Results and Analysis.....</b>	<b>46</b>
5.1 introduction.....	46
5.2 Results of Unit Root Tests.....	46
5.3 Result of OLS.....	50
5.4 Diagnostic Tests.....	52
5.4.1Result of autocorrelation .....	52
5.4.2 Result of Heteroskedasticity .....	52
<b>CHAPTER SIX: Conclusion and Policy implication.....</b>	<b>53</b>
6.1 Conclusion.....	53
6.2 Policy Implications.....	54
6.3 Recommendation.....	55
<b>REFERENCES.....</b>	<b>56</b>
<b>APPENDIX.....</b>	<b>59</b>

## **LIST OF TABLES**

Table 1.1	GDP Sectorial Contribution
Table 5.1	Result of Unit Root Tests (ADF)
Table 5.2	Result of Unit Root Tests (PP)
Table 5.3	Result of Unit Root Tests (KPSS)
Table 5.4	Combined Results of Unit Root Tests (ADF, PP and KPSS)

## **LIST OF FIGURES**

- Figure 2.1     Sectorial Contributions to GDP
- Figure 2.2     Compositions of Non-Oil Exports

## **ABBREVIATION**

GDP	Gross Domestic Product
CBN	Central Bank of Nigeria
ADF	Augmented Dickey Fuller
ECM	Error Correction Model
IMF	International Monetary Fund
NOM	Non-Oil Imports
NEEDS	National Economic Empowerment and Development Strategy
GNP	Gross National Product
PI	Per Capita Income
SAP	Structural Adjustment Programme
JVC	Joint Venture Companies
NNPC	Nigerian National Petroleum Corporation
TFP	Total Factor Productivity
OLS	Ordinary Least Square
VAR	Vector Autoregressive Model
PP	Phillips-Perron
KPSS	Kwiatkowski-Phillips-Schmidt-Shin

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of The study

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 1.1 below:

Table 1.1: GDP Sectorial Contribution

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

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

Table 1.1 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.

## **1.2 Problem Statement**

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.

### **1.3 Research Questions**

The research questions that would be examined in this study are as follows:

- i. What are the structures of the non-oil export in Nigeria?
- ii. What is the effect of non-oil export sectors on Nigeria's economic growth?



#### **1.4 Research Objectives**

The general objective of this study is to examine the Nigerian non-oil effect on economic growth. The specific objectives of the study are as follows:

- i) to give a detailed structure of non-oil export in Nigeria;
- ii) to examine the effect of some of the non-oil export components on the Nigeria's economic growth; and
- iii) to draw some policy implications of the non-oil export sectors to the Nigeria's economic growth.

#### **1.5 Research Hypothesis**

In order to find the effect of the non-oil export sector to the economic growth, the hypotheses to be tested in this research are stated below:

##### Hypothesis I:

H<sub>0</sub>: The agricultural sector of non-oil component export has not contributed significantly to the economic growth of Nigeria.

H<sub>1</sub>: The agricultural sector of non-oil component export has contributed significantly to the economic growth of Nigeria.

### Hypothesis II:

H<sub>0</sub>: The manufacturing sector of non-oil component export has not contributed significantly to the economic growth of Nigeria.

H<sub>1</sub>: The manufacturing sector of non-oil component export has contributed significantly to the economic growth of Nigeria.

### Hypothesis III:

H<sub>0</sub>: The services sector of non-oil component export has not contributed significantly to the economic growth of Nigeria.

H<sub>1</sub>: The services sector of non-oil component export has contributed significantly to the economic growth of Nigeria.

## **1.6 Significance of the Study**

Export trade affects every nation, whereby it was recorded that the economic and social damage resulting from the global economic and financial crisis has clearly influenced trade flows, reducing world-wide export growth by over two-thirds between 2007 and 2009. This, therefore also threatens the economy survival of countries which cannot or will not face the challenge of embracing diversity such as in the case of Nigeria. However, for Nigeria to make trade play a key role in taking advantage of the global economic slowdown and fostering growth, it is undeniable that its trade policy must focus on non-oil exports as the driver for attaining the national vision 2020.

For now making Nigeria a fully developed economy, this therefore calls for the need to increase the quantum of non-oil export as well as diversity export in the light of vagaries of oil fortunes. That is why it is so critically important to keep in focus the fact that non-oil exports offer significant advantages for Nigeria's positioning and competitiveness in the global economy. In this regard, this study is designed to appraise the viability of the Nigerian non-oil sector in the diversification of Nigeria's export since turning around the nation's economic outlook for a good future includes strengthening of non-oil export and promote a non- oil export culture.

Therefore the unimpressive performance of the non-oil sector and vulnerability of the external sector thus dictate the urgent need for a reappraisal of the thrust and contents of the development policies and implementation commitments for this research study. This research study must be able to explain succinctly effect of non-oil exports on the growth of the Nigerian economy; so as to be able to examine the structure and policies needed to be put in place as regarding to the improving of the non-oil exports. The study would provide an econometric assessment of non-oil export to the economic growth of Nigeria which is undeniable that trade policy focusing on non-oil exports is the driver for attaining the national vision and achieving her regional leadership position. Thus, theoretically provide detailed composition of the non-oil export in Nigeria over the years.

### **1.7 Scope of the Study**

This project would examine the trend and composition of non-oil export of Nigeria during the post and pre-SAP era as well as its export profile. The study would also investigate the contribution of the non-oil export to the economic growth of Nigeria with data ranging from 1980 to 2011.

### **1.8 Organization of the Study**

The study comprises six chapters which are organized as follows: the following chapter I and II review the overview of the Nigeria's economy. Chapter III reviews literature on the effect of non-oil export. The methodology employed in the study and the data utilized in the analysis are described in chapter IV. The penultimate chapter (chapter V) presents the findings of the study. The concluding chapter (chapter VI) summarizes and gives the policy implications for the study.

## CHAPTER TWO

### NIGERIA'S ECONOMY: AN OVERVIEW

#### 2.1 Introduction

The importance of export to nations' economic growth and development cannot be over-emphasized because export is a catalyst necessary for the overall development of an economy (Abou-stait, 2005). Export promotion policy has been taken by many countries since 1970 as one of the most efficient tools for growth and development. Exports of goods and services represent one of the most important sources of foreign exchange income that ease the pressure of balance of payments and create employment opportunities. The importance of the export sector to the economic growth and development, which led economists to stress the vital role of exports as the engine of economic growth was provided by the Asian and Latin American economies experiences.

For instance, from 1970 to date, oil exporting has constituted on the average of 90 percent of the total foreign exchange earnings. The adversity of the fluctuation in oil price measure stalled the developmental efforts of the various governments. This has made the Nigeria economy to swing form the "oil boom era", as exemplified by the buoyant economy of the period with massive infrastructural development and the Udoji award followed by the "oil doom" period which arose from oil glut in the world oil market since 1981 only led to the neglect of the non-oil export productive base; which

led to the introduction of Structural Adjustment Programmes (SAP) by the Babangida Administration.

From the period the Structural Adjustment programme (SAP) was introduced in Nigeria, the economy has been and is currently being characterized by a reasonable degree of openness and its performance can be enhancing through the development of the external sector, where exports was estimated as USD 45.43 billion in 2009. Since the period, concerted efforts had been made to diversify Nigerian export sector by promoting non-oil exports. Nigeria's non- oil exports are not only growing, but the markets and products are diversifying as well. 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.

Nigeria's gross domestic product (GDP) growth of 7.8 percent in 2010 fell to 6.7 percent in 2011 in which the slowdown in 2011 was due to reflection of the worsening global economy and an oil production shut-down. For 2012, the economy grew by 6.9 percent on the back of stronger oil exports, but which was also predicted that will slow again in 2013 to 6.6 percent. Despite oil's dominance, growth is now driven by the non-oil sector whereby agriculture plays a significant role in the Nigerian economy, accounting for 35.2 percent of GDP in which sustainable expansion of agriculture should play a key role in unleashing inclusive economic growth, reducing poverty and enhancing food security in the country. Manufacturing accounted for 2.2 percent of GDP which was mainly in cement production and oil refining activities. The telecommunications sector

was 34.7 percent in 2011 and the wholesale/retail trade sector grew at more than 11 percent and contributing 16.4 percent to total GDP in 2011.

Although the oil sector benefited immensely from high international prices, production was cut by a shutdown of facilities whereby oil's contribution to GDP declined by 0.57 percent in 2011 and the non-oil sector was major driver of the economy in 2011. Non-oil growth was led by vibrant wholesale and retail trade and the telecommunications and post, building and construction, hotel and restaurant, business services and other sectors. However, it is important not to lose sight of the fact that the principal driver of Nigeria's spectacular growth in economic and market terms has been the country's non-oil exports in which the country's enormous potential in this sector has not yet been scratched. Therefore the non-oil sector of the economy is capable of making Nigeria a fully developed economy if the sector is well harnessed and indeed the need for a change in the policy focus and a shift in the industrialization strategy is important, if Nigerian economy is to be returned to the path of sustainable growth and external visibility.

So now it is critically important to keep in focus on the fact that non-oil exports offer significant advantages for Nigeria's positioning and competitiveness in the global economy. Since it is evident from the foregoing recent global economic crisis which has further revealed that Nigerian economy is excessively exposed to external shocks. Although various factors have been adduced to Nigeria's poor economic performance, the major problem has been the economy's continued excessive reliance on the fortunes of the oil market and the failed attempts to achieve any meaningful economic diversification, reflecting the effect of the so-called "Dutch disease" which is therefore

compelling for the need to correct the existing structural distortions and put the economy on the path of sustainable growth.

## **2.2 Definition of Terms**

**Exports** can be classified as visible, invisible and capital exports which are goods, services or capital asset that are produced in the home country and sold to foreign countries i.e they are domestically produced but sold abroad. Since they are goods and services that are sold to foreign countries, the demand for exports therefore comes from residents of other countries. Income is being gain by domestic factors of production from productive efforts that is exports. Exports are therefore one of the component of aggregate demand and represent injections into the circular flow of income. Therefore exports can be taken as independent of the domestic level of income.

**Visible exports:** are goods that are produced in the home country and then physically transported and sold to the foreign countries. Also goods such as raw materials and finished manufactures that can be seen are recorded as it crosses the boundaries between countries. Visible exports and imports together with invisible exports and imports make up the current account of country's balance of payments.

**Diversification:** is the process whereby one can expand his or her supply by operating in a number of exports than a single or mono export. The ability to spread risks by offering a number of products in different markets such that poor sales or losses in one market can be offset by good sales and profits achieved in other markets, thus



facilitating a good average performance by the country overall. Also the ability to re-orientate its activities away from mature and declining markets into new areas of higher growth and profit potential.

**Economic growth:** involves the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national income and output which is usually measured in terms of an increase in gross national product (GNP) or gross domestic product (GDP) or income per head (PI) over time. It refers to a phenomenal quantitative increase in national output. Economic growth results not only from the growth in quality and quantity of resources, capital accumulation, growth in productive population and improved technology but also from a social and political structure that is conducive to such change. An increase in the growth potential of an economy can come about in three (3) highly interrelated ways, which are: increased productivity, technological progress and more resources like capital, labour and natural resources.

### **2.3 Structure of Nigeria Economy**

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

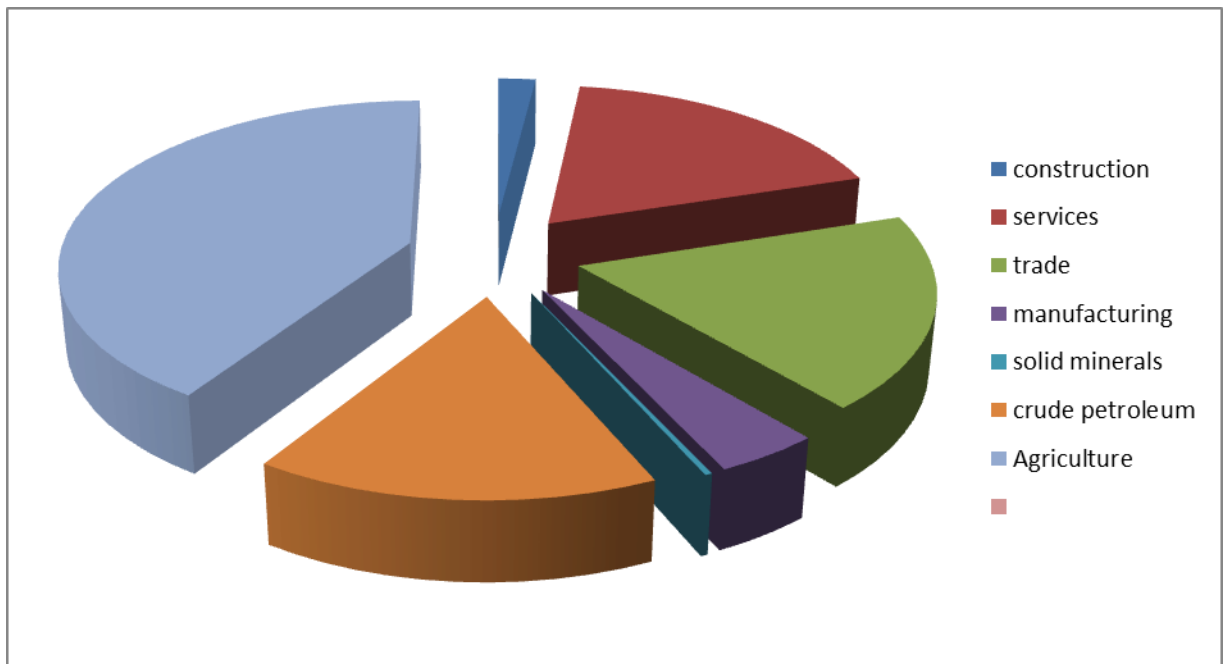
(CBN, 2011) puts most of the structural issues in perspective of supporting data as evidence.

Nigeria is the largest geographical unit in West Africa, with land area of 923,768 square kilometers, estimated population of 160 million, GDP at purchasing power parity more than doubled from USD170.7 billion in 2005 to USD413.4 billion in 2011, correspondingly 8.4 percent growth, 6.9 percent 5-year compound annual growth and the GDP per capita doubled from USD1200 per person in 2005 to an estimated USD2600 per person in 2011. It is the largest economy in the West Africa Region, 3rd largest economy in Africa (behind South Africa and Egypt), and on track to becoming one of the 20 largest economies in the world by 2025. It is also Africa's leading oil producer, despite the sabotage of oil facilities and pipelines and violent attacks on foreign oil workers impede the output. Nigeria is a middle income, mixed economy and emerging market, with expanding financial, service, communications, and entertainment sectors. It is ranked 30th in the world in terms of GDP Purchasing Power Parity as of 2011, despite the underperforming manufacturing sector; still the third-largest on the continent, producing a large proportion of goods and services for the West African region (CBN, 2012).

Although much has been made of its status as a major exporter of oil, Nigeria produces only about 2.7 percent of the world's supply. To put oil revenues in perspective: at an estimated export rate of 1.9 Mbbl/d (300,000 m<sup>3</sup>/d), with a projected sales price of USD65 per barrel in 2011, Nigeria's anticipated revenue from petroleum is about USD52.2 billion which accounts for less than 14 percent of official GDP figures (and drops to 10 percent when the informal economy is included in these calculations). The

Nigeria economy is highly dependent on proceeds from oil, which constitutes over 90 percent of total foreign exchange earnings required from financing several national development projects. Invariably, whenever oil prices rise or fall, the fortune of increased/reduced revenue will automatically manifest itself on the economy of Nigeria

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. However the Nigeria Sectoral Contribution to GDP is showed as:



*Source: CBN Annual Report, 2012*

### **2.3.1 Nigerian Oil Sector**

The Nigerian oil sector can be categorized into three main sub-sectors, namely, upstream, downstream and gas and the most problematic over the years has been the downstream sector, which is the distribution arm and connection with final consumers of refined petroleum products in the domestic economy. Oil production by the joint venture (JV) companies accounts for about 95 percent of Nigeria's crude oil production. Shell, which operates the largest joint venture in Nigeria, with 55 percent Government interest (through the Nigerian National Petroleum Corporation, NNPC), produces about 50 percent of Nigeria's crude oil. Exxon Mobil, Chevron Texaco, ENI/Agip and Total fina Elf operate the other JV's, in which the NNPC has 60% stake. At present, Nigeria has four refineries, with a combined installed refining capacity of 445,000 barrels per day (bpd). These four refineries are:

The first Port Harcourt Refinery was commissioned in 1965 with an installed capacity of 35,000 bpd and later expanded to 60,000 bpd.

The Warri Refinery was commissioned in 1978 with an installed refining capacity 100,000 bpd, and upgraded to 125,000 bpd in 1986.

The Kaduna Refinery was commissioned in 1980 with an installed refining capacity of 100,000 bpd, and upgraded to 110,000 bpd in 1986.

The second Port Harcourt Refinery was commissioned in 1989 with 150,000 bpd processing capacity, and designed to fulfill the dual role of supplying the domestic market and exporting its surplus.

The combined capacities of these refineries exceed the domestic consumption of refined products for example premium motor spirit (gasoline), whose demand is estimated at 33 million litres daily. However the refineries are hereby operating far below their installed capacities, as importation notwithstanding have been persistent product shortages that gave strength to the argument for deregulation of the downstream oil sub-sector in Nigeria.

In general, the oil sector of the Nigerian economy still faces some of the following problems far back as at 1990s:

Relatively low level of investments in the sector, compared to its potentials.

High technical cost of production, due to low level of domestic technological development.

Inappropriate pricing of petroleum products for domestic consumption.

Restrictions imposed by crises and production disruptions caused by host communities.

Environmental degradation due to the flaring of associated gas.

At this point, economic policy formulation has been impacted by oil in Nigeria since Nigeria gained political independence and this providing adequate basis for making a few specific recommendations on how to reduce the dependency.

### **Oil and Policies in the 1960s**

The nationalistic fervor that followed the attainment of independence in 1960 made Nigeria to evolve a seven-year first National Development Plan (1962-1968). The focus of that plan was to industrialize the economy quickly through the import substitution strategy. The implementation of this plan was checked because of the political instability that eventually led to the civil war of 1967 to 1970. Most of the economic policies of the 1960s were targeted at prosecuting the civil war successfully and making changes massively in the 1970s.

### **Oil and Policies in the 1970s**

The disruptions to economic activities by the civil war gave way to broad economic policies for reconciliation and reconstruction, meaning huge investments in infrastructure by the Federal Military Government. In which a strong centre was created by the command structure of the military which remained a major determinant of the nature of economic policies. As Nigeria gradually settled into economic activities, the first major economic policy of the 1970s was introduced which was the Udoji Commission's comprehensive review and evaluation of jobs in the public service, which led to the changed psyche and consumption habit of the average Nigerian, making able

to afford most of the good things of life and representing the first policy impact of the oil wealth.

Following this was the Indigenization Decree in 1974 and 1977, the policy sought to put the commanding heights of the Nigerian economy in the hands of Nigerians within the context of nationalism. It was in the process of implementing this policy that oil became a major revenue earner and the policy fundamentals changed. As oil revenue boomed in 1973/1974, the Nigerian Government embarked on these two important growth triggers in Nigeria having no or little economic value:

1. Unleash the entrepreneurial energy of the typical resilient Nigerian;
2. Small and Medium Scale Enterprises (SMEs) in the non-oil sector.

By 1978, there was a downturn in oil earnings as crude oil prices dipped in the international markets making Obasanjo's military government introduced the first major economic policy "labeled Belt Tightening", which in 1979, Nigeria resorted to the international capital markets to raise external loans to fund development works.

### **Oil and Policies in the 1980s**

There were three major economic policies in the 1980s, namely:

1. The recommendations of the Onosode Commission on pay structure in Government parastatals adopted in 1981, which increase salaries and benefits in several public institutions and also a policy in pursuit of "capturing" legally the oil wealth.
2. The Economic Stabilization Act of 1982, which was the response of the Shagari's civilian administration to dwindling oil earnings and major external sector imbalances.

3. The Structural Adjustment Programme (1986-1988) by Babangida's military administration, with the active support of the World Bank, which was regarded as the Nigeria's first bold step on wide-ranging reforms in almost all the major sectors of the economy.

Each of these policies was to help developments in the international oil markets which was depressed for that period and where almost all the policies was discarded as soon as it was initiated.

### **Oil and Policies in the 1990s**

This decade might be described as a period of lost opportunities because the series of reforms of the late 1980s took an extent of loss on the real sector of the economy and which automatically effects were transmitted to the financial system. This was also the period Nigeria experienced some windfall gains from the strong oil prices and the Federal Government re-regulated the economy, by capping exchange and interest rates. These rates were themselves driven by the high rate of inflation – at 44.8 percent in 1992 and 57.2 percent in 1993, due led to no clear economic strategy for the rest of the decade, and monetary policy was totally ineffective to check expansionary fiscal operations.

### **Oil and Policies in the 2000s**

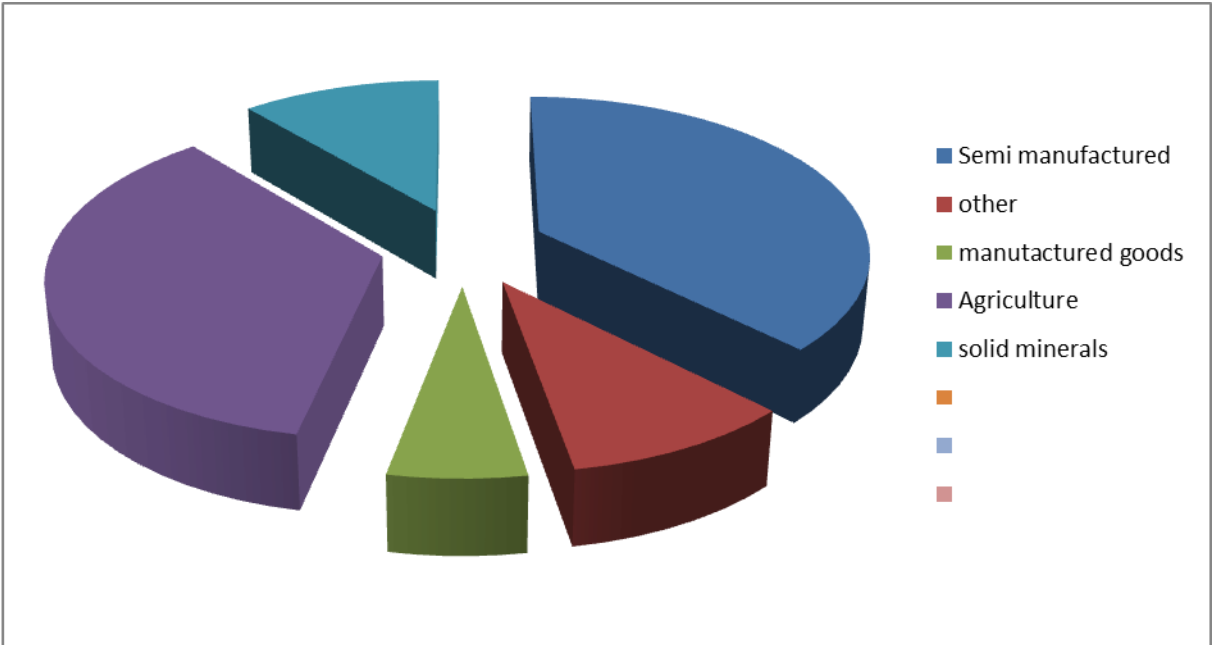
Till June 2003, there was no clear economic direction, weak institutions and legal environment hindered the benefits that would have accrued from oil earnings which had started to firm up. The entire scenario changed in 2004, with the formal announcement



and presentation of the Federal Government’s economic agenda tagged the National Economic Empowerment and Development Strategy (NEEDS). National Economic Empowerment Development Strategy is a medium-term strategy that seeks to implement series of reforms that would lay a solid foundation for a diversified Nigerian economy by 2007, with the specific goals in major growth indices as wealth creation, employment generation, social and institutional reforms.

**2.3.2 Structure of Nigeria’s Non-Oil Exports**

Over the past five years, oil sector growth has declined, while the non-oil sector has been the main growth driver for Nigeria. The composition of Non-oil Exports in Nigeria is shown as:



Source: CBN Annual Report, 2012

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 percent. Other components of the non-oil exports include manufactured products and solid minerals etc. The agricultural products include cocoa, groundnut, palm produce, rubber (natural), cotton and yarn, fish and shrimps, 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 (Okoh, 2004). The value of non-oil exports has been on the decline ever since. For instance, the share of agricultural products in total exports declined from 84 percent in 1960 to 1.80 percent in 1995 and later increased to 35.7 percent. (CBN, 2010)

Thus, contrary to the expectation of increase in non-oil exports, there was an overall decline in the export of these commodities. Manufactures decreased from 13.10 percent in 1960 to 0.66 percent in 1995 and later increased to 5.8 percent in 2010. It is therefore important to notice that in the period of greater openness beginning from the mid 1980s up to the end of the 1990s, the value of non-oil imports (NOM) increased and whereas the non-oil export has been on fluctuating degree substantially.

#### **2.4 Structural Adjustment Program (SAP)**

Most African nations are implementing SAP, an economic 'panacea' inspired by the World Bank and the International Monetary Fund. The objectives of a Structural Adjustment Program are largely the same for most African nations, because the world

bodies presumed that African economies are at the same level of development and are experiencing similar problems. In essence, African economists and the world bodies are having a poor perception of the African economic problem making Africa much worse off today than it was a decade ago. The designed SAP was a program which was to stimulate growth and to stimulate rapid development. Nigeria went ahead implementing the program by president Babangida in July, 1986. Since, then Nigeria has implemented SAP for almost a decade now, but none of the objectives has been achieved, and there is no indication that any of them can be achieved using the chosen program instruments. The stated objectives of the Nigerian SAP are to:

Restructure and diversify the productive base of the economy;

Achieve fiscal stability and positive balance of payments;

Set the basis for a sustained non-inflationary or minimal inflationary growth, and

Reduce the dominance of unproductive investments in the public sector.

All the African nations implementing SAP are today experiencing increasing indebtedness and budget deficits because they are not growing; in the sense that a growing economy realizes budget surpluses and pays its debts. All the African nations implementing SAP are also experiencing mass unemployment in all categories and even the trend has been experienced by the currencies of all nations that have been implementing SAP for about a decade. In the case of Nigeria, before SAP began in 1986, one dollar exchanged for 77 kobo (1 naira = 100 kobo). When SAP began later

that year the dollar exchanged for 1.756 naira and the main complaint among corporate executives was that there was insufficient foreign currency (e.g., dollars) to exchange for the volume of naira available. As the dollar exchanged for more naira, companies became cash-strapped; they could not get enough naira to exchange for dollars. The dollar exchanged for 4.016 naira in 1987, 5.35 naira in 1988, 9.93 naira in 1991 and 22 naira in 1993. Interestingly by 2012, one dollar is being exchange for 160 naira which revealed a trend of endless devaluation in the country.

The introduction of SAP did nothing to change the situation in the sense that USD 2,755 million (89.8 percent) of the USD 3,067 million of Nigeria's foreign exchange earnings was allocated to machinery, spare parts and raw materials in 1990. In 1991 this figure increased to USD 3,344 million (93.3 percent) of the USD 3,584.1 million total revealing that Nigeria is trying to achieve industrialization through a very slow approach passive technology transfer. The mere erection of structures like roads and telecommunication networks, estates, banks, and industrial plants does not stimulate rapid technological development. The structures merely age and demand spare parts perpetually, decreasing in value over time.

## **CHAPTER THREE**

### **LITERATURE REVIEW**

#### **3.1 Introduction**

The purpose of this review is to examine the views of some scholars on subject matter relating to this study, so as to enable to determine the direction for carrying out the research and in order to revile or expose the gaps which will be intend to fill. This chapter consist the relevant literature which are related to oil and non-oil export contribution to the economic growth of a country. The essence of this literature review is also to verify empirically the long run structure of the Nigeria's non-oil export sectors. The first section will be based on a widely accepted theory framework which emphasize on the sources of economic growth approach. Also the literature regarding oil export and some selected sectors included in non – oil export (Manufacturing sector, Agricultural sector, services sector and Solid Mineral sector) which has been contributing to the Nigeria's economic growth. Finally, it presents the prior studies which are conducted on the structure of the Nigeria economy.

### **3.2 Theoretical Framework**

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.

The growth accounting methodology also known as the sources of economic growth approach which was pioneered by Solow (1957), Kendrick (1961), Denison (1962) and Jorgenson and Griliches (1967) basically provides a breakdown of observed economic growth into its main components through the changes attributable to the growth in factor

inputs and the residual component. Of which some economists have revisited the theory for example Elias (1992), Young (1995), Hu and Khan (1997), Sarel (1997), Barro (1998), Dowling (1998), Senhadji (1999) and Iyoha (2000).

### **3.2.1 Aggregate Growth Accounting**

In this section, the aggregate growth accounting methodology originally employed by Solow (1957) will be used to identify the sources of economic growth in Nigeria. A growth accounting exercise is intended to break down the growth of output into the growth of the factors of production, capital and labor and the growth of the efficiency in the utilization of these factors, in which the measure of this efficiency is usually referred to as Total Factor Productivity (TFP). For policy purposes, it may consider whether factor accumulation or increases in TFP consists to output growth stems. Robert M. Solow (1957) set up the grounds for growth accounting in which he considered a neoclassical production function:

$$Y_t = A_t F(K_t, L_t) \quad (1)$$

where:

$Y_t$  = aggregate output,

$K_t$  = the stock of physical capital,

$L_t$  = the labor force and

$A_t$  = TFP, which appears in a Hicks neutral way.

After some simple transformations this equation can be written in terms of the growth rates of these variables. For simplicity, considering Cobb-Douglas production function:

$$F(K_t, L_t) = K_t^\alpha L_t^{1-\alpha} \text{ where } 0 < \alpha < 1.$$

Then taking natural logarithms and differentiating both sides of (1) with respect to time  $t$  the growth rate of aggregate output can be expressed as:

$$\dot{Y}/Y = \dot{A}/A + \alpha(\dot{K}/K) + (1-\alpha)(\dot{L}/L) \quad (2)$$

(For a variable  $E = Y, A, K, L$  the term  $\dot{E}$  stands for the derivative of  $E$  with respect to time  $t$ , and so  $\dot{E}/E$  stands for the growth rate.)

Noting that the growth rates of physical capital and labor are weighted by  $\alpha$  and  $(1-\alpha)$ ; these weights correspond to the respective shares of rental payments for capital and labor in total income. With available data on  $\alpha$  and the growth rates for output, physical capital and labor, TFP growth can be computed from (2) as the residual which is according to the so called Solow residual.

The empirical model is thereby developed to break down the growth of output into the oil and non-oil export, in which the measures of the non-oil efficiency are agricultural sector, manufacturing sector, services sector etc. for policy purpose, therefore it may consider whether increases in GDP consists of non-oil export output growth.



### **3.3 Empirical Framework**

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.

The prospect for export expansion is a vital consideration in the global economic outlook because export growth is important for countries that are currently suffering high unemployment and slack domestic demand as commotion in their economy (Malmgreen, 2008).

Michaely (2007) carried out studies on the international statistical comparison of export performance and economic growth in which a single equation model was adopted and found that the correspondence between growth in per capita income i.e a proxy of economic growth and the ratio of export to GNP was significantly positive. Bela (2008) in his detailed empirical studies of eleven countries with strong industrial base found a significant and positive relationship between economic growth and export; with a single equation model and concluding that the export performance reflects export economic policies. Also Krueger (2008) carried out a study on export growth relationship for ten countries covering the period of 1954 through 1971 by which a simple log- linear specification for each country was employed. His inference result from his finding relieved also a positive relationship between export performance and export oriented policies.

Ebrahim Merza (2007) investigated the relationship of two components of exports (oil exports and non-oil exports) with economic growth by examining the ELG hypothesis using annual time series data for the Kuwaiti economy over the period 1970-2004. The study applies a number of econometric techniques: unit root test, cointegration test, error correction model (ECM), impulse responds function (IRF), and Granger causality test. The results of this dissertation show that all the variables are stationary in the first difference. Moreover, the cointegration test confirms the existence of the long run relationship among the three variables. The Granger test shows bidirectional causality between oil exports and economic growth, and a unidirectional causality from non-oil exports to economic growth. However, the causality results are consistent with the results reported by the ECM.

Balogun (2009) points out the importance of non-oil exports particularly agriculture and manufacturing in the Nigerian economy, whereby maintaining that the role of these sectors to the national growth cannot ignored and that relationship between agriculture and industry holds the key to genuine structural changes and self-reliance of the country that is positively constituted significantly to the economic growth using the symbiotic relationship. Similar to this was Fajana (2009) who supported the diversification and expansion policies of the non-oil sectors and asserted that it will help to lessen the high dependence of Nigeria on petroleum. He supported by given believing that the establishment of relevant export promotion agencies and the use of various policies in formulating incentives for manufacturing and agricultural sectors will foster the development of external market. In other words, concluded that the sectors contributed positively to the export. Al-Adam (2007) narrated the core of Nigerian problems as too

much dependence on oil and neglect of agricultural and manufacturing sectors and thereby advocated for non-oil export oriented economic policy measures.

However, Sorsa (1999) analyzed Algerian non-oil export promotion issues despite the oil sector dominance over the period of 1981-1997 and revealed that appreciation of real exchange rate is the major factor that impedes non-oil export growth and its diversification. Also a study on the impact of real exchange rate on non-oil exports was carried out in Azerbaijan where time series data was obtained from the Central bank of Azerbaijan. The impacts of the real effective exchange rate and real non-oil GDP on non-oil exports in real terms was estimated in real terms in the long and short run; whereby constructing an Error Correction model between variables in interest. Based on the long run estimation results it was concluded that there is statistically significant co-integration between non-oil in real terms, real effective exchange rate and the real non-oil GDP. In the short run, real effective exchange rate and real non-oil GDP have statistically significant impact on non-oil export in real term (Fakhri. H and Ilaha. S, 2009). Likely to this study was the study that examined the effects of trade and exchange rate policies of Nigeria's agricultural export using Ordinary Least Squares (OLS) over the period of 1960-1982 and concluded that appreciation of real exchange rate adversely influences the non-oil export especially during oil boom (Oyejide, 1986). Also Obadan (1990) and Abubakar (1991) recognized the non-oil sector within the framework of SAP in Nigeria, in which it was asserted that the framework was, expected to make export cheaper and to boost the quantum and the value of non-oil sector.

Anthony Imoisi (2012) employed a model of ordinary least squares and co-integration method on their four hypotheses brought forward covering the period from 1986 – 2010

in analyzing the impact of macroeconomics variables on non-oil exports performance in Nigeria. Non-oil export, agricultural sector, manufacturing sub sector and gross domestic product are incorporated as their dependent variables while the independent variables used are exchange rate, government capital, interest rate and recurrent expenditures. Finally the result indicated that exchange rate; government capital and recurrent government expenditure have positively contributed and impacted all the dependent variables while interest rate did not. Based on their results and findings, they recommended that government should increase lending to non-oil exports i.e agricultural and manufacturing sub-sector specially neglecting other aspect of non-oil such as solid mineral, other manufacturing sectors etc.

Mohammed A. Aljarrah, Ph.D. (2012) studies also have followed a similar approach that is based on a single equation estimation which relates the exogenous variable, exports, with the endogenous variable, economic growth. This study, however, uses a simultaneous equations approach to examine the relationship between economic development and non-oil exports performance in Saudi Arabia. Results of three-stage least squares tests lend support to the evidence of positive effect of non-oil exports on economic development in Saudi Arabia. The study finds also that growth of non-oil exports has positive impact on investment and production in the Kingdom.

Sajjad Faraji Dizaji (2012) in his study investigated the short run and long run effects of government size and exports on the economic growth of Iran as a developing oil export based economy for the period of 1974 to 2008. Using the bounds testing approach to cointegration and error correction models, developed within an autoregressive distributed lag (ARDL) framework. The results show that total exports, the amount of oil

exports in terms of barrels and oil prices could affect the economic growth positively and significantly both in short run and long run. However because of the weaknesses of the Iranian non-oil sectors, the non-oil exports could not have significant effects on growth in the long run. As a result of this study in the short run, Iran should try to attract foreign technologies and investments to develop the capacity and ability of its oil production. In the short run this can be a reliable factor for having the stable economy in comparison with relying on uncertain oil prices. In the long run Iran should use the oil revenues to improve its economic structure and invest on some non-oil sectors to diversify its non-oil exports.

### **3.4 Conclusion**

The result of previous theory and study showed the oil and some sectors of non-oil export's contribution to the economic growth and which helps the nation growth. Besides that, some gaps in the literature have also been identified based on the empirical findings. Most of the past research studies evaluated the performance of the Nigerian exports as a whole and little out of the research paid attention to the non-oil export sector. Based on Al-Amad 2009, the advocate for non-oil oriented economic policy measures brought out the gap in the literature to be filled. By this reason, this research work now as to identify the non-oil export sector; which is being based on Nigeria non-oil export despite the oil sector dominance in the country.

## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.1 Introduction**

This chapter focuses on econometric models based on the theoretical arguments in the literature. The model will be estimated by using annually time-series data from year 1980-2011. The Augmented Dickey Fuller (ADF), Kwiatkowski-Philips-Schmidt-Shin (KPSS) and Phillips and Perron (1988) (PP) unit-root test statistics are used to examine the stationarity of the data series. The general activity of this research methodology which is really the heart of the research would entail different phases in order to achieve the research objectives and provides some policy implications base on the results of analysis.

#### **4.2 Data Collection**

The data for this study would be extracted mainly from secondary sources given the nature of this research which requires the analysis of past economic happenings to provide tools for future decision making 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.

### 4.3 Model Specification

The econometric models 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, in the attempt to determine the effects between dependent variable and independent variables in Nigeria and in which the model of this study is specified as:

$$Y_t = C_0 + C_1NOEagr_t + C_2NOEman_t + C_3NOEser_t + U_t \quad (4.1)$$

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

$C, C_1, C_2$  and  $C_3$  = constants

$U_i$  = error term

### 4.4 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 co-integration theory that was developed to overcome the problems of spurious correlation often associated with non-stationary time series data.

#### 4.4.1 Unit Root Test

The unit root test is to test whether the variables are stationary because most time series data have to be tested either the data consist characteristics of stationary or not, in order to accept or reject the null hypothesis. The unit root test will be conducted under Augmented Dickey-Fuller (ADF) test and check the order of integration of each of the variables, for the case of avoiding spurious correlation problem containing non-stationary variables.

Stationary, the unit root tests can be writing as below:

$$Y_t = \rho Y_{t-1} + U_t \text{ and } -1 \leq \rho \leq 1 \dots \dots \dots (4.2)$$

Where  $Y_t$  is a variable of the interest and  $U_t$  is white noise error term, which follows zero mean with a unit variance. The test follows the t- statistics, which is developed by Mackinnon 1991 under the null hypothesis of there exists unit root or non-stationary. If the variable is differenced once and the differenced series is stationary, then it is integrated of order one. Similarly, if it is differenced twice and the differenced series is stationary, then it is integrated of order two and so on.

To allow for more flexibility such as intercept  $\alpha$  and to combine the, (1) equation is to be modified with p-lagged changes in the dependent variable as an additional regression, which is as follows:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^p \alpha_i \Delta Y_{t-i} + \epsilon_t \dots \dots \dots (4.3)$$



Where  $\Delta$  is the difference operator,  $t$  is the time trend,  $\varepsilon_t$  is white noise error term and  $\beta_1, \beta_2, \delta, \alpha_i$  are parameters, which is to be estimated. It follows the suggestion of Engle Yaaoo (1987) to use Akaike Information Criterion (AIC) for determining the optimal specification of equation.

The appropriate order of the model is determined by computing the above equation over a selected grid of values of the number of lag  $k$  and finding that value of  $p$  at which the AIC attains its minimum. The distribution of the ADF statistic is non- standard and critical values tabulated by Mc Kinnon (1910) are used.

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^p \alpha_i \Delta Y_{t-i} + \varepsilon_t \quad (4.2)$$

Where  $\Delta$  is a first-difference operator,  $Y_t$  is the relevant time series,  $\varepsilon_t$  is the error term, while  $\beta_1$  is the set of parameters to be estimated. In equation (4.3), the null and alternative hypothesis in unit roots test is:

$$H_0: \delta = 0 \quad (\text{is non-stationary})$$

$$H_1: \delta \neq 0 \quad (\text{is stationary})$$

The hypothesis can be rejected if the calculate ratio of the coefficient  $\delta$  is lower than the critical value tabulated. In other words, a unit root exists in the time series (implies non-stationary) if the null hypothesis of  $\delta$  equals zero that is not rejected (Gujarati, 1995).

Philips-Perron test has the same null hypothesis as ADF. Philips and Perron developed a generalization of the ADF test procedure that allows for fairly mild assumptions concerning the distribution of errors. The distribution theory supporting the Dickey-Fuller tests is based on the assumption that the error terms are statistically independent and have a constant variance. The test regression for the PP test is the AR(1) process:

$$\Delta Y_{t-1} = \beta_0 + \delta Y_{t-1} + e_t \dots \dots \dots (4.4)$$

While the ADF test corrects for higher order serial correlation by adding lagged differenced terms on the right-hand side, the PP test makes a correction to the t-statistic of the coefficient  $\gamma$  from the AR(1) regression to account for the serial correlation in  $e_t$ . The Phillips-Perron (PP) unit root tests differ from the ADF tests mainly in how they deal with serial correlation and heteroskedasticity in the errors. In particular, where the ADF tests use a parametric autoregression to approximate the ARMA structure of the errors in the test regression, the PP tests ignore any serial correlation in the test regression. So, the PP statistics are just modifications of the ADF statistics that take into account the less restrictive nature of the error process. The asymptotic distribution of the PP t statistic is the same as the ADF t statistic and therefore the Mackinnon (1991) critical values are still applicable. Also as with the ADF test, the PP test can be performed with the inclusion of a constant, a constant and linear trend or neither in the test regression.

In case of KPSS test the null hypothesis is different: it assumes stationarity of the variable of interest. The test is the Lagrange multiplier test of the hypothesis that the random walk has zero variance. KPSS does not provide a p-value; the results differ from

ADF test showing different critical values instead. KPSS type tests are intended to complement unit root tests such as Dickey-Fuller tests. In this case we compare the test statistic value with the critical value on desired significance level. If the test statistic is higher than the critical value, we reject the null hypothesis and when test statistic is lower than the critical value, we cannot reject the null hypothesis.

#### **4.4.2 Ordinary Least Square (OLS)**

Ordinary least square (OLS) or linear least square is a method for estimating the unknown parameters in a linear regression model. This method minimizes the sum of squared vertical distances between the observed responses in the dataset and the responses predicted by the linear approximation. The resulting estimator can be expressed by a simple formula, especially in the case of a single regressor on the right-hand side.

The OLS estimator is consistent when the regressors are exogenous and there is no perfect multicollinearity, and optimal in the class of linear unbiased estimators when the errors are homoscedastic and serially uncorrelated. Under these conditions, the method of OLS provides minimum-variance mean-unbiased estimation when the errors have finite variances. Under the additional assumption that the errors be normally distributed, OLS is the maximum likelihood estimator. OLS is used in economics (econometrics), Political Science and electrical engineering (control theory and signal processing), among many areas of application.

Each observation includes a scalar response  $y_i$  and a vector of predictors (or regressors)  $x_i$ . In a linear regression model the response variable is a linear function of the regressors:

$$y_i = x_i' \beta + \varepsilon_i, \dots \dots \dots (4.5)$$

where  $\beta$  is a  $p \times 1$  vector of unknown parameters;  $\varepsilon_i$ 's are unobserved scalar random variables (errors) which account for the discrepancy between the actually observed responses  $y_i$  and the "predicted outcomes"  $x_i' \beta$ ; and  $'$  denotes matrix transpose, so that  $x' \beta$  is the dot product between the vectors  $x$  and  $\beta$ . This model can also be written in matrix notation as

$$y = X \beta + \varepsilon, \dots \dots \dots (4.6)$$

where  $y$  and  $\varepsilon$  are  $n \times 1$  vectors, and  $X$  is an  $n \times p$  matrix of regressors, which is also sometimes called the design matrix. As a rule, the constant term is always included in the set of regressors  $X$ , say, by taking  $x_{i1} = 1$  for all  $i = 1, \dots, n$ . The coefficient  $\beta_1$  corresponding to this regressor is called the intercept.

There may be some relationship between the regressors. For instance, the third regressor may be the square of the second regressor. In this case (assuming that the first regressor is constant) we have a quadratic model in the second regressor. But this is still considered a linear model because it is linear in the  $\beta$ s.

The classical model focuses on the "finite sample" estimation and inference, meaning that the number of observations  $n$  is fixed. This contrasts with the other approaches, which study the asymptotic behavior of OLS, and in which the number of observations is allowed to grow to infinity.

**Correct specification:** The linear functional form is correctly specified.

**Strict exogeneity:** The errors in the regression should have conditional mean zero:

$$E[\varepsilon|X] = 0. \dots\dots\dots (4.7)$$

The immediate consequence of the exogeneity assumption is that the errors have mean zero:  $E[\varepsilon] = 0$ , and that the regressors are uncorrelated with the errors:

$$E[X'\varepsilon]=0 \dots\dots\dots (4.8)$$

The exogeneity assumption is critical for the OLS theory. If it holds then the regressor variables are called *exogenous*. If it doesn't, then those regressors that are correlated with the error term are called *endogenous*, and then the OLS estimates become invalid. In such case the method of instrumental variables may be used to carry out inference.

**No linear dependence:** The regressors in  $X$  must all be linearly independent. Mathematically it means that the matrix  $X$  must have full column rank almost surely:

$$\Pr [\text{rank}(X) = p] = 1 \dots\dots\dots (4.9)$$

Usually, it is also assumed that the regressors have finite moments up to at least second. In such case the matrix  $Q_{xx} = E[X'X/n]$  will be finite and positive semi-definite. When this assumption is violated the regressors are called linearly dependent or perfectly multicollinear. In such case the value of the regression coefficient  $\beta$  cannot be learned, although prediction of  $y$  values is still possible for new values of the regressors that lie in the same linearly dependent subspace.

- **Spherical errors:**

$$\text{Var}[\varepsilon|X] = \sigma^2 I_n, \dots\dots\dots (4.10)$$

Where  $I_n$  is an  $n \times n$  identity matrix, and  $\sigma^2$  is a parameter which determines the variance of each observation. This  $\sigma^2$  is considered a nuisance parameter in the model, although usually it is also estimated. If this assumption is violated then the OLS estimates are still valid, but no longer efficient. It is customary to split this assumption into two parts:

**Homoscedasticity:**  $E[\varepsilon_i^2 | X] = \sigma^2$ , which means that the error term has the same variance  $\sigma^2$  in each observation. When this requirement is violated this is called heteroscedasticity, in such case a more efficient estimator would be weighted least squares. If the errors have infinite variance then the OLS estimates will also have infinite variance (although by the law of large numbers they will nonetheless tend toward the true values so long as the errors have zero mean). In this case, robust estimation techniques are recommended.

**Nonautocorrelation:** the errors are uncorrelated between observations:  $E[\varepsilon_i \varepsilon_j | X] = 0$  for  $i \neq j$ . This assumption may be violated in the context of time series data, panel data, cluster samples, hierarchical data, repeated measures data, longitudinal data, and other data with dependencies. In such cases generalized least squares provides a better alternative than the OLS.

**Normality:** It is sometimes additionally assumed that the errors have normal distribution conditional on the regressors:

$$\varepsilon | X \sim \mathcal{N}(0, \sigma^2 I_n). \dots\dots\dots (4.11)$$

This assumption is not needed for the validity of the OLS method, although certain additional finite-sample properties can be established in case when it does (especially in the area of hypotheses testing). Also when the errors are normal, the OLS estimator is equivalent to the maximum likelihood estimator (MLE) and therefore it is asymptotically efficient in the class of all regular estimators.

If the data matrix  $X$  contains only two variables: a constant, and a scalar regressor  $x_i$ , then this is called the "simple regression model".<sup>[9]</sup> This case is often considered in the beginner statistics classes, as it provides much simpler formulas even suitable for manual calculation. The vector of parameters in such model is 2-dimensional, and is commonly denoted as  $(\alpha, \beta)$ :

$$y_i = \alpha + \beta x_i + \varepsilon_i. \dots\dots\dots(4.12)$$

The least squares estimates in this case are given by simple formulas

$$\hat{\beta} = \frac{\sum x_i y_i - \frac{1}{n} \sum x_i \sum y_i}{\sum x_i^2 - \frac{1}{n} (\sum x_i)^2} = \frac{\text{Cov}[x, y]}{\text{Var}[x]}, \quad \hat{\alpha} = \bar{y} - \hat{\beta} \bar{x} . \dots(4.13)$$

#### 4.4.3 Autocorrelation Test

Autocorrelation is most likely to occur in a time series framework because data are ordered in chronological order and the error in one period may affect the error in the next or other time period (s). One factor that can cause autocorrelation is omitted variables and also autocorrelation can occur due to misspecification of the model. Since the use of OLS to estimate a regression model leads to BLUE estimates of the

parameters only when all the assumptions of the Classical Linear Regression Model (CLRM) are satisfied. Therefore autocorrelation examines the effects on the OLS estimators when assumption six (6) of the CLRM is violated; which states that the covariances and correlations between different disturbances are all zero.

$$\text{Cov}(U_t, U_s) = 0 \text{ for all } t \text{ is not equal to } s$$

Stating that the error terms  $U_t$  and  $U_s$  are independently distributed which is called serial independence. If this assumption is no longer true, then the disturbances are not pairwise independent but are pairwise auto-correlated or serially correlated. Simply means that an error occurring at period  $(t)$  maybe correlated with one at period  $(s)$ .

#### **4.4.4 Heteroskedasticity Test**

Homoskedasticity means equal spread and heteroskedasticity on the other hand means unequal spread. Heteroskedasticity deals with unequal variances. In general heteroskedasticity is more likely to take place in a cross-sectional framework; however that does not mean that heteroskedasticity in time series is impossible. In such cases it is said that the homoscedasticity assumption is violated and that the variance of the error term depends on exactly which observation is discussed that is:

$$\text{Var}(u_i) = \sigma_i^2 \quad (4.14)$$

Heteroskedasticity affects the distribution of the  $\beta$ s increasing the variances of the distributions and therefore making the estimators of the OLS method inefficient because



it violates the minimum variance property. It is obvious that heteroskedasticity does not cause bias because  $\beta$  is centered around  $\beta$  so  $E(\beta) = \beta$  but widening the distribution makes it longer efficient. It also affects the variance as well as the standard errors of the estimated  $\beta$ s. The presence of heteroskedasticity causes the OLS method to underestimate the variances and standard errors hence leading to higher than expected values of t-statistics and f-statistics. Therefore, heteroskedasticity has a wide impact on hypothesis testing; neither the t-statistics nor the f-statistics are very reliable and because they will lead to rejection of the null hypothesis too often.

#### **4.5 Conclusion**

This chapter explained the time series analysis technique in order to get the result and investigate the model relationship. While the result and analysis to achieve the objective of this study will be discussed in next chapter.

## **CHAPTER FIVE**

### **RESULT AND ANALYSIS**

#### **5.1 Introduction**

This chapter discusses the results and findings which are produced by the techniques that were presented in Chapter 4. The results and findings are presented in three sections: 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.

#### **5.2 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.

The results of unit root tests are presented in Table 5.1 taking into consideration of the three types ADF test: constant without trend, constant with trend and without constant and trend. Based on Table 5.1, the dependent variable which is GDP is found to be stationary at I (0), at 1 and 5 percent level meaning it contains no unit root. Also for the independent variables: Agriculture is found to be stationary at I (0), at 1 and 5 percent level; manufacturing is found stationary at I(0), at 10 percent level and services are

found to be stationary at I(0), at 5 percent level. It can be said that the result of unit root test indicated that GDP, agriculture, manufacturing and services are all found stationary at level.

Table 5.1: Result of Unit Root Test (ADF)

Variables	Constant	Trend & Constant	None	Result
GDP Level	4.965859***	2.102128**	4.949783***	I(0)
Agriculture Level	7.100547**	3.744200**	9.481119***	I(0)
Manufacturing Level	1.211861	3.414121*	1.430478	I(0)
Services Level	1.862171	3.972838**	1.453647	I(0)

Note 1: \*\*\*, \*\*, \* indicates the rejection of null hypothesis of non – stationary at 1%, 5% and 10% significant level.

The result of Philips-Perron (PP) unit root tests is presented in Table 5.2 taking into consideration of the three types test: constant without trend, constant with trend and without constant and trend. Based on Table 5.2, the dependent variable which is GDP is found to be stationary at I (0), at 1 percent level meaning it contains no unit root. Also for the independent variables: Agriculture is found to be stationary at I (0), at 1 percent level; manufacturing and service are found to be stationary at I(0), at 1 percent level also. It can be said that the result of PP unit root test indicated that GDP, agriculture, manufacturing and services are stationary at level also.

Table 5.2: Result of Unit Root Test (PP)

Variables	Intercept	Trend & Intercept	None	Result
GDP Level	11.15404***	10.47982***	11.94514***	I(0)
Agriculture Level	8.366179***	5.506168***	10.31144***	I(0)
Manufacturing Level	3.702970***	0.217259	5.623307***	I(0)
Services Level	5.235985***	1.865408	6.739061***	I(0)

Note 1: \*\*\*, \*\*, \* indicates the rejection of null hypothesis of non – stationary at 1%, 5% and 10% significant level.

Also the result of Kwiatkowski-Philips-Schmidt-Shin (KPSS) unit root tests is presented in Table 5.3 taking into consideration of the three types test: constant without trend, constant with trend and without constant and trend. Based on Table 5.3, the dependent variable which is GDP is found to be stationary at I (0), at 1 percent level meaning it contains no unit root. Also for the independent variables: Agriculture, manufacturing and service are found to be stationary at I(0), at 1 percent level. It can be said that the result of KPSS unit root test indicated that GDP, agriculture, manufacturing and services are stationary at level also.

Table 5.3: Result of Unit Root Test (KPSS)

Variables	Intercept	Trend & Intercept	None	Result
GDP Level	0.603590**	0.191581**		I(0)
Agriculture Level	0.613680**	0.193901**		I(0)
Manufacturing Level	0.659988**	0.193648**		I(0)
Service Level	0.590524**	0.188758**		I(0)

Note 1: \*\*\*, \*\*, \* indicates the rejection of null hypothesis of non – stationary at 1%, 5% and 10% significant level.

Table 5.4

## ADF,PP AND KPSS UNIT ROOT TEST

Variable	ADF		PP		KPSS		Result
	Constant	Trend and Constant	Constant	Trend and Constant	Constant	Trend and Constant	
GDP <sub>LEVEL</sub>	4.9586***	3.88551**	11.1540***	10.4798***	0.60359**	0.19158**	I (0)
Agri <sub>LEVEL</sub>	7.10055**	3.74420**	8.36618***	5.50617***	0.61368**	0.19158**	I (0)
Man <sub>LEVEL</sub>	1.21186	3.41412*	3.70297***	0.21726	0.65998**	0.19365**	I (0)
Ser <sub>LEVEL</sub>	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 5.4 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.

### 5.3 Results of OLS

The result of time series data concerning the value of GDP, agricultural, manufacturing and service is as follow:

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

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

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			

The effect of agriculture (NOEagr) on gross domestic product (GDP) increases by 1.700670 when NOEagr increases by 1 unit; that is when NOEagr increases by 1 unit, GDP increases by 1.700670. The effect of manufacturing (NOEman) on gross domestic product (GDP) is negative which is  $-7.019538$  and showing that it is not significant; but was later significant after the data was estimated in log form showing that manufacturing on gross domestic product increases by 0.530149 when log-man increases by 1 unit. Simply when log-man increases by 1 unit, GDP increases by 0.530149. The effect of services (NOEser) on gross domestic product (GDP) increases by 5.423778 when NOEser increases by 1 unit; that is when NOEser increases by 1 unit, GDP increases by 5.423778.

$R^2$  (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, NOEman and NOEser ) are positive and statistically significant with the t-statistics of 3.177154, -1.673942 and 3.697483 respectively. This result was similar to the study of Balogun (2009) who concluded that non-oil exports in particularly agriculture and manufacturing positively constituted significantly to the economic growth. Other sectors of non-oil exports like services which are also important were not considered in the cause of his study. Similar to Balogun (2009) was Fajana (2009) who also concluded that manufacturing and

agricultural sectors contributed positively to the export by fostering the development of external market and not considering other sectors of non-oil exports.

## **5.4 Diagnostic Tests**

### **5.4.1 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.

### **5.4.2 Results of Harvey Heteroskedasticity Test**

The Harvey test of heteroskedasticity show that  $n.R^2 = 12.41565$  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  $n.R^2 = 3.608368$  and the prob. Chi-Square(3) which is 0.3070 is insignificant. This therefore means that the estimated model has no heteroskedasticity problem.



## CHAPTER SIX

### CONCLUSION AND POLICY IMPLICATION

#### 6.1 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 specified 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.

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.

## **6.2 Policy Implications**

In policy context regard, this study was designed to appraise the viability of Nigerian non-oil sector in the diversification of Nigeria's export. Indeed, Nigeria non-oil exports are not only growing, but the market and products are diversifying as well. Since the selected sectors that are the independent variables which are being used in this research paper are significant, therefore it is so critically important to keep in focus the fact that non-oil exports offer significant advantages for Nigeria's positioning and competitiveness in the global economy.

Also we must move away from self-delusion if we have any desire at all to start the journey to 20:2020 that is vision2020 brought forward as plan of advantages for Nigeria's positioning and competitiveness in the global economy. And Nigeria as a leading frontier country in the world, must dedicate the necessary attention and resources to building the nation's non-oil export sector. The vision is certainly attainable if not now through strengthen and promotion of the non-oil export sectors.

### **6.3 Recommendation**

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 key to helping active and potential non-oil exporters understand foreign markets and enhance the export culture.

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