EXPORTS AND ECONOMIC GROWTH IN NIGERIA,1970-2006

(An Empirical Analysis Using Vector Autoregressive Modeling Approach)

BY

YARU MOHAMMED AMINU

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DEPARTMENT OF ECONOMICS
FACULTY OF SOCIAL SCIENCES
AHMADU BELLO UNIVERSITY
ZARIA.

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Declaration

I solemnly declared that this study was carried out by me between January, 2005 and March, 2008

All the errors and opinions expressed are mine and do not reflect the positions of either my supervisors or the institution I belong.

....

Signature Date

Certification

This is to certify that, this study was undertaken by the author: Yaru Mohammed Aminu (Msc/Soc-Scie/46102/2004-05) under my supervision

Supervisors

Dr. Ishaya Audu
(Main Supervisor)
Department of Economics ……
Ahmadu Bello University Signature and Date
Zaria

Professor Abdul- Ganiyu Garba
(Second Supervisor)
Department of Economics ……
Ahmadu Bello University Signature and Date
Zaria

Professor Abdul- Ganiyu Garba
(PG Coordinator)
Department of Economics ……
Ahmadu Bello University Signature and Date
Zaria

Dr. Mike Duru
(Head of Depatment)
Department of Economics ……
Ahmadu Bello University Signature and Date
Zaria

Professor I. A Pedro
Department of Economics ……
Bayero University, Signature and Date
Kano

Dedication

This Thesis is dedicated to my beloved parents (HRH Mallam Ishak Lafia Sabi and Mallama Hawawu Teke Lafia)

Acknowledgement

My greatest gratitude goes to the Almighty Allah, who created me and gave me the wisdom and strength to carryout this study. At the human level, I sincerely wish to acknowledge my supervisors, Dr. Ishaya Audu and Dr. A. G. Garba, whose supervision, suggestions and observations improved the quality of the study to its currents state. May Allah give them long life and prosperity in their careers.

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Abstract

The belief that exports is the engine of the growth process of any economy seemed to have gained a high degree of acceptance in the Nigerian state. This is evident in the number of trade policy reforms and exports promotion programmes/measures since 1986 to date that the government had adopted. However, previous Studies on Export Led Growth have generated conflicting empirical evidence. This study attempts to contribute to resolve this controversy, by using a non-structural Vector Autoregressive modeling approach (VAR) to estimate the empirical relationship between exports and economic growth in Nigeria. The findings of the study revealed that exports (oil and non-oil) have had a significant but opposite dynamic impacts on Nigeria's economic growth. While the short and long run impact of oil exports was negative, that of non-oil exports was positive. The result suggests that Nigeria can enhance her growth through the growth of non-oil exports and the test of Export-led Growth Hypothesis should be conducted using disaggregated data.

CHAPTER ONE

General Introduction

1.1 Background to the Study

Historically, there seems to be a consensus among economic historians that in the nineteenth-century, trade acted as an engine of growth (Uniamikogbo, 1995). Trade contributed to optimal allocation of resources within countries and the transmission of growth from one part of the world to another (Uniamikogbo, 1995; Iyoha, 1995). These stem from the static and dynamic gains associated with international trade. The former is referred to as "allocative or efficiency effect", while the latter is known as the "growth effect" of international trade (Iyoha 1995).

The static gains are demonstrated in Ricardo's theory of comparative advantage through international trade and specialization. On the other hand, the dynamic gains were those that accrued from the impact of trade on production possibilities at large. Examples of the dynamic gains are international investment, transmission of technical knowledge and economies of scale. According to Iyoha (1995), these gains in part and as a whole contribute to the overall growth of a nation's economy.

In recent times, the growth records of the Asian Newly Industrializing Countries (NICs) of Asia such as Hong Kong, Singapore, Korea, Taiwan, Malaysia, Thailand and China are commonly cited as examples of countries that achieved economic growth through trade (Giles and Williams 2000; Uniamikogbo, 1995). While the recent campaign for greater integration of the world economies via the establishment of World Trade Organization (WTO) in 1994 to administer the Uruguay Round of Negotiation known as

new – GATT (General Agreement on Tariff and Trade) is also founded on the trade transmission effects on growth.

Meanwhile, generally one can not conclude that the growth of an economy is caused only by the expansion of exports or increased openness, as there are numerous growth determining variables such as investment, saving, and technical progress among others. These growth determinants can equally be responsible for growth individually or as a package. More so, in some cases export inhibits growth and economic development. This could occur when the export sector stands to compete with other sectors in the economy. In other cases growth leads to exports expansion

In Nigeria, the exports earning is expanding on the average but the composition of the exports is the area of concern to economists, Policy makers and the government. Over 95% of Nigeria's export earning is accrued from the oil exports while the non-oil exports account for less than 5% on the average between 1980 and 2004(CBN Statistical bulletin 2001 & 2004). The skewness is risky to the country's economy.

It is against this background that, the Structural Adjustment Programme (SAP) in 1986 was introduced, as a measure to diversify the Nigerian economy and revamp the non-oil exports. The period of SAP is characterized by the liberalization of trade with some incentives to stimulate growth of non-oil exports for a sustainable economic growth of Nigeria. These measures include the Federal government's institutional support through the establishment of Nigerian Export Promotion Council (NEPC) in 1976, Nigerian Export and Import Bank (NEXIM Bank) in 1991 and the Nigerian Export Processing Zone Authority (NEPZA) in 1996.

Under the on going reform programme of National Economic Empowerment and Development Strategy (NEEDS), the Nigerian Government considers trade as the main engine of its development strategy because of its ability to create jobs, raise incomes, expand markets, facilitate competition, and disseminate knowledge WTO (2005).

Therefore, Nigeria has renewed its commitment in promoting trade liberalization policies and adhering to multilateral and regional based trade agreement that could help in promoting and diversifying her exports.

1.2 Statement of the Problem

Relatively liberal trade policy regime has been pursued in Nigeria from the mid-80s, which is a manifestation of a policy choice in favour of Export-Led Growth (ELG) as against import substitution (Uniamikogbo, 1996; Egwaikhide, 1995). The choice is consistent with the Export-Led Growth Hypothesis (ELGH). That is exports stimulate economic growth

However, literature on trade and policy since the time of Adam Smith debated whether openness and trade liberalization provide the necessary ingredient for economic growth (Miller and Upadya, 2000; Ogujiuba et al, 2005).

In Nigeria the Validity of Export-Led Growth Hypothesis (ELGH) in empirical sense, still remains a controversial issue as conflicting results emanated from attempted empirical studies in the Country. Studies that used real exports suggest that Export –led Growth Hypothesis holds for Nigeria (Fajana 1979; Obadan 1984; Oshilim 1986; Iyoha 1995 and Adama 1999), while others that used other indices of openness found openness to be detrimental to Nigeria's economic growth (Okoh 2004 and Ogujiuba et al,

2005) and others such as (Odusola and Akinlo, 1995 and Ekpo, 1995) came out with mixed results.

The conflicting results raise modelling issues. The first is related to the structural modeling used to test the hypothesis and the second, is the appropriate measures of the variables in the structural models. The issues raised the following questions:

1. What is the appropriate model for testing the export – led growth hypothesis?
2. What are the appropriate variables for empirical testing of the hypothesis?
3. What is the impact of exports on growth in Nigeria?

All these suggest that further studies are required on the Export-Led Growth Hypothesis (ELGH) for Nigeria where these issues could be resolved.

However, since the reviewed studies adopted theoretically founded models, which produced the conflicting results, the empirical/non-theoretical models championed by the approach of the London School of economics such as Vector autoregressive scheme (VARS) could be used as a means of determine the most appropriate empirical model and to analyse the relationships between exports and output in Nigeria.

1.3 Objectives of the Study

The primary objective of this study is to test the Export-Led Growth Hypothesis (ELGH) using an empirically based model.

The specific objectives are:

(i) To specify and estimate empirical model of the relationship between the exports and Nigeria's economic growth.

(ii) To measure the dynamic impact of exports on Nigeria's economic growth

1.4 Justification for the study

"Economic policy action and economic policy success – in terms of stated goals – are contingent on the knowledge embodied in the economic doctrines from which policy predictions derive" (Garba 2003). The doctrines are the economic theories, which are abstractions from the real world. There is always a gulf between these theories and realities of the world. This then, calls for reliable empirical evidence before applying any theory to guard against the misapplication of theories and the consequences that may result from such exercise.

The investigation of the export-led growth hypothesis is therefore, necessary because of the conflict in evidence and the push to adopt export – led growth polices in Nigeria. More so, while the export – led growth polices in Nigeria are mainly to promote the growth of non – oil exports, previous studies considered an aggregative analysis of export and economic growth. Thus, little is known on the relationship between GDP and the entire non-oil exports, which is the target of most of the trade policies.

In addition, this study is particularly relevant as:

(i) It covers a wider period and more recent years than previous ones. Especially as it covers greater years of more liberal trade regime (1986 to date).

(ii) It uses a vector autoregressive model (VAR), which is more empirical in nature, giving priority to what the data say rather than the theory. This would give room for a comparative analysis with the previous studies.

(iii) It uses lagged values of exports and GDP as regressors to avoid cases of spurious regression.

Hence, this study would not only provide a modeling guide but also be of help to policy makers in designing appropriate export related policies, identifying the need for such policies and appropriate sequencing. Especially as it is disaggregates exports in to oil and non-oil components.

1.5 Scope and Limitation of the Study

The study examined the empirical relationships between exports and economic growth using the Nigerian case. It covers the period of 1970-2006 using the annual time series data on Nigeria's Gross Domestic Product measured at 1984 constant factor prices, Exports (Oil and Non-oil), Gross Capital Formation as index of Capital, Imports of Capital Goods proxied by the imports of machineries and chemical, and Federal Government Capital Expenditure on Education as the index of Human capital Development.

The main limitation of the study is the non- availability of data on some of the variables used in the early 70s. Although these may be found in some other sources but the use of different price indices could create

inconsistency that might affect the results. Since E-views automatically adjusts for the end points, the estimated models covers the period when the data for all the variables were available.

1.6 Organisation of the Study

The rest of this study report is organised into five chapters. Chapter two presents an overview of Nigeria's trade policies, exports and GDP performance. While chapter three contains literature review and theoretical framework, in which conceptual issues, theoretical and empirical literature are discussed. Chapter four focuses on the methodology of the study. It covers the models and their specifications, the data, sources of data, the time series properties of the series, and the software used in estimating the model.

Chapter five covers the presentation of the results and analysis. Chapter six, which is the concluding chapter, summarizes the report and concludes, offering some recommendations.

Chapter Two

An Overview of Nigeria's Trade Policies, Exports and GDP, 1970-2006

2.0 Introduction

This chapter contains an overview of (a) Nigerian trade policies, (b) Export Promotion measures, (c) structural and trend analysis of exports and GDP performance in Nigeria with particular focus on the oil and non-oil sub sectors between 1970 and 2006. In its concluding section, the stylized facts of Nigeria's trade policies exports and growth are presented.

2.1 Nigeria's Trade Policies

2.1.1 General overview of Nigeria's Trade Policies

Trade policies can be characterized as outward oriented or inward oriented. Outward oriented trade policies provide measures, which are neutral as regards production for the domestic market or export. The essence of these policies is neither discriminating in favour of exports nor bias against import substitution. They favour tariffs over quantitative restrictions. On the other hand, inward oriented trade policies are those in which trade and industrial incentives are biased in favour of domestic production or against foreign trade (Rajapatrirana 1995; cited in Uniamikogbo (1996).In Nigeria trade policy instruments can be grouped into" the first best trade policies and Second best trade policies" (Emenuga 1995). The former, involves liberalizing trade by removing already existing anti-export biases such as those that confer high levels of protection an industries quantitative, qualitative control and regulations on foreign transaction and exchange rates while the latter involve the institution of

trade incentives and import subsidies that could offset observed anti-export biases.

However, the Nigerian trade policies Prior to 1986 were more of restrictive than liberal. Although with changes in their relative importance, between 1973 and 1986 trade policies in Nigeria, were determined by three factors- Revenue generation, Protection of local industries and Correction of external disequilibrium (Uniamikogbo 1996).

The introduction of the structural adjustment programme in 1986 brought a turn around from the restrictive trade policies to trade liberalization or outward oriented trade policies in which all regulations, controls and quantitative restrictions were abolished. The foreign exchange rate was also deregulated while commodity Boards were abolished. This was followed by the institution of some incentive measures to promote the non-oil exports such as the establishment of the Nigeria Export-Import Bank (NEXIM) in 1991.

2.1.2 Nigeria's Trade Policy Review by WTO, 2005

The Nigeria's trade policy review by the WTO in 2005 reveals that Nigeria's trade policies/legislation guiding trade such as the excise Management Act of 1990, import and excise duties, export promotion Assistance etc remained **(see Appendix I**) for selected trade and trade related legislations.

The objectives of Nigeria, trade policy are as follow,

i. To enhance the competitiveness of domestic industries with a view to encourage local value-added and promote and diversify exports.

ii. To create an environment, conducive to increase foreign capital inflow ,transfer and adopt appropriate technologies (through gradual liberalization of trade regime) in a way that will benefit the Nigerian the industries

To achieve these objectives, the trade reforms are designed to allow certain level of protection of domestic industries and enterprise. In practice, the tariff appeared with lower import duties on the raw materials and intermediate goods unavailable locally and relatively high import duties on finished goods that might compete with local production. (WTO, 2005).while trade liberalization is being carried out multilaterally, preferentially and on unilateral basis with a renewed commitment.

More so, Nigeria has re-affirmed her efforts to promote new multilateral and regional based trade agreements and adhere to existing ones.

In this direction, Nigeria apart from being an original member of the WTO in1995; it has initiated and spearheaded several regional integrations /agreements such as;

i. African Economic Community (AEC) established by Abuja treaty,1991
ii. African Union (AU) which, succeeded Organisation of African Unity in 2000.
iii. New Partnership for African Development (NEPAD)
iv. ECOWAS Trade Liberalization Scheme(TLS) since 1990 and common External Tariff (CET) to be accepted, 2004
v. Other agreements include; the Cotonou Agreement with the European Communities (EC), 78 African, Caribbean and Pacific countries signed

on 23 June 2000, the United State African Growth and Opportunity Act (AGOA), 2000

Common to all 6these agreements and bodies is that, they are set up to achieve economic interpretation and trade at their various levels.

Meanwhile, it was observed that Nigeria has not been and may not be able to exploit the opportunities available to by the agreements and her membership from most of the trade organizations, especially in the area of non-petroleum exports. It was argued that the competitiveness of the exportable sector is hindered by high transaction costs resulting from poor infrastructure, bureaucracy, corruption, unstable macroeconomic environment, lack of access to credit, and other supply-side constraints.

2.2 Export Promotion Measures in Nigeria

Conceptually, export promotion strategy is a trade strategy, which encourages production for exports and in which there is no bias of incentives towards production of import- substitutes (Obadan 1994). This strategy became imperative, following the sustained dominance of the oil export sector and the over dependence of the government on this category of export since 1970.

Conscious effort to develop the Nigerian export sector dates back to 1962 when the Federal government spelt out a three prolonged approach which included;

i. Developing new exports
ii. Strengthening the country's existing market
iii. Securing stable prices for export commodities (Obadan1994)

This move was followed by the establishment of the Nigerian export promotion Council (NEPC) in 1976 with the mandate of ensuring a steady growth in the Nigerian export trade. The council was given the responsibility to generate ideas, suggestion and measure to promote export trade.

In addition to this, the administration and disbursement of certain export incentives have been within the jurisdiction of NEPC. These include, Duty Drawback Scheme(CDDS) ,Export Development Fund(EECF),Export Expansion Grants(EEGF),Duty Suspension Scheme(DSS),Manufacture- In Bond Scheme(MIBS),Export Price Adjustment Scheme and Supplementary Allowance for pioneer Companies.

In order to implement the retinue of export expansion schemes/incentives, the Nigerian Export Processing Zone was established (NEPZ) in 1991. Other steps in this direction include the establishment of the Nigerian Export-Import Bank (NEXIM) in 1991.

And most recently, Under the National Economic Empowerment and Development Strategy (NEEDS), the medium-term economic strategy for 2003-07, the specific measures to promote non- oil exports are stated as reported by the Nigerian government in the WTO Trade Policy Review in 2005;

Trade-specific measures scheduled for implementation include: the reduction of the uncertainty and unpredictability of the trade regime; reduction of tariff rates, as part of Nigeria's commitments under loan agreements with the IMF; the harmonization of Nigeria's tariff schedule with the ECOWAS common external tariff (CET); implementation of the ECOWAS protocol on free movement of goods and people; the operationalization of existing export processing zones (EPZs) and the establishment of new ones; the granting of export-processing status to factories that contribute to non-oil exports; the establishment of an export production village scheme; the negotiation of preferential trade agreements to diversify trade; the provision of incentives to encourage non-oil exports; the implementation of port reforms to

*ensure timely clearance of goods and eliminate malpractices; the replacement of the preshipment inspection scheme with inspection at destination; and the streamlining of the exchange rate regime . (**WT/TPR/G/147,** 13 April 2005). (Chapters I and III).*

However, as observed later in this chapter, despite this retinue of measures, oil export still maintained its dominance, playing a decisive role in the Nigeria's export earning.

2. 3 The Structure of Nigeria's Exports, 1970-2006

In 1970, the total export earning stood at N885.4 million with oil export accounting for about 57.60% while the share of non-oil export fell to 42.4%. Since then, the share of the non-oil exports has not been impressive. It has been declining .In fact, except in 1971, 1972, 1973 and 1978 when it accounted for 26.32%, 17.99%, and 16.89% and10.93% respectively. **(See Table 1 below)**

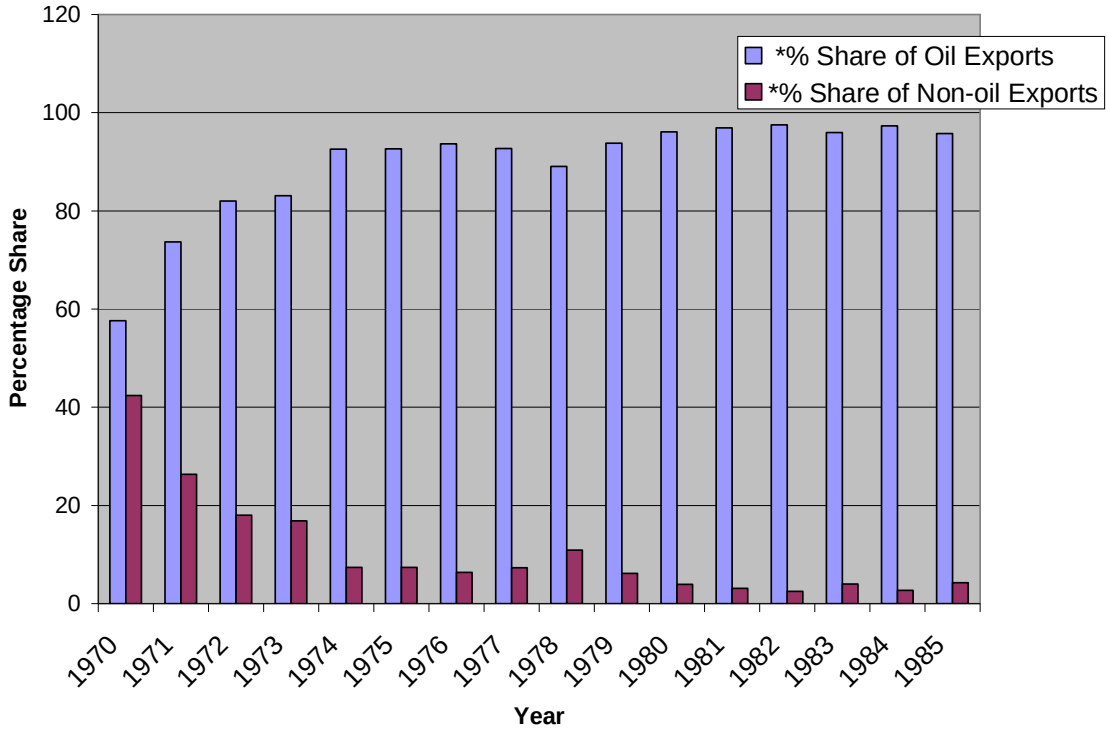
Table 1: The Structure of Nigeria's Exports, 1970-1985

YEAR	Oil Exports	Non-Oil Exports	Total Exports	*% Share of Oil Exports	*% Share of Non-oil Exports
1970	510	375.4	885.4	57.60	42.40
1971	953	340.4	1293.4	73.68	26.32
1972	1176.2	258	1434.2	82.01	17.99
1973	1893.5	384.9	2278.4	83.11	16.89
1974	5365.7	429.1	5794.8	92.60	7.40
1975	4563.1	362.4	4925.5	92.64	7.36
1976	6321.6	429.5	6751.1	93.64	6.36
1977	7072.8	557.9	7630.7	92.69	7.31
1978	5401.6	662.8	6064.4	89.07	10.93
1979	10166.8	670	10836.8	93.82	6.18
1980	13632.3	554.4	14186.7	96.09	3.91
1981	10680.5	342.8	11023.3	96.89	3.11
1982	8003.2	203.2	8206.4	97.52	2.48
1983	7201.2	301.3	7502.5	95.98	4.02
1984	8840.6	247.4	9088	97.28	2.72
1985	11223.7	497.1	11720.8	95.76	4.24

Sources:CBN Statistical Bulletin vol.12, 2004 and CBN Annual Reports and Statement of Accounts for the year ended December, 2006

*Computed by the author

Figure 1: The Structure of Nigeria's Exports, 1970-1985



Computed from Table (1) by the author

The structural analysis of Nigeria from Table 1, and figure 1 above, showed that the structure of Nigeria's exports remained the same in spite of the policy change with the introduction of the Structural Adjustment Programme (SAP) in 1986.

Although, there was a marginal increase in the share of non-oil export during the SAP period from 4.24% in 1985 to 8.84% in 1988 but this could not be sustained. Invariably, there was no significant difference in the share of non-oil exports during the pre-SAP, SAP and post SAP period. The oil sector still maintained its dominance in the

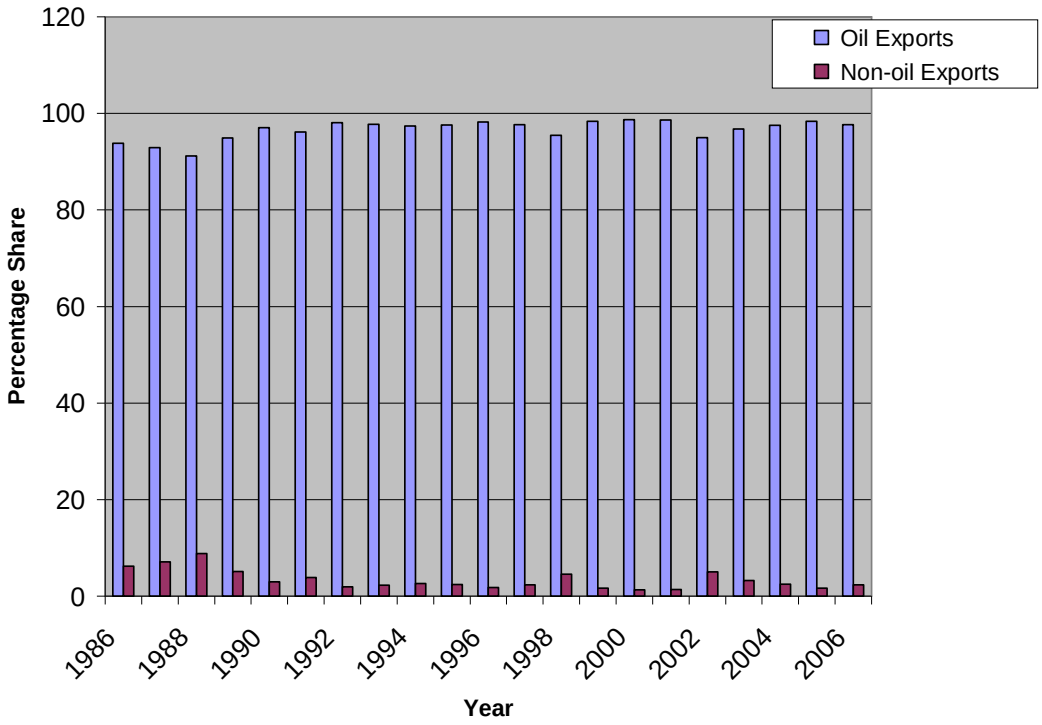
composition of Nigeria's export earning. (**See Table 2 and figure 2**) below

Table 2: The Structure of Nigeria's Exports, 1986-2006 (₦ million)

Year	Oil Exports	Non-Oil Exports	Total Exports	*Oil Exports	*Non-oil Exports
1985	8368.5	552.1	8920.6	93.81	6.19
1987	28208.6	2152	30360.6	92.91	7.09
1988	28435.4	2757.4	31192.8	91.16	8.84
1989	55016.8	2954.4	57971.2	94.90	5.10
1990	106626.5	3259.6	109886.1	97.03	2.97
1991	116858.1	4677.3	121535.4	96.15	3.85
1992	203292.7	3973.3	207266	98.08	1.92
1993	213778.8	4991.3	218770.1	97.72	2.28
1994	200710.2	5349	206059.2	97.40	2.60
1995	927565.3	23096.1	950661.4	97.57	2.43
1996	1286215.9	23327.5	1309543.4	98.22	1.78
1997	1212499.4	29163.3	1241662.7	97.65	2.35
1998	717786.5	34070.2	751856.7	95.47	4.53
1999	1169476.9	19492.9	1188969.8	98.36	1.64
2000	1920900.4	24822.9	1945723.3	98.72	1.28
2001	1973222.2	28008.6	2001230.8	98.60	1.40
2002	1787622	95046.1	1882668.1	94.95	5.05
2003	2829042.5	95092.5	2924135	96.75	3.25
2004	4489472.19	113309.35	4602781.54	97.54	2.46
2005	6266096.62	105955.82	6372052.44	98.34	1.66
2006	5619152.88	133594.86	5752747.74	97.68	2.32

Sources:CBN Statistical Bulletin vol.12, 2004 and CBN Annual Reports and Statement of Accounts for the year ended December, 2006.*computed by the author

Figure 2: The Structure of Nigeria's Exports, 1986-2006



*Computed by the author

Obadan (1998) attributed this to the constraints on the production and supply of both manufactured and agricultural exports. He therefore, pointed that these constraints must be reduced or eliminated for the success of export promotion strategy in the country (see also Ayodele; 1997).

2. 4 The Growth Rates of Nigeria's Gross Domestic Product and Exports, 1970-2006

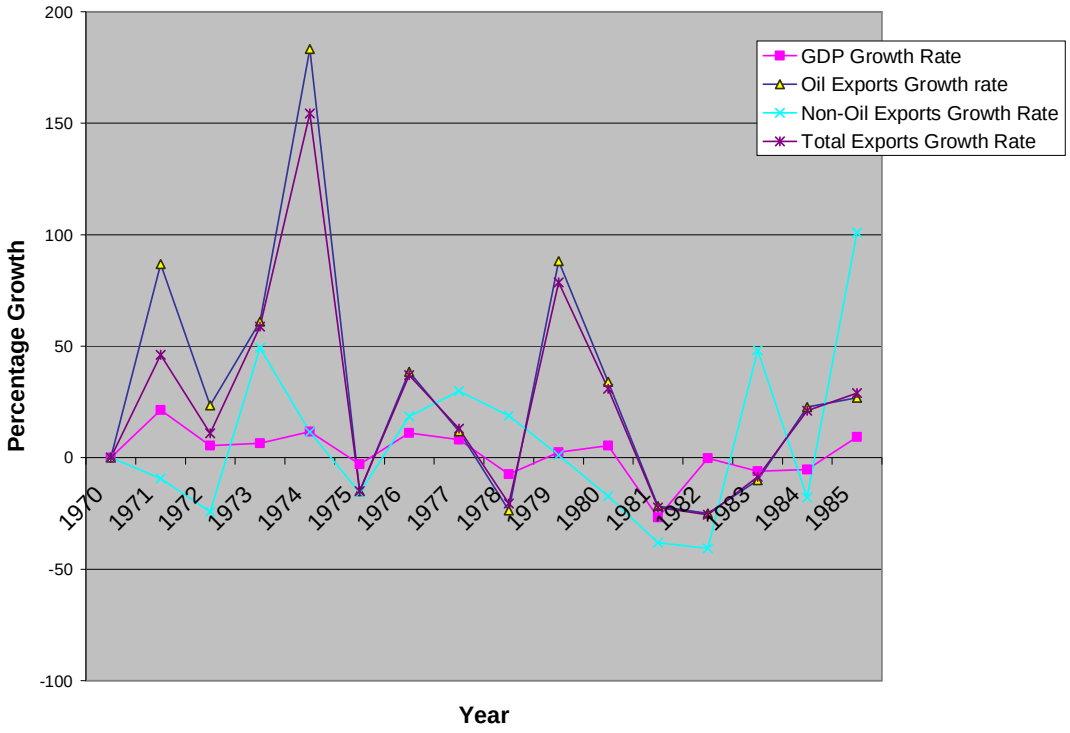
The trends of oil and non-oil exports appeared to be fluctuating and unstable over the periods. However, while the oil exports grew between 1970 and 1974, the non-oil exports fell in 1971 and 1972 but rose by 49.19% and11.48% in 1973 and 1974 respectively. **(See Table 3 and figure 3 below)**.The decline of the non-oil exports could be associated with the discovery of oil and its exportation in commercial quantity.

Table 3: The Growth Rates of Nigeria's Gross Domestic Product and Exports, 1970-1985

YEAR	GDP Growth Rate	Oil Exports Growth rate	Non-Oil Exports Growth Rate	Total Exports Growth Rate
1970	-	-	-	-
1971	21.35	86.86	-9.32	46.08
1972	5.48	23.42	-24.21	10.89
1973	6.42	60.98	49.19	58.86
1974	11.74	183.37	11.48	154.34
1975	-2.96	-14.96	-15.54	-15.00
1976	11.08	38.54	18.52	37.06
1977	8.15	11.88	29.90	13.03
1978	-7.36	-23.63	18.80	-20.53
1979	2.44	88.22	1.09	78.70
1980	5.48	34.09	-17.25	30.91
1981	-26.81	-21.65	-38.17	-22.30
1982	-0.22	-25.07	-40.72	-25.55
1983	-6.10	-10.02	48.28	-8.58
1984	-5.28	22.77	-17.89	21.13
1985	9.30	26.96	100.93	28.97

Computed by the author from CBN Statistical Bulletin vol.15, 2004 and CBN Annual Reports and Statement of Accounts for the year ended December, 2006

Figure 3: The Growth Rates of Nigeria's Gross Domestic Product and Exports, 1970-1985



Computed from Table 3 by the author

However, in 1980 the oil exports growth rate fell to 34.09% from 88.22% in 1979. The period of 1981 to 1983 is the most unfavourable consecutive years for both oil and non-oil exports in the country. In 1981, 1982 and 1983 oil exports declined by 21.65%, 25.07% and 10.02% respectively. In the same period the non-oil export declined by 38.17% in 1980 and 40.72% in 1981. During that period the GDP also recorded a negative growth rate of 26% in 6.10% and 5.28% in 1981, 1983 and 1984. This could be attributable to the 1980's economic downturn recorded in the world.(**See Table 3 and Figure 3**)

However, positive growth rates were recorded for both oil and non-oil export during the SAP period. Except in 1992, 1999 and 2005 the growth rate of non-oil exports has been positive from 1985 to date while that of oil exports fell in 1997 and 1998. But a gradual recovery was evident in 1984 despite the decline in 1986.

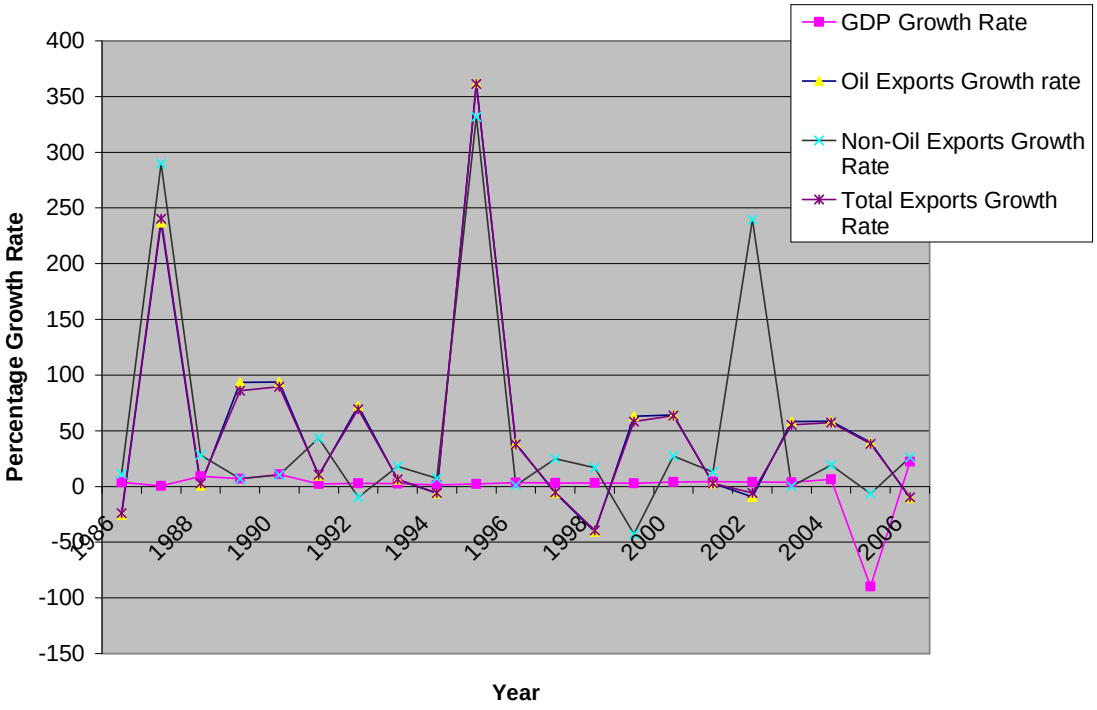
Meanwhile, except in 2005 positive GDP growth was recorded throughout the SAP and Post SAP period of 1986 to 2006. The growth in GDP was greatest between 1988 and 1990. But generally GDP growth was fairly stable during the period. **(See Tables 1-4 and Figures 1-4)**

Table 4: The Growth Rates of Nigeria's Gross Domestic Product and Exports, 1986-2006

YEAR	GDP Growth Rate	Oil Exports Growth rate	Non-Oil Exports Growth Rate	Total Exports Growth Rate
1986	3.69	-25.44	11.06	-23.89
1987	0.55	237.08	289.78	240.34
1988	9.18	0.80	28.13	2.74
1989	7.01	93.48	7.14	85.85
1990	10.89	93.81	10.33	89.55
1991	2.16	9.60	43.49	10.60
1992	2.95	72.33	-9.61	69.18
1993	2.66	6.15	18.06	6.40
1994	1.34	-6.11	7.17	-5.81
1995	2.12	362.14	331.78	361.35
1996	3.42	38.67	1.00	37.75
1997	3.16	-5.73	25.02	-5.18
1998	3.22	-40.80	16.83	-39.45
1999	2.77	62.93	-42.79	58.14
2000	3.90	64.25	27.34	63.65
2001	4.22	2.72	12.83	2.85
2002	4.09	-9.41	239.35	-5.92
2003	3.78	58.26	0.05	55.32
2004	6.54	58.69	19.16	57.41
2005	-89.95	39.57	-6.49	38.44
2006	22.35	-10.32	26.09	-9.72

Computed by the author from CBN Statistical Bulletin vol.15, 2004 and CBN Annual Reports and Statement of Accounts for the year ended December, 2006

Figure 4: The Growth Rates of Nigeria's Gross Domestic Product and Exports, 1986-2006



Computed from Table 4 by the author

More so, there was a very sharp rise in both oil and non-oil exports in 1995 by over 300%. Although, the percentage rise in non-oil exports far exceeded that of oil export, which was by 331.78%, while the reverse was the case in terms of the nominal value.(**See Table 4 and Figure 4**) above.

The positive growth rate recorded in most of the years in the SAP and post SAP period could be attributed to the intensive governmental efforts to promote non-oil exports in that period. Meanwhile the volatility of the growth rates of the exports extends to the period of democracy and National Economic Empowerment and Development Strategy (NEEDS). This is indicative of the fact that Nigeria's exports earnings are unpredictable.

Perhaps, due to the fluctuations in the oil exports earnings mainly explained by the volatility of crude oil prices in the world oil market.

However, from the Tables (1-4) above, the structural composition indicated the dominance of the oil exports despite the positive growth rates recorded in the non-oil exports in most of the years under review. This shows that the increase in the non-oil exports has been insignificant in relation to the oil exports.

Emenuga (1995) attributed the low and negative growth rates of the non-oil exports to several factors. He stated that these factors have been extensively discussed in the literature such as Ojo (1989), Obadan (1993). These factors include:-

i. Increased domestic demand for agricultural products as raw materials by the manufacturing sector whose growth was aided by import substitution industrialization.

ii. The policy of the commodity Boards which bought the agricultural commodities at low prices; this policy could not encourage the production of these products.

iii. The growth of local consumption of the commodities, which outstripped the growth of production.

iv. Scarce and costly farm inputs

v. Over valued naira and exchange control which caused low naira returns on exports.

vi. Inadequate infrastructure for farming and mining as well as absence of credit institutions for such activities in the rural area.

vii. General neglect of non-oil exports as a result of the oil boom.

He however, emphasized much on the last reason, that the "Dutch disease" Syndrome appears relevant in understanding the domination of the oil in Nigeria's exports.

It is evident, from above that the Nigerian Government neglected the role of favourable operational environment and emphasized on rigorous incentive measures to expand the non-oil exports. This exercise is like building process where builders are busy buildings without foundation. Thus Okoh (2004) recommends that Nigeria must do "first thing first" (invest on innovation and reduce the effort towards global integration). More so, Nigeria's non-oil exports lack the pre-requisites of a dynamic export sector.

2.5 Some Stylized Fact of Nigeria's Trade policies, Exports, and GDP

The main stylized facts of Nigeria's trade policies, exports, and GDP from this chapter include:

i. Trade policies have changed from restrictive to liberal policies with vigorous export promotion measures since the introduction of SAP in 1986.

ii. The WTO report indicates that Nigeria's trade policies remained the same even with the return to democracy in 1999.

iii. The structure of Nigeira's exports remained the same during the reviewed periods of 1970 to 1985 and 1986 to 2006 despite the policy changes and export promotion measures. Oil exports denominate in the exports earning by a share averaged around 89.4% and 96.61% in the periods.

iv. The trends in the Nigeria's exports are characterized by high rate of volatility during the reviewed periods with the oil exports playing the decisive role in the trend of Nigeria's exports.

v. The trend of Nigeria's GDP measured at 1984 constant factor prices is modestly stable over the periods.

Chapter Three

Literature Review and Theoretical Framework

3.0 Introduction

This Chapter focuses on conceptual issues and it reviews related theoretical and empirical literature. The chapter is divided into four sections. The first section deals with conceptual issues focusing on national income, economic growth and measurement and growth accounting, export –led growth and the concept of openness.

The second section discusses growth models (exogenous and endogenous models).While the third section, presents the Export-led growth hypothesis ((ELGH).

Finally, the fourth section reviews a number of empirical studies on export-led growth hypothesis in other countries and Nigeria, and draws implications from the reviewed studies for the present study.

3.1 Conceptual Issues

3.1.1 Concepts of National Income / Output

In conceptualizing economic growth, it is pertinent to start with the concepts of national income. National income means the total value of goods and services produced annually in a country. That is, the total amount of income accruing to a country from economic activities in a year's time (Jhingan 1997). The National income is usually measured as Gross National Product (GNP).

GNP can be viewed in three different ways – all measuring identically the same flow. The first is GNP measured by expenditure on final product; the second is GNP measured by the type of income generated and third is

GNP measured by the way this income is used or disposed of (Branson 1989). The first and the third measures give us the basic GNP identity in equation (3.1) below, which is fundamental to macroeconomics.

$$C + I + G + (X - M) \equiv GNP \equiv C + S + T + Rf \quad \ldots(3.1)$$

The left hand side of this identity measures GNP by expenditure on final product, while the right hand side of it measures GNP by income earned and disposed of.

Where C = Consumer Expenditure

I = Business Expenditure / Investment

G = Government Expenditure

(X – M) = Net Export

X = Exports

M = Imports

S = Savings

T = Net Tax Payment

Rf = Transfer payment to foreigners

Following equation (3.2), GNP can be expressed as

$$GNP = C + I + G + (X - M) \ldots\ldots \quad (3.2)$$

Equation (3.11) denotes GNP at market prices and to determine GNP at factor prices, subsidies are added to and indirect taxes are subtracted from (3.2) as in (3.3) below;

$$GNP_{fc} = GNP + (s - iT)\ldots \quad (3.3)$$

Where, GNP_{fc} = GNP at factor cost, s = subsidies, iT = indirect taxes.

However, both GNP and GNP_{fc} are in nominal values, which are highly sensitive to the rate of inflation. To net-out the effect of effect of inflation, GNP is adjusted by the price level to reflect the real GNP, as in (3.4) below;

$$gnp = GNP/p \quad \text{.....} \quad (3.4)$$

Where, p = price index / price level

However, the real national income (gnp) is a measure of the overall performance of the economy without any information on the welfare of the citizens in the economy. To discern the individual welfare in the economy, we need the value of the GNP per capita; which is gnp divided by the population in the economy. This is shown in equation (3.5) below,

$$\text{GNP per capital } (y) = gnp/N \quad \text{.....} \quad (3.5).$$

Where, N = population

From equation (3.5) and (3.6) the growth rates of gnp (g^0) and gnp per capital (y^0) are given as: the growth rate for GNP (Y^0) minus the rate of inflation (Π^0) and growth of gnp (g^0) minus growth rate of population in the economy respectively as shown in (3.6) and (3.7) below.

$$g^0 = (Y^0 - \Pi^0) \quad \text{.....} \quad (3.6)$$

$$y^0 = (g^0 - N^0) \quad \text{.....} \quad (3.7)$$

Thus, from (3.6) and (3.7), the growth rate of real GNP and nominal GNP will be the same if the rate of inflation equals to zero and that of real per capita income will be equal to the real GNP if population growth rate is zero. Intuitively, the growth rate of per capital GNP will be equal to the growth rate of nominal GNP if inflation rate and population growth rate are jointly equals to zero.

3.1.2 Economic Growth, Measurement and Accounting

The concept of economic growth is not new in literature. It was however conceived differently at different periods in the history. According to the mercantilists, growth was seen as an increase in the total amount of specie that is circulating medium such as silver and gold, under the control of the state. While the physiocrats, conceived economic growth to be a derivative of an increase in the productive capacity (Wikipedia 2006).

Conventionally, economic growth is the increase in the value of goods and services produced by an economy. In the same vein, Henderson and Poole, (1991) pointed out that economic growth means two things. First, an increase in national output, as measured by the GNP or GDP; second; growth in individual standard of living or size of each person's slice of pie, as measured by the GNP per capita.

The first, measured economic power as in (3.6) while the second,

measures the well being of the people as in equation (3.7)

$$g^0 = (Y^0 - \Pi^0)\ldots\ldots\ldots\ldots\ldots \quad (3.6)$$

$$y^0 = (g^0 - N^0)\ldots\ldots\ldots\ldots\ldots \quad (3.7)$$

As noted earlier, from the above (3.6 and (3.7) the two measures of economic growth depend on the rate of nominal GNP (Y^0), rate of inflation (Π^0) and the population growth rate (N^0). However, by substitution, the real per capita growth rate (Y^0) can be represented by (3.8) below.

$$y^0 = [Y^0 - (\Pi + N^0)]\ldots\ldots\ldots\ldots\ldots \quad (3.8)$$

From (3.8) it can be deduced that improvement of the standard of living of people in an economy depends on the deviation between the growth rate of GNP and the sum of the inflation rate and population growth rate. If

($\Pi^0 + N^0$) equals Y^0, the standard of living remains constant and when ($\Pi^0 + N^0$) exceeds Y^0, the standard of living falls.

Thus, it implies that, to increase the standard of living of people in an economy, the rate of inflation and population growth rate must be controlled.

However, the two measures of growth had been criticised on the ground that, they neither provide information on the distribution of income nor take into account the externalities resulting from economic activities. They equally exclude activities that take place outside the market place and unpaid for services.

Despites these deficiencies, the GDP is universally accepted as an indicative of economic performance by economists.

Meanwhile, the precious issue here is that; what are the sources of growth? Henderson and Poole (1991) distinguished two types of growth based on different sources. They are;

(i) Extensive growth

(ii) Intensive growth

Extensive growth is the growth in output resulting from increase in inputs (the first part).It is measured as growth rate of inputs multiplied by their respective output shares. While intensive growth is the growth that results from improvement in factor quality, technology and efficiency of markets and institution. This is growth in existing factors productivity (second part) or what is known as technical progress.

The sources for the extensive growth are growth in factor inputs (labour and capital). While the sources for intensive growth include advances in knowledge (technological break through a better educated labour force, improved resources allocation and economics of scale Dennison (1967); Henderson and Poole (1991).

The technical analysis of sources of economic growth is best captured in the mechanics of growth accounting. According to Jhingan (1997), growth accounting refers to the breaking down of the rate of growth of total output of an economy into contribution from the growth of inputs (labour and capital) and technical progress.

Similarly, Soludo and Kim (2003) described growth accounting as a mechanical decomposition of output growth into total factor productivity growth and factor accumulation that may be the result of economic development per se rather than it true source. Thus, growth accounting can be said to mean the act of decomposing sources of the over all growth into intensive and extensive growth.

To explain the mechanics of growth accounting, the following aggregate production function (3.9) was considered, with two inputs (labour and capital), Hicks – neutral technical progress, perfect competition and constant returns to scale.

$$Y(t) = A(t)\ f(K(t)\ L(t)) \quad \ldots\ldots\ldots \quad (3.9)$$

Where Y(t) = Aggregate output in the economy

(GDP)

A(t) = Total factor productivity

K(t) = Capital stock in the economy

L(t) = Labour in the economy

t = Denotes time

Assuming, A(t) grows exponentially or a steady autonomous shift in the production function, we can write it as;

$$A(t) = A(o)e^{\lambda t} \ldots\ldots\ldots\ldots \quad (3.10)$$

Where A(o) = Value of A at time zero

λt = growth rate of A

From equation (3.9) the growth rate of the aggregate output (ry) can be expressed as;

$$ry = \lambda + \eta_k kr + \eta_L 1r \ldots \quad (3.11)$$

Where, η_k and η_L are the output elasticity of capital and labour respectively. Kr and 1r are the growth rates of capital stock and labour. Thus, equation (3.11) shows the sources of economic growth, which is the sum of what is termed as intensive growth (λ) and extensive growth ($\eta_k kr + \eta_L 1r$) (Henderson and Poole, 1991).

Following the specification of equation (3.11), the "Solow residual" or technical progress or total factor productivity growth (λ) is given in (3.12) below,

$$\lambda = [ry - (\eta_k kr + \eta_L 1r)] \ldots\ldots\ldots\ldots \quad .(3.12)$$

Equation (3.12) reflects all sources of growth rather than factor accumulation (input growth). Hence, it is often termed as "our measure of ignorance". Possible factors that could result to this component of growth include the effects of resource allocation political and macroeconomic stability, climatic change, openness or trade policies and institutional factors (Soludo and Kim 2002).

However, the definitions of source of growth equation (3.11) and Solow residual in (3.12) depends on the assumptions on technical progress. If technical progress is labour augmenting then (3.9) can be re-written as

$$Y(t) = f(K(t), E(t),) \quad \ldots\ldots\ldots\ldots\ldots \quad (3.13)$$

Where, L(t) = effective , labour

E(t) = A(t) L(t)

A(t) = Effectiveness of labour

Then the source of growth equation will be re-written as

$$ry = \eta_k kr + \eta_E [1r + \lambda] \ldots\ldots\ldots\ldots\ldots \quad (3.14)$$

In this case, λ is the exogenous rate of growth of labour productivity. While technical progress operates through the elasticity of output with respect to labour (Branson 1989).

Empirical application of growth accounting framework was pioneered by Abramovitz (1956), Solow (1957) and Denison (1967 in the United States. Solow (1957)'s conclusion was that technical progress accounts for about 87.5 percentage of US growth between 1909 and 1949.

Meanwhile young (1995) used the same framework to argue that the growth miracles of the newly industrializing countries of east Asia is almost entirely due to rising investment, increasing labour force participation and improving labour quality as against technical progress in the developed countries.

3.1.3 Export-Led Growth

Export led growth implies that export stimulate economic growth. This proposition dates back to the mercantilists, to whom trade was the only means to accumulate wealth and achieve economic growth. It was later formalized by Adam Smith.

Growth is said to be export-led when it is stimulated by a substantial increase in the export of a particular product. The hypothesis is based on the premises that exports expansion is associated with some positive externalities such as technological spill over, specialization, economies of scale greater access to market and better allocation of resources which lead to improved factor productivity as discussed earlier.

In line with above, Iyoha (1995) argues that export expansion can lead to economic growth through stimulating technical change and investment or by spilling demand over into other sectors. He further argues that the demand and supply responsiveness of the export commodities determine the success of export-led growth.

3.1.3 Concept of Openness

The concept of openness can be perceived as synonymous with the idea of neutrality in trade policy (Ekpo 1995). Neutrality by implication means equal incentive between saving a unit of foreign exchange through exports. The equality relates to average incentives for import substitutes and exports.

Thus, a trade regime is seen as “open” if, it tends to reduce the inequality in the average incentives to import and export.

However, while economists generally agree on how to measure aggregate economic performance; there is no consensus on what constitutes openness (Ekpo 1995).

Some of the existing measures of openness are presented in Table (5) below as adapted from Ekpo 1995 and Ogujiuba et al (2005).

Table 5: Measure of Openness

S/No	Measures	Definition
1.	Trade Dependency Ratio	The ratio of export and imports (total trade) to GDP (Open = $\frac{X + M}{Dy + X - M}$ Where, X = value of all export M = value of all imports Dy = total domestic consumption and investment (public and private sector). Open = Trade dependency ratio
2.	Growth rate of Export	The growth rate of exports over the specified period
3	Tariff Averages	A simple or trade weighted average of tariff levels
4.	Collected Tariff Ratio	The ratio of Tariff revenue to imports
5.	Coverage of quantitative restriction	The percentage of goods covered by quantitative restriction
6.	Black market premium	The black market premium for foreign exchange, a proxy for the over all degree of extent of sector distortion
7.	Trade Bias Index	The extent to which policy increases the ratio of importable goods prices relative to exportable goods prices compared to the same ratio in the world markets
8.	Sachs and Warner index	A composite index that uses several trade related indicators, tariffs, quota coverage, black market premium, social organization and the existence of export marketing boards
9.	Learner's Openness index	An index that estimates the difference between the actual trade flows and those that were expected from a theoretical trade model

Source: Ekpo 1995 and Ogujiuba et al (2005).

None of these measures is devoid of methodological problems (Ekpo 1991, Pritchet 1991). Hence the choice of measure in empirical analysis depends partly on availability of data. Conclusions drawn from the use of any one of the measures cannot be depended upon unless supported by other measures.

3.2 Growth Models

3.2.1 Exogenous Growth Models

Exogenous growth model is an extension of Harrod – Domar model which assigned a key role to investment in the process of economic growth in the long run. Exogenous growth model sums up the contributions of various authors to a model of long run economic growth within the frame work of neoclassical economic (Wikipedia 2006). Hence, it is other wise called neoclassical growth theory or Solow model.

Robert Solow, the best known contributor in 1956 extended the Harrod – Domar model by adding labour as an input and a time varying technology in the production function. It is further assumed that the production function is characterized by diminishing returns, constant returns to scale and a labour augmenting technical progress. Given these assumptions equation (3.9) can be re-written as

$$Y_t = f [K, A(t) L(t)], \quad \ldots \quad \ldots\ldots\ldots\ldots \quad (3.15)$$

where, t denotes time

The intensive form of equation 3.30 is given as

$$Y = f (k) \quad \ldots\ldots\ldots\ldots\ldots \quad (3.16)$$

Where, y = Y/AL (output per effective labour)

k = K/AL (capital per effective labour)

Assuming a closed economy without government and that (3.16) satisfies the inada conditions that is

$f^{1}(k) = \infty$, $f^{1}(k) = 0$

$\text{Lim}k \rightarrow o$ $\text{Lim}k \rightarrow \infty$

Where, $f^{1}(k)$ is the first derivative of y with respect to k. Output (Y) in (3.15) is divided between consumption I and investment (I) as in,

$Y = C + I$ ..... (3.17)

Where, $I = sY$ ..... (3.18)

If the fraction of output devoted to investment δ is exogenous and constant. If one unit of output devoted to investment yield one unit of new capital while old capital depreciated by δ, the growth rate of capital stock is given as;

$K^{o}(t) = s(Yt) - \delta (kt)$..... (3.19)

While the growth rate of capital per effective labour (K/AL) is given as,

$K^{o}(t) = sf (kt) - (n + g + \delta)k(t)$ .....(3.20)

Where, n and g are the growth rates of labour and effectiveness of labour (technical progress).

Equation (3.20) which is fundamental to Solow model states that, the rate of change of the capital per unit of effective labour is the difference between actual investment sf (k) and the break even investment $(n + g + \delta)k(t)$.

Given equation (3.20) it implies that, when sf (k(t) > (n + g + δ)k(t)), the capital per effective labour is increasing, so also output per head (y). When sf (k(t)) < (n + g + δ)k(t)), there will be falling capital per worker leading to fall in output per worker (y) and consequently moving the economy to "steady state" i.e where, sf (k(t)) = [(n + g + δ)k(t)].

Given the analysis and assumptions above, Solow model concludes that;

i. Regardless of the starting point the economy converges to a balance growth path or steady state where all variables in the model grow at constant rate.

ii. Only changes in the rate of technical progress have a growth effects, all other change including savings rate have level effects.

Thus the general conclusion of the Solow long run growth of a country depends on growth in factor productivity (exogenous technical progress) (Lopez 1991, Soludo and Kim 2002), as against, investment in the Harrod – Domar model.

The model however, failed to explain the determinants of technical progress. That is how and why it occurs. It also failed to take account of the roles played by entrepreneurship and strength of institution in growth. Attempts to endogenise the determinants or sources of technical progress led to the development of endogenous growth models in 1980s.

3.2.2 Endogenous Growth Models

Endogenous growth models or new growth theories have taken the centre stage in the 1980s. This, as earlier mentioned, follows the dissatisfaction with the neoclassical models on both theoretical and

empirical grounds (Dornbutch et al 2004). The line of thinking in these models is that growth can be generated without relying on exogenous factors such as changes in technology or population (Ncube 1999). Endogenous factors such as government policies, political stability and market distortions are often cited as sources of economic growth (Ncube 1999).

Although the mathematics of endogenous models can be found in Lucas (1989) and Romer (1987), the models endogenised technical progress and incorporated human capital into the aggregate production function. The most appealing way to arrive at the endogenous growth is to introduce human capital as a variable into the production (Rebelo, 1991) as in equation (3.21) below which is a log-linear transformation of the Cobb-Douglas production function.

Log Y = a*logK + b*LogL + c*LogH..... (3.21)

(a+ c=1)

Where, H is human capital, then the sum of the exponents on the reproducible factors of production, K and H, is one and there will be constant returns to accumulation given that, as we might expect, in equilibrium the ratio of K to H is constant.

Other assumptions on the production function include;

i. Constant marginal product of capital

ii. Labour augmenting technical progress

iii. Increasing returns to human capital

Given these set of assumptions, the conclusions of the endogenous growth models contrasted those of neoclassical models. They are;

i. Economies never reach a steady state

ii. Growth does not slow with increasing capital

iii. Convergence to "steady state" is conditional as against absolute convergence in the neoclassical growth models.

Meanwhile, the main failing of this group of models is their collective failure to explain non-convergence. More so, empirical evidence suggests that endogenous growth models have proven no more successful than their predecessor in explaining the income divergence between the developing and developed world.

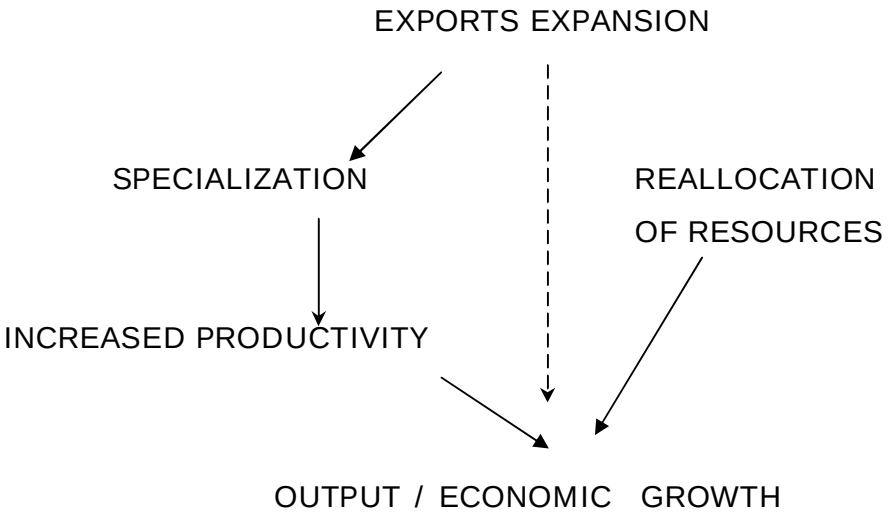
3.3 Export-Led Growth Hypothesis (ELGH)

Export-Led Growth Hypothesis is founded on the beneficent effects of trade as argued in various trade theories. Export-Led Growth hypothesis is a part of the product and industry life cycle hypothesis describing economic growth that begins with the export of primary product (Giles and Williams 2000).

Krugman (1987) argues that export expansion leads to an increase in the demand for a country's output, which in turn increases real output. The export expansion may also lead to economic growth through the Verdoon's Law which states that: productivity change resulting from specialization in the production of goods due to exports, via the enhancement of skills in the sector and reallocation of resources from inefficient towards more efficient sectors, may lead to economic growth (Giles and Cara 1999; Kouassi et al 2004). Furthermore, Export expansion gives access to new technologies and new management practices that are essential for economic growth (Kouassi et al 2004).

The main arguments of scholars who advocate the Export – Led Growth hypothesis can be summarized in the figure below as adapted from (Kouassi et al 2004)

Figure 5: A Schematic Description of the ELGH



From the diagram above, it is clear that export expansion promotes specialization, which in turn boasts productivity since the country will have access to new technologies and better management practices. While the increased productivity causes a re-allocation of a country's scarce resources to more efficient sectors of the economy and thus causing GDP growth.

In sum, ELGH is based on a channel of impacts starting from specialization, increased productivity to economic growth.

The implications of the hypothesis are; that for export expansion to result into GDP growth,

i. It must facilitate specialization

ii. It must increase productivity of factor inputs

iii. It must result into re-allocation of resources

iv. It must enhance accessibility to new and better technologies

v. It must be followed by favourable demand condition abroad

3.3.2 Other Views

There is no general agreement on the export led growth hypothesis (Kouassi 2004). The other views on the possible relationship between export and economic growth are categorized into four. They are

i. Growth leads to export expansion

ii. A feed back relationship exist between export and growth

iii. No relationship exist between export and growth

iv. Export inhibits growth

Scholars such as Lancaster (1980) and Krugman (1987) held the first views they argued that contrary to ELGH, economic growth leads to export expansion. It is argued that GDP growth leads to enhancement of skills and technology, which facilitates exports (Kouassi et al 2004).While studies such as Bhagwati (1988) and Helpman and Krugman (1985) argued for a feedback relationship between export and economic growth. They posited that export expansion resulting from productivity gains and economics of scale leads to costs reduction, which in turns leads to further productivity gains. The productivity rise will lead to further rise in export and so on. That is a bi-d directional causality between export and growth.

The third view suggests that, there is no relationship/causality between the variables the two variables (export and economic growth) are determined completely by different variables.

Finally, the fourth view, which claimed that exports inhibit economic growth, is conditional. This is the case where, the export sector stands to

compete with other sectors of the economy. Other reasons for such relationship include stringent demand and supply conditions in an economy.

The lack of consensus on the views about the relationship between export and growth propelled the increasing research interest and empirical investigations on the relationship between the variables. These are done using different criteria; methods and setting.

3.4.0 Empirical Studies of Export-Led Growth Hypothesis

Several empirical studies were under taken on the relationship between exports and economic growth, in an attempt to confirm the export-led growth hypothesis (ELGH). These are done with respect to group of countries and individual countries.

A number of these studies are reviewed here. The review is structured to consider the cross-country studies, other individual countries studies and studies on Nigeria.

3.4.1 Cross Country Studies

Kouassi et al (2004) attempted a cross-country investigation of the export-led growth hypothesis using a sample of ten developed countries and ten developing countries. The selection was based on availability of data and openness to international trade.

The selected developed countries are; Australia, Canada, Germany, France, Italy, Japan, Netherlands, Spain, United Kingdom and United States. While the developing countries include, Mexico, South Africa, Brazil, India, Indonesia, Israel, Argentina, Korea, Thailand and Venezuela. **See Appendix (II**) for the sample periods.

The study considered three econometric approach time series models for individual country analysis, panel data model for group of countries analysis and the Seemingly Unrestricted Regression Model (SUR) which allows parameters to vary across countries.

The time series models adopted include; ADF unit root test, Johansen Julius co-integration test and Granger causality tests. At panel level, the panel unit root tests conducted includes (i) the Im-pesaran-shin (IPS) (ii) the

levin-lin chu (ILC) (iii) the MADF and (iv) the HARDI, while the levin-lin, the pedroni and IPS panel cc-integration tests were adopted. Also, adopted in the study at panel level are; the common, fixed and random effect panel data models.

The findings of the study show that at individual level a secular long run relationship exist between export and GDP in only two developed countries (the Netherlands and U.S.A) and four developing countries (Argentina, India, Israel and Venezuela). While at panel level the evidence is only in favour of the developing countries for such a long-run relationship.

However, the results of the Granger causality are mixed at individual country level as well. For developing countries evidence suggest that export-led growth hypothesis hold for Argentina, Israel, Thailand and Venezuela while Growth-Led export holds for India, Indonesia, Israel and Venezuela. On the other hand, for developed countries, the export-led growth hypothesis holds for Italy, United States and United Kingdom while Growth-Led export hypothesis hold for Canada, Germany, Japan, United Kingdom and U.S.A.

Finally, at panel level, the results clearly support the Growth-led export hypothesis for both samples of countries regardless of the model (common, fixed and random effects models) and reject the export-led growth hypothesis only for developed countries.

What the results suggest is that there is a long-run correspondence between export and GDP in developing countries than in developed countries. These developing countries have to rely on more exports leading to an inevitable impact on growth.

Although, at panel level the result seemed to support the export-led growth hypothesis for developing countries, the mixed results at individual country level suggest that exports or GDP cannot be taken as fully exogenous variables. Thus policies that could improve export capacities and productivity should be applied complementarily.

Meanwhile, the study's findings further cast doubt on generalizing the support for other export led growth or Growth-led export hypothesis using panel data.

Closely, related to Kouassi et al (2004) is Al Yousif (1997), which examines the case of four Arab Gulf States (Saudi Arabia, Kuwait, Iran and Iraq). The study used the time series data between 1973 to1993 on GDP, the proxies of the traditional inputs (labour force and capital (GDI/GDP)), exports and export change-GDP ratio.

The estimated model, which follows from an aggregate conventional production function, include, Exports ad export change – GDP rates as additional explanatory variables. The econometric techniques adopted for the study are; ADF unit root test and white test while OLS method of estimation is used.

The study's findings supported the export-led growth hypothesis in the short run. Meanwhile it failed to find any long-run relationship between the variables.

3.4.2 Case Country Studies

At individual countries level, several empirical studies on the export-led growth hypothesis abound, with inconsistent evidence emanating from them on the whole.

For instance, Serletis (1993) investigated the Canadian case between the period of 1870 to 1985, using time series data on real GDP, real export and import for the country. He adopted ADF unit root tests and his findings support the Export-led growth hypothesis in the short run, but no co-integration between the variables was found.

This result is partly incongruent with Kouassi et al (2004) where Growth-led export hypothesis was supported.

Khan and Sagib (1993) examined the export-led growth hypothesis in Pakistan using times data on GDP, real export (primary products and manufactured goods) spanning from 1972 to 1988 for the country.

The estimated model roots from augmented production function as AL-Yousif (1997) but was estimated using three stage least square method the result supports a strong association between exports and growth performance.

In Paraguay, a Latin American country, Richards (2001) examined the validity of the Export-led growth hypothesis for Paraguay. The study covered the period of 1966 to 1996. This study was poised by the export expansion in the country in 1980s.

The study broadly used the modern time series methods (ADF unit root test, Granger causality tests, co-integration analysis and Error correction modeling) and a simultaneous equation model to investigate the

structural interrelationships between GDP/output and the determinants of growth (labour, capital and openness indices).

For the Granger, causality test, the study modified the Granger methodology employed by Bahamani-Oskooee at al (1991) which is as follows;

$$GRY_t = a + \sum_{i=1}^{k} \propto i\ GRYT_{1-t} + \sum_{i=1}^{k} \beta i\ GREX_{t-i} + Ut \ldots$$

$$GRY_t = b + \sum_{i=1}^{K} Yi\ GREXt\text{-}i + \sum_{i=1}^{K} \lambda i GRY_{t-i} + Ut \ldots$$

Where GRY_t = Economic growth

GRE_t = Export growth

t = Period

i = 1,2,3, ...

The test statistic is given as;

$$F = \frac{(SSEr - SSEu) / n}{SSEu / (T-(m+n+i))}$$

Where SSEr = Sum of Squared of residuals of the restricted model under the test of the hypothesis that, either $\sum Bi$ and $\sum \lambda i = 0$,

SSEu = the sum of squared residuals of the unrestricted models.

The decision rule is that there exist causality between the variables if the $\sum \beta i$ or/and $\sum \lambda i$ re significantly different from zero.

On the other hand, the estimated simultaneous equation model (SEM) takes the following form.

$GY = a_0 + a_1Ex + a_2ITY + a_3GLF + a_4\ GLAND + u_1$
$EX = b_0 + b_1INDEX + b_2COMCON + b_3EXPR + u_2$
$ITY = c_0 + c_1SY + c_2GPCY + c_3DFI + c_4DEF + u_2$

Where, GY = Economic growth taken as growth of GDP and GNP net Exports in the estimated models

Ex = Economic Openness proxied by the growth rate of Exports and growth of the share of Export to GDP in the estimated models.

ITY = Investment-GDP ratio

GLF= Growth rate of labour force, GLAND = Growth rate of cultivated land, SY = saving rate, GPCY = Growth of per capita income, DFI = Foreign direct investment, DEF = Government deficit finance, INDEX = Index of trading partner economic, COMCON = the ratio of commodity concentration and EXPR = Relative Export prices Export / Import

The result of the Error Correction Model reveals that more rapid economic growth has had a stimulating effect on the long run on the export share of national product. Meanwhile, no strong evidence supports the reverse of the link. While the Granger causality test results failed to support the ELG hypothesis instead suggests that, the export sector stands in a competitive relationship with the economy at large.

Similarly, the most salient result for the SEM is that, while Export share is directly related with economic growth measured as (GDP), the contrary was the case of other models which used GNP net Export as the measure of economic growth to adjust for the correlation bias raised by Sheehey (1990).

This contradiction cast doubt on the plausibility of Export-led growth hypothesis for Paraguay since the result suggest that despite the important role of export in the country's economic growth, the export sector does not seem to impart growth dynamics to other sectors of the country's economy.

The conclusion drawn from the study is that Export-led growth hypothesis does not appear applicable in Paraguay as in other developing countries. Such as India, Indonesia, Venezuela and Israel as found in Kouassi at al (2004).

3.4.3 Nigerian studies

In Nigeria, empirical studies in this area are grouped into three based on their aggregativeness, nature of variables used and conclusions (**see appendix IV)**

Studies such as Fajana (1979), Obadan (1984), Iyoha (1995) and Adama (1999) which examined the impacts of exports on economic growth at the aggregate level supported the plausibility of the export led growth hypothesis in Nigerian context.

However, a bi-directional causality was established by Odusola and Akinlo (1995) between Nigeria's exports and Gross Domestic Product (GDP). This suggests the possibility of an interactive relationship between export and GDP. It also raised modelling issues on export – led growth hypothesis in Nigeria.

Contrary to the above conclusion the use of openness indices to study the link between exports and economic growth in the country produced mixed and inconclusive results. These studies which include; Ekpo (1995), Okoh (2003), Ogujiuba at el (2005) at the aggregate level Indicated that openness had been detrimental to Nigeria's economic growth in both the short and long run, while in some, export was still seen as having a positive influence on economic growth e.g. Ekpo (1995).

Similarly, conflicting conclusions also appeared in most of the recent sectoral studies in the country. These include Adebiyi and Dauda (2004). While the export-led growth hypothesis was supported based on the real export and openness to the trade and trade liberalization were found to have had a negative and manufacturing output.

Generally, the conclusions were mixed, thus making it empirically difficult to know what conclusion to hold on the plausibility of the export led growth-led hypothesis is Nigeria.

3.5 Implications of the Reviewed studies for the Current Study

The reviewed studies came out with mixed results predicating the need for further studies. For instance, previous studies on Nigeria that used real export found a significant positive influence of export on the Nigeria's economic growth. While studies that adopted other measures of openness came out with mixed and ambiguous results (Ekpo 1995). Thus making the evidence for the validity of the export led growth hypothesis inconclusive as well as policy prescriptions based on this.

The conflicting results are partly explained by the structural pattern of the models adopted and the differences in the measurement of variables included in them. It may partly be linked to the problem of conceptualisation that surrounds economic openness index. For instance, the use of trade dependency ratio, that is (exports + imports divided by GDP + (Exports – imports)], expresses openness as a positive function of trade deficit. An economy with greater imports is more open than one with higher exports. While openness measured as share of total trade to GDP, makes it positively and jointly dependent on exports and imports. Contrarily,

openness expressed as the growth rate of exports or export share of GDP disconnects any relationship between imports and openness. Therefore, the tendency for different indices of openness to have different effects on growth is manifest in the concept itself.

The use of uni-directional structural models in the previous studies was inappropriate in modelling exports and growth, following the evidence of the interactive relationship between the trade and growth variables pointed out by Odusola and Akinlo (1995) for Nigeria and Kouassi et al (2004) for a set of developed and developing countries. Hence, this could have contributed to the inconclusiveness of existing evidences about the true relationship between export and growth in Nigeria.

More so, the conflicting results especially from the use of openness indices also suggest the possibility of an interactive relationship between trade and growth variables openness indices such as trade depending ratio adopted in Ogujiuba et al (2004) contains more than one trade variables. Each of which might have a counteracting impacts on growth. Thus over all, the relationship might be a reflection of the impact of the most dominant variable in the index.

The differences in the timing of the study could also have contributed to the conflicting results. Given the turn around of trade polices towards greater liberalization since 1986, with most studies covering less recent year.

Apart from the conflicting results in the previous study, almost all the reviewed studies concentrated on the aggregative impact of exports on economic growth. Although Alege and Ogun (2004) and, Adebiyi and Dauda

(2004), undertook a sectoral analysis, but still inclined to the effect of aggregate exports on the sectors. This implies that, little is known on the impact of the sectoral exports on sectoral growths in Nigeria

The current study therefore, derives from the previous ones in order to stretch further, the investigation on the export led growth hypothesis with a view to cover some of the identified gaps. This study adopts a non-structural vector autoregression models (VAR), which allow the data to speak on the true relationship between exports and economic growth in Nigeria. This is not only theoretically unrestrictive but also gives room for generating the appropriate model(s) that could fit in the modelling of the export led growth hypothesis.

The model also allows for an empirical investigation of the impacts of shocks in exports on the economic growth and the reverse, which cannot be determined from a structural model.

The choice of the model becomes necessary as theoretically founded models came out with conflicting results.

However, since the problem with the appropriate measure of openness is conceptual, it solution then, lies outside the limit of this study.

Other innovations in the current study are the inclusion of human capital development index proxied by federal government capital expenditure on education. It is included as a source of technical progress in line with the endogenous growth theory.

Chapter Four

Methodology

4.0 Introduction

This Chapter begins with a discussion of the Vector Autoregressive (VAR) model, its general and specific specifications for the current study. This was followed by Vector Error Correction Model Specification and presentation of Granger Causality model. It also discussed the data, their sources, and the time series properties of the series. Finally, the Econometric soft ware used in the study.

4.1 The Vector Autoregressive Model

The adoption of Vector autoregressive model is founded on the main failing of the structural models. The specifications of structural models are based either (formally or informally) on economic theory (pyndick 1998)

Unfortunately, the disagreements on what the right theory is, or the complexity of some theories often complicates model specification by researchers. More so, the paradigm of parameter constancy underlying the systems of structural equations approach to macroeconomic modelling is arguably fundamentally flawed (Lucas 1976, Greene 2003)

This is because even appropriate parameters are bound to change with changes in macroeconomic policy or environment.

Therefore, there are times when it becomes necessary to give room for flexibility in model specification to allow the data to speak. The Vector Auto regression (VAR) is often a means of doing this. It side-steps theoretically based structural constraints in econometric modelling.

Most importantly, the VAR is not only appropriate for the purpose of analysis and forecasting macroeconomic activity and tracing the effects of policy changes and external stimulus on the economy, researchers have found that simple small scale VARs without a possibly flawed theoretical foundation have proved as good as or better than large scale structural equation system (Greene 2003)

Apart from forecasting, VAR is used to determine the effects of shock transmission among variables or economic policy through the impulse responses characteristics and forecast variance decomposition (Adebiyi, 2004; Greene, 2003)

One of the virtues of the VAR model is that it has only lagged (predetermined) variables on the right hand side and all variables are endogenous (Greene, 2003, Pyndick, 1998 and Gujarati 2003). Thus a VAR serves as a flexible approximation to the reduce form of any wide variety of simultaneous equations (Adebiyi, 2004)

4.1.1 The Vector Autoregressive (VAR) Model Specification

The Vector Autoregressive Model (VAR) adopted in the study follows the work of Sim (1980): cited in Gujarati (2003) .The general form of the model is given by (4.1- 4.4) and in compact form by (4.5) and (4.6) below. For this study there are six variables which form the system of VAR mode consisting of a set six equations (see equations (4.7-12)) below.

$$x_{1,t} = a_{10} + \sum_{j=1}^{P} a_{11j} x_{1,t-j} + \sum_{j=1}^{P} a_{12j} x_{2,t-j} + \ldots\ldots\ldots\ldots + \sum_{j=1}^{P} a_{1nj} x_{n,t-j} + \varepsilon_{1t} \ldots\ldots\ldots\ldots (4.1)$$

$$x_{2,t} = a_{20} + \sum_{j=1}^{P} a_{21j} x_{1,t-j} + \sum_{j=1}^{P} a_{22j} x_{2,t-j} + \ldots\ldots\ldots\ldots + \sum_{j=1}^{P} a_{2nj} x_{n,t-j} + \varepsilon_{2t} \ldots\ldots\ldots\ldots (4.2)$$

$$x_{3,t} = a_{30} + \sum_{j=1}^{P} a_{31j} x_{1,t-j} + \sum_{j=1}^{P} a_{32j} x_{2,t-j} + \ldots\ldots\ldots\ldots + \sum_{j=1}^{P} a_{3nj} x_{n,t-j} + \varepsilon_{3t} \ldots\ldots\ldots\ldots (4.3)$$

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$$x_{n,t} = a_{n0} + \sum_{j=1}^{P} a_{n1j} x_{1,t-j} + \sum_{j=1}^{P} a_{n2j} x_{2,t-j} + \ldots\ldots\ldots\ldots + \sum_{j=1}^{P} a_{nnj} x_{n,t-j} + \varepsilon_{nt} \ldots\ldots\ldots\ldots (4.4)$$

x_{it} = Endogenous variables in the respective equation

n = Number of endogenous variables in the VAR

$\sum$ = Summation notation

ε_{it} = White noise innovations

$a_{10}, a_{20,\ldots\ldots\ldots\ldots} a_{n0}$, are intercepts

$a_{1ij}, a_{2ij}, a_{3ij} \ldots\ldots\ldots\ldots a_{nnj}$. , are coefficients of the respective equations

$\forall$ j =1, 2, 3 ... P and i =1, 2, 3..... n

p = Lag length

In a more compact form, the VAR presented in equations above, is given as;

$$X_t = A_o + A_j X_{t-1} + \dots\dots + A_P X_P + \varepsilon_t \dots\dots \quad (4.5)$$

$$X_t = A_o + \sum_{j=1}^{p} A_j X_{t-j} + \varepsilon_t \dots\dots \quad \dots\dots \quad \dots\dots$$

(4.6)

X_t = n × 1 vector of endogenous variables

A_o = n × 1 vector of intercepts

A_j = n × n matrix of Autoregressive coefficients

X_{t-j} = n × n matrix of explanatory variables

ε_t = n × 1 vector of innovations

For the current study as stated earlier, a VAR model of six variables is given as set of six equations, presented in the equations (4.7-12) below. Equation (4.7) is the estimating equation for the Gross Domestics Product; Equation (4.8) is for the oil exports, while equation (4.9) is for the Non-oil exports. Equations (4.10-12) are for Capital, Imports of Capital and Human Capital Development index respectively. Each variable is expressed as the linear combinations of its lagged values and lagged values of other variables in the model.

$$Y_t = a_o + a_1 Y_{t-1} + a_2 Y_{t-2} + a_3 X_{i,t-1} + a_4 X_{1,t-2} + a_5 X_{2,t-1} + a_6 X_{2,t-2} + a_7 K_{t-1} + a_8 K_{t-1} + a_9 M_{t-1} + a_{10} M_{t-2} + a_{11} H_{t-1} + a_{12} H_{t-2} + \mu_{1t}$$

……. (4.7)

$$X_{1,t} = b_o + b_1 Y_{t-1} + b_2 Y_{t-2} + b_3 X_{i,t-1} + b_4 X_{1,t-2} + b_5 X_{2,t-1} + b_6 X_{2,t-2} + b_7 K_{t-1} + b_8 K_{t-1} + b_9 M_{t-1} + b_{10} M_{t-2} + b_{11} H_{t-1} + b_{12} H_{t-2} + \mu_{2t}$$

……. (4.8)

$$X_{2,t} = c_0 + c_1 Y_{t-1} + c_2 Y_{t-2} + c_3 X_{i,t-1} + c_4 X_{1,t-2} + c_5 X_{2,t-1} + c_6 X_{2,t-2} + c_7 K_{t-1} + c_8 K_{t-1} + c_9 M_{t-1} + c_{10} M_{t-2} + c_{11} H_{t-1} + c_{12} H_{t-2} + \mu_{3t}$$

…… (4.9)

$$K_t = d_0 + d_1 Y_{t-1} + d_2 Y_{t-2} + d_3 X_{i,t-1} + d_4 X_{1,t-2} + d_5 X_{2,t-1} + d_6 X_{2,t-2} + d_7 K_{t-1} + d_8 K_{t-1} + d_9 M_{t-1} + d_{10} M_{t-2} + d_{11} H_{t-1} + d_{12} H_{t-2} + \mu_{4t}$$

…… (4.10)

$$M_t = e_0 + e_1 Y_{t-1} + e_2 Y_{t-2} + e_3 X_{i,t-1} + e_4 X_{1,t-2} + e_5 X_{2,t-1} + e_6 X_{2,t-2} + e_7 K_{t-1} + e_8 K_{t-1} + e_9 M_{t-1} + e_{10} M_{t-2} + e_{11} H_{t-1} + e_{12} H_{t-2} + \mu_{5t}$$

…… (4.11)

$$H_t = f_0 + f_1 Y_{t-1} + f_2 Y_{t-2} + f_3 X_{i,t-1} + f_4 X_{1,t-2} + f_5 X_{2,t-1} + f_6 X_{2,t-2} + f_7 K_{t-1} + f_8 K_{t-1} + f_9 M_{t-1} + f_{10} M_{t-2} + f_{11} H_{t-1} + f_{12} H_{t-2} + \mu_{6t}$$

…… (4.12)

Y_t = GDP of Nigeria measured at 1984 constant Factor Prices,

$X_{1,t}$ = Oil exports,

$X_{2,t}$ = non –oil exports,

K_t = Capital proxied by Gross capital formation,

M_t = Capital import proxied by imports of Machineries and Chemical,

H_t = Human capital development index proxied by Federal Government Capital Expenditure in Education

$a, b, c, d, e, and \quad f$, are parameters to be estimated while $\mu_1, \mu_{2,}, , , , , , , , , \mu_6$, are white noise innovations

4.1.2 The Vector Error Correction Model Specification

Engle and Granger (1987) points out that a linear combination of two or more non-stationary series may be stationary (Eview Version 3.0). If such a stationary or I(0) linear combination exists, the non- stationary series are said to be cointegrated. The stationary linear combination is called the cointegration equation interpreted as the long run relationship.

To investigate whether this long run relationship exists between Nigeria's economic growth and exports, Augmented Dickey Fuller (ADF) and the Phillips Perron (PP) test were used to determine the order of integration while Johansen (1988) test for cointegration was used to determine the number of co integrating equations. When the variables are integrated of order one or more, estimation of unrestricted VAR as in section (4.1.1) presented in equations (4.7-12) is subject to the hazards of regression involving non –stationary variables. In order to avoid this, a restricted VAR is often specified as Vector Error Correction Model (VECM) to incorporate the cointegration relations (Johnston and DiNardo 1997)

The dynamic Vector Error Correction Model (VECM) for this study is given as,

$$\Delta Y_t = \alpha_o + \sum_{i=1}^{L} \alpha_{i1} \Delta Y_{t-i} + \sum_{i=1}^{L} \alpha_{i2} \Delta X_{1t-i} + \sum_{i=1}^{L} \alpha_{i3} \Delta X_{i2t-i} + \sum_{i=1}^{L} \alpha_{i4} \Delta K_{t-i} + \varepsilon_t + \sum_{i=1}^{L} \alpha_{i5} \Delta M_{t-i} +$$

$$\sum_{i=1}^{L} \alpha_{i6} \Delta H_{t-i} + \sum_{j=1}^{n} \alpha_{j71} ECM_{j-i} + V_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.13)$$

ECM_{j-i} = Error Correction Factor / time series residual from the cointegration vector.

α_{j71} = the coeffient of the Error correction factor which is expected to be negative and significant

L = Lag length

Δ = First difference of a variable

V = The new error term

n = Number of cointegrating Vectors

4.2 Granger Causality Model

As a supplement to the VAR, bi-directional Granger Causality tests on the relationship between exports and exports and economic growth is conducted. The general form of Granger Causality test equations are as follows:

$$Y = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \sum_{i=1}^{m} \beta_i X_{t-i} + \varepsilon_t \quad \text{.....(4.14)}$$

Unrestricted regression

$$Y = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \varepsilon_t \quad \text{.....(4.15)}$$ Restricted regression

Where, Y = Dependent variable

Y_{t-i} = Previous values of Y

X_{t-i} = Previous values of X

ε_t = Error term

m = Lag length empirically determined

i=1, 2, 3, m

t= time period

The test hypothesis is that;

H_{10}: Oil exports(X_1) does not Granger Cause GDP(Y)

H_{11}: Oil exports(X_1) Granger Causes GDP(Y)

H_{20}: Non-Oil exports(X_2) does not Granger Causes GDP(Y)

H_{21}: Non-Oil exports(X_2) Granger Causes GDP(Y)

H_{30}: GDP(Y) does not Granger Causes Oil exports(X_1)

H_{31}: GDP(Y) Granger Causes Oil exports(X_1)

H_{40}: GDP(Y) does not Granger Causes Non-Oil exports(X_2)

H_{41}: GDP(Y) Granger Causes Non-Oil exports(X_2)

The logic is that, if Exports (X_j) causes GDP(Y), then the sum square residual for the unrestricted model (ESS_{UR}) should be significantly different from that of the restricted model.(ESS_R) and vice versa, if the reverse is true. The Test statistic is given as;

$$F_{(n-k,q)} = \frac{(n-k)(ESS_R - ESS_{UR})}{q(ESS_{UR})}$$

The decision rule is that, if the F- statistics calculated is greater than F tabulated, then we reject the null hypothesis that Exports (X_j) does not Granger causes GDP(Y)and accept alternative hypothesis that Exports (X_j Granger causes GDP(Y) and vice versa.

4.3 The Data

4.3.1 Sources

The data used are annual time series on the GDP of Nigeria at 1984 constant factor prices, Gross capital formation as a proxy for capital, oil exports, non-oil exports, imports of capital goods and human capital development index (government capital expenditure in education sector) all relating to Nigeria. For the period of 1970 and 2006 sourced mainly from Central Bank of Nigeria (CBN) Statistical Bulletin 2004, Statistical Facts Sheet published by National Bureau of Statistics, November, 2006 and CBN Annual Statement of Accounts December, 2006.

4.3.2 The Time Series Properties of the Series

The time series properties of the series are concerned with the stationarity of the series. This was investigated using the unit root test on the basis of Augmented Dickey Fuller (ADF) and Philips Perron tests (PP). This particular stage is necessary, because most macroeconomic times series contains unit root and any regression involving non-stationary series almost always produce significant relation where in fact no relationship exist between the variable (Greene 2003).

4.3.3 The Software

Eviews software was used for the estimation of the models based on the ordinary least square method (OLS), specifically the 3.0 version. Eviews is an econometric software that provides sophisticated tools for data analysis, regression and forecasting in economics on window based computers.

Chapter Five

Presentation of Empirical Result, Analysis and Interpretation

5.0 Introduction

This chapter presents the empirical results of the adopted models and their analyses.

The chapter is divided into seven sections. The first and second sections present the unit root test results and analysis of cointegration. The third section presents the result of the non-structural and dynamic Vector Error Correction Model (VECM). It also covers the analysis of the dynamic relationships between the variables in the model.

The fourth and fifth sections focused on the result of the Granger causality and analysis. Section six, contains the comparative analysis of the results with similar studies in the past. Section seven summarised the findings, drawing some implications.

5.1 The Time Series Properties of the Series

The understanding that, the use of non-stationary series often over estimates the true relationship between variables calls for the investigation of the stationarity of the series. This would enable us to find out the reliability of the result of the estimated regression model.

The investigation was conducted using Augmented Dickey Fuller (ADF) and Philips – Perron tests. The test results are presented in Tables (6) and (7) below.

T**able 6: Augmented Dickey – fuller (ADF) Unit Root Test Result**

Variable	ADF test statistic	*Critical value at 5%	Order of integration
Y	-4.559309	-2.9527	I (2)
X_1	-5.608696	-2.9499	I(1)
X_2	-2.952591	-2.9499	I(1)
K	3.062763	-2.9627	I(0)
M	4.073839	-2.9472	I(0)
H	-3.424342	-2.9798	I(1)

*Mackinnon critical values at 5% level of significance for rejection of hypothesis of unit root.

Table7: Philips-Perron Unit Root Test Result

Variable	PP Test Statistic	*Critical Value at 5%	Order of Integration
Y	-6.224085	-2.9472	I(1)
X_1	-3.519875	-2.9472	I(1)
X_2	-6.157120	-2.9472	I(1)
K	4.905997	-2.9591	I(0)
M	5.905793	-2.9446	I(0)
H	-6.6871119	-2.9750	I(1)

* Mackinnon critical values at 5% level of significance for the rejection of Hypothesis of unit root.

The results from the two tests almost resulted to the same conclusion, except in the case of GDP (*Y*) which was integrated at order (2) in the ADF test but at (1) in the Philips–Perron test in Tables (6 and 7) respectively at 5% levels of significance.

Among the variables only two (capital and capital imports) were found to be stationary at levels under the two tests. So stationarity of the variables was induced at 1st difference. Except *Y* (GDP) which is stationary at the

second difference based on ADF test but also at 1st difference under Philips-Perron test, meaning that they are integrated of order one or more.

This result is consistent with pervious findings such as Adama (1999), Ekpo (1995) and Odusola and Akinlo (1995), which earlier established that the GDP and Trade variables were non-stationary. The implication of these results is that the estimates of the static model or an unrestricted VAR models to examine the relationship between exports and economic growth would not be appropriate under this condition. The appropriate model to be used would be a restricted VAR known as the Vector Error Correction model (VECM) which is designed for non-stationary series known to be cointegrated.

5.2 Cointegration Analysis

To further justify the use of VEC model, having established that all variables are integrated of I(1) except, *Y* (GDP) based on the ADF test in Table (6) and capital and capital imports which were stationary at levels, we next determine whether or not a linear combination of these variables is stationary. If a linear combination is stationary, we say that the variables are cointegrated. That is, there exists a long run equilibrium relationship among the non-stationary variables.

To determine this, the Engel and Granger (1987) and Johansen (1995) procedure were used. The Engel and Granger method is also known as the Engel-Granger two stage procedure. It involves estimating the static regression model using the ordinary least square (OLS) method and testing for the stationarity of the resulting regression residuals. This is done using the ADF and PP unit tests.

Using the above, procedure, the result of the Engel–Granger procedure is presented in the Table (8) below. This shows the test results of the ADF and PP on the residuals at 5% significance level. Since the ADF and PP statistics exceeded the critical values at 5% level of significance at 1st difference, the null hypothesis of no cointegration among the variables (Y, X_1, X_2, and H) can neither be rejected nor accepted at 5% level of significance.

Table 8: ADF and PP unit Root Test on the Residuals of the static Regression model

Variables	**ADF**	**PP**	***Critical Values**	**Order of Integration**
U_t	-4.332525		-2.9708	I(1)
U_t		-3.312269	-2.9708	I(0)

* Mackinnon critical values at 5% significant level

Given the difference in the order of integration from the tests in Table (8) above, we can not conclude that the estimated residuals of the regression are stationary or say decisively that the variables are cointegrated.

In order to verify the result of the Engel – Granger procedure, seek for more evidence and determine the number of cointegrating equations, the Johansen cointegration test was conducted. The test assumed a deterministic trend in the data. The test resulted is presented in Table (9) below.

Table 9: Johansen Cointegration Test Result

Series: Y X_1, X_2, H
Lag interval: 1 to 2

Eigenvalue	Likelihood Ratio	5%Critical Value	1%Critical Value	Hypothesized No. of CE(s)
0.981197	187.5012	47.47	54.46	None **
0.939760	84.18461	29.68	35.65	At most 1 **
0.345250	11.13965	15.41	20.04	At most 2
0.004934	0.128605	3.76	6.65	At most 3

*(**) denotes rejection of the hypothesis at 5 %(1%) significance level
L.R. test indicates 2 cointegrating equation(s) at 5% significance level
Test assumption: Linear deterministic trend in the data
Included observations: 26
Sample: 1970 2006

From Table 9 above, the result indicates that, there are two cointegrating equations at 5% significance level. This then, made the use of VEC which incorporates the cointegrating restrictions appropriate for the study. The Normalized cointegrating coefficients or Johansen cointegrating vector for the GDP of Nigeria is given in Table (10) below.

Table 10: Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

Y	X_1	X_2	H	C
1.000000	2.488855	-55.55326	-76.88854	-493522.8
	(1.61294)	(35.8269)	(49.5382)	
Log likelihood	-1099.085			

From the Table 10 above, the non-oil exports and human capital development index appeared significant with surprising negative signs while the oil exports which had the right sign is statistically not significant. These estimates usually have no meaningful practical relevance

5.3 The vector Error Correction Model Result and Analysis

5.3.1 The Result Vector Error Correction Model

In an attempt to determine the appropriate model on the empirical relationship between economic growth and export in Nigeria, two Vector Auto-regression Models (VAR and VEC) were built using the same variables. The VEC model, although non- structural as the VAR, served as its restricted counterpart. Meanwhile, the existence of cointegration relationship between the variables invalidated the adoption of the VAR. The Vector Error Correction Model (VECM) becomes the appropriate model under this condition.

To account for the cointegrationg relation from the previous step, the next natural step is constructing a Vector Error Correction Model (VECM) which incorporates the cointegrating terms or error correction term (CointEq1 and CointEq2). The error correction term serve as the restricting terms with some short run fluctuations.

The result of vector error correction model (VECM) in first and second differences of the cointegrated series, including the error correction terms given in equation (4.13) is presented in Table (11) below. The result is in three sections, the first section showed the cointegrating equations and the section presents the result of the Vector Error Correction models. The third section presents the regression result.

Table 11: The Result of Vector Error Correction Model

Date: 10/07/07 Time: 09:48				
Sample(adjusted): 1980 2005				
Included observations: 26 after adjusting endpoints				
Standard errors & t-statistics in parentheses				
Cointegrating Eq:	CointEq1	CointEq2		
Y(-1)	1.000000	0.000000		
X1(-1)	0.000000	1.000000		
X2(-1)	7.005821	-25.13568		
	(3.18607)	(2.05289)		
	(2.19889)	(-12.2440)		
H(-1)	-11.52573	-26.26220		
	(4.99025)	(3.21538)		
	(-2.30965)	(-8.16768)		
C	-185067.7	-123934.6		
Error Correction:	D(Y)	D(X1)	D(X2)	D(H)
CointEq1	-0.163356	2.374015	-0.086752	0.045729
	(0.02252)	(0.51647)	(0.02238)	(0.00420)
	(-7.25467)	(4.59664)	(-3.87687)	(10.8933)
CointEq2	0.104630	-1.746222	0.031191	0.019559
	(0.02342)	(0.53726)	(0.02328)	(0.00437)
	(4.46684)	(-3.25026)	(1.33996)	(4.47891)
D(Y(-1))	0.190331	-1.831001	0.122494	-0.016007
	(0.28281)	(6.48654)	(0.28104)	(0.05272)
	(0.67301)	(-0.28228)	(0.43586)	(-0.30361)
D(Y(-2))	0.370515	-1.603043	0.087454	-0.003546
	(0.27502)	(6.30789)	(0.27330)	(0.05127)
	(1.34725)	(-0.25413)	(0.31999)	(-0.06916)
D(X1(-1))	-0.067680	1.399202	-0.010092	-0.010626
	(0.01514)	(0.34729)	(0.01505)	(0.00282)
	(-4.46980)	(4.02886)	(-0.67069)	(-3.76434)
D(X1(-2))	-0.076734	0.218240	-0.002703	-0.015813
	(0.01505)	(0.34524)	(0.01496)	(0.00281)
	(-5.09800)	(0.63215)	(-0.18071)	(-5.63523)
D(X2(-1))	2.538472	-17.75112	1.148489	-0.225726
	(0.34548)	(7.92397)	(0.34332)	(0.06441)
	(7.34776)	(-2.24018)	(3.34526)	(-3.50470)
D(X2(-2))	1.823482	-5.593916	1.268270	-0.417907
	(0.21283)	(4.88166)	(0.21151)	(0.03968)
	(8.56760)	(-1.14590)	(5.99640)	(-10.5323)
D(H(-1))	0.554825	25.96718	-0.014031	-0.537282
	(0.58639)	(13.4498)	(0.58273)	(0.10932)
	(0.94616)	(1.93067)	(-0.02408)	(-4.91472)

D(H(-2))	-1.926333	70.19787	1.728368	-0.730232
	(0.82672)	(18.9620)	(0.82156)	(0.15412)
	(-2.33009)	(3.70202)	(2.10377)	(-4.73792)
C	-685.6039	32291.61	-4843.116	7873.691
	(4085.46)	(93705.8)	(4059.94)	(761.648)
	(-0.16782)	(0.34461)	(-1.19290)	(10.3377)
R-squared	0.939621	0.920924	0.789276	0.962133
Adj. R-squared	0.899368	0.868206	0.648794	0.936889
Sum sq. resids	1.08E+09	5.71E+11	1.07E+09	37703671
S.E. equation	8504.183	195055.5	8451.069	1585.427
Log likelihood	-264.9979	-346.4488	-264.8351	-221.3256
Akaike AIC	21.23061	27.49606	21.21808	17.87120
Schwarz SC	21.76288	28.02834	21.75035	18.40347
Mean dependent	-2934.469	240612.7	4049.455	1207.985
S.D. dependent	26808.06	537292.3	14260.36	6310.921
Determinant Residual Covariance		3.69E+30		
Log Likelihood		-1062.562		
Akaike Information Criteria		85.73557		
Schwarz Criteria		88.25177		

The result of the GDP equation reveals a positive but insignificant relationship between the GDP and it first and, second lagged values. The first and second lagged values of oil exports and second lagged value of Human Capital Development index capital (H) were significant but negatively related with the GDP, except this, other variables in the equation appeared significant with positive impact on the GDP (**see Table 11**)). More so, the significant coefficients of the error correction terms indicated evidence of convergence of the series to their long run trend.

The R^2 and adjusted R^2 of the GDP equation in the VEC model shows that about 94% and 90% of the variation in GDP was explained by the model respectively. This indicates that the model is a good fit.

Given this result, it therefore suffices to say that a negative dynamic relationship exist between oil export and the GDP. This implies that, the growth of oil exports is inimical to the long run growth of Nigeria's economy.

This is not however, surprising as Nigeria uses its export earning, to import consumer goods which compete with local one produced in the country.

However, the oil and non-oil export equations came out with mixed results. At lag one and two oil and non-oil exports are decreasing and increasing functions of GDP respectively. Oil exports relate to its past values in a positive manner but negatively to non-oil to exports. This shows that the two export sectors are competitive rather than complementary to one another. That is, a substantial growth in the oil exports would lead to decline in the non-oil exports, thus confirming the "Double Dutch Disease" syndrome of the Nigerian economy.

5.3.2 Variance Decompositions of GDP, Oil Exports and Non-oil Exports.

The variance decompositions were computed from the VEC model. These involve the decomposition of the variance in a particular variable(s) say GDP into component shocks to the endogenous variables in the VEC. The variance decomposition gives information about the relative significance of each random shock of the variables in the model. The variance decompositions of the GDP, oil exports and non-oil exports are presented in Tables (12-14) below

Table 12: Variance Decomposition of GDP

Period	S.E.	Y	X_1	X_2	H
1	6459.391	100.0000	0.000000	0.000000	0.000000
2	12310.10	74.00853	0.719692	25.26246	0.009319
3	16111.61	74.14973	0.763045	25.00259	0.084638
4	25809.66	45.71271	3.937573	50.31651	0.033213
5	30693.89	40.90602	7.489734	51.54014	0.064103
6	39067.59	29.03564	25.32093	45.50118	0.142253
7	44404.65	24.41489	36.18369	39.26576	0.135662
8	52287.43	19.75236	40.43416	39.38288	0.430593
9	56939.23	17.78820	42.28122	39.54537	0.385219
10	66004.01	14.56864	40.68904	44.37066	0.371654

The Table (12) above shows that "own Shocks" constitutes the entire source of variance of Nigeria GDP in the first period. This however declined to only 14% in the tenth period. While the persistence of the shock after the second period was explained mainly by non-oil export and oil export shock. In fact non-oil export explained about 50% and 52% of the fluctuations in the GDP in the 3rd and 4th period. These values settled towards 40% in the long run. The percentage of the fluctuation explained by oil exports is on the rise overtime that is from 0% in the 1st period to 40% in the 10th period.

On the other hand, as indicated in the Table (13) below, the fluctuations in the oil exports is largely accounted for, by shocks in itself in the entire period and next by non-oil exports with a percentage range of 15% to 33.2%. The GDP only explained as low as 0.2% to 1.38% of the fluctuations in oil exports throughout the entire periods. .

In Table (14) below, almost the same result is applicable as in Table (13) below.

The fluctuations in non-oil exports was predominantly from "own shocks" in the 1st period and shocks in oil exports in the rest of the period. This

confirmed the earlier findings on the strong dynamic relationship between oil and non-oil exports.

Table 13: Variance Decomposition of Oil Exports

Period	S.E.	Y	X_1	X_2	H
1	148155.3	1.118018	98.88198	0.000000	0.000000
2	345621.9	0.372372	72.70684	26.67786	0.242925
3	502521.8	0.176811	66.37280	33.16267	0.287719
4	658184.0	0.392189	68.04289	31.37656	0.188362
5	844305.5	1.210784	77.30113	21.30275	0.185337
6	1113363.	1.303787	82.97538	15.47877	0.242068
7	1341926.	1.152952	81.61398	17.00287	0.230205
8	1582645.	1.031589	77.04176	21.71523	0.211417
9	1883569.	1.292478	77.72229	20.83444	0.150792
10	2364886.	1.381980	80.50459	17.94889	0.164533

Table 14: Variance Decomposition of Non-oil Exports

Period	S.E.	Y	X_1	X_2	H
1	6419.048	2.680669	29.88401	67.43532	0.000000
2	9454.275	1.268001	51.37645	47.35099	0.004564
3	15835.74	0.514113	72.31070	26.74712	0.428067
4	20333.92	0.683157	80.73827	18.29319	0.285382
5	24579.66	0.493196	77.04834	21.94371	0.514750
6	28125.85	0.727852	78.26086	20.61529	0.395997
7	34372.72	0.586517	74.24025	24.87365	0.299587
8	43545.07	0.844316	79.68676	19.21753	0.251391
9	55745.84	0.721888	79.06426	20.01206	0.201787
10	65692.83	0.847824	79.67448	19.23049	0.247208

In sum, the salient feature of the variance decomposition results in this study is that the major sources of fluctuations of Nigeria's GDP were its own shocks, shocks in oil and non-oil exports. This is an indication of a strong dynamic relationship between economic growth in Nigeria and exports.

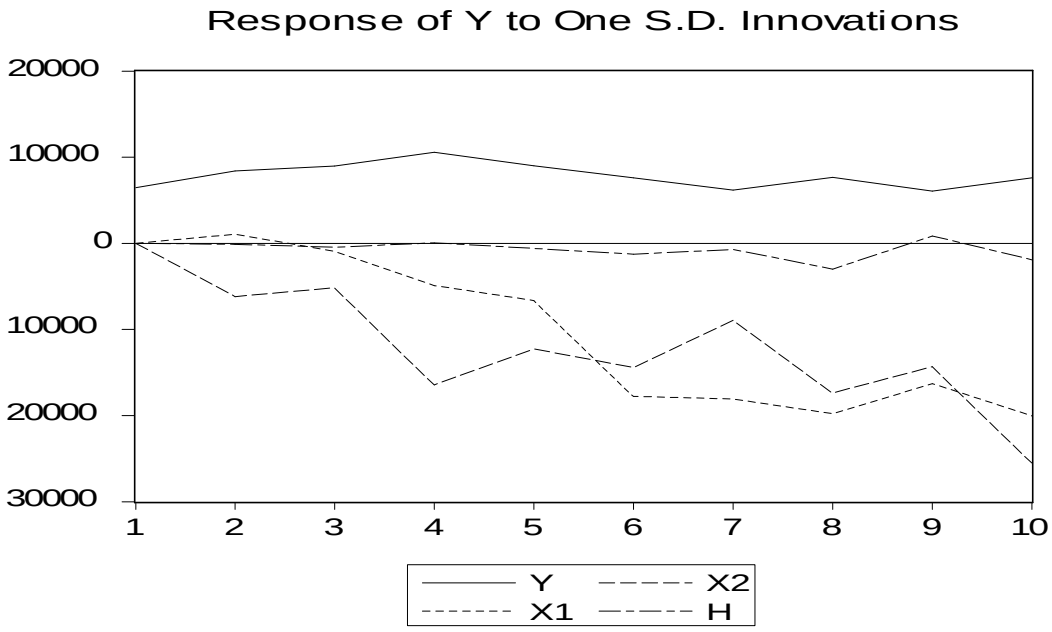
More so, it further confirms the significance of exports as determinant of economic growth and the competitiveness of the two export sectors in Nigeria, in the earlier result of the study.

5.3.3 Impulse Response of GDP (Economic Growth) to One S. E Shock in the Explanatory Variables.

The response of GDP (economic growth) to one standard error innovation in oil and non-oil exports has been volatile and significant in both short and long run. The response of GDP to shocks in non-oil exports has been negative and significant with a rising trend throughout the period (**see Figure 6**) below. While the response of GDP to oil exports has been negative and significant as well except in periods 1-3. The response of the GDP to shock in Human Capital Development is modest and stable.

This also confirms the earlier finding of the study based on the VEC result that oil and non-oil export relates with GDP in significant ways.

Figure 6: Impulse Response of GDP (Economic Growth) to One S. E Shock in the Explanatory Variables.



5.4 Granger Causality Analysis

To determine the pattern of casual relationship between the GDP and exports (oil and non-oil) in Nigeria, pair wise Granger causality was run between the exports and GDP. The result of which is shown in **Table 15**

Table 15: Granger casualty Result at Lag (2)

Null Hypothesis	Observations	F-Statistics	Probability
$X_1 \not\rightarrow Y$	35	7.77688	0.00190
$Y \not\rightarrow X_1$	35	15.7890	2.1E-5
$X_2 \not\rightarrow Y$	35	3.88022	0.03171
$Y \not\rightarrow X_2$	35	1.99546	0.15359

$\not\rightarrow$ Does not Granger causes
Sample: 1970 – 2006

The Granger causality result in Table (15) shows that, at 5% level of significance the null hypothesis that GDP does not Granger causes oil exports and its reverse stand rejected.

Meanwhile the null hypothesis that non-oil exports does not Granger causes GDP was also rejected at 5% level of significance but not at 1%. But the null hypothesis that GDP(Y) does not Granger causes non-oil exports was strongly rejected at 5% significance level.

The conclusion from the result is that there is bi-directional causality running from oil exports to GDP and uni-directional causality between non-oil exports and GDP. This result partly conformed to Adama (1999) and Odusola and Akinlo (1995) earlier literature. Thus, the result support the export –led growth hypothesis since the result shows that changes in exports precedes that of GDP.

5.5 Comparative analysis

The empirical results and analysis in the current study are in many ways similar to previous ones in the same area. In term the time series properties of the series, the unit root tests conducted in the study confirmed the non stationarity of the series bas revealed by, Adama (1999) and Ekpo (1995) and Odusola and Akinlo (1995).However the series were made stationary at first difference but at second difference in Adama (1999). The result of the restricted VAR model (VEC), which indicated oil export as one of the most significant determinants of economic growth contracted the results of Fajana (1979), Obadan (1984) Iyoha (1995), Adama (1999) and Ekpo (1995) on the nature of its impacts. While the negative and significant relationship between oil exports and economic growth was observed in the current study, previous findings were positive.

The positive and significant impact of non-oil exports in this study was inconsistent with Adama (1999) which concluded that non-oil exports contribute little to Nigeria's economic growth. But consistent with others which took an aggregative look on exports-economic growth relationship such asFajana (1979), Obadan (1984) and Ekpo (1995).

The Granger causality result of the current study is partly consistent with those of Adama (1999) and Odusola and Akinlo (1995) which earlier indicated a bi-directional and uni-directional causality running from oil and non-oil exports to GDP.

In sum, the significant and negative impact of oil exports on GDP (Economic growth) in Nigeria appeared to be a major point of departure of the current study's result from much related previous ones. However, since, the current findings were based on dynamic relationship between them as

revealed in the VEC model result, while previous findings were based on static regression results; this has to be emphasized with great care.

5.6 Summary of Findings and Implications of the Findings

In this sub-section, the findings of the study are summarised. They are as follows

i. Exports (oil and non-oil Exports) had a significant impacts as the GDP (economic growth) in both the short and long run in Nigeria.

ii. Contrarily, to the theoretical expectation the dynamic impact of oil export on the GDP appeared negative while the impact of non-oil exports on economic growth on dynamic ground had been positive.

iii. Except oil exports and partially Human capital development index, other determinants of economic growth have had positive dynamic impacts on it. These include lagged values of GDP, non-oil exports, capital, impact of capital good, and Human capital development index.

iv. The variations and fluctuations in GDP are explained predominantly by export (oil and non-oil) shocks.

v. Exports (oil and non-oil) were mainly responsible for own fluctuations overtime.

The implication of the above findings is that a broad base export promotion policy could be mis-leading as the different components of export (oil and non-oil) related to economic growth in opposite ways. This however, is not surprising as growth of oil exports have affected the economy in many ways leading to the “Dutch diseases Syndrome” in Nigeria.

Given the long run relationship between exports and economic growth in Nigeria and the impact of shocks in export on GDP, it implies that stable economic growth in Nigeria can only be achieved with stable exports performance.

The modeling implication of the findings is that, the empirical relationship between economic growth and its determinants is better captured in dynamic models than in static models.

Chapter six

Summary, Conclusion and Recommendations

6.1 Summary

Since, 1986, there has been a turn around in the area of export promotion and diversification in Nigeria. However, existing evidences on the empirical relationship between Nigeria exports and economic growth remained inconclusive. This raises modelling issues and the need for further studies.

This study is an attempt to deal with the problem of conflicting results of the studies that tested the Export –Led Growth Hypotheses. The study applied the vector Autoregressive Modelling approach to analyse the relationships between exports and economic growth and to measure the dynamic impact of exports on Nigeria's growth. The study was situated in the context of Nigeria's trade structure and policy (the focus of Chapter two) and theoretical and empirical literature on exports and growth linkages.

To achieve the objective of the study, two models were built, but the non-structural and dynamic vector error correction model appeared to be the most appropriate given the evidence of non-stationarity of the series. This is not only due to the existence of cointegration among the series but also because it captured the interactions of the variables in their dynamic forms. The main findings are:

1. There exist a long run relationship between exports and economic Growth in Nigeria
2. Export (oil and non-oil) have significant impact on Nigeria's economic

growth. The static impact of oil exports on economic growth evident in previous studies such as Iyoha (1995) and Adama (1999) was completely opposite to their dynamic impacts revealed in this study.

3. The Volatility in Nigeria's economic growth is predominantly explained by exports (Oil and Non-oil).
4. The direction of causality between exports and the GDP appeared bi- directional for oil exports and uni-directional for the non-oil exports.

6.2 Conclusion

Two basic conclusions are drawn from the findings of the study is that., the relationship between exports and the economic growth are more of dynamic than static. Export- Led growth is likely to be effective if the trade structure is changed in favour of non-oil exports. Therefore a uniform trade policy on export may be misleading and could produce counteracting influences on the economic growth of the country.

6.3 Recommendations

Based on the findings of the study, it is recommended that,

1. The Existing measures by the Federal Government on the promotion of non-oil export be strengthen as it has a potentially positive dynamic impacts on the long run growth of the country.
2. The measures in this direction should also be introduced. This should include promotion of research and development in the research institutes and training institutions to encourage innovation and inventions that will help to standardise Nigerian made goods and enhance productivity and competitiveness. This would make

these goods acceptable in Nigeria and at the international markets. In addition, policies on general improvement on social overhead capital should also be pursued. This would not only reduce the cost of production in Nigeria but also pull foreign inventors into the country.

3. Further studies in this area may be required. Particularly studies that would consider an intra and inter sectoral analysis of the relationship between export and economic growth.

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Appendix

Appendix I

Selected trade and trade-related legislation, December 2004

Area	Title of law/regulation
Customs	Customs and Excise Management Act, Cap 84, LFN, 1990
	Customs, Excise Tariff, etc. (Consolidation Act No. 4, 1995, as amended by Acts Nos. 13 and 33 of 1996; 20 of 1998; and 10 and 29 of 1999
Pre-shipment inspection	Pre-shipment Inspection of Exports Act No. 10, 1996
	Pre-shipment Inspection of Imports Act No. 11, 1996
Import prohibitions	Endangered Species (Control of International Trade and Traffic) Act, Cap 108, LFN, 1990
Export promotion and assistance	Export Incentives (Miscellaneous Provisions) Act, Cap 118, LFN, 1990
	Nigerian Export Credit Guarantee and Insurance Corporation Act, Cap 305, LFN, 1990
	Nigerian Export Promotion Council Act, Cap 306, LFN, 1990 as amended by Act No. 64 of 1992
	Nigeria Export-Import Bank Act No. 38, 1991
	Nigeria Export Processing Zones Act No. 63, 1992
	Export of Nigerian Produce Act, Cap 119, LFN, 1990
	Export Produce (Federal Powers) Act, Cap 120, LFN, 1990
	Oil and Gas Export Free Zone Act No. 8, 1996
Export prohibition	Export (Prohibition) Act, cap 121, LFN, 1990
Intellectual property	Trade Marks Act, Cap 436, LFN, 1990
	Industrial Inspectorate Act, Cap 180 LFN, 1990
	Patents and Designs Act, Cap 344, LFN 1990
	National Office of Industrial Property Act, Cap 268, LFN, 1990, as amended by Act No. 82, 1992
Standards and technical regulations	Standards Organization of Nigeria Act, Cap 412, 1990, as amended by Act No. 18, 1990
Price controls	Productivity, Prices and Income Board Act, Cap 372, LFN, 1990
Taxation	Personal Income Tax Act No. 104, 1993
	Value Added Tax Act No. 102, 1993
	Industrial Development (Income Tax Relief) Act, Cap 179, LFN 1990
Business and Investment	Companies and Allied Matters Act No. 1, 1990
	Labour Act, Cap 198, LFN, 1990
	Bankruptcy Act, Cap 30, LFN, 1990, as amended by Act No. 109, 1992
	Companies Income Tax Act, Cap 60, LFN, 1990
	Industrial Promotion Act, Cap 181, LFN, 1990
	Investment and Securities Act No. 45, 1999
	Nigerian Investment Promotion Commission Act No. 16, 1995 as amended by Act No. 32, 1998
	Public Enterprises (Privatization and Commercialization) Act, No. 28, 1990

Area	Title of law/regulation
Others	Trade Disputes Act, Cap 432, LFN, 1990
	Trade Disputes Essential Services Act, Cap 433, LFN, 1990
	Foreign Exchange (Monitoring and Miscellaneous Provisions) Act No. 17, 1995
	National Shipping Policy Act, Cap 279, LFN, 1990
	Nigerian Shippers' Council (Freight Stabilization Fees on Imports and Exports) Regulations
	Nigeria Shippers' Council (Local Shipping Charges on Imports and Exports) Regulations, S.I. 7, 1997
	External Trade Letters of Credit (Control) Act, Cap 124, LFN, 1990
	Consumer Protection Act, No. 66, 1992
	Trade Malpractices (Miscellaneous Offences) Act No. 67, 1992

Source: Federal Ministry of Commerce (2002), *Trade Policy of Nigeria*.,adapted from WTO Trade Policy Review,2005

Appendix II

List of Developed and Developing Countries and sample Periods used in Kouassi et al (2004)

Country	Sample periods/GDP/Exports
Developed Countries	
Australia	1960-01 /1960-99
Canada	1960-01 /1960-99
France	1960-01 /1960-00
Germany	1960-01 /1960-01
Italy	1960-01 /1960-00
Japan	1960-01 /1960-99
Netherlands	1960-01 /1960-99
Spain	1960-01 /1960-99
United Kingdom	1960-01 /1960-00
United States	1960-01 /1960-99
Developing Countries	
Argentina	1960-01 /1960-00
Brazil	1960-01 /1960-00
India	1960-01 /1970-01
Indonesia	1960-01 /1960-01
Israel	1960-01 /1960-00
Koria	1960-01 /1960-01
Mexico	1960-01 /1960-01
South Africa	1960-01 /1960-01
Thailand	1960-01 /1960-01
Venezuela	1960-01 /1960-01

Appendix III

Annual Time series Data on Nigeria's Gross Domestic Product, Exports, Gross Capital Formation, Imports of machineries and chemicals, and Federal Government Expenditure on Education (N Million)

Year	GDP at 1984 Constant Factor Prices	Oil Exports	Non-oil exports	Gross Capital Formation at Current prices	Imports of machineries and chemicals	Federal Government Expenditure on Education
1970	54148.9	510	375.4		285.3	
1971	65707	953	340.4		417.8	
1972	69310.6	1176.2	258		391.9	
1973	73763.1	1893.5	384.9		491.4	
1974	82424.8	5365.7	429.1		561.8	
1975	79988.5	4563.1	362.4	5019.9	1561	
1976	88854.3	6321.6	429.5	8107.3	2467.2	
1977	96098.8	7072.8	557.9	9420.6	3311	500
1978	89020.9	5401.6	662.8	9386.3	3573.4	301.4
1979	91190.7	10166.8	670	9094.5	2905.1	533.2
1980	96186.6	13632.3	554.4	10841.2	3650.4	952.6
1981	70395.9	10680.5	342.8	12215	5668.1	440.9
1982	70243.1	8003.2	203.2	10922	4569.9	488.4
1983	65958	7201.2	301.3	8135	3213.4	346.6
1984	65474.2	8840.6	247.4	5417	2568.1	144.9
1985	68286.2	11223.7	497.1	5573	2414.4	180.7
1985	70806.4	8368.5	552.1	7323	2277.8	442
1987	71194.9	28208.6	2152	10661.1	6827.7	139.1
1988	77733.2	28435.4	2757.4	12383.7	8900.6	281.8
1989	83179	55016.8	2954.4	18414.1	12362.7	221.9

Source: CBN Statistical Bulletin Vol. 15, 2004, CBN Annual Reports and Statement of Accounts for the Year ended December 31st, 2006 and Statistical Fact Sheet November, 2006

Appendix III

Annual Time series Data on Nigeria's Gross Domestic Product, Exports, Gross Capital Formation, Imports of machineries and chemicals, and Federal Government Expenditure on Education (N Million)

Year	GDP at 1984 Constant Factor Prices (Y)	Oil Exports (X1)	Non-oil exports (X2)	Gross Capital Formation at Current prices (K)	Imports of machineries and chemicals	Federal Government Expenditure on Education
1990	92238.8	106626.5	3259.6	30626.8	18515.8	331.7
1991	94235.3	116858.1	4677.3	35423.9	17926.2	289.1
1992	97019.9	203292.7	3973.3	586403	62158.3	384.1
1993	99604.2	213778.8	4991.3	80948.1	74579.1	1563
1994	100936.7	200710.2	5349	85021.9	46323	2405.7
1995	103078.6	927565.3	23096.1	114476.3	206905	3307.4
1996	106600.6	1286215.9	23327.5	172105.7	129404.1	3215.8
1997	109972.5	1212499.4	29163.3	205553.2	202964.9	3808
1998	113509	717786.5	34070.2	192984.4	195956	12793
1999	116655.5	1169476.9	19492.9	175735.8	204392.3	8516.6
2000	121207.8	1920900.4	24822.9	268894.5	234075.8	23342.6
2001	126323.8	1973222.2	28008.6	371897.9	327206.7	19860
2002	131489.8	1787622	95046.1	438114.9	364901.5	9215
2003	136460	2829042.5	95092.5	429230	361462.2	14680.2
2004	145380	4489472.19	113309.35	456970	3708385.2	9053.1
2005	14894.5	6266096.62	105955.82	1798140	674341.3	31940.8
2006	18222.8	5619152.88	133594.86	2277850	7961669.3	

Source: CBN Statistical Bulletin Vol. 15, 2004, CBN Annual Reports and Statement of Accounts for the Year ended December 31st, 2006 and Statistical Fact Sheet November, 2006

Appendix IV

Summary of Nigerian Studies on Exports and Economic Growth

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
1.Fajana (1979)/1960-1974	To examined the relationship between exports and economic growth	GDP, Export share of GDP, Export change/GDP and foreign capital.	OLS method.	The result supports, the export-led hypothesis for Nigeria	Export-led growth hypothesis holds for Nigeria
2.Obadan(1984)/1960-1977	To examined the relationship between GDP and Exports and that between capital flow and GDP	GDP, Exports and Capital flow	OLS method	The result revealed a positive and negative relationship between GDP and Export and capital flow respectively.	Export-led growth hypothesis holds for Nigeria
3.Iyoha (1995)/ 1974-1993	To examine the impact of external trade on Nigeria economic growth base on the oil exports.	$\ln GDP_t = \alpha_0 + \alpha_1 \ln X_t + u_t$ ---------- (1) $\ln GDP_t = \beta_0 + \beta_1 \ln Xt + \beta_3 \ln GDP_{t-1} + v_t$ -------- (2)/ Gross Domestic Product, oil Export	OLS method	The results of the estimated model showed a positive and significant relationship between GDP and oil exports.	Nigeria's external trade proxied by oil exports has powerful effects on income and economic growth.

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
4. Adama (1999)/1975-1995	To determine the causal link between exports and Nigerian economic growth.	In GDP = f (Oil exports and non-oil exports).	OLS Method, Granger Causality test Graphical approach of unit root test	The variables were found to be non-stationary. Hence stationarity was induced at second difference. There exist a uni-directional causal link between exports and Nigerian economic growth. Non-oil exports contribute little to Nigeria's economic growth while the contribution of the total exports is positive and significant.	The Export-led hypothesis holds for Nigeria

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
5. Odusola and Akinlo (1995)/ 1960 -1992.	To investigate the causal link between trade and growth in Nigeria	GDP, non-export GDP, the trade variable exports, imports and the competitiveness index or term of trade (Export units value / import unit value, capital proxied by gross capital formation and labour force	OLS Method/The Granger (1969) causality and unit root tests.	The correlation between GDP and trade variables and factor inputs (capital and labour were impressive (ranging between 0.35-095) The units root tests showed that, the log-transformed variables were non-stationary. Hence stationarity was induced The causality results revealed that there exists a feedback relationship between GDP and exports. There was no strong evidence of causal relationship between export and non-oil GDP.	The exists an interactive relationship between trade and growth

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
6. Ekpo (1995)/ 1970-1992	To examine the relationship between openness and economic performance in Nigeria.	Y = Y {(K, L); A (T_0)] ------ (2), Y = real aggregate output K = capital inputs L = Labour input Given that A = (A (T_0)) T_0= measures of openness (trade share of GDP and Black market exchange premium rate).	OLS method	The two measures of openness (trade share of GDP or trade share/GDP and the black market exchange premium) have contradictory impact on output. Increase openness measured as trade share of GDP decreased output while increase in black market premium increases output. Secondly, exports have significant positive impact on Output growth as in (Fajana 1979, Obadan 1984; Adama 1999), while import had a negative and significant impact on output growth.	The findings generally, are ambiguous and inconclusive, which raises some critical issues as regards the appropriatenes s of different measures of openness.

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
7. Ogujiuba et al (2005)/ 1986 - 2003	To determine the long run relationship between GDP and the openness	LRGDP = a + bLOPEN + ϵ.....(1)/ OPEN = (X + M/DY +X-M) where X = export earning M = import, DY = total private and public domestic expenditure.	OLS Method/ cointegration and error correction modeling	The result showed no significant evidence of any co-integrating vector, supporting the fact that there is no long run relationship between economic growth and openness to trade in Nigeria	The conclusion of the study is that trade openness is detrimental to Nigeria economy as found in Ekpo (1995).
8. Adebiyi and Dauda (2004)	To examine the effect of Trade liberalization policy on the industrial sector of the Nigerian economy.	$LIIP_t = \alpha o+\alpha_1 LRCF_t+\alpha_2 LRXT_t +\alpha_3 DUM_t + \alpha_4 LDOP_t +U_t$ IIP = index of industrial production LRCF = real capital formation RXT= Real export DUM = Dummy variable DOP= Degree of openness	OLS method	Trade liberalization proxied by openness had emerged as one of the significant determinant of industrial production in Nigeria. While rise in the trade liberalization Real export had a positive and significant influence on industrial output.	That Nigeria should embark on comprehensive trade liberalization policy (export promotion) as industrializatio n strategy.

Author/Scope	Objectives	Variables/Equations	Method of Estimation and Analysis	Result(s)	Conclusion
9. Alege and Ogun (2004)	To explored the link between globalization and industrialization by examining the impacts of various mediums of globalization (degree of openness volume of trade inflow of FDI and increased innovation) in Nigeria.	$Qm_t = K^{\alpha 1} L^{\alpha 2} OPN^{\alpha 3} FDI^{\alpha 4} ICT^{\alpha 5} U_t$, QM = output of manufacturing sector K = capital stock in the economy LE = labour in the economy OPN = degree of openness measured as total trade /GDP FDI = foreign direct investment ICT = information, communication and technology	OLS Method	The findings of the study indicate that openness to trade, volume of trade and increased ICT have significantly influenced the level of manufacturing output in Nigeria However, just as in the case of Ekpo (1995) the different measures of globalization relate with manufacturing output in conflicting ways. While Openness and technology were found to have positive impact on aggregate manufacturing output, total volume of trade appears negatively correlated with the manufact-uring outputs.	The findings are inconclusive