

IMPACT OF NON-OIL EXPORTS ON ECONOMIC GROWTH IN NIGERIA

By

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ABSTRACT

Nigeria is experiencing slow economic growth despite abundant non-oil export goods. This study investigated the impact of non-oil export goods on economic growth in Nigeria from 1986-2025. Economic growth was used as the dependent variable while the components of non-oil-exports (agricultural, manufacturing, solid mineral, and services exports) were employed as independent variables. Interest rate, inflation rate and exchange rate were used as control variables. Data were obtained from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Development Indicators (WDI). The study utilized ex post facto quantitative research design. Augmented Dickey-Fuller (ADF) and Phillip Pearons (PP) unit root tests were conducted and the results showed mixed-order of integration. The estimated Autoregressive Distributed Lag (ARDL) results showed that agricultural exports (AGEX) impacted positively (1.102805) on economic growth in Nigeria but negatively (-0.9561084) and statistically significant in the long-run. Manufacturing exports (MAEX) had a negative (-1.0308925) and statistically significant impact on economic growth and likewise a negative (-0.921084) but statistically insignificant impact on economic growth. Solid mineral exports (SMEX) had a negative (-18.74305) and statistically significant impact on economic growth but in the long-run it had negative (-3.870174) and statistically insignificant impact on economic growth. Services exports (SREX) both in the short-run and long-run impacted positively (2.736900) and (1.870174) on economic growth in Nigeria and statistically significant. Also, interest rate had negative (-31.31944) and (-25.38179) and statistically significant impact on economic growth in Nigeria respectively. More so, exchange rate had both positive (3.038912) and (2.322815) and statistically significant impact on economic growth in Nigeria. It was concluded that the non-oil exports (agricultural exports and services exports) had statistically significant positive impact on economic growth in Nigeria except manufacturing and solid mineral exports. The study recommended that the statistically significant positive impact of agricultural exports and services exports on economic growth in Nigeria should be improved upon, strengthen and sustained by the Nigerian government especially by the Federal Ministry of Agriculture and Food Security, Federal Ministry of Trade and Investment, Bank of Agriculture and the Central Bank of Nigeria. Also, the statistically significant negative impact of manufacturing exports and solid mineral exports on economic growth in Nigeria should be addressed through government improved expenditure on the subsectors. This can be achieved through supporting government policies and programmes and ensuring increase in budget allocation to manufacturing and mining sectors.

Keywords: Non-Oil Exports, Economic Growth and Nigeria

1.0 INTRODUCTION

Nations of the world have achieved economic growth with non-oil exports. Non-oil exports have played critical role in developed nations such as China, Germany, South Korea, Netherlands, United States, and United Kingdom among others. Economic growth which measures the performance of an economy depends on non-oil exports. Countries of the world are endowed with natural resources of different varieties and magnitude. The countries are; Nigeria, Angola, Democratic Republic of Congo, South Africa, Ghana (Africa); Russia, Norway, United Kingdom, Poland, Germany (Europe); United States, Canada, Mexico (North America); Brazil, Chile, Colombia, Venezuela (South America); and Saudi Arabia, China, India, Indonesia (Asia). The way and manner in which these natural resources are exploited and utilized to full potentials by countries, to a large extent, determine the economic growth and prosperity of these countries.

One of the numerous natural resources that countries could be endowed with is the crude oil which was discovered in Nigeria in 1956. Crude oil has been the major source of foreign exchange earnings to the detriment of other sources of income to the nation. Crude oil accounted for 90% of the Nigeria's foreign exchange earnings (Central Bank of Nigeria [CBN], 2023). The near neglect of the non-oil exports to foster economic growth is attributed to the overdependence on crude oil.

The other resources that countries could be endowed with are the non-oil exports which include but not limited to agricultural, manufacturing, solid mineral, and services exports. The exploitation of these non-oil exports in Nigeria has enhanced trade by 6.26% between Nigeria and other countries of the world (National Bureau of Statistics [NBS], 2024). In a world characterized by increasing demand for exports especially non-oil exports and the interconnectivity among the nations of the world, the dynamics of non-oil exports have emerged as critical determinants of economic growth. Non-oil exports facilitate economic growth and this is determined by; technological development, trade openness among countries, interest rate charged on money borrowed and invested in non-oil exports, price level (inflation rate in an economy), and exchange rate. Also, increase in demand for non-oil exports depends largely on the dynamics of the population of the importing country.

Nigeria is experiencing slow economic growth despite abundant non-oil exports. In pursuit of the benefits of non-oil exports, developing nations like Nigeria have consistently pursued exports and development strategies with the goal of invigorating economic growth. Slow economic growth despite numerous non-oil exports is a great concern for institutions, organizations, stakeholders and policymakers. In this view, Nigeria implemented the Structural Adjustment Programme (SAP) in 1986, characterized by liberalization of trade alongside certain initiatives to boost the growth of non-oil exports particularly agricultural exports in order to achieve sustainable economic growth in the country. The Nigerian government in an attempt to promote exports introduced various policies and initiatives. The National Export Promotion Council (NEPC) in 1976 was introduced by the Olesegun Obasanjo regime and the main objective was to diversify the productive base of the Nigerian economy through market-oriented export products development (Okoli, Ezenekwe, Geraldine & Collins, 2023).

The Babagida administration established the Export Expansion Grant (EEG) in 1986, and its main aim was to encourage Nigerian exporters to expand export volume, value and improve global competitiveness of Nigerian product, the Nigerian Export and Import Bank (NEXIM) in 1991 which was targeted at managing funds connected with exports, and also the Export Processing Zone (EPZ)

in 1992 to create new jobs, boost growth in exports and generate foreign exchange earnings. Also, during the Abacha regime, Nigeria became a member of the World Trade Organization (WTO) in 1995 and its main goal was to ensure trade flow and improve people's standard of living. The Nigerian government during the Buhari administration in an attempt to consolidate on the promotion of exports, signed the African Continental Free Trade Area Agreement (AfCFTA) in 2018 and its aim was to create a single African market for goods and services (Okoli, Ezenekwe, Geraldine & Collins, 2023).

Among the non-oil exports in Nigeria, agricultural, manufacturing, solid mineral, and services exports hold utmost significance. Therefore, enhancing these subsectors; agriculture, manufacturing, solid minerals, and services will invigorate activities by promoting investment, efficient resource utilization, increased output, and aggregate demand (Akeem, 2011, Ajakaiye, & Ojowu, 2014). In terms of statistics, the aggregate value of non-oil exports increased from ₦552.10 billion in 1986 to ₦1,130, 170.52 billion in 2013, dipped to ₦656,793.95 billion in 2016, and then surged to ₦2, 466, 831.25 billion in 2021, ₦2.03 trillion in 2022, ₦2.31 trillion in 2023 and ₦2.73 trillion in 2024 (Central Bank of Nigeria [CBN], 2024). Nevertheless, the average contributions of agricultural, manufacturing, solid mineral, and services exports to total exports from 2018 to 2021 were 0.90%, 2.63%, 1.9% and 0.27% respectively (CBN, 2023). Non-oil exports accounted for approximately 30% of Nigeria's real GDP (₦14.3 trillion) while oil exports accounted for 70% of real GDP (₦33.4 trillion). Agricultural sector: 40% (cocoa, cashew, sesame seeds, rubber), solid minerals: 25% (gold, iron ore, limestone, granite), manufacturing: 20% (textiles, food processing, chemicals), services: 15% (tourism, Information Technology, financial services) (CBN, 2023).

The Nigerian economy recovered from a recession in the early 1980s to attain a growth rate of approximately 6.4% in 1989. Subsequently, the growth rate slowed to an average of 2.6% between 1990 and 1999. Also, from 2000 to 2014, the Real GDP grew at an average rate of 7.9%, followed by a decline to 2.65% in 2015 and during the global financial recession in 2016 it recorded a negative rate of -1.62%. This downturn was succeeded by a gradual recovery, with growth rates of 0.81% in 2017, 1.92% in 2018 and 2.21% in 2019. It nosedived to -1.79% in 2020 and rose to 3.65% in 2021 and declined to 3.25% in 2022, and it further declined to 2.74% in 2023 but it increased to 3.72% in 2025 (CBN, 2025). The non-oil exports have the potentials to increase economic growth in Nigeria but the near neglect of the non-oil exports to foster economic growth is attributed to the overdependence on crude oil which was discovered in 1956. The economy relies mostly on crude oil export because it accounts for 70% of the nation's source of government revenue and over 90% of its foreign exchange earnings (CBN, 2025).

In spite of the government's efforts in boosting of the non-oil exports, economic growth has not significantly increased. It is against this background that this study investigated the impact of non-oil exports on economic growth in Nigeria. To achieve the objective of this paper, the paper has been organized into six sections with the introduction as section one, section two is the literature review and section three is the methodology of the study. Section four is the results and discussion; section five is the discussion of findings and section six is the conclusion and policy recommendations.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

Non-oil exports can be broadly classified into three major groups. These include the agriculture, solid mineral and the manufacturing exports. The agricultural exports include cocoa, groundnut, palm produce, rubber (natural), cotton, fish and shrimps, while the manufactured exports and solid minerals include processed agricultural products, textiles, tin metal, beer, cocoa butter, plastic products, processed timber, tires, natural spring water, soap, detergent and fabricated iron rods (CBN, 2020). Nigeria's non-oil export consists of agricultural goods, raw material goods, solid minerals, energy and manufactured goods (NBS, 2018). Akeem (2011) posited that non-oil exports are those commodities excluding crude oil (petroleum products) which are sold in the international market for the purpose of revenue generation. Nigeria's non-oil exports sector is structured into four namely; agricultural exports, manufactured exports, solid mineral exports and services exports. Non-oil export products are unlimited as they include agricultural crops, manufactured goods, solid minerals, entertainment and tourism services (Abogan, Akinola, & Baruwa, 2014).

Adeyemi and Abiodun (2013) conceptualized the non-oil export in Nigeria as comprising of agriculture and agro-allied manufacturing; manufacturing; banking and financial services (insurance); telecommunications; transportation services (road, railway, shipping and aviation); human capital development health services and tourism. Abogan, Akinola and Baruwa (2014) defined the non-oil exports of the Nigerian economy as the whole of the economy less the oil and gas sub-sector. It covers agriculture, industry, solid minerals and the services sub-sector, including transport, communication, distributive trade, financial services, and insurance. Non-oil exports according to Onodugo, Ikpe and Anowor (2013) consist of manufacturing, agriculture, telecommunication service, finance, tourism, real estate, construction and health. In Nigeria, non-oil export is broadly categorized as agricultural produce, solid minerals; semi manufactured and manufactured products and other exports. Agricultural produce category comprises of cocoa beans, rubber, cotton and others while solid minerals comprise of aluminum, carbonate and other minerals. Semi manufactured goods comprise of processed skins, cocoa products, furniture, processed wood and others while manufactured goods are made up of tyres, tubes, textiles and others (CBN, 2021).

Ajakaiye and Ojowu (2014) categorized Nigeria's non-oil export into four namely; the agricultural exports, manufacturing exports; solid mineral exports and services exports. The non-oil export comprises of agricultural crops and products such as cotton, cassava, cocoa, cashew nuts; solid minerals and chemicals; manufacturing goods such as textile, tyres, machines; manpower, entertainment, and tourism to mention but a few. Exports are movable goods produced within the boundaries of one country, which are traded with another country. The sale of these goods generates foreign currency earnings in the country that produces them and boosts its economic growth. This study adopts the definition of non-oil export given by Ajakaiye and Ojowu (2014). The reason for the adoption of the definition is that, it is detailed, holistic, and comprehensive and it categorized Nigeria's non-oil export into four; agricultural exports, manufacturing exports, solid minerals exports, and services exports which are variables of interest in this study.

Economic growth means sustained increase in Gross Domestic Product (GDP) of a country derived from productive inputs, volume of trade (export, import and domestic trade), size of terms of trade, and aggregate economic stability. In order to increase a nation's GDP, its volume of trade (export, import and domestic trade), export revenue, size of terms of trade have to increase and trade stability

have to be assured, which in turn result to increased international trade gain and aggregate economic growth (Okoli, Ezenekwe, Geraldine, & Collins 2023). According to Jhingan (2003), economic growth is the process whereby the real per capital income of a country increases over a long period of time, and it is measured by the increase in the amount of goods and services produced in a country. A growing economy produces more goods and services in each successive time period. Henderson and Poole (1991) defined economic growth as the increase in output at a certain period. It is also said to be either growth in national output as measured by Gross Domestic Product (GDP) or Gross National Product (GNP) which measures growth of the national average standard of living measured by the GNP per capita (that is, measure of the well-being of citizens). Economic growth is referred as positive change in the level of production of goods and services by a country over a certain period of time. It is the increase in the value of goods and services produced by an economy. According to Asogwa, Okechukwu, and Onyekwelu (2018), economic growth refers to the increase in the inflation-adjusted market value of the goods and services produced overtime by an economy.

John (2022) conceptualized economic growth as a process by which a nation's wealth increases over time. While the term is frequently used in discussions of short-term economic performance, in terms of the context of economic theory, it refers to an increase in wealth over a long period of time. Roser (2021) defined economic growth as an increase in the quantity and quality of economic goods and services produced by a society. Ukpabi (2019) defined economic growth as a shift in the inflation-adjusted market value within economy's goods and services over time. Conceptually, across the globe, real Gross Domestic Product (real GDP) is used as a proxy for economic growth. Haller (2012) stated that economic growth is, in a limited sense, an increase of the national income per capita, and it involves the analysis especially in quantitative terms of this process, with a focus on the functional relations between the endogenous variables; and in a wider sense, it involves the increase of the GDP and GNP of the national wealth including the production capacity, expressed in both absolute and relative size, per capita, encompassing also the structural modifications of the economy. Haller (2012) also posited that economic growth is obtained by an efficient use of the available resources by increasing the capacity of production of a country. It is easier to redistribute the income in a dynamic, growing society, than in a static one. When production of goods and services increases, the rate of economic growth will increase and consequently, unemployment rate reduces, and the number of jobs opportunities rises, as well as the population's standard of life. This study adopts the definition of economic growth of Haller (2012) as the working definition because is broad-based and comprehensive in explaining economic growth as compared to other definitions.

2.2 **Theoretical Review**

The export-led growth hypothesis was propounded by Kindelberger (1962). It is a framework that supports long-run growth in developing economies derived from exportation of natural resource outputs. Although one of the most significant problems of developing countries comes from reliance on exporting raw materials which usually leaves negative impact on their economies. The export-led growth hypothesis explains the relevance of depending less on one source of export for other exports.

The export-led growth hypothesis explains the value-chain in income generation and this promotes economic growth and lowers unemployment rate in a country. Krugman (1997) contended that by offering the potential for economies of scale, productivity is increased through export (agricultural exports) expansion. The main weakness of the Export-led growth hypothesis is that it emphasized that exports are the major determinants of economic growth in the long-run but it failed to explain clearly

the mechanisms through which exports could bring about economic growth, and hence reduction in unemployment rate in the long-run. Despite the major weaknesses of the Export-led growth hypothesis, it is relevant to this study.

2.3 **Empirical Review**

Uzma and Aarif (2023) analyzed the effects of oil and non-oil export shocks on the Saudi Arabian's economy using annual time series data from 1970-2021 and the data were collated from Saudi Arabian Monetary Agency (SAMA). The study employed Dynamic Autoregressive Distributive Lag (DARDL) simulation technique to analyze the data. The estimated Dynamic ARDL simulation results revealed that oil exports had positive and significant impact on economic growth both in the short-run and long-run. It also revealed that non-oil exports in the short-run and long-run had a statistically significant positive impact on economic growth in Saudi Arabia within the study period.

Muhammad (2022) determined the impact of non-oil export on economic growth in Iraq where time series data that covered 2003-2020 were sourced from World Trade Organization and World Bank. Autoregressive Distributed Lag (ARDL) bound testing approach was used to analyze the data. The ARDL results showed that non-oil export related positively to economic growth and statistically significant in the short-run and long-run. On the other hand, exchange rate had a negative but statistically significant impact on economic growth in both short-run and long-run in Iraq.

Huseynli (2022) investigated the impact of revenues from oil and non-oil sectors on economic growth in Azerbaijan. The aim was to determine whether there was a relationship between economic growth and the oil sector, and non-oil sector and unemployment levels. The time series data for the study covered the period 2000-2020. The data were obtained from Azerbaijan State Statistics Committee. Multiple regression method of data analysis was used utilized. The result showed that unemployment rate had a positive and statistically significant impact on economic growth. Oil sector and non-oil sector had positive and insignificant impact on economic growth in Azerbaijan.

Zayone, Henneberry and Radmehr (2020) investigated the effects of agricultural, manufacturing, and mineral exports on the economic growth of Angola. Time series data from 1980-2017 gathered from the World Development Indicators (WDI) and World Trade Organization (WTO) database were used. The study employed Autoregressive Distributive Lag (ARDL) technique of data analysis. The results of the ARDL revealed that while exports from all three sectors (manufacturing, mineral, and non-mineral) had driven economic growth in Angola in the long-run; only non-manufacturing (agricultural and mineral) exports contributed its growth in the short-run. Moreover, growth in non-export GDP was driven by mineral exports in the long-run and agricultural exports in the short-run.

Ezu and Osakwe (2023) studied the effect of non-oil sector on the growth of Nigerian economy covering the period 1990-2021. The data were gathered from the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). Agricultural sector exports, manufacturing sector exports as proxies for non-oil sector, and deposit money bank credit as a controlled variable were used while GDP was used as proxy for economic growth. Ordinary Least Squares (OLS) technique employed and the results revealed that agricultural sector exports and manufacturing exports had negative and positive significant impact on economic growth in Nigeria respectively. Deposit money bank credit to the non-oil sector had a positive but insignificant impact on economic growth in Nigeria.

Puepet, Ikande, Madaki and Timnan (2023) x-rayed the effects of non-oil exports on economic growth in Nigeria using time series from 1986-2020. The data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, World Trade Organization (WTO) and World Bank Development Indicators (WBDI). Autoregressive Distributive Lag (ARDL) bounds test was employed to analyze the effect of non-oil exports on economic growth in Nigeria. The findings of the study revealed that agricultural exports and services exports impacted on economic growth positively and statistically significant in the short-run and long-run. Manufacturing exports impacted positively on economic growth only in the short-run.

Okoli, Ezenekwe, Nzeribe and Collins (2023) determined impact of non-oil earning on economic growth in Nigeria. Time series data from 1981-2021 were obtained from the Central Bank (CBN) Annual Statistical Bulletin. Autoregressive Distributed Lag (ARDL) bounds and Engel-Granger causality techniques were used to analyze the data sourced. The ARDL bounds testing showed that there existed both short-run and long-run relationships between agricultural goods, solid mineral goods, energy and manufacturing goods, and economic growth in Nigeria. The Engel-Granger (ECM) analysis result revealed that non-oil export earning had positive impact on economic growth in Nigeria.

Shiro, Abjia and Fadu (2023) investigated the impact of non-oil exports on economic growth in Nigeria and the data covered the period 1981-2020. The data were gathered from the Central Bank of Nigeria (CBN) Statistical Bulletin. The study employed Autoregressive Distributed Lag (ARDL) technique of analysis. The results of the ARDL revealed that non-oil exports had a positive and significant impact on economic growth in Nigeria. Exchange rate and inflation rate separately had a statistically and insignificant positive impact on economic growth in Nigeria during the study period.

Akpak, Onuh, Kabuk and Sanni (2022) determined the impact of non-oil earnings on economic growth in Nigeria and the data used for the study covered the period 1990-2021. The data were sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS) and National Export Promotion Council (NEPC). The study employed Ordinary Least Square (OLS) method to analyze the relationship between non-oil exports and economic growth in Nigeria. The estimated result of the OLS revealed that non-oil export earnings had a positive and statistically significant impact on economic growth in Nigeria and it was attributed to high revenue yield from agricultural raw materials.

Kenechukwu and Akujinma (2022) examined the link between non-oil exports and economic growth in Nigeria using Central Bank of Nigeria Annual data Report from 2000-2020. Econometric techniques of Vector Autoregressive (VAR) and Granger causality test were used. The result of VAR revealed that animal exports, vegetable exports and solid mineral exports had positive impact on economic growth while agricultural raw material exports impacted negatively on economic growth during the same study period. The Granger causality showed that vegetable exports caused economic growth.

Young (2022) conducted a study on non-oil sector, economic diversification and economic growth in Nigeria using annual time series data spanning from 1960-2019. Data were obtained from the publications of International Monetary Funds (IMF), Central Bank of Nigeria (CBN) Statistical Bulletin, and World Bank Development Index (WBDI). Vector Error correction Model (VECM),

Autoregressive distributive Lag (ARDL), and Causality test (Toda-Yamamoto-Dolado-Lutkepohl)-TYDL approach were employed. The results of the study established that both short-run and long-run existed between the variables. The results of causality showed no evidence of causality between growth and building and construction sector. Evidence of bidirectional causality was found between growth and manufacturing sector, growth and energy sector, and growth and wholesale and retail trade sector. There was evidence of unidirectional causality running from solid minerals sector to economic growth and from services to economic growth.

3.0 METHODOLOGY

The study adopted ex-post-facto research design using econometric model to determine the impact of agricultural exports on unemployment reduction in Nigeria covering the period 1986-2025. The justification for the choice of ex-post-facto research design is not only based on the availability of time series data on agricultural exports and unemployment rate in Nigeria but on reliable facts on the variables of interest. The ex-post facto research design relies on historical facts that already exist (Akpan & Obayori, 2022). The data for the study were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletins, National Bureau of Statistics (NBS) publications and World Development Indicators (WDI) publications. The data for the study were time series in nature and thus, Phillips-Peron (1978) unit root test was used to check whether the time series variables have unit root or not. The Autoregressive Distributed Lag (ARDL) is used as an econometric technique in the estimation of the model. The variables of interest are presented in table 1.

Table 1: Summary of Variables of Study (Non-Oil Exports and Economic Growth)

SN	Variables Acronym	Meaning as used in this Study	Types of variable	Unit of Measurement	Expected Sign	Data Source
1	RGDP	Real GDP	Dependent	₦ Billion	(+)	NBS
2	AGEX	Agricultural Exports	Independent	₦ Billion	(+)	WDI
3	MAEX	Manufacturing Exports	Independent	₦ Billion	(+)	WDI
4	SMEX	Solid Mineral Exports	Independent	₦ Billion	(+)	WDI
5	SREX	Services Exports	Independent	₦ Billion	(+)	WDI
6	INFL	Interest Rate	Independent	Percent	(-)	CBN
7	INTR	Inflation Rate	Independent	Percent	(-)	CBN
8	EXCR	Exchange Rate	Independent	Percent	(-)	CBN

Source: Authors' Compilation (2025)

3.1 Model Specification

The study adopted the Export-led growth hypothesis propounded by Kindelberger (1962). This is justified on the basis that the theories explained the theoretical framework that supported the relationship between non-oil exports and economic growth. The studies of Okoli, Ezenekwe, Nzeribe and Collins (2023) and Puepet, Ikande, Madaki and Timnan (2023) were adapted with some modifications in terms of the variables utilized.

The model for the study is specified as:

$$RGDP = f(NOEX) \quad (1)$$

$$RGDP = f(AGEX, MAEX, SMEX, SREX, INTR, INFL, EXCR) \quad (2)$$

$$RGDP = AGEX + MAEX + SMEX + SREX - INTR - INFL - EXCR \quad (3)$$

$$RGDP = \beta_0 + \beta_1 \ln AGEX + \beta_2 \ln MAEX + \beta_3 \ln SMEX + \beta_4 \ln SREX - \beta_5 INTR - \beta_6 INFL - \beta_7 EXCR + \mu t \quad (4)$$

Since some of the variables were not in the same unit, they were logged to obtain a common base.

Where:

RGDP - Real Gross Domestic Product (Proxy for economic growth)

NOEX - Non-oil Exports

AGEX - Agricultural exports' contribution to non-oil export

MAEX - Manufacturing exports contribution to non-oil export

SMEX - Solid mineral exports' contribution to non-oil export

SREX - Services exports' contribution to non-oil export

INTR - Interest Rate

INFL - Inflation Rate

EXCR - Exchange Rate

μt - Error term

The mathematical expression is given as; $RGDP = AGEX + MAEX + SMEX + SREX - INTR - INFL - EXCR$. The *a priori* expectation based on theoretical postulation was that increase in *AGEX*, *MAEX*, *SMEX*, and *SREX* would lead to increase in economic growth (*RGDP*) in Nigeria while increase in *INTR*, *INFL*, and *EXCR* would lead to decrease in *RGDP*. The *a priori* expectations are; $\beta_0, \beta_1, \beta_2, \beta_3$, and $\beta_4 > 0$ while β_5, β_6 , and $\beta_7 < 0$.

3.2 Model Estimation

The mathematical function of the Autoregressive Distributed Lag (ARDL) Vector Error is expressed as:

$$\begin{aligned} \Delta \ln RGDP_t = & \alpha_0 + \alpha_1 \ln RGDP_{t-1} + \alpha_2 \ln AGEX_t + \alpha_3 \ln AGEX_{t-1} + \alpha_4 \ln MAEX_t + \alpha_5 \ln MAEX_{t-1} + \alpha_6 \ln SMEX_t + \\ & \alpha_7 \ln SMEX_{t-1} + \alpha_8 \ln SREX_t + \alpha_9 \ln SREX_{t-1} + \alpha_{10} \ln INTR_t + \alpha_{11} \ln INTR_{t-1} + \alpha_{12} \ln INFL_t + \alpha_{13} \ln INFL_{t-1} + \alpha_{14} \ln EXCR_t + \\ & \alpha_{15} \ln EXCR_{t-1} + \sum \phi \Delta UNER_{t-1} + \sum \beta \Delta \ln AGEX_{t-1} + \sum \lambda \Delta \ln MAEX_{t-1} + \sum \partial \Delta \ln SMEX_{t-1} + \sum \pi \Delta \ln SREX_{t-1} + \\ & \sum \psi \Delta \ln INTR_{t-1} + \sum \varrho \Delta \ln INFL_{t-1} + \sum \gamma \Delta \ln EXCR_{t-1} + \mu t \end{aligned} \quad (5)$$

The *a priori* expectations based on economic theory postulation of the slopes of the coefficients of long-run parameter estimates of the explanatory variables; α_1, α_2 and α_3, α_4 and α_5, α_6 and α_7, α_8 and α_9, α_{10} and α_{11}, α_{12} and α_{13}, α_{14} and $\alpha_{15} > 0$. Economic Growth (*RGDP*) is the dependent variable while the independent variables are; Agricultural Exports (*AGEX*), Manufacturing Exports (*MAEX*), Solid Mineral Exports (*SMEX*), and Services Exports (*SREX*). Interest Rate (*INTR*), Inflation Rate (*INFL*) and Exchange Rate (*EXCR*) are the control variables. This implies that a positive relationship is expected between non-oil exports' components and economic growth in Nigeria. α_0 is the intercept, t is a temporal time trend, $t-1$ is the time lag, and μt is a random error term. Note that $\phi, \beta, \lambda, \partial, \pi, \psi, \varrho$ and γ are the coefficients of the short-run parameter estimates of the ARDL simulations model.

4.0 RESULTS AND DISCUSION

4.1 Pre-Estimation Test

Unit Root Results

Table 2: Augmented Dickey-Fuller (ADF) and Philips-Perron Unit Root Tests Results

Variables	ADF		PP		Order of Integration
	At Level P-value	1 st Difference P-value	At Level P-value	1 st Difference P-value	
LRGDP	0.4902	0.0007**	0.4902	0.0007**	I(1)
LAGEX	0.1589	0.0000**	0.2225	0.0000**	I(1)
LMAEX	0.5587	0.0000**	0.4735	0.0000**	I(1)
LSMEX	0.9143	0.0003**	0.9860	0.0003**	I(1)
LSREX	0.7434	0.0006**	0.7113	0.0005**	I(1)
INFL	0.4271	0.0000**	0.1776	0.0000**	I(1)
INTR	0.0002**	0.0000**	0.0002**	0.0000**	I(0)
EXCR	0.9994	0.0001**	0.9999	0.0001**	I(1)

**Denotes significant at 5% level

Source: Authors' Computation (2025) using E-views12

The results of both the ADF and PP presented in Table 2 showed that the variables of interest (RGDP, AGEX, MAEX, SMEX, SREX, INFL, and EXCR) were not stationary at 5% level of significance except INTR. This was confirmed by the test results of both Augmented Dickey Fuller and Phillip Perrons. This justified the use of ARDL for the estimation of the model since the variables had a mixture of I(0) and I(1) whereas

4.2 Lag Length Result

Table 3: Lag Length Selection Test Result

	Lag	LogL	LR	FPE	AIC	SIC	HQ
Model 1	0	-1686.290	NA	1.05e+31	94.12722	95.47911	94.25004
	1	-1445.161	361.6927	6.07e+26	84.28675	87.45378	85.39213
	2	-1344.570	106.1799	1.40e+26	82.25389	88.23607	84.34183
	3	-1159.781	112.9264*	1.19e+24*	75.54341*	84.34073*	76.61391*

*Indicates lag order selected by the criterion

Source: Authors' Computation (2025) using E-views12

The lag length was selected based on the Schwartz Information Criterion (SIC). The result of the lag length showed that the maximum lag for the model is 1 that is ($i_{\max} = 3$). The result is presented in Table 3.

4.3 **ARDL Bound Test Result**

Table 4: Bounds Cointegration Test Result

Test Statistic	Significant Level	Critical Value	
F-Statistic		Lower Bound	Upper Bound
26.12537	1%	2.73	3.9
	5%	2.17	3.21
	10%	1.92	2.89

Source: Authors' Computation (2025) using E-views12

Based on minimizing the Schwartz Information Criterion (SIC), the estimated ARDL bound test result revealed that the bound F-test for cointegration showed evidence of a long-run relationship between Real Gross Domestic Product and non-oil exports in Nigeria. The computed F-statistic ($F_{cal} = 26.12537$) is greater than both the lower and upper bounds at 5% critical value (that is $F_{cal} > 2.17$, and 3.21) respectively. Therefore, the null hypothesis of no long-run relationship between the examined variables was rejected and the alternative hypothesis was accepted. This ruled out the possibility of spurious estimated relationship. Since there existed a long-run relationship between the variables, it became necessary to conduct ARDL test to achieve objective of the study.

4.4 **Short and Long Run Autoregressive Distributed Lag (ARDL) Results**

The results of the Autoregressive Distributed Lag (ARDL) are presented in Table 5.

Table 5: Autoregressive Distributive Lag (ARDL) Results

Variable	Coefficient	SHORT-RUN		
		Std. Error	t-Statistic	P-value
D(RGDP)(-1))	0.637673	0.064330	9.912472	0.0000**
D(AGEX)	1.102805	0.020986	52.54928	0.0000**
D(MAEX)	-0.308925	0.070422	-4.386748	0.0011**
D(SMEX)	-18.74305	2.071057	-9.049995	0.0000**
D(SREX)	2.736900	0.168177	16.27388	0.0000**
D(INTR)	-31.31944	3.582239	-8.742978	0.0000**
D(INFL)	-12.80622	4.471065	-2.864245	0.0154**
D(EXCR)	3.038912	0.536695	5.662275	0.0001**
ECt-1	-1.308289	Durb-Wat. Stat	2.345279	
LONG-RUN				
C	2166.189	656.1502	3.301361	0.0071**
(LAGEX)	0.956102	0.065032	14.70202	0.0000**
(LMAEX)	-0.921084	0.521460	-1.766356	0.1050
(LSMEX)	3.870174	2.087377	1.854084	0.0907
(LSREX)	1.874151	0.660572	2.837165	0.0162**
(INTR)	-25.38179	7.119959	-3.564879	0.0044**
(INFL)	-9.788531	4.228779	-2.314742	0.0410**
(EXCR)	2.322815	0.475304	4.887008	0.0005**

R^2 -squared = 0.859614

Prob(F-statistic) = 0.000000

F-statistic = 1339582

Durbin-Watson Stat = 2.682309

** indicated 5% significance level

Source: Authors' Computation (2025) using E-views12

5.0 DISCUSSION OF FINDINGS

The ARDL results revealed that all the components of the non-oil exports (AGEX, MAEX, SMEX, and SREX) used in the study were statistically significant, and impacted on RGDP in Nigeria during the period under review. Real Gross Domestic Product (RGDP) in the past year had a positive and statistically significant impact on RGDP in the current year in Nigeria. This implied that the past values of RGDP were used to interpret its current values. Agricultural exports (AGEX) had a positive and significant impact on RGDP in Nigeria. This was due to the realization of the relevance of agricultural exporting activities for economic growth, improved national agricultural policies, schemes linked to export promotion and sales of agricultural produce. This finding corroborated with the studies conducted by Puepet, Ikande, Madaki and Timnan (2023) but disagreed with the studies of Kenekchukwu and Akujinma (2022), and Ezu, and Osakwe (2023).

The finding of the study also established that manufacturing exports (MAEX) had a negative and significant impact on RGDP in Nigeria. This indicated that increase in manufacturing exports led to decrease in RGDP in Nigeria during the study period. The finding of a negative impact of manufacturing exports (MAEX) on RGDP was in consonance with the study of Ezu, and Osakwe (2023) but it contradicted the findings of the studies conducted by Puepet, Ikande, Madaki and Timnan (2023).

The finding of the study revealed that solid mineral exports (SMEX) had a negative and statistically significant impact on RGDP in Nigeria. This showed that an increase in solid mineral exports led to decrease in RGDP during the period of this study. Legalization of mining of solid minerals linked to improved and regulated exports was responsible for increased RGDP during the reviewed period. This finding supported the studies of Kenekchukwu and Akujinma (2022), and Okoli, Ezenekwe, Nzeribe and Collins (2023) but did not agree with the study conducted by Akpak, Onuh, Kabuk and Sanni (2022). The study established that services exports (SREX) had a positive and statistically significant impact on RGDP in Nigeria. This indicated that increase in services exports led to increase in RGDP in Nigeria. The finding of the study also showed that interest rate (INTR) had a negative and significant impact on RGDP. This indicated that increase in interest rate led to decrease in RGDP within the study period.

The finding of the study revealed that inflation rate (INFL) had a negative and statistically significant impact on RGDP. This indicated that increase in inflation rate led to decrease in RGDP during the study period. This was due to mismatch between the volume of non-oil exports and their general prices. Persistent rise in the prices of non-oil exports due to high demand accompanied by low supply was responsible for negative relationship between inflation rate and RGDP in Nigeria. The finding of the study indicated that exchange rate (EXCR) had a positive and significant impact on RGDP. This implied that increase in exchange rate led to increase in RGDP and this could be due to high supply of non-oil exports linked to high exchange rates and the depreciation of the Nigerian currency

(Naira). Depreciation of a currency is associated with increase in exports (non-oil exports) but the undervalued of the Nigerian currency due to high exchange rate accounted for the positive relationship between EXCR and RGDP. The Error Correction Term (ECT) of the short-run dynamics was negative (-1.308289) and correctly signed. It suggested that the speed of adjustment from short-run to long-run equilibrium will be corrected by 131%. This depicted the case of over-shocks of some variables. The coefficient of determination ($R^2 = 0.839614$) implied that 86% variation in the dependent variable (RGDP) was accounted for by the independent variables (AGEX, MAEX, SMEX, SREX, INTR, INFL, and EXCR). The adjusted R^2 was 0.832447 and this showed that the model was well fitted and can be relied upon for policy recommendations.

5.1 **Diagnostic Test Results**

The results of the diagnostic tests are presented in Table 6.

Table 6: Diagnostic Test Results

Test	F(stat)	Prob.
Serial Correlation Test /Breush-Godfrey LM Test	2.302057	0.1397
Heteroskedasticity Test /Breush-Pagan Godfrey Test	4.146021	0.2325
Specification Error Test /Ramsey Reset Test	0.504519	0.4830

Source: Authors' Computation (2025) using E-views12

The p-value (0.1397) of the serial correlation test was greater than the typical significance level of 0.05, we accept the null hypothesis that there was no serial correlation in the residuals. The p-value (0.2325) of heteroskedasticity test was greater than 0.05, we accept the null hypothesis that the variance of the residuals was constant. The Ramsey Reset test was used to detect non-linear relationships between the dependent variable and the independent variables. The p-value (0.4830) was found to be greater than the significance level of 0.05, and therefore, the null hypothesis of misspecification is accepted. This showed that the model was not mis specified and the relationships between the variables were adequately captured by the linear specification

5.2 **Stability Test Result**

The result of the stability test is presented in Figure 1.

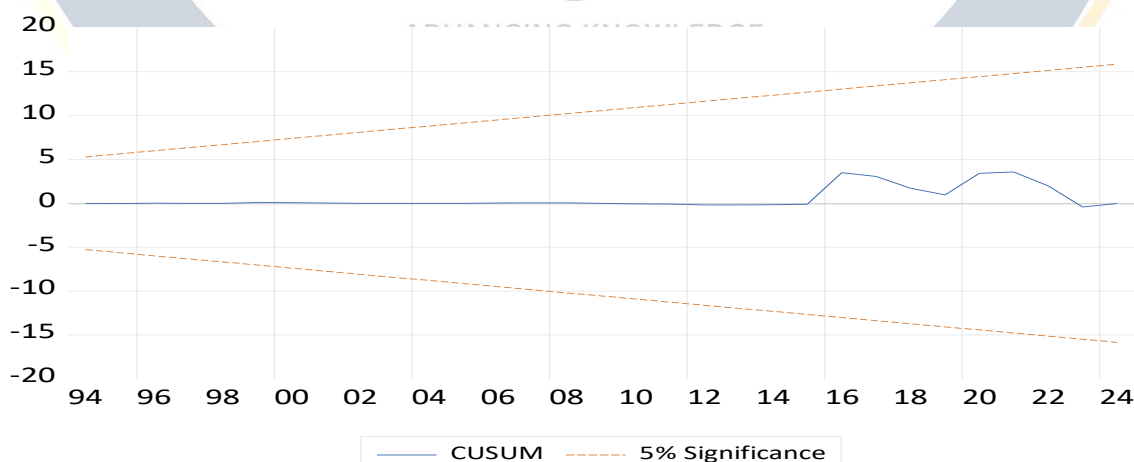


Figure 1: CUSUM Stability Test

Figure 1 presented the CUSUM stability of the impact of non-oil exports on economic in Nigeria. The CUSUM was within the required region of 5% and this showed that the impact of non-oil exports on economic growth in Nigeria was stable under the period of review.

6.0 CONCLUSION AND POLICY RECOMMENDATIONS

The study provided empirical evidence on the impact of non-oil exports on economic growth in Nigeria utilizing time series data that spanned from 1986-2025. The ARDL bounds test approach employed for the study showed existence of long-run relationship between non-oil exports and economic growth.

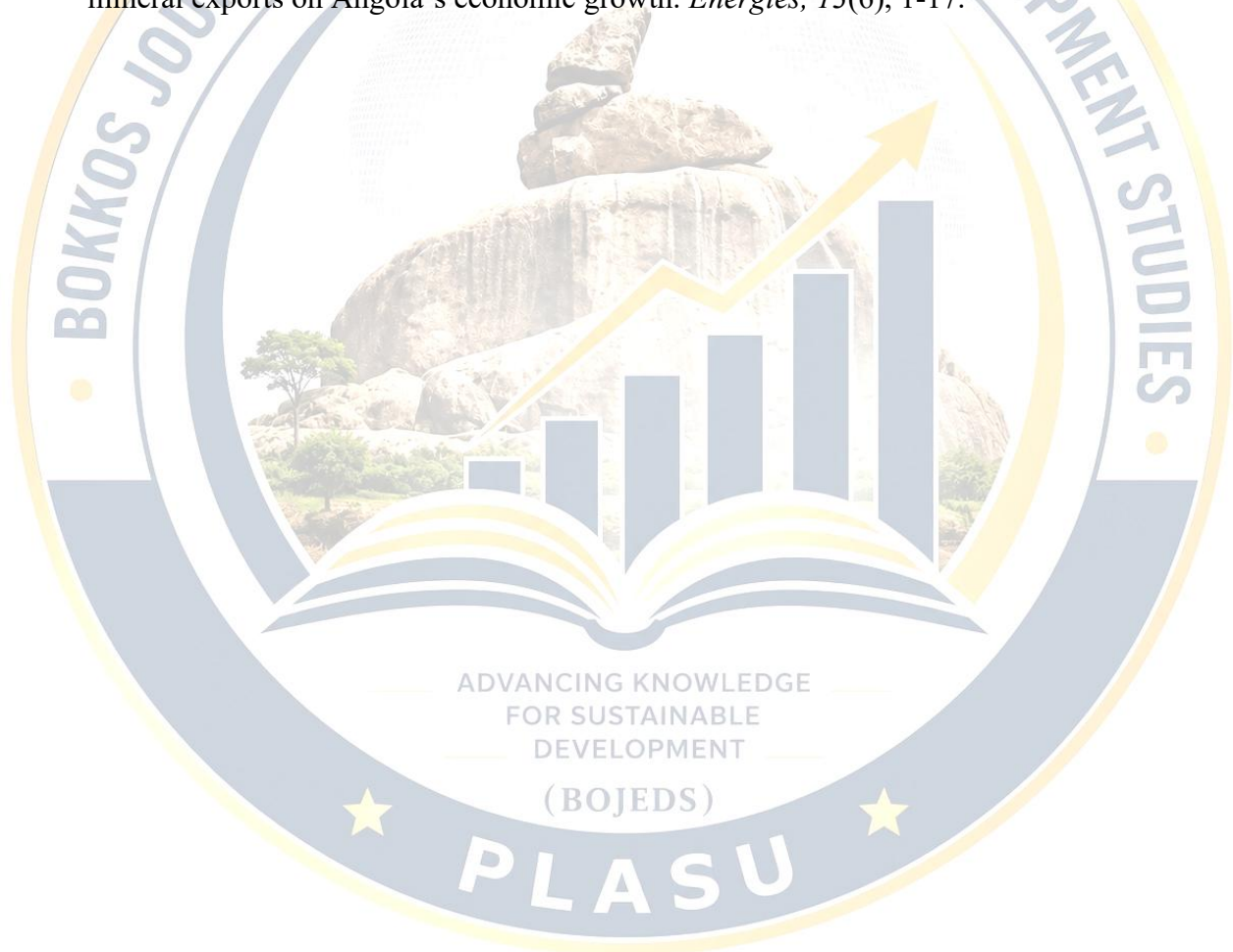
The study concluded that the non-oil exports (agricultural exports and services exports) all had statistically significant positive impact on economic growth in Nigeria except manufacturing exports and solid mineral exports which had a negative but statistically significant impact on economic growth in Nigeria during the study period. It implied that agricultural exports and services exports increased economic growth in Nigeria while manufacturing and solid mineral exports reduced economic growth. The study recommended that the statistically significant positive impact of agricultural exports and services exports on economic growth in Nigeria should be improved upon, strengthen and sustained by the Nigerian government especially by the Federal Ministry of Agriculture and Food Security, Federal Ministry of Trade and Investment, Bank of Agriculture and the Central Bank of Nigeria. The statistically significant negative impact of manufacturing exports and solid mineral exports on economic growth should be addressed through government improved expenditure on the subsectors. This can be achieved through supporting government policies and programmes and ensuring increase in budget allocation to agricultural, manufacturing, mining, and services sectors at all levels of the Nigerian government.



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APPENDIX

Autoregressive Distributed Lag (ARDL) Results

ARDL Error Correction Regression

Dependent Variable: D(RGDP)

Selected Model: ARDL(2, 3, 3, 3, 3, 3, 0, 0)

Case 2: Restricted Constant and No Trend

Date: 05/09/26 Time: 05:02

Sample: 1986 2025

Included observations: 37

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coeff.	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	0.637673	0.064330	9.912472	0.0000
D(AGEX)	1.102805	0.020986	52.54928	0.0000
D(AGEX(-1))	-0.840392	0.059724	-14.07128	0.0000
D(AGEX(-2))	0.303564	0.025146	12.07208	0.0000
D(MAEX)	-0.308925	0.070422	-4.386748	0.0011
D(MAEX(-1))	0.237017	0.091373	2.593956	0.0250
D(MAEX(-2))	1.552627	0.100154	15.50235	0.0000
D(SMEX)	-18.74305	2.071057	-9.049995	0.0000
D(SMEX(-1))	-7.202705	2.540909	-2.834696	0.0162
D(SMEX(-2))	-7.875396	2.489273	-3.163734	0.0090
D(SREX)	2.736900	0.168177	16.27388	0.0000
D(SREX(-1))	-2.386770	0.166190	-14.36171	0.0000
D(SREX(-2))	-0.943528	0.158389	-5.957045	0.0001
D(INTR)	-31.31944	3.582239	-8.742978	0.0000
D(INTR(-1))	-14.62936	3.878784	-3.771636	0.0031
D(INTR(-2))	-14.00449	2.928738	-4.781747	0.0006
CointEq(-1)*	-1.308289	0.092632	-14.12356	0.0000

Mean dependent			
R-squared	0.839614	var	507.0450
Adjusted R-squared	0.832447	S.D. dependent var	1305.982
Akaike info			
S.E. of regression	65.99359	criterion	11.52236
Sum squared resid	82747.93	Schwarz criterion	12.27013
Hannan-Quinn			
Log likelihood	-190.4024	criter.	11.78335
Durbin-Watson stat	2.345279		

* p-value incompatible with t-Bounds distribution.

Null Hypothesis: No levels relationship

F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	12.83173	10%	1.92	2.89
K	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9

ARDL Long Run Form and Bounds Test

Dependent Variable: D(RGDP)

Selected Model: ARDL(2, 3, 3, 3, 3, 3, 0, 0)

Case 2: Restricted Constant and No Trend

Date: 05/09/26 Time: 05:02

Sample: 1986 2025

Included observations: 37

Conditional Error Correction Regression

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	2834.000	658.5632	4.303308	0.0012
RGDP(-1)*	-1.308289	0.235152	-5.563589	0.0002
AGEX(-1)	1.250857	0.209872	5.960086	0.0001
MAEX(-1)	-1.205044	0.560548	-2.149761	0.0547
SMEX(-1)	5.063304	2.665952	1.899248	0.0841
SREX(-1)	2.451930	0.646566	3.792236	0.0030
INTR(-1)	-33.20671	10.79968	-3.074786	0.0106
INFL**	-12.80622	4.471065	-2.864245	0.0154
EXCR**	3.038912	0.536695	5.662275	0.0001
D(RGDP(-1))	0.637673	0.123190	5.176359	0.0003
D(AGEX)	1.102805	0.054253	20.32722	0.0000
D(AGEX(-1))	-0.840392	0.155312	-5.411001	0.0002
D(AGEX(-2))	0.303564	0.076708	3.957406	0.0022
D(MAEX)	-0.308925	0.167409	-1.845330	0.0921
D(MAEX(-1))	0.237017	0.420330	0.563883	0.5841
D(MAEX(-2))	1.552627	0.512984	3.026656	0.0115
D(SMEX)	-18.74305	4.535924	-4.132136	0.0017
D(SMEX(-1))	-7.202705	4.590998	-1.568876	0.1450
D(SMEX(-2))	-7.875396	5.215506	-1.509997	0.1592
D(SREX)	2.736900	0.416981	6.563602	0.0000
D(SREX(-1))	-2.386770	0.777894	-3.068247	0.0107
D(SREX(-2))	-0.943528	0.336916	-2.800485	0.0173
D(INTR)	-31.31944	7.516028	-4.167020	0.0016

D(INTR(-1))	-14.62936	8.129279	-1.799589	0.0994
D(INTR(-2))	-14.00449	5.437904	-2.575346	0.0258

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coeffict	Std. Error	t-Statistic	Prob.
AGEX	0.956102	0.065032	14.70202	0.0000
MAEX	-0.921084	0.521460	-1.766356	0.1050
SMEX	3.870174	2.087377	1.854084	0.0907
SREX	1.874151	0.660572	2.837165	0.0162
INTR	-25.38179	7.119959	-3.564879	0.0044
INFL	-9.788531	4.228779	-2.314742	0.0410
EXCR	2.322815	0.475304	4.887008	0.0005
C	2166.189	656.1502	3.301361	0.0071

$$EC = RGDP - (0.9561*AGEX - 0.9211*MAEX + 3.8702*SMEX + 1.8742 *SREX - 25.3818*INTR - 9.7885*INFL + 2.3228*EXCR + 2166.1886)$$

Null Hypothesis: No levels relationship				
F-Bounds Test	Value	Signif.	I(0)	I(1)
Test Statistic				
Asymptotic c: n=1000				
F-statistic	12.83173	10%	1.92	2.89
K	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9
Finite Sample: n=40				
Actual Sample Size	36	10%	2.152	3.296
		5%	2.523	3.829
		1%	3.402	5.031

Finite
Sample:
n=35

10%	2.196	3.37
5%	2.597	3.907
1%	3.599	5.23

