NON-OIL EXPORTS AND ECONOMIC GROWTH IN NIGERIA: AN EMPIRICAL ANALYSIS

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ABSTRACT
This research utilizes yearly data from 1971 to 2021 to analyse the trajectory of non-oil exports and its impact on the economic growth of Nigeria. The analysis of the data was conducted utilising the Bayesian vector autoregressive model. The study's findings provide empirical evidence supporting the notion that non-oil exports have a positive and statistically significant impact on economic growth in Nigeria. For instance, the percentage rise in cocoa exports during the last year (QCXP (-1)) and the past two years (QCXP (-2)) resulted in a corresponding increase in GDP of around 0.12 percent and 0.39 percent, respectively. Furthermore, it is worth noting that the Gross Domestic Product (GDP) exhibited a growth of around 0.59 percent and 0.49 percent correspondingly subsequent to a one percent upsurge in palm kernel exports throughout the preceding one year (QPKX (-1)) and the preceding two years (QPKX (-2)). Moreover, the export of rubber in Nigeria has been found to have a notable and favourable influence on the country's economic growth. Specifically, a one percent increase in the quantity of rubber exported in the current and previous years (QRXP (-1) and QRXP (-2)) corresponds to about 13.1 percent and 7.9 percent increases in the Gross Domestic Product (GDP) of Nigeria, respectively. The findings indicate a 1% rise in EXRT (-1), while EXRT (-2) correspondingly led to a GDP growth of around 0.16% and 0.35% respectively. Based on the empirical evidence, it is strongly advised that the Nigerian government should enhance its endeavours in the cultivation and processing of cocoa, palm kernel, and rubber as a means to foster the holistic economic advancement of the nation.
Keywords: Non-Oil Export, Exchange Rate, and Economic Growth
JEL: O4, O40, O43, O47.

1. INTRODUCTION
The significance of exports in driving economic growth has been extensively studied and recorded in international economic writing on a worldwide scale. The adoption of the export-led growth hypothesis (ELGH) by several nations in the twenty-first century further contributed to its

intensification. The countries commonly referred to as the "Asian Tigers" - namely Hong Kong, Taiwan, Singapore, and South Korea - experienced significant economic growth by adopting a strategy of economic liberalization and focusing on the production of exportable goods in which they possessed a comparative advantage over their trading counterparts (Pazim, 2009). Likewise, in the Latin American region, nations such as Mexico and Brazil have seen favorable economic expansion by prioritizing export-oriented industry endeavors.

In Africa, like the Asian and Latin American economies, many countries have demonstrated the potential to speed up their economic growth process through export promotion strategies. Most of these economies are liberal economies with a major proportion of aggregate output being determined by international transactions. For example, Burkina-Faso, Tanzania, Malawi, and Uganda, among others, are open to the global market and have adopted the export promotion strategy at one time or the however, the success recorded was generally abysmal (Yelwa & Diyoke, 2013). The failure was attributed to some factors such as corruption and inconsistency in policy design.

The transition from import-substitution industrialization strategy (ISI) to export promotion policy in West African economies was prompted by the failure of early 1970s and 1980s ISI approaches to effectively address economic irregularities and promote economic liberation. For instance, although there is a prevailing belief in the effectiveness of ISI in nations that have implemented it, the persistent challenges of unemployment, inflation, and hindered economic growth continue to prevail in these countries. The sluggish development rate of several West African economies, like Ghana, Gambia, and Nigeria, is apparent.

According to Adesoji (2013), non-oil export commodities like as Cocoa, Rubber, and Palm Kernel have been recognized as drivers of comprehensive development and a means to enhance the country's revenues. This, in turn, creates opportunities for economic progress by elevating the national income level. In Nigeria, in the early time of independence, agricultural products were the major exportables, accounting for over 70 per cent of total non-oil exports. Major non-oil export products, from 1960s to 2010, included cocoa, coffee, rubber, and groundnuts. These products, in addition to Sesame seeds, cashew nuts, cocoa beans, cotton, and ginger became the major Nigeria's exportables products from 2010 to 2020, accounting for about ₦289.3 billion in export revenue in March 2020. According to the National Bureau of Statistics (2020), Sesame seeds and Cocoa are prominent agricultural exports in Nigeria, collectively contributing to more than 60% of the country's total agricultural export revenue. In the year 2020, Nigeria generated a total revenue of ₦112.8 billion through its exports of Sesame seeds and ₦109.6 billion from the export of cocoa. These two commodities constituted 38.9% and 37.8% of the highest agricultural exports, respectively. According to Adeyeye (2014), the primary trading partners for Nigerian products consist of Japan, China, Turkey, India, and Vietnam.

Although Non-oil export consists of visible and invisible exports that do not form part of oil export such as manufactured products, agricultural products, services, and solid minerals, in this study however, non-oil export is restricted to the volume of cocoa commodities exported, volume of palm kernel exported, and volume of rubber exported within the period of investigation. The

perspective on non-oil export presented here aligns with the findings of Ahungwaet et al. (2014). The contribution of non-oil exports to Nigeria's economic growth is significant as it generates the necessary foreign exchange profits to support various capital development initiatives. In the field of agriculture, cocoa plays a significant role in Nigeria's export profits, accounting for around 41.6% of the total. Nigeria holds the fourth position globally in terms of cocoa output, trailing after Cote d'Ivoire, Ghana, and Indonesia. As of 2013, Nigeria has a production capacity of 340,163 tonnes, as reported by Adesoji. Moreover, Nigeria has the position of being the fifth-largest global producer of palm kernels. However, despite this significant production capacity, Nigeria remains a net importer of the commodity due to its substantial domestic demand. According to Amaoa et al. (2021), the nation's palm kernel oil exports reached a value of ₦2.48 billion in the third quarter of 2021. Additionally, the sale of rubber to China amounted to US$5.07 million throughout the course of 2021.

The agricultural industry in Nigeria predominantly contributes to non-oil exports, which primarily encompass commodities such as cocoa, coffee, cashew nuts, and palm oil. Nevertheless, the markets for these items exhibit significant volatility in both their volume and price dynamics. Between the years 1980 and 1985, there was a notable decline in the Gross Domestic Product (GDP) per capita, specifically a decrease of 15 percent (Jones & Kiguel, 1994). This decline may be attributed to a decrease in exports, which saw a decline of 10.9 percent over the same time frame. Furthermore, during the period from 1985 to 1990, there was a notable decrease of around 12.2 percent in the proportion of non-oil exports in relation to the Gross Domestic Product (GDP), but the proportion of imports had a consistent upward trend. Between the years 2010 and 2016, the exportable goods had consistent increase, increasing by 180.7% compared to the levels observed in 2016, reaching a value of ₦170.4 billion ($550.9 million). The export performance indicators exhibited a good trend during the year 2018; however, a significant decline was seen in the subsequent year of 2019. In 2019, Nigeria had a decline of 30.23% in its non-oil export volumes. Specifically, the value of the country's agricultural exports plummeted by ₦32 billion, going from ₦30,302 billion in 2018 to ₦270 billion in 2019.

Additionally, according to the International Cocoa Organization (ICCO) (2017), there has been a notable decrease in cocoa production in Nigeria over the years, with a recorded output of 210,000 metric tonnes in 2017. This decline is concerning given the rising global demand for cocoa. Despite this decline, Nigeria still holds the sixth position among cocoa-producing countries worldwide. In 2021, Nigeria's cocoa production accounted for approximately 5% of the total market share. Similar to cocoa, Nigeria has experienced a consistent decrease in its domestic palm oil output, resulting in the nation's transitioning from being a net exporter to a net importer of this commodity in recent years. In the year 2017, the domestic output of the country amounted to 970,000 metric tonnes (mt), but the demand reached 2.7 million mt, resulting in a deficit of 1.73 million mt. In the year 2017, the nation's importation of palm oil amounted to 450,000 metric tonnes, with a corresponding expenditure of ₦116.3 billion.

In a similar vein, the production of rubber has exhibited a decline through time, with a notable high of 113,479 metric tonnes in 1970 gradually decreasing to 46,000 metric tonnes in 2004. Subsequently, there has been a lack of any growth in production, with the exception of a notable increase seen in 2018. The inadequate rubber output in Nigeria may be attributed to several issues, including the low yield of trees, particularly those of unclear lineage that dominate tiny holdings, as well as the prevalence of aged trees that have beyond their peak productivity.

The Nigerian government has undertaken many initiatives and enacted a range of policies aimed at enhancing the prospects of non-oil exports in the country. One of the ongoing efforts in 2021 is the Race to $200 billion Non-Oil Export Earnings (RT200) Programme. The RT200 initiative encompasses a comprehensive framework consisting of strategies, guidelines, and initiatives aimed at augmenting the country's revenue only via non-oil exports, with the objective of achieving a foreign exchange repatriation of $200 billion within a span of five years (CBN, 2022). The RT200 project has five key components, namely the Value Adding Exports Facility (VEF), Non-Oil Commodities Expansion Facility (NCEF), Non-Oil FX Rebate Scheme (NFRS), Dedicated Non-Oil Export Terminal, and the organization of a Bi-annual Non-Oil Export Summit. These anchors have been strategically constructed to facilitate the successful implementation of the effort.

Under the RT200 scheme, the CBN will pay non-oil exporters ₦65 for every $1 repatriated and sold to Authorized Dealers and Banks (ADBs) for other third party use, and ₦35 for every $1 repatriated and sold for own use on eligible transactions only. The payment of the rebate, which is quarterly, commenced in 2022 with 150 exporters receiving ₦3.5 billion as rebate for selling $60 million export proceeds to the ADBs in Nigeria. Following the successful commencement of the rebate scheme, the CBN and the banks organized the maiden non-oil export summit in the third quarter of 2022 to mobilize stakeholder support and harness ideas on how to increase the volume and value of non-oil exports out of the country.

Nevertheless, the issue of whether non-oil exports contribute to economic development remains a topic of contention within academic circles. For instance, several studies, including Okolie et al. (2023), Taiga and Ameji (2020), Osabohien et al. (2019), Simasiku and Sheefeni (2017), Ojo and Olufemi (2014), and Ahungwaet et al. (2014), have demonstrated a positive relationship between exports and economic growth. Conversely, the research conducted by Amaoa et al. (2021), Sayef and Mohamed (2017), and Verter (2016) has revealed a negative association between exports and economic growth. In light of the divergent conclusions reached by these research, it is imperative to make a meaningful contribution to the ongoing discourse.

This study aims to analyze the trajectory and impact of non-oil exports on the economic growth of Nigeria from 1971 to 2021. In order to accomplish this goal, the study has been structured into five distinct sections. The initial section serves as the introduction, whilst subsequent sections encompass the literature review and the technique, respectively. The fourth section of the paper entails the examination and analysis of the obtained results and findings, while the fifth section encompasses the conclusion and recommendations.

2. LITERATURE REVIEW
2.1 Conceptual Literature
Non-oil Export

According to Shombe (2008), non-oil exports refer to agricultural commodities that are transferred beyond international boundaries. These items are seen as integral components of plans aimed at sustaining the pace of growth, particularly when prospects for productive work continue to expand. According to McMichael (2009), agricultural export refers to the process of exporting goods by producing nations to other economies that have shown the need for them. These items often provide significant contributions to economic development through four primary channels: product contribution, factor contribution, market contribution, and foreign exchange contribution. According to Faridi (2012), the concept of agricultural exports may be defined as the exportation of agricultural goods. In many developing nations, the contribution of the agriculture industry to the overall export volume is typically insufficient.

Economic Growth

According to the National Bureau of Statistics (2013), economic growth may be defined as the sustained rise in real per capita income over a period of time. Gross Domestic Product (GDP) is a metric used to quantify the aggregate value of goods and services generated within a nation's borders. It serves as an indicator of economic activity and provides insights into the well-being of the population residing inside the country within a designated time frame. The usual method of measurement involves calculating the percentage rate of growth in real gross domestic product (GDP). Economic development is commonly understood as the process through which individuals or societies utilize resources and reorganize them in manners that yield increased value.

According to Samuelson and Nordhaus (2002), economic growth may be defined as the increase in the potential of a country's GDP or national production. In other words, the phenomenon of economic growth is observed when a country's production possibility frontier (PPF) undergoes an outward shift. Four elements of economic growth were recognized, including human resources, natural resources, capital formation, and technology. Economic growth can be defined as the expansion of the production of goods and services within an economy. This expansion is achieved by utilizing various factors of production, including natural resources, human resources, capital formation, and technology. As a result, there is a growth in the real gross domestic product (GDP) and the per capita income of a nation, leading to an enhancement in the overall standard of living for its population.

Dwivedi (2004) posits that economic growth refers to a persistent augmentation of the per capita national production or net national product over an extended duration. This suggests that the pace of growth in overall production needs to exceed the rate of population expansion. An additional measure of economic growth entails the consideration that a nation's production should consist of commodities and services that effectively fulfill the highest level of demand among the largest possible population. Economic growth is influenced by four key determinants: human resources, natural resources, capital formation, and technical innovation.

2.2 Theoretical Literature
Hecksher-Ohlin Theory of Factor Endowment

The Hecksher-Ohlin theory, which is commonly referred to as the theory of factor endowment, was developed by two Swedish economists, Hecksher (1919) and Ohlin (1939). This theory focuses on the variations in factor supply, such as land, labor, and capital, and their impact on international specialization. In contrast to the classical model, which attributes trade to varying labor productivity across different commodities and countries, the Heckscher-Ohlin (H-O) model eliminates the inherent disparities in relative labor productivity by assuming that all countries possess equal access to technological capabilities for all commodities.

In the scenario where domestic factor prices are equalized, it may be inferred that all countries would adopt uniform production methods, leading to similar domestic product price ratios and factor productivity across these nations. The foundation of international commerce does not stem from the intrinsic technical disparities in labor productivity across various goods in different countries, but rather from the variations in factor supply among nations. Due to disparities in factor endowments, there will be variations in relative factor prices, such as the comparatively lower cost of labor in countries with sufficient labor supply. Consequently, domestic commodity price ratios and factor combinations will also exhibit differences. Nations endowed with low-cost labor will possess a comparative edge in terms of cost and pricing vis-à-vis nations characterized by higher labor costs, particularly in industries reliant on labor-intensive processes, such as the production of primary goods. Hence, it is imperative for them to prioritize the manufacturing of these labor-intensive commodities and engage in their exportation to acquire excess in exchange for the importation of capital-intensive items.

On the other hand, nations that own significant capital resources will possess a comparative advantage in terms of cost and pricing when it comes to manufacturing goods. This advantage is particularly evident in industries that rely heavily on capital inputs as opposed to labor inputs. Therefore, they have the potential to gain advantages through the process of specializing in the exportation of capital-intensive manufactured goods, while reciprocally importing labor-intensive items from nations with an abundance of labor. Trade, in this context, functions as a means for a nation to effectively utilize its ample resources by engaging in increased production and exportation of goods that necessitate a significant input of these resources. Simultaneously, trade allows the nation to address its scarcity of certain resources by importing goods that require a substantial amount of its comparatively limited resources.

Endogenous Theory of Economic Growth
The endogenous growth hypothesis emphasizes the necessity of consistently allocating additional resources to the labor force in order to achieve productivity growth. The resources encompassed within this context are physical capital, human capital, and intellectual capital, specifically referring to technology. Hence, economic expansion was propelled by the accumulation of factors of production, with this accumulation being a consequence of private sector investments. The notion of endogenous growth posits that economic development is driven by investment in human

capital, innovation, and knowledge. Innovation exerts a favorable impact on the competitiveness of firms, manifesting via many means such as the exploration of new markets, the enhancement of productivity, and the development of novel goods, among others. Additionally, this proposition is grounded on the supplementary premise that internationalization serves as a catalyst for enterprises to enhance their innovation efficiency, as per the learning by exporting hypothesis. From a macroeconomic perspective, this reciprocal process results in the enhancement of the trade balance and the augmentation of economic growth (Oscar, 2000).

Export-Led Growth Theory

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2. 3 Empirical Review

The study conducted by Okoli et al. (2023) aimed to analyze the influence of Nigeria's non-oil exports on the country's real GDP during a period spanning from 1981 to 2021. To do this, the researchers employed two statistical approaches, namely the Auto Regressive Distributed Lag (ARDL) bound test and the CUSUM stability test. The findings of the study indicate the presence of both short-term and long-term associations between the dependent and independent variables in both models. The findings of the Engel-Granger (ECM) analysis indicate a positive relationship between non-oil exports and economic development in Nigeria. Conversely, the results of the ARDL bound test suggest a negative association between the terms of trade of non-oil exports and economic growth in Nigeria. The results of the CUSUM stability test indicate that non-oil exports have a positive and stable influence on economic growth in Nigeria. Conversely, the impact of non-oil exports terms of trade on economic growth is shown to be negative and unstable.

Amaoa et al. (2021) conducted an analysis on the impact of non-oil export items on the economic growth of Nigeria over the period of 1960 to 2016. The data included in this study were obtained from the World Bank development Indicators and afterwards subjected to analysis with the Generalized Method of Moments (GMM). The study of the data reveals that food and live animals, drinks, and tobacco exert a statistically significant negative influence on agricultural exports. Conversely, agricultural exports (total) and crude materials, excluding fats, were determined to have a negative impact but lacked statistical significance. Nevertheless, it is imperative to expand the temporal range of the data beyond the year 2016 in order to include up-to-date information into the research.

Olojede and Michael (2020) investigated the relationship between disaggregated non-oil exports and economic development from 1981 to 2018. They employed the Ordinary Least Square and Granger Causality Approach to analyze the data. The study's findings indicate a robust and enduring correlation between cocoa, oil palm, and economic growth. The obtained granger causality analysis revealed a unidirectional causal relationship, indicating that there is a causality running from the export of oil palm and cocoa to the expansion of the economy. Taiga and Ameji (2020) conducted a research that investigated the influence and correlation between agricultural exports and economic growth in Nigeria by employing the Vector Autoregressive Model. The findings derived from the ordinary least squares (OLS) regression model indicate a statistically significant and positive association between agricultural exports and economic growth.

Osabohien et al. (2019) conducted an analysis on the influence of agricultural export on the economic growth of Nigeria over the period spanning from 1980 to 2016. The researchers employed the ARDL Model as their analytical framework. The results of the analysis indicate a positive and statistically significant relationship between agricultural exports and Nigeria's economic development over the studied period.

Simasiku and Sheefeni (2017) conducted an analysis on the relationship between agricultural exports and economic growth in Namibia. They employed the co-integration and error correction models to examine this association. The empirical findings indicate that agricultural exports have a positive but statistically negligible impact on economic growth in Namibia. On the other hand, non-agricultural exports have a positive and statistically significant influence on the country's Gross Domestic Product (GDP).

The study conducted by Sayef and Mohamed (2017) examined the impact of agricultural exports on economic growth in the region of South-Eastern Europe. To analyze this relationship, the researchers applied various statistical techniques, including OLS regression, Granger Causality, Impulse Response Function, and Variance Decomposition. The findings indicated a negative correlation between the level of agricultural openness and the country's economic growth. The findings of the Impulse Response Function exhibit fluctuations, indicating the occurrence of both positive and negative shocks stemming from agricultural exports on the country's economic growth.

The study conducted by Verter (2016) examined the influence of economic growth on non-oil exports in Nigeria. Secondary data was utilized, and the research utilised the Johansen Co-integration and Granger Causality techniques. The findings indicated an inverse correlation between the level of openness in the agriculture sector and the rate of economic growth. The study's findings suggest that in order for Nigeria to achieve a positive trade balance in agricultural trade, it is advisable to promote the growth of domestic industries. This may be achieved by providing support and incentives to local processing enterprises. Additionally, it is recommended to prevent the importation of items that can be produced inside the nation at a lower cost. Nevertheless, the study was unable to separate the many elements of agricultural exports in order to determine specifically which components will have a sustained impact on economic growth.

Dawson (2015), assess the impact of non-oil exports on the economic growth of some Developed nations. The analysis of the study incorporated two theoretical models. The initial model had an aggregate production function that considered both agricultural and non-agricultural exports as inputs. In contrast, the second model consisted of dual economy models, which encompassed separate agricultural and non-agricultural models. Each of the models has two subsectors, one dedicated to the production of exports and the other focused on the production of non-export goods. The research utilized fixed and random effects models to analyze panel data from 62 least developed countries (LDCs) spanning the years 1974 to 2005. The study elucidated the impact of agricultural exports on economic growth. It is crucial to acknowledge that this study did not provide a detailed breakdown of the agricultural goods exported by the nations under investigation. Consequently, it is difficult to determine which individual items accurately reflect their impact on the economy.

The study conducted by Ojo and Olufemi (2014) aimed to investigate the causal connection between non-oil export and economic growth in Nigeria. The researchers utilized time series data spanning from 1980 to 2012 for their analysis. In this work, the researchers employed the Phillips-Peron unit root, Johansen cointegration, and error correction approaches to assess the stationarity, long-run, and short-run dynamics of the research models. The obtained results indicate that the agriculture export and output are significant factors of long-term economic growth.

In their study, Ojo and Olufemi (2014) conducted research on a substantial sample of nations, namely forty-two undeveloped countries. The objective of their investigation was to analyze the influence of non-oil exports on the economic growth of underdeveloped countries, employing panel co-integration techniques. The objective of this study was to assess the correlation between Gross Domestic Product (GDP) and exports in the agricultural and non-agricultural sectors across the selected nations. The findings of their study revealed that the elasticity of agricultural exports with respect to GDP was 0.09, whereas the elasticity of non-agricultural exports with respect to GDP was 0.13. Therefore, it was argued that they endorse the notion of export-led development. Nevertheless, the study neglected to adequately address the distinct challenges and provide comprehensive policy recommendations for each of the nations examined.

Ahungwaet et al. (2014) utilized the Ordinary Least Square regression method to examine the impact of non-oil exports on the economic development of Nigeria. A correlation was shown indicating a positive association between Gross Domestic Product (GDP) and government expenditure on agriculture throughout the time span from 1986 to 2007. The analysis also unveiled that a significant proportion of the variations in GDP, up to 81%, could be accounted for by factors such as the volume of cocoa exportables, palm kernel exportables, domestic savings, and government expenditure. In a similar vein, the study conducted by Anyanwu, et al (2013) explored the composition and expansion of Nigeria's Gross Domestic Product (GDP) over the nation's 49-year history. Employing multiple regression analysis, the researchers identified agriculture as one of the prominent and influential factors shaping Nigeria's GDP, particularly during the period spanning from 1960 to 1984. The prevailing dominance can be ascribed to the inclination of governments throughout that period to prioritize extensive crop production through agricultural and macroeconomic policies.

3. METHODOLOGY
3.1 Theoretical framework
The foundation of this work is based on the Hecksher-Ohlin Theory of Factor Endowment. The significance of the H-O theory in relation to non-oil exports in Nigeria stems from the country's possession of natural resource capabilities within the non-oil sector, which may be harnessed for production and subsequent exportation. This aligns with the proposition put out by the Heckscher-Ohlin (H-O) model, which suggests that nations should specialize in and export goods that they can manufacture in large quantities due to their abundant natural resources, land, labor, and capital. Hence, it may be inferred that Nigeria, with abundant and varied factor endowments, particularly in the agricultural sector, is anticipated to exhibit higher levels of wealth and greater capacity for non-oil sector production compared to nations with limited factor endowments. Moreover, it is important to consider how factor endowments influence the opportunity cost associated with specializing in the manufacture of specific items compared to others. Neglecting the non-oil sector may result in a misallocation of priority towards the production of export goods.

3.2 Sources of Data
The data utilized in this study consists of a yearly time series secondary data, which was obtained from the Central Bank of Nigeria (CBN). The dataset has a span of fifty-one years, commencing from 1971 and concluding in 2021. The variables that were included in the data collection process encompassed gross domestic product (GDP), value of cocoa export (VCXP), value of palm kernel export (VPKX), value of rubber export (VRXP), exchange rate (EXRT), and consumer price index (CPIN). .Gross domestic product (GDP) was the dependent variable; quantity of cocoa export (QCXP), quantity of palm kernel export (VPKX) and quantity of rubber export (VRXP) were the independent variable while exchange rate (EXRT) is the control variables. Value of cocoa export (VCXP) is the cost to the purchaser of cocoa abroad. It is measure as the total value of foreign countries spending on the cocoa produced in Nigeria. The value of palm kernel export (VPKX) is the cost to the purchaser of palm kernel abroad. It is measure as the total value of foreign countries spending on palm kernel produced in Nigeria. The value of rubber export (VRXP) is the cost to the purchaser of rubber abroad. It is measure as the total value of foreign countries spending on rubber produced in Nigeria.

3.3 Model Specification and Technique of Analysis of Data
In this study, the BVAR model proposed by Andrews and Chen (1994) was adopted with little modifications especially in the choices of the variables of this study. The BVAR model employed in this study was calculated utilizing the summation of autoregressive components. One notable benefit of employing Bayesian Vector Autoregression (BVAR) models in comparison to alternative systems of Vector Autoregression (VAR) equations is in its ability to address the issue of exogeneity pertaining to independent variables. This implies that the model's assessment of the interactions among various determinants of GDP is independent of the impact of other factors that may be connected with inflation. Although, there are variants of univariate and multivariate BVAR model specifications, the general model, as in Dossche and Everaert (2005) is of the form:

$$\pi^P_{t+1} = (2 - \delta)\, \pi^P_t + (\delta - 1)\, \pi^P_{t-1} + \delta\eta_{1t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

$$i_t = \rho_2 i_{t-1} + (1 - \rho_2)(r^*_t + \pi^P t) + \rho_1(\pi_{t-1} - \pi^T_t) + \varepsilon_{2t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$\pi t = (1 - \sum_{k=0}^{n} \varphi i)\, \pi t^{P} + \sum_{k=0}^{n} \varphi i \pi t - 1 + \mu 1 t \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (3)$$

Where; (1) and (2) are univariate and multivariate specifications respectively and (3) assumes that the model follows a stationary process. From (1), (2) and (3),

$$\pi i = \mu + \sum_{k=0}^{n} \alpha j\, \pi i - j + v t \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (4)$$

Or

$$\rho = \mu + \sum_{k=0}^{n} \alpha j\, \pi t - j \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (5)$$

Where;

πi = non-oil export crops (proxy for VCXP, VPKX, VRXP) in time i
μ = constant;
α = autoregression coefficient;
υ = random error;
j = the number of time lags between variables.
ρ = the degree or rate of inflation persistence
ρ can take the values from zero to one (i.e. $\rho = [0, 1]$).

3.4 Functional Model
The modified BVAR model for this study is given as:

$$\pi i = \mu + \sum_{k=0}^{n} \sigma j\, \pi i - j + \sum_{k=0}^{n} \beta j\, \theta i - j + \sum_{k=0}^{n} \gamma j\, \lambda i - j + \sum_{k=0}^{n} \phi j\, \lambda i - j + \zeta t \ldots \ldots \ldots \ldots \ldots (6)$$

Where:
πi = gross domestic product (GDP)
$\pi i \sigma j$ = volume of cocoa export (VCXP).
βj = volume of palm kernel export (VPKX).
γj = volume of rubber export (VRXP).
ϕj = exchange rate (EXRT).
ζt = error term
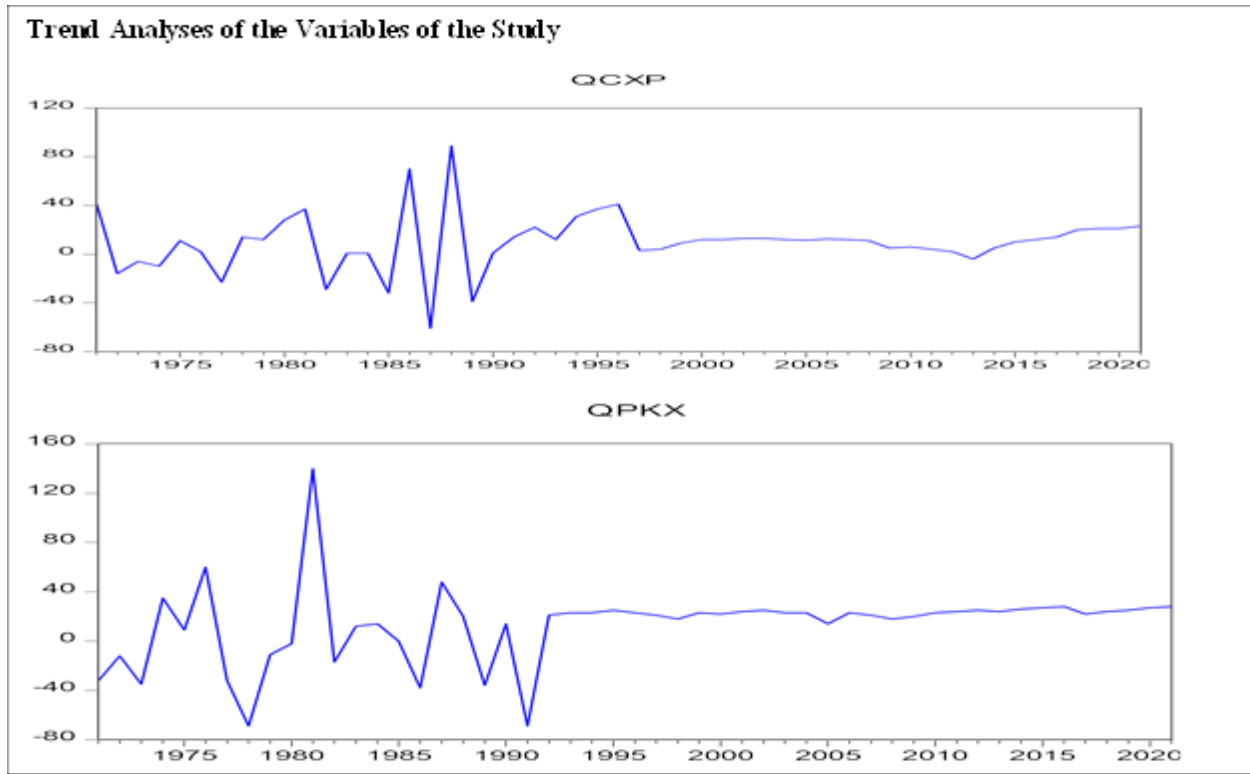
4. RESULTS AND DISCUSSION

Figure 1
Result of Trend Analyses of the Variables of the Study
Source: Computed by the Researcher Using Eviews 10

Figure 1 shows the trends of the volume of exports of the quantity of cocoa (VCXP), Quantity of kernel (VPKX), and quantity of rubber (VRXP) in Nigeria over the period of 1971 to 2021. The result in figure 1 shows that the volume of exports of quantity of cocoa was high in 1977, fell in 1971and fluctuated around its mean with little improvements up to1980s. In 1987, the export of cocoa volumes dropped drastically but picked up in 1988 and stabilized from 1995 henceforth with a marginal increase. The improvement in the export of cocoa in 1988 is attributable to the implementation of SAP in 1986.

The export of palm kernel however was low in 1971, but rose gradually into 1977 but fell drastically in 1979. It picked up to an all-time high in 1981 fell again in 1983 and maintained an upward marginal increase henceforth. The sharp fall in the export of palm kernel in 1979 may be attributed to the policy on deforestation which affected the plantation of palm trees. Palm oil continues to be one of the major drivers of deforestation of some of the most bio diverse forests, destroying the habitat of already endangered species, and thereby forcing the government to put a check on the plantation. Exports of rubber fell marginally in 1971 rose in 1973 but fell drastically in 1976. It picked up and reached an all-time high in 1988, fell again in 1990, fell further in 1995, and stabilized henceforth.

Table 1
Result of Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Unit Root Test

Variables	KPSS Level	KPSS Difference	Order of integration	
VCXP	0.716	0.427*	**(1)**	**I**
VPKX	0.631	0.387*	**(1)**	**I**
VRXP	0.650	0.150*	**(1)**	**I**
EXRT	0.866	0.424*	**(1)**	**I**
GDP	0.834	0.451*	**(1)**	**I**

KPSS Critical Value at 5% = 0.463

* denotes stationary at 5%
Source: Computed by the Researcher Using Eviews 10 (2022)
KPSS Critical Value at 5% = 0.463
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The results of the KPSS unit root test are presented in Table 1. The KPSS tests were performed with the Newey-West Bandwidth and spectral estimation methods, with the estimate being carried out without the inclusion of an intercept and trend. The exclusion of the intercept and trend variables from the test was based on their lack of statistical significance in the first analysis. According to the KPSS test findings at a significance level of 5%, it can be concluded that all the variables exhibit stationarity only after being differenced once. This suggests that VCXP, VPKX, VRXP, EXRT, and GDP all exhibit integrated of order one [I(1)]. Hence, it can be deduced from the findings that the variables examined in the study possess the same level of integration, specifically an order of integration of I (1). The integration order employed in this study adheres to the criteria recommended for the utilization of the Bayesian Vector Autoregressive (BVAR) model.

Table 2
Selection of Optimal Lag length for Bayesian VAR

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1158.943	NA	2.23e+15	49.52949	49.72631	49.60355
1	-991.8846	291.4636	5.32e+12	43.48445	44.66539*	43.92885
2	-956.1954	54.67269*	3.50e+12*	43.02959	45.19466	43.84432*
3	-930.4548	33.95572	3.74e+12	42.99808*	46.14726	44.18314
4	-914.0432	18.15752	6.57e+12	43.36354	47.49685	44.91893

Source: Computed by the Researcher Using Eviews 10 (2022)

To evaluate the impact of non-oil exports on economic development in Nigeria using Bayesian Vector Autoregression (BVAR), it is imperative to initially conduct a lag length test to determine the best lag length for the BVAR model. The sensitivity of BVAR results to lag duration is a contributing factor. Hence, the present work employs conventional lag selection criteria, including Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), Hannan-Quinn Information Criterion (HQ), Likelihood Ratio (LR), and Final Prediction Error (FPE). These criteria are derived from the empirical Vector Autoregressive (VAR) lag structure, and are utilised to determine the most suitable lag length for Bayesian Vector Autoregression (BVAR).. From table

2, LR, FPE and HQ criteria suggest an optimal lag of 2, while AIC and SC selected lag 3 and lag 1 respectively. Therefore, the study uses a lag length of 2 for Bayesian vector autoregressive model and the result is reported in Table 3.

Table 3
Estimated Coefficients of Bayesian VAR Model

Variables	Coefficients	Std Error	t-values
VCXP (-1)	0.117	0.046	2.578
VCXP (-2)	0.039	0.003	14.68
VPKX (-1)	0.059	0.031	1.886
VPKX (-2)	0.049	0.018	2.783
VRXP (-1)	0.131	0.058	2.263
VRXP (-2)	0.079	0.032	2.443
EXRT (-1)	0.155	0.055	2.807
EXRT (-2)	0.035	0.038	0.906
R-squared	**0.929515**		
Adj. R-squared	**0.909545**		

Source: Computed by the Researcher Using Eviews 10 (2022)

The findings of the Bayesian Vector Autoregression (BVAR) analysis regarding the impact of non-oil exports on economic development in Nigeria are presented in Table 3. The findings indicate that there is a positive and statistically significant relationship between non-oil exports, namely cocoa exports (VCXP), palm kernel exports (VPKX), and rubber exports (VRXP), and GDP throughout the research period. A 1% rise in VCXP (-1) and VCXP (-2) resulted in a corresponding increase in GDP of around 0.12% and 0.39% respectively.. This aligns with the a priori expectation. The profitability of cocoa production in Nigeria can be attributed to its economically varied value chain products and its worldwide acceptability. In addition to contributing to government income, the export of cocoa bean seeds provides direct benefits to the many stakeholders involved in the cocoa value chain. Like cocoa exports, palm kernel export has a positive and significant impact on economic growth in Nigeria. The result show that a per cent increase in VPKX (-1) and VPKX (-2) increase GDP by about 0.59 per cent and 0.49 per cent respectively. This aligns with the a priori expectation. The significance of palm kernel as a tree crop in Nigeria is evident, since its production is expected to contribute substantially to the country's economic prosperity. Put simply, an increase in palm kernel production in Nigeria corresponds to a proportional enhancement in the performance of the country's national economy. This observation is consistent with the findings of Dawson (2015), who observed that the palm oil sub-sector of the Nigerian economy has the ability to contribute significantly to economic growth, diversification, and resilience against fluctuations in the crude oil and gas market over an extended period of time.

Furthermore, rubber export has a positive and significant impact on economic growth in Nigeria. The result show that one per cent increase in VRXP (-1) and VRXP (-2) increases GDP by about 0.13 per cent and 0.79 per cent respectively. This conforms to the apriori expectation. Rubber production is important to Nigeria for a number of reasons. Most importantly, rubber is a valuable

export commodity for the country. This is because the country has one of the world's largest rubber plantations. Rubber production also has an impact on the lives of the people in Nigeria. The positive impact of rubber on economic growth agrees with Osabohien, et al (2019) for Ivory Coast, that in the long run, natural rubber has a positive and significant influence on economic growth.

Again, exchange rate has a positive impact on economic growth in Nigeria. The result show that a per cent increase in EXRT (-1) and EXRT (-2) increased GDP by about 0.16 per cent and 0.35 per cent respectively. These results conform to the apriori expectation. This is because when exchange rate (foreign currency) appreciates, the value of domestic currency falls. A fall in the value of domestic currency is synonymous to devaluation of domestic currency. This makes exports cheaper relative to import, increase demand for exports, increases export revenue and then add to balance of current account.

Table 4
Post-estimation Statistics
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	3.77470	Prob. F(2,44)	0.4520
Obs*R-squared	3.23768	Prob. Chi-Square(2)	0.4311

Heteroskedasticity Test: ARCH

F-statistic	2.67292	Prob. F(2,46)	0.4421
Obs*R-squared	2.18974	Prob. Chi-Square(2)	0.4126

Source: Computed by the Researcher Using Eviews 10 (2022)

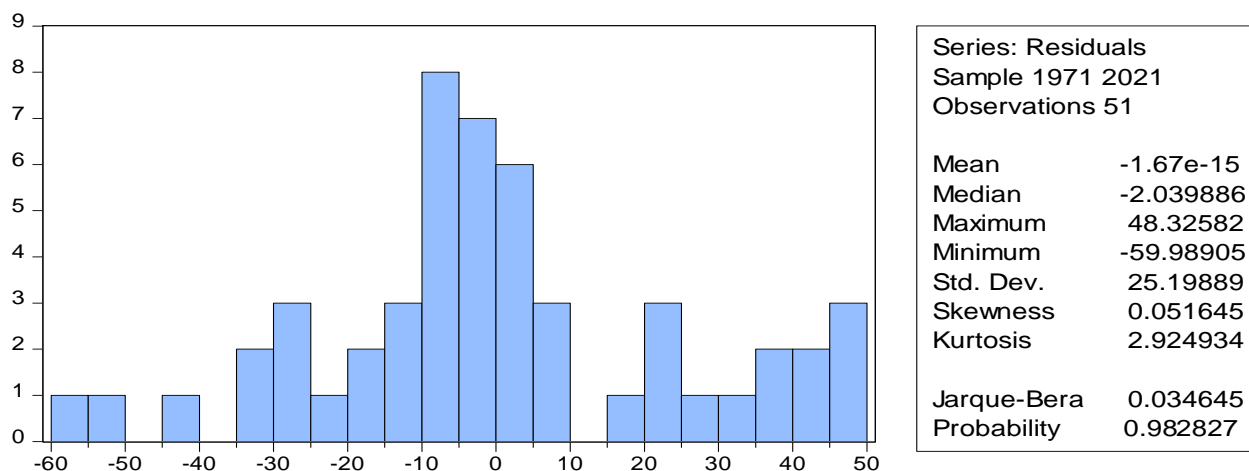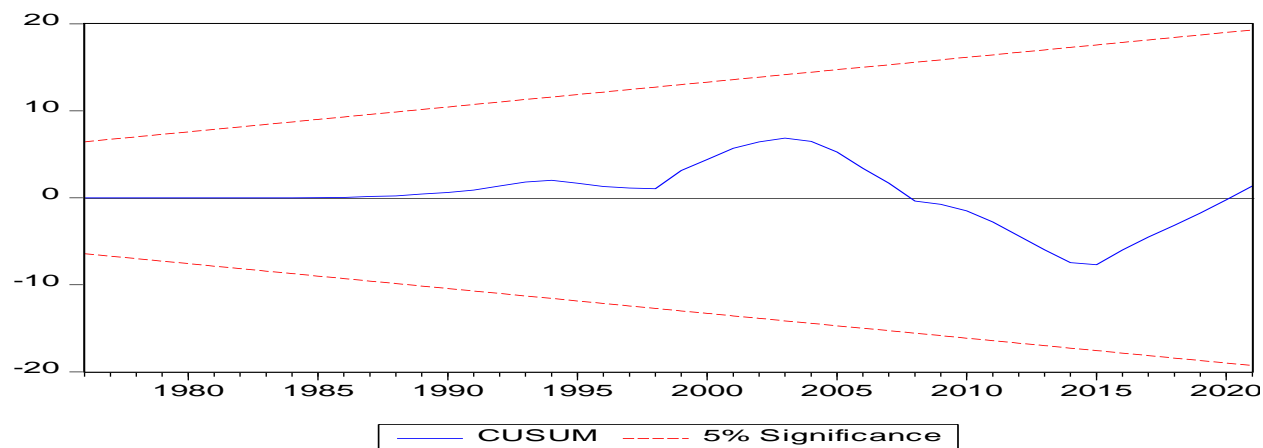| Series: Residuals	
Sample 1971 2021	
Observations 51	
Mean	-1.67e-15
Median	-2.039886
Maximum	48.32582
Minimum	-59.98905
Std. Dev.	25.19889
Skewness	0.051645
Kurtosis	2.924934
Jarque-Bera	0.034645
Probability	0.982827

Figure 2: Test of normality

Figure 3: Test of stability

Table 4 displays the statistical results obtained from the post estimation analysis. The probability value associated with the serial correlation LM test is 0.452, indicating that it above the commonly accepted significance level of 0.05. This finding indicates that there is insufficient evidence to reject the null hypothesis that there is no autocorrelation present in the model. In a similar vein, the probability value associated with the test for heteroscedasticity is 0.442, indicating that there is insufficient evidence to reject the null hypothesis that there is no heteroscedasticity present in the model. The normality of the result was confirmed by a normality plot, as seen in Figure 2. The Jarque-Bera value and its corresponding probability were found to be 0.035 and 0.928, respectively. Therefore, it is not possible to accept the null hypothesis that the error terms of the data utilized in the study exhibit a normal distribution. Moreover, the outcome successfully met the criterion of stability. The absence of any intersections between the CUSUM of square plot, as seen in figure 3, and the 5% essential lines is the reason for this observation. Hence, it may be inferred that the estimated parameters for the research exhibit stability over the duration of analysis.

5. CONCLUSION AND POLICY RECOMMENDATION

This research employs yearly data from the period of 1971 to 2021 to investigate the trajectory of non-oil exports and its impact on the economic growth of Nigeria.. The result of the trend analysis shows that exports of cocoa, rubber and palm kernel have trended differently over the period of the study the variation in the trend patterns has been attributed to different periods of political activities that disrupted the farming of these commodities in Nigeria. The study further identifies data supporting a favorable and statistically significant impact of non-oil exports on the economic growth of Nigeria. Hence, the research findings indicate that the exportation of cocoa, rubber, and palm kernel in Nigeria has a favorable influence on the country's economic growth.

Based on the findings, it is recommended that;

i.   The Nigerian government should intensify effort in the production of cocoa, palm kernel and rubber in other to increase their production as well as to promote overall economic growth of the country.

ii.   It is imperative for the Nigerian government to establish robust bilateral relationships with trading partners in the cocoa, rubber, and palm kernel sectors through the implementation of trade promotion policies, including bilateral trading agreements. Furthermore, the Federal Republic of Nigeria might enhance its cocoa exports by allocating less focus to nations within the African

Union (AU) and the Economic Community of West African States (ECOWAS). This will contribute to the enhancement of Nigeria's economic growth.

iii.   Finally, government should try and maintain stable exchange rate that will promote the overall wellbeing of the economy.

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