



EFFECT OF PALM OIL PRODUCTION VOLUME ON ECONOMIC GROWTH OF NIGERIA (1980 – 2024)

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Abstract

This study investigated the effect of palm oil production volume on Nigeria's economic growth during the period 1980 to 2024. The specific objectives are to: Identify the impact of the annual total production volume of palm oil on the GDP of Nigeria; assess the impact of palm oil domestic consumption on Nigeria's GDP and examine the impact of palm oil prices on the GDP of Nigeria. Result obtained from the error correction mechanism (ECM) revealed that the volume of palm oil production had a positive and not significant impact on Nigeria's Gross Domestic Product (GDP) in the short run while the effect of palm oil domestic consumption on the GDP was positive and highly significant whereas the prices of palm oil also had a positive and highly significant effect. The conclusion is that Palm oil production volume and price along with consumption contributes positively to the GDP of Nigeria. The analyses show that, palm oil domestic consumption and the price of palm oil have relatively stronger role and quicker transmission mechanism in determining the growth in the economy of Nigeria. The research recommends that government should ensure the promotion of improved oil palm varieties, modern technologies and machines usage so as to support more palm oil production which will aid to ensure Nigeria's economy growth.

Key words: Economic growth, Nigeria, palm oil price, palm oil domestic consumption, palm oil production volume.

1. INTRODUCTION

Historically, agriculture remains one of the key industries which constituted a significant chunk of the Nigerian economy as at that time providing the livelihood of most individuals and was a major employment provider and source of foreign exchange before the late 1950s. Among the agricultural produce that could still claim relevance, was palm oil which at that time still stood to be one of the most viable product, Nigeria has once been the largest and biggest exporter of palm oil, and in the 1960's accounted for more than 43 percent of global palm production (FAO, 2022). As a result of the oil economy, the neglect and downfall of Nigerian agriculture continued to persist even into the 1970's to the late 1980s. Nigeria's share in the global production of palm oil further decreased to less than seven percent in 1980 from its peak over 43 percent in the 1960s (FAO, 2022), ceding the dominance to Malaysia and Indonesia which collectively account for over eighty five percent of the total global output today (USDA, 2024).

Nevertheless, palm oil still occupies a very central position in the Nigerian agriculture economy, predominantly cultivated in

the southern regions of Nigeria namely: Edo, Ondo, Imo, Akwa Ibom, Cross River, Abia, and Delta States, and its cultivation is the main source of livelihoods for millions of small holder farmers and plays essential roles in industrial applications, including food production, cosmetics production and biofuels production. The sector contributed to about 23.8% of Nigeria's GDP in 2023, making the production of palm oil among the top 5 crops contributing to the country's GDP (NBS, 2024). The Nigerian output of palm oil for 2022 stood at an estimated 1.4 metric ton as compared to 580,000 metric ton in 1981 and this has recorded an average growth of 2.7 annually according to FAO, 2023. The consumption in 2022 by Nigerian consumers amounted to 1.7 metric ton annually according to the estimates by U.S. (Department of Agriculture, 2024); therefore this led to a deficit for meeting industrial demand with Malaysian and Indonesian producers exporting palm oil to Nigeria.

Price dynamics of palm oil is also essential in defining its economic value. Internationally, palm oil prices vary from USD 550 to USD 1,200 per metric ton for years 2010 – 2023 (World Bank Commodity Price Data, 2024). Locally, prices increased per ton from 65,000 in 2005 to over 1.2 million in

2023 due to several inflationary pressures, devaluation of currency, and growing domestic demand, that affect the income of farmers, export revenue and the cost of production within industries, hence affecting the GDP of an economy.

Notwithstanding the role of palm oil, the share of palm oil to the GDP still low as due to several factors as; low production yield, age of existing plantation, low technology in palm oil processing plant, poor enforcement of policy, and unstable currency rate. For example the amount of money for exporting palm oil in 2010 Nigeria had export with value less than 20,000 million; in 2023 was 153,000, but this is still insignificant to the income from exports from cocoa or sesame crop for example (CBN statistical Bulletin, 2024). These problems made additional palm oil supply does not result into a corresponding GDP increase.

Though the production volume of palm oil in Nigeria has recorded a moderate increase from approximately 580,000 MT in 1981 to 1.4 million metric tons in 2022 (FAO, 2023), the extent of its impact on economic growth is yet unclear. Indeed, we would expect an increase in production volumes to lead to an expansion of GDP due to, among other factors, the generation of employment, providing raw inputs to industry, and an inflow of foreign exchange earnings through exports. However, while agriculture contributes more than 23% to Nigeria's GDP, palm oil's specific contribution to it is believed to be less than 3% (NBS, 2024). Thus we question the efficiency of increasing palm oil output when no observable changes on GDP seem to occur.

Furthermore, Nigeria's domestic consumption of palm oil, driven by increases in the population and industrial demand, has grown dramatically to 1.7 million tons annually (USDA, 2024), with this led to continuous increase in importation of palm oil and palm products to the Nigerian markets thus depleting our foreign reserve earnings. However, fluctuation in prices in both the domestic and international market has contributed negatively in palm oil sector where the world average price per metric ton of palm oil has ranging from \$550-\$1,200 over the past 10 years (World Bank, 2024). This scenario in turn creates problems ranging from incentives for production, level of exports, and national income of producing countries. Based on this, the paper analyses not only the effect of Palm Oil production to Nigerian GDP growth but also the interaction of other factors like domestic consumption of palm oil and price fluctuations for long period.

Previous studies by Uzoigwe & Adanma (2024), Efa (2025) and Shehu (2024) on agricultural exports of Nigeria focused on only aggregate export revenue or, volume of some export products to the overall GDP but could not isolate the direct effect of palm oil volume, its domestic consumption and price instability to Nigerian GDP.

It is therefore understandable that knowledge about the interdependence between the volumes of production and consumption, changes in price, and their respective contributions to the growth of Nigeria's economy has been gaining significance for policy. Currently, the increased attention placed on diversifying the Nigerian economy under

Nigeria's National Development Plan (2021-2025), points agriculture, and more specifically palm oil, as the principal non-oil sector that can contribute to employment generation, poverty reduction, and stability in foreign exchange earnings for Nigeria.

This study therefore set to examine empirically the impact of the volume of palm oil production on Nigeria's economic growth between 1980 and 2024, considering the possible impacts of price variables and domestic consumption on the relationship. In light of this, the study aims to conduct a historical and statistical analyse of palm oil and economic growth to add insight towards fostering sustained development in Nigeria.

Objectives of the Study

The main objective of the study is to analyze the effect of palm oil production volume on economic growth of Nigeria. Specifically, the study intends to:

1. determine the effect of total annual output of palm oil on Nigeria's gross domestic product (GDP).
2. assess the effect of palm oil domestic consumption on Nigeria's economic growth.
3. evaluate the relationship between palm oil prices and Nigeria's economic growth.

The critical research questions that are meant to further guide this research are as follows:

1. To what extent does total annual palm oil output affect the economic growth of Nigeria?
2. What is the effect of palm oil domestic consumption on Nigeria's GDP?
3. How do changes in palm oil prices influence the economic growth of Nigeria?

This study focuses on the effect of palm oil production volume on Nigeria's economic growth over the period from 1980 to 2024. The scope covers three key variables: annual output of palm oil, palm oil domestic consumption, and palm oil prices, as they relate to real GDP growth. Geographically, the study is limited to Nigeria. Being an empirical research, the following hypotheses are tested:

H₀₁: Total annual output of palm oil has no significant effect on the economic growth of Nigeria.

H₀₂: Palm oil domestic consumption has no significant effect on the economic growth of Nigeria.

H₀₃: There is no significant effect of palm oil prices on economic growth of Nigeria.

2. LITERATURE REVIEW

Conceptual Review

Palm oil production volume refers to the quantities of crude palm oil (CPO) and refined palm oil (RPO) produced during a given period, normally expressed in tonnes. FAO (2023) considers palm oil production to comprise total production of palm oil and kernel palm oil derived from the mesocarp of the fruit, intended for consumption or export. Factors like farm size, technology level, yield rates, and government agricultural policies all affect palm oil production. In

economic development, oil palm production has been perceived as a vital indicator of the performance of agricultural sector and the economy as a whole, with the growth in volume impacting the economy by enabling rural job creation and encouraging the expansion of agro-processing industries through increasing the supply for exports and governments' revenue generation, thus the level of growth would generally depend on palm oil, unless there is increased production efficiency and access to market (Uzoigwe & Adanma, 2024). Palm oil domestic consumption: This is the quantity of palm oil consumed in the local economy, including households, industrial, and commercial use. USDA (2024) explains that domestic consumption includes imported and domestically produced palm oil that were consumed as part of food processing industries, cosmetics, medicine, energy (biodiesel production) and as cooking oil directly by households.

Domestic consumption acts as an aggregate demand indicator for palm oil with a direct implication for palm oil prices, international trade in the sector and for local industry. In Nigeria, with a high volume of demand on palm oil due to growing population, industrial growth, urbanizations etc., the level of local consumption can be facilitated by an increase in palm oil production and has a positive correlation to economic development with greater use of locally manufactured items (Maduik, Ibeagwa, & Nwadike, 2025). Palm oil price: Price is defined as the monetized worth (i.e. Dollars, euros etc.) of a unit (often per tonne) of palm oil traded in domestic and international markets. For World Bank (2024) definition, the price is determined by world conditions, operational costs, economic cycles and the exchange rate.

The prices of the commodity are prone to fluctuate depending on weather conditions and global edible oil markets. Palm oil prices may directly or indirectly encourage economic development by stimulating more investment in palm plantations and processing firms, more export earnings and may provide income support for smallholder oil palm producers, thus, high and steady palm prices may give impetus to growth, but unstable price levels are inimical to sustainable economic development of the country (Ogunbiyi & Akinsola, 2025).

Theoretical Framework

This study relies on the Agricultural Supply Response Theory and the Export-Led growth theory. The theory is derived from the basic microeconomic principle of producer behavior which suggest that producers respond to profit incentives such as; price, wages and costs of inputs (Blackie, 1972). In general, a farmer may be assumed to behave in a way which, within the given resource limitations of their land and capital and with the technology currently available, maximizes the profits or some other objective that is related to net income. Agricultural Supply Response Theory According to Nerlove's partial adjustment theory, the supply response of farmers is typically not instantaneous; instead, it takes time to adjust

because of some of the biological and institutional factors characteristic of farming.

Applying the concept to Nigeria's palm oil production, this theory suggest that farmers respond to changes in the level of palm oil production based on changes in factors like price, the price of inputs, credit access, and stability of policies. An increase in palm oil price may, therefore result in a positive response by Nigerian palm oil producers as they expand their output. Likewise an unfavorable price will be met by a negative response as producers reduce output, affecting palm oil output contribution to the GDP. The Export-led growth theory relates agricultural supply to economic growth as this theory advocates that an increase in exports of a country leads to an increase in economic growth.

When there is an increase in the price and quality of the exports of Nigeria like the case of palm oil, there is a corresponding increase in Nigeria's economy due to increase in production. Export, especially agricultural product not only contribute to growth but also stimulates employment at the local level and increases the foreign reserve of the country thus leading to GDP growth.

Empirical Review

There are several studies on palm oil production, consumption, price and their effect on economic growth. Akpaeti and Antia-Obong (2025) examined the factors determining household income levels of oil palm farmers in Akwa Ibom state of Nigeria by using multiple regression model on the time series and survey data on production of oil palm during the period of 1990-2023 and observed that total output on oil palm had a positive significant impact on rural income and had contributed to overall GDP of the country and hence a positive production-growth relationship. Also, Okoh and Ikeoji (2025) examine the various factors that promote adoption of agricultural technologies among oil palm farmers in Delta State. Their results using logit regression estimation indicates that adoption of technologies and farm size enhance palm oil production, thereby enhancing overall economic growth.

Nwankwo, Ekumankama and Apu (2025) examined the influence of productivity enhancing technologies on the yield of oil palm, Cross River State, Nigeria using ANOVA and Regression instruments and their study indicated that increased adoption of high yielding oil seeds, resulted in the increase in yield by more than 30% thereby contributing significantly to local economic development. Cowan and Drewer (2025) who reviewed the impact of climate-smart palm oil production observed that in 2023, palm oil production contributed to approximately 9% of global production and climate adaptive oil palm cultivation practices could significantly increase total production and GDP by 15-20%. Judijanto (2025) explored the economic consequence of domestic palm oil consumption trends for developing countries including Nigeria. Results of this mixed methods study show that the increase in the consumption of palm oil products in a domestic country supports growth in industrial processing and added values to enhance the national GDP.

Okoli (2025) analyzed the potential valorization of waste agricultural by-products of the oil palm. They indicated that increasing palm oil consumption and processing activities would help to boost employment and strengthen the circular economy. Using long-run panel data Nerlove and Bhr (2025) examined the link between oil palm cultivation and consumption led-driven industrialization in West Africa. They suggested that rising demand in the region would also spur a growth in domestic consumption that could in turn boost industrial output and improve household welfare. Efa (2025) analyzed the interaction of currency fluctuations with agricultural exports including palm oil production and found that though oil export enhances foreign exchange but high domestic consumption will help cushion an economy from external price volatility or collapse in international market value of oil products.

Maduikwe, Ibeagwa and Nwadike (2025) using an ARDL model examined the impacts of palm oil prices instability on Nigeria's agricultural growth (1990-2023) and found that oil prices had both short and long run impact on GDP with higher price inducing positive impacts through increase in export income of the agricultural sector. Adetayo and Bello (2023) using ARDL bounds test found that higher oil price promotes agricultural GDP in the long run while its short-run impacts are delayed. Oluwafemi and Hassan (2024) through Granger causality test found that palm oil prices lead the Nigerian macroeconomic performance and GDP.

Using a GMM approach Ogunbiyi and Akinsola (2025) affirmed the stability in oil price would positively influence the overall economic performance through enhance capital formation and investment while volatility undermines it. In his study Ibrahim (2025) documented the historical evidence of the oil trade between the Nigerian republic and foreign trading partners. He observed price volatility of oil, the period of price increase resulted in capital formation and overall expansion in trade as of when Nigerian economy was at early stage of development.

Gap in Literature

Despite prior studies like those by Uzoigwe and Adanma (2024) and Akpaeti and Antia-Obong (2025) that have indicated a broader connection between agricultural or palm oil production and GDP expansion, most such researches emphasize export value and not the actual physical quantity of production. Also, while works by Judijanto (2025) and Okoli (2025) acknowledge the influence of internal market demand in the process of agro-industrial growth, there is a conspicuous lack of qualitative analysis on how demand for internal use of the oil product influences real GDP in an economy which still largely relies on importing products to satisfy part of its needs; and though Adetayo and Bello (2023), Oluwafemi and Hassan (2024), and Ogunbiyi and Akinsola (2025) analysed trends in palm oil pricing, the focus of their researches is the price behaviour at the export market not its interplay with the production, pricing and consumption patterns at home.

3. METHODOLOGY

The study uses ex post facto research design since the researcher aims to assess the impact of palm oil production on Nigeria economic growth, using historical (time-series) data spanning from 1980-2024. The choice of ex post facto research design is justified in that the researchers do not have any power to manipulate and control the variables under consideration because, those variables and already happened. The study therefore, involves primary and secondary data spanning from 1980-2024.

Secondary data on GDP (current) was obtained from the Central Bank of Nigeria (CBN) statistical Bulletin (2024) and data from the National bureau of statistics (NBS). Palm oil production volume and domestic palm oil production were collected from the Food and Agriculture Organization (FAO) and United States department of agriculture (USDA). Palm oil price (domestic and international) and other related economic data, including prices from the World Bank Commodity Price Data (2024) and FAO Oil seeds Price Series were sourced from World Bank International organizations. All economic variables used in the model were transformed to natural logs in order to minimize variance and heteroskedasticity. Method of Data Analysis In order to determine the relationship between the variables in the short-run, an Error Correction Model (ECM) with Ordinary Least Square (OLS) method would be employed.

The following procedures were taken for ECM model estimation as suggested by Pesaran and Smith, (1995): Identification of unit root testing for the time series variables using Augmented Dickey Fuller (ADF). Test for cointegration among the variables for long-run relationship using Johansen cointegration test on the basis of their determined stationary property or order of integration which is at I (1). The estimation of the ECM model for short-run analysis and conducting the diagnostic tests such as: Durbin Watson test for autocorrelation, model fitness and F-statistic (joint test) are performed to confirm the robustness of the specified model. Each hypothesis is accepted or rejected on the basis of the coefficient sign, the size of the coefficient and statistical significance (coefficient's significance value less than 0.05 or 5% confidence level), and evidence or conformity with theoretical/empirical literature.

Model Specification

The study is anchored on the Agricultural supply response theory, which posits that producers adjust output in response to price and policy incentives, and on the Export-Led Growth Hypothesis, which links agricultural productivity to overall economic performance:

$$GDP = f(\text{POPV}, \text{PODC}, \text{POPR}) \quad [1]$$

Where:

GDP = Gross domestic product (proxy for economic growth)

POPV = Palm Oil Production Volume (metric tons)

PODC = Palm Oil Domestic Consumption (metric tons)

POPR = Palm Oil Price (₦ per ton)

The econometric model for empirical estimation is expressed as:

$$GDP_t = \alpha_0 + \beta_1 POPV_t + \beta_2 PODC_t + \beta_3 POPR_t + \varepsilon_t \quad [2]$$

The natural logarithm forms of the variables are incorporated in the model as follows:

$$\ln GDP_t = \alpha_0 + \beta_1 \ln POPV_t + \beta_2 \ln PODC_t + \beta_3 \ln POPR_t + \varepsilon_t \quad [3]$$

Where:

α_0 = Intercept of the model

$\beta_1, \beta_2, \beta_3$ = Coefficients of the independent variables

ε_t = Error term, $\ln$ is the natural logarithm connotation

The theoretical expectations regarding the signs of the coefficients are presented as follows:

$\beta_1 > 0$: Higher palm oil production increases agricultural output and GDP.

$\beta_2 > 0$: Increased local consumption drives agro-industrial demand and stimulates growth.

$\beta_3 > 0$: Favorable prices enhance producer income, investment, and GDP; however, excessive volatility may weaken the effect.

4. DATA ANALYSIS AND DISCUSSION

Table 1: Results of ADF Unit Root Test (*p-values in parenthesis*)

Variables	Level	First difference	Order of integration	Decision
	ADF Statistics	ADF Statistics		
GDP	-1.3494 [0.5885]	-3.5321 [0.0117]	1(1)	Stationary at 1st Difference
POPV	-1.1027 [0.7063]	-11.0666 [0.0000]	1(1)	Stationary at 1st Difference
PODC	-0.5358 [0.8741]	-7.3293 [0.0000]	1(1)	Stationary at 1st Difference
POPR	-1.5642 [0.4921]	-4.9370 [0.0002]	1(1)	Stationary at 1st Difference

Source: Eviews Output

The stationarity test result in Table 1 revealed that GDP, palm oil production volume (POPV), palm oil domestic consumption (PODC) and palm oil price (POPR) are all

stationary after first differencing meaning that their order of integration is denoted as 1(1). Thus, the long run relationship amongst the variables is ascertained using the Johansen cointegration test.

Table 2: Johansen Cointegration Test

No of CE(s)	Trace Stat.	<i>p-value</i>	Max-Eigen Stat.	<i>p-value</i>
None *	54.67541	0.0100	33.28809	0.0083
At most 1	21.38732	0.3339	10.20796	0.7249
At most 2	11.17936	0.2007	6.031560	0.6092
At most 3 *	5.147804	0.0233	5.147804	0.0233

Source: Computed by the researcher using E-Views (2022).

The Johansen cointegration test in Table 2 uses the Trace and Max-eigen statistics to determine the presence of long run relationship amongst the variables. Only two probability values are significant i.e. less than 0.05 critical value and this

implies that palm oil production volume has long-run relationship with economic growth in Nigeria.

Table 3: Error Correction Model Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34.98223	5.491474	-6.370280	0.0000
POPV	0.659440	1.135991	0.580497	0.5651
PODC	2.138149	0.790813	2.703737	0.0103

POPR	0.439108	0.039404	11.14387	0.0000
ECM(-1)	-0.362077	0.107407	-3.371067	0.0018
R-squared	0.844483	F-statistic		16.67271
Adjusted R-squared	0.833886	Prob(F-statistic)		0.000000
S.E. of regression	0.188243	Durbin-Watson stat		1.930959

Source: Computed by the researcher using E-Views

As highlighted in Table 3, palm oil production volume has a short run effect on the economic growth in Nigeria. As observed, the coefficient of POPV is 0.659440 and its p-value is 0.5651, which is not statistically significant at 5% level. Thus it implies that the variations in the production volume of palm oil cannot influence on Nigeria's economic growth in short run. Although positive coefficient of POPV suggests that an increase in production volume would promote the economy but the effect is not substantial.

The coefficient of PODC is 2.138149, which has t-statistics of 2.7037 and a p-value of 0.0103. It implies that at 5% level, palm oil consumption promotes the economic growth of Nigeria as 1% increase in the volume of consumption leads to approximately 2.14% growth in GDP. As we observed, palm oil consumption provides an enormous impact to Nigeria economic growth. The coefficient of POPR is 0.439108.

The coefficient of POPR has a t-statistic value of 11.14387 and p-value is 0.0000, showing that Palm oil price has a significant impact on Nigeria's short run economic growth. As expected, a 1% increase in the Price of Palm oil results in approximately 0.44% of GDP in Nigeria. The finding confirms our belief that a favorable price change for oil prices increases the revenue of producers, export and industrial profits, thereby driving up economic activity.

The intercept coefficient is -34.982. It is highly significant at 5% level with p-value of 0.0000. It has a negative value, this indicates that the level of GDP in a year when all explanatory variables are fixed at 0 will be -34.982 units. Though there is not an economical interpretation on this estimate, it reflects the influence of excluded economic variables affecting GDP. It means that the inclusion of other macro-economic determinants can improve the explanation of variations in Nigeria's GSP, and it indicates also other factors affecting GSP that are not included in the models could significantly influence the Nigerian's GDP negatively.

The error correction coefficient (ECM-1) -0.362077 is significant at 5% level (p-value = 0.0018), it is negative and significant thus indicating a long-run equilibrium between the variables. The ECM is a measure of how much of a shock, or adjustment to the steady state, can be absorbed per unit time. The coefficient estimates that about 36.21 percent of the deviation from equilibrium in any particular year can be attributed to previous equilibrium. In other words, any shocks related to the palm oil variables will take roughly (1/0.362077) years for the system to adjust fully to a new long run equilibrium, that it will takes about 2.76 years for the full adjustment to occur to a new long-run trend in a linear

adjustment process, so adjustments back to long run trend are very fast.

Goodness of Fit and Model Diagnostics

The R-squared (0.8445) indicates that about 84.45% of the variation in Nigeria's GDP is explained by changes in palm oil production volume, domestic consumption, and prices.

The Adjusted R-squared (0.8339) shows a good model fit even after adjusting for degrees of freedom.

The F-statistic (16.6727) with a p-value of 0.0000 confirms that the overall model is statistically significant, meaning the independent variables jointly explain variations in GDP.

The Durbin-Watson statistic (1.93) suggests that there is no serious autocorrelation problem, indicating that the residuals are independently distributed and the model is reliable.

Test of Hypotheses

Table 4: Summary of Hypotheses Test

Hypotheses	t-stat (p-value)	Decision
H ₀₁ : Total annual output of palm oil has no significant effect on the economic growth of Nigeria.	0.5805 (0.5651)	Accept null hypothesis one (H ₀₁) since p-value is greater than 0.05.
H ₀₂ : Palm oil domestic consumption has no significant effect on the economic growth of Nigeria	2.7037 (0.0103)	Reject null hypothesis two (H ₀₂) since p-value is less than 0.05.
H ₀₃ : There is no significant effect of palm oil prices on economic growth of Nigeria	11.1439 (0.0000)	Reject null hypothesis three (H ₀₃) since p-value is less than 0.05.

Source: Eviews 9 output

From Table 4, the study accepts the first null hypothesis and concludes that that total annual output of palm oil has no significant effect on the economic growth of Nigeria. The second null hypothesis is rejected leading to the conclusion that palm oil domestic consumption has significant effect on the economic growth of Nigeria. The third null hypothesis is also rejected leading to the conclusion that there is significant effect of palm oil prices on economic growth of Nigeria.

Discussion of Findings

The aim of this study is to establish the effect of volume of palm oil production on the growth of Nigerian economy. In

particular, we analyze the influence of palm oil production volume, palm oil domestic consumption, and palm oil prices on Nigeria's economic growth (GDP). Three objectives were raised based on three variables and result from first objective shows that the volume of palm oil production has positive but insignificant influence on Nigeria's economy. An increase in the production of palm oil encourages economic growth but this influence is insignificant in the short-term because some factors such as processing, distribution, and market integration has not really developed.

These short-term result conform with study conducted by Akpaeti and Antia-Obong (2025) in which they study palm oil total output influence on rural income, GDP; they both confirm the direct positive relationship on economic growth and also confirm direct negative effect on Rural Income, yet they do not report short-term relationship. Nevertheless they find positive but non significant production -growth nexus for the short run. Also they find that Nigeria total palm oil product has direct significant positive relationship with both economic growth and rural income growth. Similarly, Okoh and Ikeoji (2025) find that the adoption of improved technologies has positive and significant impacts on agricultural production, regional output growth and rural income. Likewise Nwankwo, Ekumankama, and Apu (2025) have found that technology adoption has a significant role in fostering production, and thereby, promoting regional economic performance, and furthermore conclude that improved technologies have a significant effect on increasing the economic output of region A but not region B of Nigeria. Additionally, Cowan and Drewer (2025) noted that adopting climate-smart farming approaches could boost GDP by 15% and 20% in high income and developing countries respectively.

Result from the second objective shows that the domestic palm oil consumption positively affects economic growth of Nigeria. A 1 percent increase in the domestic palm oil production causes a 2.14 percent increase in Nigeria's economy in the short-run. The significant positive influence reflects the extent to which domestic use of palm oil and its products contributes to the economy by driving local industry, manufacturing, food processing, and other related sectors. The positive significant result is in line with Judijanto (2025) which observed that increase in consumption of Malaysian palm oil product encourage industrial processing and value added and it has positive effects on GDP growth. Furthermore, Okoli (2025) has demonstrated that consumption of palm oil and by products creates employment opportunities, stimulates round production and contributes to round economic growth, in line with the significant positive coefficient obtained in this study. Similar to Nerlove and Bhr (2025), who find evidence that increases in domestic absorption of oil lead to further industrialisation and improve welfare of house hold, in West Africa. Also, Efa (2025) stated that domestic palm oil consumption acts as a cushion to mitigate external risks, which is consistent with the positive impact in the short run.

Result from the third objective has it that palm oil price has positive and highly significant impact on Nigeria's economy.

Increase in the price of palm oil by 1 percent results in a increase of Nigeria's GDP by approximately 0.44 percent in the short run. The significant positive effect is evident as favourable price conditions enhance farmer's income, drive exports, and significantly boost the contribution of the oil palm sector to Nigeria's GDP. This result is in line with Adetayo and Bello (2023) and Maduiké, Ibeagwa, and Nwadike (2025) who report that the price of palm oil has a positive significant impact on agricultural GDP especially in the long term but slightly lagged short run. Similarly, Oluwafemi and Hassan (2024) used Granger causality analysis and confirm that price of palm oil is a lead indicator to economic growth in Nigerian. Besides that, Ogunbiyi and Akinsola (2025) confirm the fact that price stability fosters investment environment, and thus improves overall economic performance.

5. CONCLUSION AND RECOMMENDATIONS

However, the result shows that palm oil production volume has a positive but not significant impact on the short-term economic growth of the nation, indicating that volume increases in production do not contribute to the immediate GDP increase due to production inefficiencies, bad infrastructural development and poor value chain linkage. In contrary, the result indicates that palm oil domestic consumption has a positive and significant impact on the short-term economic growth. Therefore, the increased palm oil domestic consumption helps in increased industrial output, employment and household income.

The study also reveals that palm oil price has a highly significant positive impact on short-term economic growth. This suggests that price incentives can support income of producers to foster investment in the palm oil industry. In the light of the conclusion drawn, the study recommends as follows:

1. To ensure that annual output of palm oil makes a strong contribution to the Nigerian economy, the government of Nigeria should promote the use of better palm oil breeds, modernized processing techniques, and mechanised systems of cultivation through the Ministry of agriculture and Rural Development (FMARD). This measure would lead to increased yield per Hectares, reduced in post harvest and increased impact of production growth on GDP.
2. The domestic consumption level of Palm Oil can thus continue to contribute to sustained growth through targeted policies on encouraging the domestic refinement, packaging and industrial use of palm oil in response to the increased growth in domestic consumption of palm oil. Promotion of industrial clusters and enabling small and medium sized palm oil production firms through incentives, would boost industrial and employment growths.
3. Through the intervention on monitoring the market prices and discouraging of the numerous

middlemen, the price should be kept in check to prevent fluctuation and this would continue to facilitate a steady economic growth.

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