Statistical Examination of the Impact of Export Prices of Some Selected Agricultural Commodities to Nigeria Economic Growth (1999 – 2022)

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Abstract:
In this paper we examined empirically the impact of three selected export prices of agricultural commodities such as coca, rubber and soya beans to Nigeria Economic Growth from 1999 to 2022. The data for this study were of secondary source obtained the Central Bank of Nigeria Statistical Bulletin. The Multiple Regression Model of GDP of the three selected export prices of agricultural commodities have significant relationship with the Gross Domestic Product (GDP) with the p-value of (=0.000) which is less than \( \alpha \) –level of 0.05. This means that cocoa, rubber and soya beans contributed to the growth of Nigeria GDP over the years the period of study. The result further revealed that based on their individual contributions the export price of cocoa contributed more than that of export prices of rubber and soya beans to the economy of Nigeria over the years of study. The new multiple regression models for the data has 62.2% indicating that the model has a good predictive ability.

Keywords: Gross Domestic Products (GDP), Export Prices, Agricultural Commodities, Multiple Linear Regression Model.

Introduction
Agriculture has been the most important single activity in the Nigerian economy, with about 70% of the total working population engaged in it. It is the largest single sector of the economy, providing employment for a significant segment of the workforce and constituting the mainstay of the Nigeria large rural community which accounts for nearly two-third of the population. The proportion of the Gross Domestic Product (GDP) attributed to agriculture holds between 30% and 40% (CBN, 2009). The favorable climatic condition and vegetation makes Nigeria populace able to provide crops and livestock.

Generally, the rise of agricultural export has been a considerable success story and one that has brought numerous benefits to Nigeria. Therefore, the importance of exports to a nation’s economic growth and development cannot be overemphasized since it is a catalyst necessary for the overall development of an economy (Abou-Stait, 2005). It is also a source of foreign exchange earnings since trade transaction among nations are settled in foreign exchange and employment opportunity for the
people with the attendant reduction in social costs of unemployment. According to Usman and Salani (2008) a rewarding export drive can turn a hitherto underdeveloped economy into a prosperous activity through its multiplier effects on the level of national income since income earned through exporting will help in increasing the level of demand within the economy. Nigerian economy in the past decades strives in the agricultural sector. The sector is reputed as the mainstay of the economy in the early 1960’s. It was seen as the driver for growth and development. In fact, to support the potential role the sector plays in the Nigerian economy, the agricultural sector is part of the millennium development goals (MDG) programmes of poverty reduction in Nigeria. Alene, et al (2008) opined Nigeria is gifted with a huge deposit of agricultural resources, arable land for the cultivation of crops and rearing of animals. In the 1960’s and 1970’s, the agricultural sector constituted over 65% of total export. The Nigerian agricultural sector was prominent for export of cash crops (especially crops and produce with export value) namely cocoa, rubber, hides and skin, groundnut, palm oil and host of others. The agricultural sector holds a vast potential for the growth and economic development of the country. The Nigerian economy has been and is currently being characterized by a reasonable degree of openness; hence, its performance can be enhanced through the development of the external sector. The Nigerian external sector has always been dominated by primary commodities (Agriculture) which have the well-known characteristics of low price and income elasticity of demand, low growth of demand, unbalanced terms of trade and instability of export earnings (Iyoha and Oriakhi, 2002). The decline in export earnings must have been engendered by short fall in production which has forced most developing countries to depend on importation of food. As a result of international specialization, the economic performance of the region over the years had been deplorable and disappointing, and this can be attributed to the growth in expenditure on food import and falling export earnings which has brought with it a deep economic mess and a growing balance of payment deficit coupled with using external debts (FMARD, 2014).

Agriculture, the second largest sector after oil, fell from 48% of GDP in 1970 to 20.6% in 1980 and was only 23.3% of GDP in 2005 (CBN, 2009). The sector’s contribution to the growth of the Nigerian economy in 2012 stood at 39.21 and 41.93% improvement in the third quarter of 2013. This is because agricultural output continued to experience improved production in 2013. The sector recorded growth rate of 3.83% in the fourth quarter of 2012 as against 5.68 in the fourth quarter of 2011. Output in the third quarter of 2013 stood at 5.08%, up from the 3.89% recorded in the corresponding period of 2012 and also higher than the 4.52% recorded during the second quarter of 2013 with a low level of job creation as compared to education, financial intermediation, among others (NBS, 2013). Despite the involvement of Nigeria in international trade, hunger, malnutrition, mass poverty and high income among small group of businessmen and politicians, unemployment and underemployment, lack of executive capacity, over dependence on petroleum and imports of goods and services continues to take a turn for the worse thereby leading to threat on economic growth in Nigeria. The duo crisis of food and finance around the world had left agricultural export and economic growth on its lowest ebb in Nigeria. These sluggish performances especially the decreased sector contribution from 6.5% in 2005 to 4.1% in 2012 of the agricultural sector and the vulnerability of the external sector thus dictate the urgent need to examine the trend and effect agricultural export on economic growth in Nigeria.

Agricultural Exports in Nigeria

Prior to the 1970s, agricultural exports were Nigeria’s main sources of foreign exchange earnings. During this period, Nigeria was a major exporter of cocoa, cotton, palm oil, groundnuts and rubber. Government revenues also depended heavily on taxes on non-oil exports. Thus, during the period; the current account and fiscal balances depended on agricultural export. However, between 1970 and 1974, agricultural exports as a percentage of total exports declined
from about 43 percent to slightly over 7 percent. From mid 1970s to date, the share of agricultural export as a percentage of total export is below 5 percent for most years since the introduction of Structural Adjustment Programme (Ebi, 2013). The major cause of this development was the oil price shocks of 1973 – 1974 and 1979, which resulted in large receipts of foreign exchange by Nigeria and the neglect of agriculture. The oil boom afflicted the Nigerian economy with the so-called “Dutch disease” effects (Ayodele, 1997; and Osuntogun, et al, (1997).

By 1986, the situation had become a crisis, dramatizing the ineffectiveness of the prevailing external sector policy of import substitution industrialization (ISI). The failure of this policy regime to cope with the negative oil price shock was the reason for its substitution with an outward looking external policy under Structural Adjustment Programme (SAP) introduced in 1986. Under SAP, emphasis was on diversifying Nigeria’s export base away from oil and increasing non-oil foreign exchange earnings. To achieve the objectives of the programme, government put in place a number of policy reforms and incentives to encourage the production and export of non-oil tradables as well as broaden Nigeria’s export market. Given that the overall success of exports promotion strategy will depend among other things on what factors constrain export growth and on the responsiveness of producers to change in price and non-price variables, a better understanding of key variables affecting export commodities performance and the direction and magnitude of relevant elasticity is desirable (Love, 1982; Ghura and Grenness, 1994; and Lukonga, 1994).

This is particularly important considering the exhaustible nature of oil and the fact that over dependence on crude oil is associated with shocks and transmitted recessions. Where export supply responds negatively to prices, price changes cannot bring about an increase in export volume. With favorable policies, non-oil export production will increase and export earnings will be boosted.

The economy of Nigeria is on the low side because of the drop in the crude oil price and most of the Nigerian citizens have really abandoned agricultural practices. When crude oil was not much in supply in the early 60’s and 70’s, agriculture was the major source of revenue for both the citizens and the government of Nigeria. Most of the people said that there is no capital to set up a farm, so no machinery and the government policy is not allowing them to practice agriculture on a large scale. In respect of that, many people have abandoned agriculture for some other businesses allowing the agricultural sector to keep people in doubt of its significant contribution to the Gross Domestic Products (GDP) in Nigeria. Hence, the question still remains unanswered whether agricultural sectors contribute significantly to Nigerian Gross Domestic Product (GDP).

**Literature Review**

Various studies have been carried out by different researchers to ascertain the relationship between agricultural export and economic growth and they all came up with various conclusions as it relates to the relationship between agricultural export and economic growth.

Oni (1969) focused on the short run and long run supply response of palm produce to changes in output and input prices in Nigeria between 1949 and 1966 using the classical and Nerlovian model. The result showed that the average estimated values over the period of the study were 0.23 and 0.28 respectively for short-run and long-run price elasticities. This work did not include non-price variable such as credit, transport and communication etc. Agricultural export response to policy manifests itself through channels other than price, (Gbertmark and Khan, 2002; and Nichodemus, et al 2003).

Lunkonga, (1994) examined the factors underlying the past performance of Nigeria’s non-oil exports. Ordinary least squares (OLS) estimation procedures were used to obtain estimates for three commodities. Cocoa, palm kernel and rubber between 1970 and 1990. Cocoa yielded statistically significant price elasticities with expected sign, indicating that the
commodity responds positively to changes in relative prices. Overall, the results provided evidence and lend support to the usefulness of pricing policy in eliciting export supply, denoted a weak relationship between agricultural output and export trends, supported the view that domestic market conditions strongly influenced export behavior and denoted poor performance with regard to lagged exports.

Antai (2006) sought to ascertain the factors that influence the present non-oil export growth in Nigeria between 1970 and 2004. A Granger causality test was used to determine the direction of causation between non-oil exports and growth in Gross Domestic Product (GDP), while Ordinary Least Square (OLS) estimation technique was used in showing the effect of price and non-price variables on non-oil export aggregate and sectorally. The results show that there was no bi-directional causality existing between exports and economic growth, non-price variables such as; foreign income, exchange rate, expenditure on agriculture and weather were the major determinants of export growth of the agricultural commodities considered.

Francis, et al, (2007) using co-integration and error-correction models worked on agricultural export diversification and economic growth in Caribbean countries for the period 1961 to 2000. The results of the study reveal that agricultural export diversification impacted on economic growth in short run for Barbados and Belize while for countries like Belize, Costa Rica, Haiti, and Jamaica, agricultural export impacted on growth in the long-run. The results also show that non-causality relationship exists for Trinidad and Tobago. Based on these findings, in the face of an outward oriented trade strategy adopted by most Caribbean countries, export-growth linkage still holds.

Mesike, et al (2010) analyzed the supply response of rubber farmers to price and other factors in Nigeria using co-integration and vector error correction techniques. The analysis was carried out on secondary time series data collected from 1970 – 2008. The data were however tested for their time series characteristics using ADF tests. Preliminary analysis suggested that estimations based on their levels might be spurious as the results indicated that all variables in model were not stationary at their levels. Further results indicated that producer price and structural break significantly affected the supply of rubber. Response of rubber farmers to price were low with estimated elasticity of 0.373 in the short-run and 0.24 in the long-run due to emergence of other supply determinants indicating significant production adjustment.

Orji-Oko (2011) employed multiple regression analysis to examine the contribution of agricultural sector on the Nigerian economic development. They found that a positive relationship between GDP vis-a-vis domestic savings, government expenditure on agriculture and foreign direct investment between the periods of 1986 to 2007 and the result showed that 81% of the variation in GDP could be explained by domestic savings, government expenditure and direct foreign investment.

Ehinomen and Daniel (2012) examined export and economic growth nexus in Nigeria from (1970-2010) using Granger causality test and Autoregressive Distributed Lag (ARDL). The study found that there exist a long-run relationship between export and economic growth in Nigeria. They concluded that there is a causal relationship between export and economic growth that runs from agricultural export to economic growth.

Faridi (2012) examined the contribution of agricultural exports to economic growth in Pakistan from (1972-2008) using Johansen Co-integration and Granger Causality test. The study found that agricultural exports have negative and significant effect on economic growth. The study concludes that agricultural exports have no effect on economic growth.

Mehdi and Shahiyar (2012) examined the effect of export growth on economic growth in Iran using (OLS). The study found that all variables coefficients are significant and their marks conform to theoretical debates. They concluded that a positive relationship exists between agricultural exports and economic growth that runs from agricultural export to economic growth.
Gilbert, et al (2013) examined the impact of agricultural export on economic growth in Cameroon: Case of Banana, Coffee and Cocoa from (1976-2009) using (OLS), Engle and Granger (1987) test and Johansen (1988) co-integration test (VECM). They found that agricultural exports have mixed effect on economic growth in Cameroon. Coffee export and banana export has a positive and significant effect on economic growth. On the other hand, Cocoa export was found to have a negative and insignificant effect on economic growth. They concluded that agricultural exports have mixed effect on economic growth.

Gbaiye et al., (2013) investigated the relationship between agricultural exports and economic growth in Nigeria from (1980-2010) using Johansen maximum likelihood test of co-integration. The study found that a long-run relationship exists between agricultural exports and economic growth and the relationship is elastic in nature such that a unit increase in agricultural exports leads to a more than proportionate increase in real gross domestic product in Nigeria. They concluded that there is co-integration relationship between agricultural export and economic growth.

Ekiran, et al (2014) carried out a study on the impact of agricultural export and economic growth in Nigeria from (1980-2012) using Johansen co-integration technique. The study found that agricultural export, agricultural output, net capital flow and world price of Nigeria’s major agricultural commodities are long-run determinants of economic expansion in Nigeria and concluded that there was co-integration relationship between agricultural export and economic growth during the study period in Nigeria.

Khan and Lodhi (2014) studied the nexus between agricultural raw material exports, trade openness and economic growth of Pakistan from (1980-2013) using Johansen Co-integration test. The study found a long-run association in the model. They concluded that agricultural exports have a positive impact on GDP (economic growth).

Ijirsha (2015) carried out empirical analysis on the effect of agricultural exports on economic growth in Nigeria from 1970 to 2012 using Granger Causality test and Johansen Co-integration test. The study found that a long-run equilibrium relationship existed among the variables. The study concluded that agricultural export had a positive effect on economic growth in Nigeria.


Oluwatoyesse, et al (2016) examined agricultural export, oil export and economic growth in Nigeria from 1981 to 2014 using Granger causality test and Multivariate Co-integration test and the study found that a significant relationship between economic growth and the agricultural export and oil export. They concluded that GDP, agricultural and oil exports were co-integrated.

Verter and Bcevarova (2016) investigated the impact of agricultural exports on Nigeria economic growth using ordinary least squares regression, Granger Causality, Impulse Response Function and Variance Decomposition Approaches. Their results showed that both OLS regression and Granger Causality results supported the hypothesis that agricultural exports led to economic growth in Nigeria. The results, however, showed an inverse relationship between the agricultural degree of openness and economic growth in the country. Impulse Response Function results fluctuated and revealed upward and downward shocks from agricultural export to economic growth in the country. The Variance Decomposition results also revealed that a shock to agricultural exports can contribute to the fluctuation in the variance of economic growth in the long run and the study concluded that for Nigeria to
experience a favorable trade balance in agricultural commodities that the country could process cheaply should be discouraged, so that undoubtedly, the measure could considerably reduce the country’s overreliance on food imports and increase the rate of agricultural production for self-sufficiency, exports and its contribution to the economic growth in the country.

Sertugilu, et al. (2017) empirically examined the impact of agricultural sector on the economic growth of Nigeria using time series data from 1981 to 2013 and the results showed that real gross domestic products (GDP), agricultural output and oil rents have a long run equilibrium relationship with the use of vector error correction model (VECM) which the results revealed that the speed of adjustment of the variables towards their long run equilibrium path long, although, agricultural output had a positive impact on the economic growth. More so, in their study, they recommended that government and policy makers should embark on diversification and enhance more allocation in terms of budgeting to the agricultural sector.

Okonkwo, et al. (2018) investigated the influence of agricultural sector on gross domestic product (GDP) growth in Nigeria from 1981 to 2015. The broad objective of the study was to evaluate the impact of agricultural sector on GDP and the their result showed that agriculture is statistically significant in influencing GDP growth in Nigeria and they recommended that government should take the advantage of the general positive change in ill attitude of Nigeria towards building sustainable agribusiness ecosystem with the private sector active participation.

Oguagbaka and Akalagboro (2019) examined the impact of export agricultural commodities price index on economic growth in Nigeria. The agricultural commodities considered in their study include live animals, animal products, vegetable products and prepared foodstuffs, beverages, spirits and vinegar and tobacco. Real GDP was used as a proxy for economic growth and the findings with the aid of regression analysis showed that the model obtained was adequate for estimating real GDP in Nigeria. They further revealed that export agricultural prices index on prepared foodstuffs had significant impact on economic growth in Nigeria. Also, they found that export agricultural price index on products such as live animals, animal products and vegetable product does not significantly impact on economic growth in Nigeria, hence, they recommended that government should invest more on areas such as live animals, animal products and vegetable products so that they will impact positively on economic growth in the near future thereby strengthen the diversification agenda of the Government of Nigeria.

Victor and Onyeukwu (2022) evaluated the linkage between selected agricultural commodity export and Nigeria’s gross domestic products (GDP) between 2009 and 2018. The research was a quantitative work that adopted a descriptive research design where data on sesame seed export, cashew export, cocoa beans export, exchange rate, Gross fixed capital formation, real gross domestic product and agricultural commodity export were sourced from the Central Bank of Nigeria Statistical Bulletin and the United Nation’s Commercial Trade Statistics, the ordinary least squares regression analysis and the Granger Causality test were employed. The findings revealed that there was no Granger Causality between agricultural commodity exports and Nigerian’s GDP. The result further showed that there was no relationship between agricultural commodity export and Gross fixed capital formation in Nigeria. Hence, the study recommended that the Federal Government of Nigeria through the Federal Ministry of Agriculture should support the participation of the private sector in the agricultural industry to increase total production for national use to increase the exportation of the products.

**Materials and Methods**

The method of data analysis used for this research would be divided into two: descriptive and inferential methods of statistics. The descriptive method of statistics will compare the mean and graphical display of the contributions
of Cocoa, rubber and Soya beans over the years of study to depict the trend at which they were moving (con tributing) to the GDP. The inferential method of statistics: This method will be subjected to a regression analysis to ascertain the contributions of Cocoa, rubber and Soya beans to GDP. This test is known as an ordinary least square method (OLS). The OLS method would be used to test the influence of the independent variables (Co, Rh, Sb) on the GDP.

**The Model Specification**

The model for the study is specified on the general form as

$$GDP = f(C_{xp}, R_{xp}, S_{xp})$$

(1)

Equation (1) can also be written as

$$GDP = \beta_0 + \beta_1 C_{xp} + \beta_2 R_{xp} + \beta_3 S_{xp} + \varepsilon_i$$

(2)

where,

$GDP$ is Gross Domestic product (dependent variable)

$C_{xp}$ is the cocoa export price

$R_{xp}$ is the rubber export price (independent variable)

$S_{xp}$ is the soya beans export price (independent variable)

Equation (2) could be used to explain the relationship between Cocoa, rubber, soya beans and GDP could be transformed mathematically to as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_i$$

(3)

where:

$Y$ is the Gross domestic Product

$X_1$ is the export price of Cocoa

$X_2$ is the export price of rubber

$X_3$ is the export price of soya beans

$\varepsilon_i$ is the error term in the model

**Ordinary Least Square (OLS) Technique**

The ordinary least squares regression would be used to estimate the regression parameters aimed at generating estimators in such a way that the sum of squares of the error term would be minimized. This method supports the research question of ascertaining the contributions of Cocoa, rubber and Soya beans to the GDP.

This method reduces the error sum of squares; it is unbiased, consistent, and efficient and has minimum variance as its assumptions.

The OLS model is given as

$$Y = \beta_0 + \beta_i X_i + \varepsilon_i$$

(4)

where,

$$\hat{\beta}_0 = \bar{Y} - \beta_1 \bar{X}_1 - \beta_2 \bar{X}_2 - \beta_3 \bar{X}_3$$

(5)

$$\hat{\beta}_1 = \frac{n \sum X_1 Y - (\sum X_1)(\sum Y)}{n \sum X_1^2 - (\sum X_1)^2}$$

(6)

$$\hat{\beta}_2 = \frac{n \sum X_2 Y - (\sum X_2)(\sum Y)}{n \sum X_2^2 - (\sum X_2)^2}$$

(7)

$$\hat{\beta}_3 = \frac{n \sum X_3 Y - (\sum X_3)(\sum Y)}{n \sum X_3^2 - (\sum X_3)^2}$$

(8)

**Test of Significance (The Impact of the Agricultural Commodities on GDP)**

After the estimation of the model, the parameters of the model would be tested for their adequacy and statistical credibility. In this paper, the t- test statistic would be used and the null and alternative hypotheses stated as

$$H_0: \beta_i = 0$$
\[ H_0: \beta_i \neq 0, \text{ for at least one } \beta_i^S, i = 1,2,3 \]

and the test statistic given by

\[ t_i = \frac{\beta_i}{SE(\beta_i)} \quad (9) \]

where,

\[ SE(\beta_i) = \sqrt{Var(\beta_i)} \quad (10) \]

with critical value being \( t_{n-k-1,\alpha/2} \) degrees of freedom and the null hypothesis \( H_0 \) is rejected if \( t_i \geq t_{n-k-1,\alpha/2} \), otherwise \( H_0 \) would not be rejected at p-value less than 0.05

**Coefficient of multiple Determination (R^2)**

A measure of the goodness of fit is the square of the correlation coefficient, \( R^2 \) that shows the percentage of the total variation in the dependent variable that can be explained for by the independent variable. In this study, it would be used to determine the percentage of the total variation in the dependent variable (GDP) that would be explained by the independent variables (Cocoa, Rubber and Soya beans). This measure is given by

\[ R^2 = \frac{SSR}{SST} = 1 - \frac{ESS}{TSS} \quad (11) \]

**Results and Discussions**

**Graphical Presentation of GDP and Export Prices of Agricultural Commodities**

From Figure 1 we observed that there is no relationship between the gross domestic product and the cocoa and soya beans as the selected export prices of agricultural commodities over the years of this research. More close observation showed that GDP has significant relationship with rubber. This means that export price of rubber contributed significantly on the Nigeria gross domestic product (GDP) over the years of study.

![Graph of GDP, Cocoa, Rubber, Soybeans](image)

*Figure 1. Graph of GDP and Some Selected Export Prices of Agricultural Commodities*
Table 1. Descriptive Statistics: GDP (Y), Cocoa (X1), Rubber (X2), Soya beans (X3)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>24</td>
<td>39.37</td>
<td>574.18</td>
<td>321.8796</td>
<td>163.54066</td>
</tr>
<tr>
<td>Cocoa</td>
<td>24</td>
<td>758.00</td>
<td>3289.00</td>
<td>2174.1429</td>
<td>684.26015</td>
</tr>
<tr>
<td>Rubber</td>
<td>24</td>
<td>50.00</td>
<td>500.00</td>
<td>175.9167</td>
<td>100.50570</td>
</tr>
<tr>
<td>Soya beans</td>
<td>24</td>
<td>96.50</td>
<td>1524.00</td>
<td>918.8404</td>
<td>376.20223</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the output of the descriptive statistics in Table 1, it showed that cocoa has the highest mean and standard deviation of 2174.14 and 684.26 respectively followed by soya beans with the mean of 918.84 and standard deviation 376.20 while that of the rubber has the mean and standard deviation of 175.92 and 100.51 respectively. This means that if compared with mean amount generated to the GDP both cocoa and Rubber have significant contribution to the growth of the Nigerian Gross Domestic Product (GDP) while the service has little contribution to the GDP over the years of study.

Multiple Regression Analysis (OLS) of GDP against Cocoa, Rubber and Soya beans

The Estimated Multiple Regression Model is obtained as:

\[ \text{GDP}(Y) = -108.83 + 0.157 \text{Cocoa} - 0.157 \text{Rubber} + 0.127 \text{Soya beans} \]

Table 2. Analysis of Variance Table for Multiple Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>413211.734</td>
<td>3</td>
<td>137737.245</td>
<td>13.642</td>
<td>.000a</td>
</tr>
<tr>
<td>Residual</td>
<td>201935.869</td>
<td>20</td>
<td>10096.793</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>615147.603</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Soya beans, Rubber, Cocoa
b. Dependent Variable: GDP

\[ H_0: \beta_i = 0 \ (There \ is \ no \ Significant \ Relationship) \]
\[ H_0: \beta_i \neq 0 \ (There \ is \ significant \ Relationship) \]
\[ \alpha = 0.05 \]

From the ANOVA Table, the P-Value in the regression model is (0.00) which is less than P-value (0.005) indicates that the model estimated by the regression procedure is significant at \( \alpha \) level of 0.05 which revealed that at least one coefficient is different from zero. The result showed that both cocoa, rubber and soya beans are significant. Therefore, we reject the null and conclude that there is no relationship between GDP and the selected export prices of agricultural commodities. This means that both export prices of the selected agricultural have some contribution to the growth of Nigerian Gross Domestic Product (GDP) over the years of study.

Statistical Test of Significance of the Estimated Parameters (t-Statistic)

The test is carried out to check for the individual significance of the variables. Statistically, the t-statistic of the variable under consideration is interpreted based on the following statements of hypotheses:

\[ H_0: \beta_1 = 0 \ (Cocoa \ has \ no \ impact \ on \ GDP) \]
\[ H_0: \beta_2 = 0 \ (Rubber \ sector \ has \ no \ impact \ on \ GDP) \]
\[ H_0: \beta_3 = 0 \ (Soya \ beans \ sector \ has \ no \ impact \ on \ GDP) \]
Table 3. The Summary Result of the Test of Significance

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>-108.829</td>
<td>70.810</td>
<td>-1.537</td>
</tr>
<tr>
<td></td>
<td>Cocoa</td>
<td>.157</td>
<td>.040</td>
<td>.658</td>
</tr>
<tr>
<td></td>
<td>Rubber</td>
<td>-1.157</td>
<td>.256</td>
<td>-.097</td>
</tr>
<tr>
<td></td>
<td>Soya beans</td>
<td>.127</td>
<td>.076</td>
<td>.291</td>
</tr>
</tbody>
</table>

a. Dependent Variable: GDP

From Table 3, the result revealed that only cocoa was statistically significant while rubber and soya beans were statistically insignificant. This implies that cocoa export price contributed significantly to the growth of Nigerian Gross Domestic Product (GDP) over the period of study.

Conclusion

In an attempt to explore the contributions of export prices of cocoa, rubber and soya beans sectors of agricultural commodities to Nigeria GDP for the period of 1999 to 2022 using Multiple Regression Analysis, the findings shows that the export prices of the selected agricultural commodities contributed about 62% to gross domestic product (GDP) of Nigeria economic growth between 1999 and 2022. Hence, we conclude from the research that both export prices of the selected agricultural commodities contributed to the economic growth of Nigeria over the period of study.

Recommendations

In line with the findings of this research, the following recommendations were made:

(i) Government should distribute more resources to agricultural sector properly and manage the existing agricultural industries so as to ensure proper and positive linkage effects on the economy.

(ii) The Bank of Agriculture (BOA) should be ready to aid Nigerian citizens or farmers who are interested as to produce more agricultural commodities for exports as Nigerian government is preaching about diversification of resources.

(iii) Government should allocate huge resources to agricultural sector in order to attract investors to invest in the sector.

(iv) Government should come out with appropriate policy guideline that will create enabling environment for the private sector to invest more in agricultural sector, ensure transparency, accountability and monitoring of compliance with bye-laws and regulations so that agricultural sector can be used to create jobs, and wealth for the country and as well as diversifying the economy and also pass law that can allow for export of agricultural commodities between Nigeria and other West African Countries.

References


