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THE IMPACT OF FOREIGN TRADE ON GROWTH OF AGRICULTURAL OUTPUT IN NIGERIA

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ABSTRACT: Every country that is industrialized today passed through agrarian era. In fact, agricultural sector still remains the backbone of the industrial sector. In most developing nations, foreign trade is very central to all facets of economic growth and development which include agriculture. In view of this, the study examined the impact of foreign trade on the growth of agricultural output. In the process, other determinant was also examined. This includes population growth. The study used annual time series data from 1978 to 2008, obtained from the Central Bank of Nigeria (CBN) statistical bulletin. Descriptive statistics, correlation analysis and Newey-West standard error regression model were used to analyse the data. The correlation analysis showed that there is existence of strong relationship between the variables. Results also revealed that petroleum export, food import and population growth rate were the significant factors that influence the growth of agricultural output in Nigeria. The growth of agricultural output was significantly increased by petroleum export and population growth rate but was reduced by food import. It is recommended that the government should introduce suitable foreign food and non-food trade policies and programmes that will positively impact the growth of agricultural output in Nigeria.

KEYWORDS: Foreign Trade, Growth, Agricultural Output, Petroluem Export, Food Import.

1 INTRODUCTION

Foreign trade simply means the exchange of goods and services across international borders or between nations of the world. The analysis of sectoral growth pattern of an economy including agricultural sector in terms of growth rate and per capita income has been based on the domestic production, consumption activities and in conjunction with foreign operation of goods and services. Foreign trade plays a vital role in reorganization of economic and social attributes of countries around the world, particularly, the less developed countries. Foreign trade has been and is today an economic force that has spurred commerce, promoted technology and growth, spread cultural patterns, stimulates exploration and brings prospect for world peace and international relationships. Foreign trade in its early beginnings was necessary, not just because it provided one society with products such as cowries from Africa to other areas; foreign trade also formed the basis for cultural interchange, thus trading not only on product, but also on lifestyles, customs and technology. It has helped to improve the living standard of nations and also, the national income. Foreign trade has been an area of interest to decision makers, policy makers as well as economists. It enables nations to sell their domestically produced goods to other countries of the world [1]. Foreign trade is achieved when it facilitates the national and international mobility of factors of production, the exchange of ideas and improved technology which leads to international allocation and distribution of resources. Foreign trade leads to steady improvement in human status by expanding the range of people's standard of living and preference. Foreign trade plays a vital role in reforming economic and social attributes of countries around the world, particularly, the less developed countries because no country is self-sufficient to trade alone.

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Trade across the frontiers that is with the rest of the world is defined to be Foreign trade and , it has been argued that, it plays a prominent role in promoting economic growth and productivity in particular, and debate have been ongoing since several decades ago. Historical validation has revealed that internationally active countries tend to be more productive than countries which only produce for the domestic market. As a result of liberalization and globalization a country's economy has become much more closely associated with external factors such as openness of the economy and various foreign policies [1]. It has also been further argued by researchers that international trade as it relates to global and domestic economic growth and development with agricultural sector inclusive. They believed that international trade leads to specialization, increase in resource productivity, large total output, creation of market, creation of employment, generation of income and relaxation of foreign exchange restraints [14]. The positive relationship that exists between global trade and growth of agricultural output may be as a result of the likely positive externalities due to the involvement of different countries in the international trade. Many empirical studies have argued in favour of the importance of global trade on economic growth including agriculture using the degree of trade openness, terms of trade, tariff and exchange rate as variables to explain the claim that open economies grow faster than closed economies [8].

Predominantly, in our world today, nothing can be done without an exchange of some value for value which involves money, ideas, product and technology. As a result of this there is direct effect on all the economic sectors of any nation, either positively or negatively. Trade can be traced back to the need for exchange, which evolved from the barter system to the money system. Trade in Nigeria, however, became popular with the advent of the colonial rule that brought in their wares and made Nigerians their middle men [13]. By this Nigerians understood the need for trade both domestically and internationally.

International trade has been an area of concern to policy makers and economists. Its importance lies on the ability to obtain goods which cannot be produced in the country or which can only be produced at greater expenses. Also it enables a nation to sell its domestically produced goods to other countries of the world. The performance of a given economy in terms of growth rates of output and per capita income has not only been based on the domestic production and consumption activities but also on international transaction of good and services. The classical and neo-classical economists attached so much importance to international trade in a country's development that they regarded it as an engine of growth [11].

Growth on agricultural production and productivity are crucial in achieving sustainable economic growth and poverty reduction in developing countries. The positive link between agricultural production growth and degree of foreign trade activities of a country may suggest that foreign trade goes along with economic development. Foreign trade which is mostly enhanced with trade liberalization of economies and the complete elimination of trade barriers have become popular economic policies of developed and developing nations today while import and export tariffs, quotas, export subsidies, and technical barriers were common place during the previous decades. More recently, developing nations, like Nigeria, have been implementing trade liberalization policies in order to further boast the level of the national foreign trade. Further, most countries' experience on trade liberalization policies seems to indicate that the trade policy reforms achieve larger important agricultural production growth and domestic welfare gains.

Various trade policy frameworks introduced were supposed to increase the availability of goods and services to consumers and expanded the opportunities to agricultural sector, enhancing market competition, increasing investments, raising agricultural productivity, and output.

Traditional trade theory emphasizes that free trade based on allocative efficiency, increases social welfare assuming perfect competition. The theory further implies that free trade policies improve welfare of any economy by reducing dead weight loss associated with the characteristics of monopoly or oligopoly. Even though trade theory states that foreign trade increases welfare and economic activities. Some studies show that there is little or no evidence to suggest that foreign trade accelerates agricultural production growth or per capita income. However, there is a substantial levels of empirical evidence confirming that there is a link between trade openness and growth[2]. Also some research shows that foreign trade and agricultural productivity as may both feed on each other. Agricultural productivity can be gained from trade openness which results from liberalized trade policies as agricultural products need to be more competitive to get expected agricultural production levels[12]. A substantial level of analysis points out that Nigeria may have benefitted from trade policy reforms and increased foreign trade which has enhanced a shift away from protectionism.

Nigeria has been a member of World Trade Organization (WTO) since 1995, and has implemented regional Free Trade agreements since 1995. Sri Lanka expected fast economic growth via increased agricultural output with trade policies with potential of increasing foreign trade. However, Nigeria's agricultural production has been growing at a very low rate in comparison to its government's expectations. Since the commitment of the country to world trade, the agricultural growth rate has remained approximately at an annual average of 4%. Historically, Nigeria has been an agricultural economy where agriculture accounted for more than 50% of the total GDP. Relative contribution of agricultural sector has been decreasing to

less than 50% of the total GDP[6]. Although relative contribution of the agricultural sector to the total GDP has declined, agriculture still accounted for about 34% of the total labor force and 23% of total exports in 2008 [7]. Very few or no studies have exclusively examined the foreign trade effects on agricultural production growth in Nigeria. This empirical research attempts to provide a quantitative assessment of the foreign trade impacts on the agricultural production growth from 1978 to 2008.

Before the discovery of oil in 1960's, the Nigerian government was able to carry out investment project through domestic savings, earning from agricultural product exports and foreign aids as result of substantial agricultural productivity. Since the discovery of crude oil in 1956 and its exploration in commercial quantity in 1958 however, the oil sector gradually became the dominant sector in the economy, and almost the sole source of export earnings. For instance in 1970's petroleum constituted of about 78% of Federal Government revenue and more than 95% of export earnings [7]. With the oil boom in 1973, the country's foreign exchange earning raised immensely, which translated into higher economic growth, to the extent that there was no fear of expenditure in the part of government even on necessary issues.

Since the advent of oil as a major source of foreign exchange earning Nigeria in 1974 the image has been almost that of general stagnation in agricultural exports. This led to the loss of Nigeria's position as an important producer and exporter of palm oil produce, groundnut, cocoa and rubber [8]. Between the year 1960 and 1980, agricultural and agro-allied exports constituted an average of 60% of total export in Nigeria, which is now accounted for, by petroleum oil export[6].

Furthermore, by 1977, export stood at N7, 881.7million. Between 1960 and 1977, value of export grew by 19%. It should be noted that before 1972, most of the export were agricultural commodities like cocoa, palm produces, cotton and groundnut. Thereafter, minerals, especially crude, petroleum, became significant export commodities.

Imports also increased in values during the period. By 1960, import were valued at N432 million. They increased to N758.99 million and N813.2 million in 1970 and 1978 respectively, rising to N124, 162.7 million in 1992 and N681, 728.3 million in 1997. Non-oil GDP recorded a growth rate of 8.9%, compared with 8.5% in 2010. The improved performance in the sector was driven largely by the agricultural sector which grew by 5.7%, underpinned by robust growth in all its components [15]

However, from 1974, food import became obvious in Nigeria's foreign trade. The country had an unfavorable trade balance from 1960 to 1965, partly because of the aggressive drive to import all kinds of machinery to stimulate the industrialization strategy pursued immediately after independence. Thereafter, export of crude petroleum guaranteed a favorable trade balance. The oil sector dominates export while the non-oil sector dominates import. Between 1960 – 1970 oil export grew by 31.6% and 44.6% respectively. Also, for this period, nonoil export showed marginal growth of 1.2% and 6.6% [15].

Although, foreign trade is not perfect in promoting economic growth because the Nigeria economy still experience some element of economic instability and this trade has also turned the country into an import dependent economy. However, the contribution of foreign trade to growth depends a great deal on the context in which it works and the objectives it serves to a country.

The attainment of economic growth is one of the objectives of foreign trade but in recent times, this has not been the case because the Nigerian economy still experience some element of economic instability such as high level of unemployment, price instability and adverse balances of payment to mention a few.

The share of agricultural products in import volume has increased while on the export side, the share of agricultural products in total export earnings has declined over the years. With depreciation of the naira, we have increased export prices and lower import prices (that cheap import prices) and overvalued exchange rates. These artificially cheap food imports have progressively created domestic disincentives for domestic substitutes, it has also made policy formulators fail to identify the constraints facing the domestic sector so as to formulate better policies for promoting agricultural production. There is a false sense of security caused by the cheap food imports which allows for halfhearted execution and abandonment of agricultural projects. Acceleration and completion of projects in the domestic sector has been distorted while focusing solely on the importation of the agricultural products, when these same products can be produced in abundance, which has not fostered the positive movement of agricultural production.

The present literature presents several plausible theoretical arguments supporting the view that foreign trade activities and agricultural and overall economic growth are positively associated. It is noted that exporting implies that a country gains access to the wider external demand, which acts as a stimulus to domestic agricultural output and hence economic growth. On the contrary, it is also argued that small domestic markets may not grow continuously due to shift of demand for local produce to imported produce [4]. Some economists have argued that the practice of protectionism is better means for

growth of local agricultural produce because in some instances the domestic economy may have comparative advantage over the foreign economy [14]. Nevertheless, the overwhelming evidence of positive impact of international trade on economic growth cannot be overemphasized.

Foreign trade has a drawback to agricultural growth because some of the goods imported into the country were those that caused damage to local producers or local farmers by making their produce inferior and being neglected by the consumers of such goods or services, this thereby reduced the growth rate of output of such agricultural sector. The country has a great potential of producing local rice for the teeming population which has high tendency of increased local rice production, but, unfortunately, the country depend largely on imported rice leaving the potential of local production undermined. Nigeria's major source of income is through the export of oil and thereby neglecting other sources of revenue such as the agricultural sector. The questions to be asked are what relationship exists between foreign trade and agricultural output? And, to what extent does foreign trade stimulate growth of agricultural output in Nigeria?

2 MATERIAL AND METHOD

The data used in the study was basically from secondary sources, mainly from the Central Bank of Nigeria statistical bulletin over the period of 1978 – 2008(30 years). The publication is designed to serve as an easy reference for statistical information and sources. The dataset provides detailed records on population export, food import, population growth, and agricultural output.

Descriptive statistics such as graphical illustrations were used to show the trends of population growth, food import; inflation rate, agricultural export and agricultural output over the years under study. The correlation analysis was used to examine the relationship that exists between the variables. However, the Newey-West standard error regression analysis was adopted to examine the impact of foreign trade on agricultutural output. Difficulties may arise while multiple regression with clearly non-stationary time data series thus leading to the so called spurious results [9] as a result of autocorrelation which is common to time series data. The use of Newey-West regression model corrects for autocorrelation while analyzing the effect of the explanatory variables on the independent variable [10].

In this study we used agricultural output, as our dependent variable which are regressed against explanatory variables such as food import, petroleum export, agricultural export and population growth. The choice of these explanatory variable is premised on the fact that they are the most common and most significant foreign trade indices in Nigeria.

The functional form on which our econometric model is given thus:

$$Y_i = \lambda_0 + \lambda_1 X_{1i} + \lambda_2 X_{2i} + \lambda_3 X_{3i} + \lambda_4 X_{4i} + \mu_{i.} \quad (1)$$

Transforming equation (1) to the natural logarithm, we have:

$$\ln Y_i = \lambda_0 + \lambda_1 \ln X_{1i} + \lambda_2 \ln X_{2i} + \lambda_3 \ln X_{3i} + \lambda_4 \ln X_{4i} + \mu_i \quad (2)$$

where;

Y = Agricultural growth (dependent variable)

X_1 = Food import values in Naira

X_2 = Petroleum export values in Naira

X_3 = Agricultural export values in Naira

X_4 = Population growth

Also, $\lambda_{0.....} \lambda_4$ are vectors of parameters to be estimated, *ui* is a zero-mean error term which captures all the unobservable in the model

Table 1. Data Composition for Research Study

Year	Food import in Million Naira	Petroleum Export in Million Naira	Agricultural Export in Million Naira	Agricultural Output in Million Naira
1978	1,027.60	5,401.60	412.80	412.80
1979	1,254.30	10,166.80	468.00	468.00
1980	1,437.50	13,632.30	340.10	340.10
1981	1,819.60	10,680.50	178.40	178.40
1982	1,642.30	8,003.20	198.60	198.60
1983	1,761.10	7,201.20	431.2	259.00
1984	1,349.70	8,840.60	208.80	208.00
1985	1,199.00	11,223.70	259.80	192.10
1986	801.90	8,368.50	407.40	407.40
1987	1,873.80	28,208.60	1,588.50	1,588.40
1988	1,891.60	28,435.40	1,780.40	2,558.20
1989	2,108.90	55,016.80	2,131.10	2,131.00
1990	3,474.50	106,626.50	2,429.30	2,429.30
1991	3,045.70	116,858.10	3,425.00	3,425.00
1992	12,840.20	203,292.70	3,054.90	3,054.90
1993	13,952.40	213,778.80	3,437.30	3,437.00
1994	13,837.00	200,710.20	3,818.80	3,818.80
1995	88,349.90	927,565.30	15,512.00	15,512.00
1996	75,392.00	1,286,215.90	17,202.00	17,202.00
1997	100,728.30	1,212,499.40	19,826.10	19,826.00
1998	102,165.10	717,786.50	16,338.90	16,338.00
1999	103,489.80	292,377.10	12,204.90	18,954.70
2000	113,630.50	565,652.70	9,322.20	17,865.80
2001	160,209.10	1,839,945.30	7,961.40	17,202.60
2002	144,297.60	1,649,445.80	15,301.00	20,897.00
2003	201,648.30	2,993,110.00	14,302.00	37,532.00
2004	178,747.40	4,489,472.20	15,001.10	44,395.50
2005	193,259.10	7,140,578.90	13,301.00	50,498.90
2006	214,487.68	7,191,085.60	12,666.70	50,965.70
2007	269,924.54	7,950,438.30	12,400.70	51,458.80
2008	311,388.16	9,860,194.20	13,500.50	

Source: CBN Statistical Bulletin (2008)

3 RESULTS AND DISCUSSION

It was observed that the agricultural output for the period 1981 to 2008 showed a steady but not significant increase from 1978 to 2004 except that it recorded some fluctuations from year200 to 2008. We also observed that petroleum export and food import grew steadily over the years while agricultural export remain steady and experienced a slow growth over the years. Increase in petroleum export was attributed to the over-dependency of the country's economy on Oil-sector resulting to the neglect of the agricultural sector as mainstay of the economy despite its potential. The growth trend of food import was attributed to high consumption of processed food in Nigeria and this has increased as a disproportion rate to agricultural export causing deficit in agricultural sector.

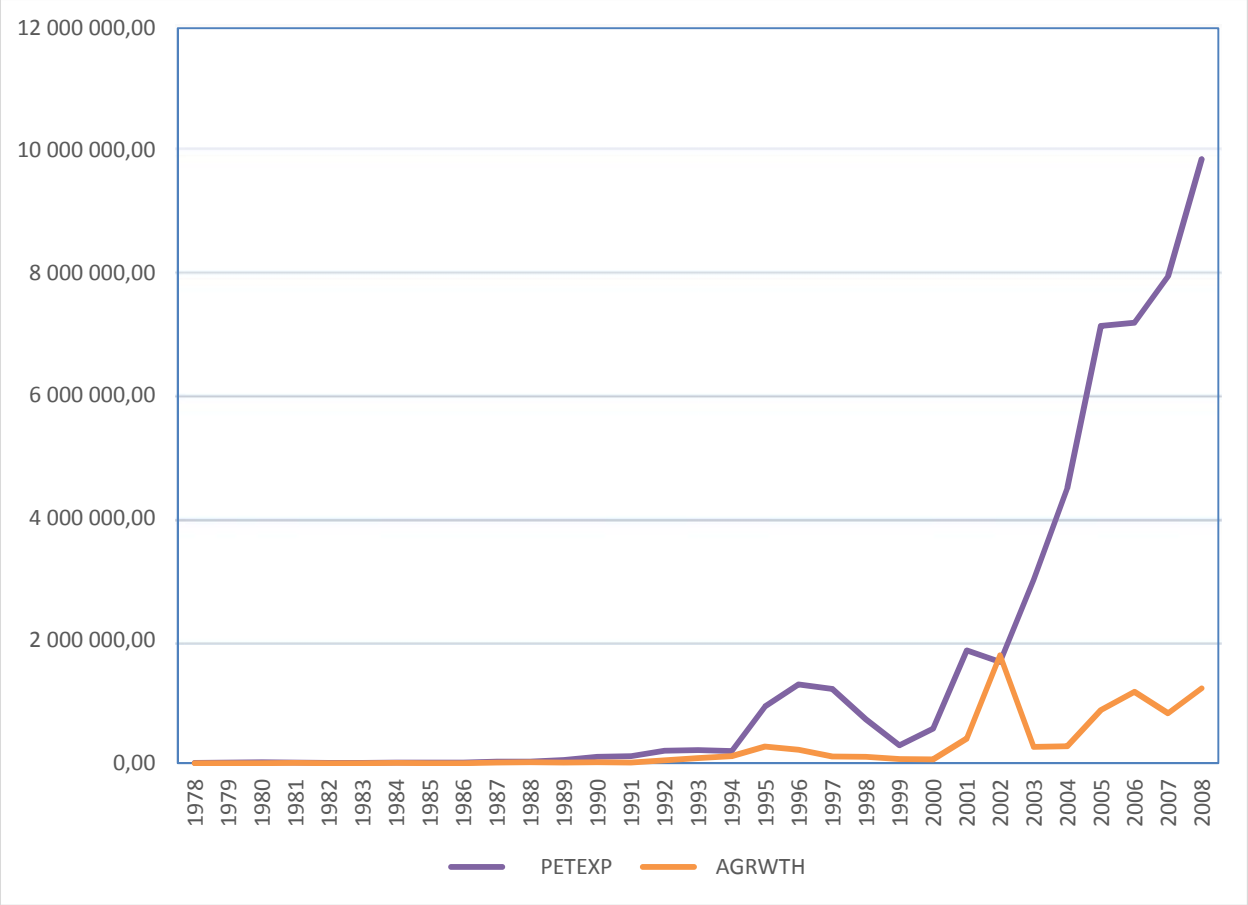

Figure 1. Trend of Petroleum Export and Growth of Agricultural Output from 1978 to 2008

Source: Author's editing, 2013

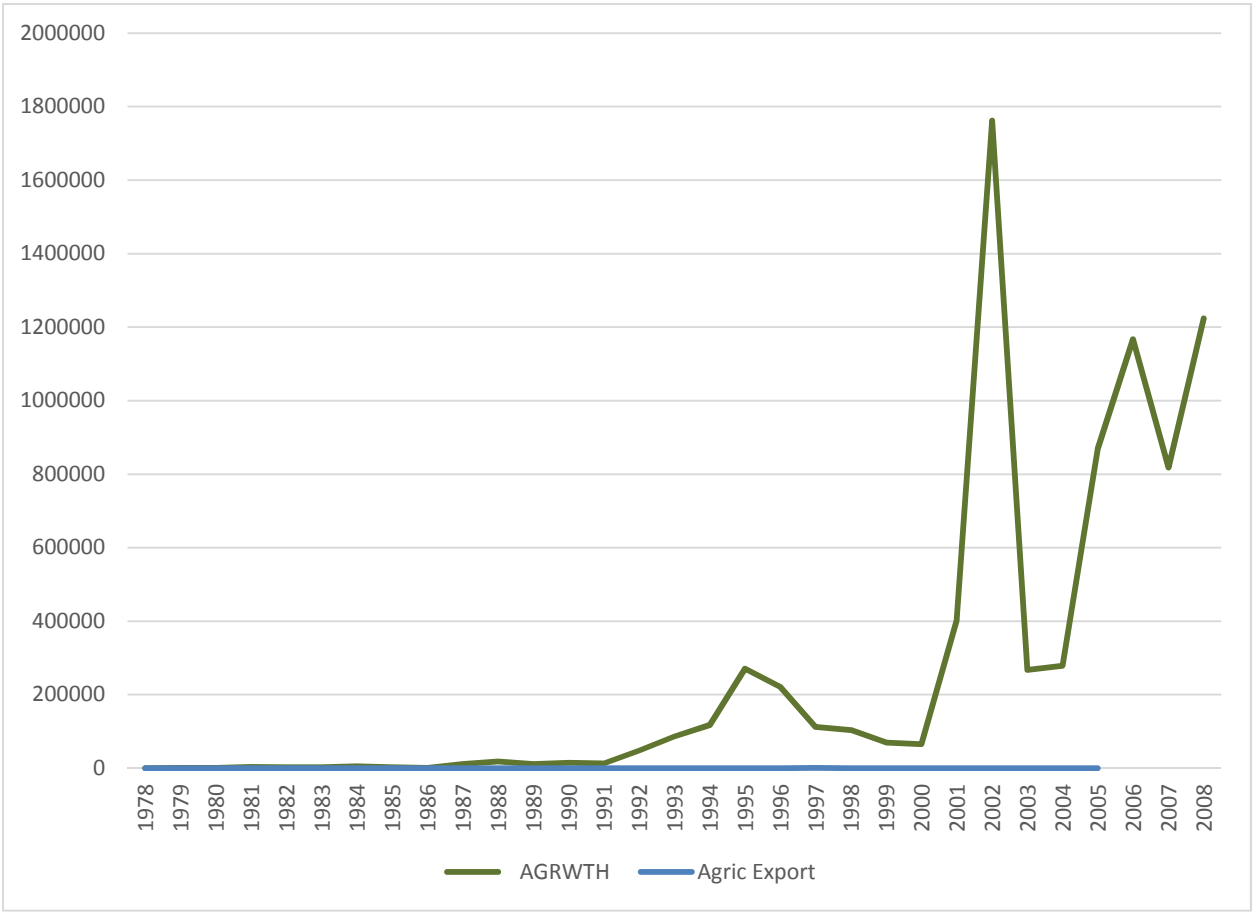

Figure 2. Trend of Agricultural Export and Agricultural Output from 1978 to 2008

Source: Author's editing, 2013

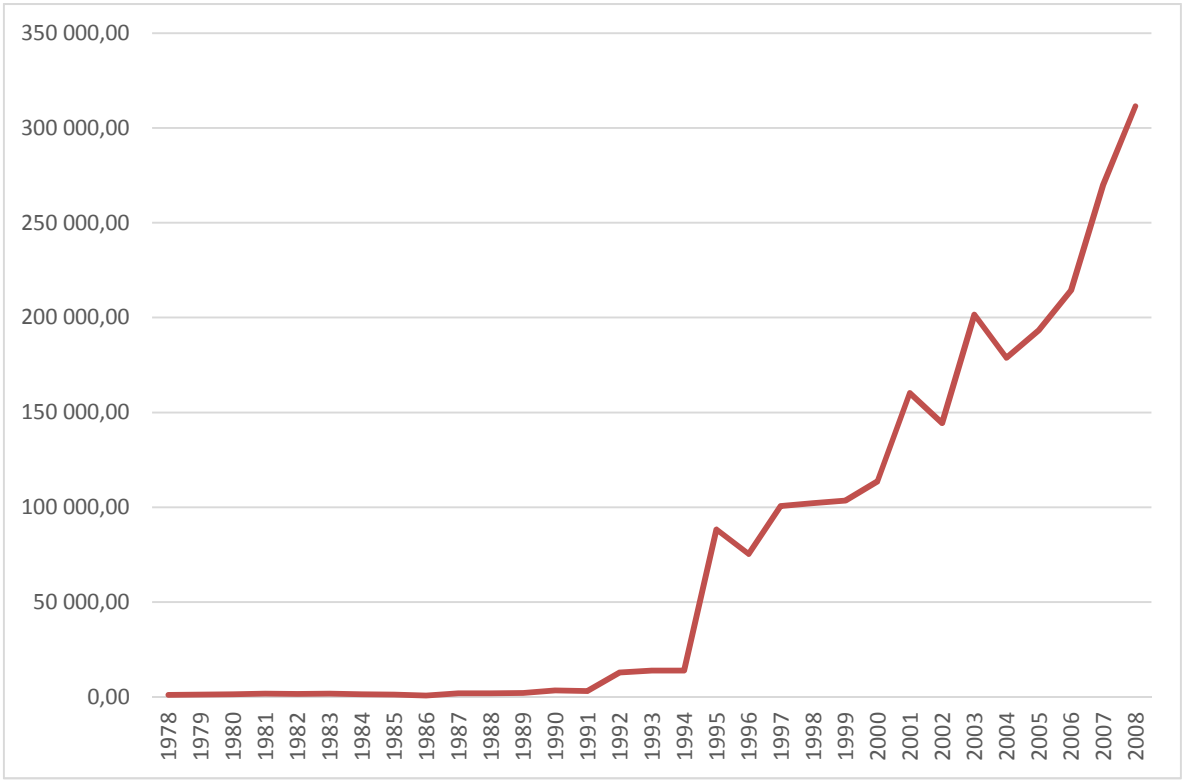

Figure 3. Trend of Food Import from 1978 to 2008

Source: Author's editing, 2013

The result of the correlation analysis indicated that there is a high positive correlation between agricultural output and petroleum export and population growth. This was indicated by the correlation coefficient (R) = 0.74 and 0.8 respectively while there exist a weak positive relationship between agricultural output and agricultural export. However, food import has a negative relationship with the growth of agricultural output. This result implies that there exist a strong relationship between the variables.

Table 2. Correlation Analysis of among Variables

	Petroleum Export	Food Import	Agricultural Export	Population Growth
Agricultural Output	0.74	- 0.75	0.55	0.8

Source: Author's editing, 2013

Table 3. Impact of Foreign Trade on the Growth of Agricultural Output in Nigeria using Newey-West Standard Error Regression Analysis

Variable	Coefficient	Newey-West Standard Error	t-Value	Prob>/t/
Food Import	- 0.169*	0.0871	-1.95	0.094
Petroleum Export	0.764***	0.1676	4.56	0.000
Agricultural Export	0. 068	0.1676	0.407	0.876
Population Growth	0.008***	0.306	-2.74	0.001
Constant	0. 070***	0.019	3.75	0.000
Number of Observation = 31				
R-Squared = 93.56%				
F(4, 25) = 98.98				
Prob > F = 0.0000				
****Significant at 1%level, ** Significant at 5%level, *Significant at 10%*				

Source: Author's editing, 2013

The R-squared which is the coefficient of determination, shows the percentage of variation in the dependent variable that was accounted for by variations in the explanatory variables. It measures the explanatory powers of the model. It is usually between zero and one. A close inspection of the table above indicates that the specified model has a high coefficient of determination. This can be seen from R-squared of 93.56 percent. The R-squared reports that the variables can explain about 93.56 per cent of total variation in the growth of agricultural output the remaining 7 per cent variation in the growth of agricultural output are not accounted for in the model or rather accounted for by other variables outside the model. The fitness of every regression result is based on its R-squared. The implication of this is that the model has goodness of fit.

F-statistics test the overall significance of the model under study. F-calculated is compared with F-tabulated where F- cal is greater than F-tab we reject the null hypothesis (Ho) and conclude that the variable is statistically significant in explaining the dependent variable. From the table, it shows that F-statistics is 98.56; and Prob (F-statistic) is 0.000. We, therefore, reject null hypothesis and accept alternative hypothesis. Thus, it implies that the model is statistically significantly different from zero. In other words, the explanatory variables jointly considered are significantly important in explaining variation in the dependent variable –growth of agricultural output.

Food import has a negative coefficient which implies that there is an inverse relationship between agricultural growth and food import. The value of the coefficient is 0.169 which means that a unit increase in the value of food import will result to a decrease in the growth of agricultural output by 0.169. This is attributed to the position of food import in the national income account as an expense to the government which is equally a leakage to Nigerian economy as Nigeria expend an average of USD$11Bn per annum [15].

Petroleum export has a positive coefficient which implies that there is a direct relationship between agricultural growth and petroleum export. The value of the coefficient is 0.7640 which means that a unit increase in the value of the petroleum export will result to increase in agricultural growth by 0.7640. This can be attributed to capital outflow of the revenue generated from oil and gas sector of the economy to agricultural sector of the economy which has a strong potential of increasing the growth of agricultural output in Nigeria.

Finally, population growth has a positive coefficient which implies that increase in the population has the high probability of increasing the growth of agricultural output in Nigeria. Agricultral production in Nigeria is still labour intensive thus, an increase in population will increase the labour force in agricultural sector.

4 CONCLUSION

This study has provided a good understanding of the impact of foreign trade on the growth of agricultural output in Nigeria. The study covered the period of 1978 to 2008 and time series data obtained from Central Bank of Nigeria were used. The result arising from our findings indicates that petroleum export, agricultural export and population growth are positively related while food import has negative relationship to the growth of agricultural output in Nigeria for the period under review. Based on this, we conclude that growth-led-export in the oil sector hypothesis is applicable in the Nigeria agricultural context. Therefore to improve the agricultural sector of the economy, diversification of excess funds realized from the oil sector to agricultural sector should be enhanced. Based on the analysis carried out during this research work and the

conclusion drawn from it, the following recommendations are made regarding the research to the Nigerian economy. Also, the government should encourage export diversification i.e. Non-oil sector exports (agricultural export) should be encouraged and concentration on oil sector export should be minimal. Nigeria is rich both in terms of resources and agricultural produce and as such, the locally based sources of raw materials should be strengthened to avoid the use of relatively expensive foreign raw materials in order to expand demand in agricultural markets. Population growth was found to positively influence agricultural output, therefore, there should motivation for the populace who has substantial interest in agriculture in order to increase the participants in agricultural production. Finally, food importation should be banned to encourage local producers to expand their productive capacity to meet the anticipated growing demand.

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