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Investment in Agro-Allied Industry: A Quantum Leap into Diversification of Nigerian Economy

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ABSTRACT

Excitedly, economic diversification has been the subject matter of numerous plans and initiatives of the Federal Government of Nigeria (FGN) since the fall in crude oil prices. Promoting agro-allied industrialization is an effective strategy to realizing the Agenda 2030 and Agenda 2063. In this regard, financing agro-allied industrialization, creating conducive business environment, building value chains, using technology and innovation, and promoting more equitable capabilities and opportunities for greater growth are vital to achieving productive employment and reduction in poverty and inequalities. The reason why agro-allied industry is not thriving in Nigeria is because of the caliber of people in government. Some of the constraints hindering the operations of agro-allied industries were discussed. Why investing in agro-allied industries is a quantum leap into diversification of Nigerian economy was discussed by reviewing existing literature. The objective of the study was to ascertain how the weak linkages between agriculture and agro-allied industries can be strengthened for economic diversification and to achieve this objective, the study reviewed existing literature. The study concludes that investing in agro-allied industries will not only add value to our agric-products but it is also a sector in which the economy should be diversified. The study also recommends that in order to diversify the base of the Nigerian economy and widen the market for agricultural commodities to absorb the expected increase in production, there is need to invest and promote the export of these agricultural and agro-industrial products.

Keywords: *Agro-Allied Industry, Diversification; Nigerian Economy; Agric-Products*

1. Introduction

Agro-allied industries are those industries that are dependent on agriculture for the raw materials needed in producing their finished goods. Agribusiness and agro-industry both involve commercialization, value addition of agricultural post-production enterprises and the building of linkages among agricultural enterprises (FAO, 2007). The terms agribusiness and agro-industries are often associated with large-scale farming enterprises involved in large-scale food production, processing, distribution and quality control of agricultural products. Major agro based industries are rice mill, Gur making, oil mill, spice grinding, small flour mill, pickle making, chips making, banana fiber extraction unit, etc. under the category of food products and allied industries in Nigeria.

According to Prince (2017) without the production of raw materials, the agro industries will cease to exist. The shift in focus to agriculture provides an opportunity to service the agro allied industries. If there is no sustainable agriculture, there will equally be no sustainable agro-allied industries. Gylych & Bahago (2017) observed that a major objective of the macroeconomic policy is fostering economic growth thereby creating a suitable environment for agro-allied industries to thrive. To drive agro-industrialization, the sector must be adequately financed. Doing so will help unlock the potentials of agriculture as a business in Nigeria in particular and on the -continent in general. The key to Africa's prosperity is value addition in agriculture, in turning our products to money, in looking inwards. Unarguably, Africa must feed itself. Nigeria government must encourage the diversification of Nigeria's economy as a matter of urgency. And this is what diversifying is all about, it is a tradition of different products manufacturing and not a focus on one sphere only –crude oil. In spite of Nigeria's rich agricultural resource endowments, there has been a gradual decline in agriculture's contributions to the nation's economy (Manyong et al., 2005).

Osakwe in Bassey (2012), lamented that a country whose export goods and markets are not diversified is highly vulnerable to the vicissitudes of the few export goods in the world market, as well as to the fluctuations in the economies of its trading partners. Obviously, it is globally known that for any country to attain growth and development, its economy has to be diversified and this does not occur in a vacuum. Nigeria's economy has, for several decades, remained mono-cultural with crude oil as the main source of revenue. What this means is that other sectors such as agriculture and solid minerals, among others, which were the mainstay of the nation's economy before the discovery of oil were needlessly side-lined (Leadership, 2018).

Nigeria is among the highest producers of many crops, which could be processed into value added products (VAPs) to enhance foreign earnings. Ogar et al (2014), cited that before independence, agricultural products dominated Nigeria's economy and accounted for the major share of its foreign exchange earnings. Nigeria was producing such cash crops as oil palm, cocoa, rubber, timber, groundnut, and many other crops that were exported. This made Nigeria a major exporter of those crops. In the same manner, Nigeria had over 19 million herds of cattle, the largest in Africa. Today, Nigeria is no longer a major producer of groundnuts (peanuts), rubber and palm oil. Cocoa production is now mostly from obsolete varieties and over aged trees, with production hovering between 180,000 tons to 350,000 tons annually. Regrettably, the revenue yielding agricultural projects were abandoned and left to deteriorate after crude petroleum was discovered.

Reliance on crude oil revenue is a factor that has left the country and its federating units undeveloped till date. Based on the current continuous fall in price in the international oil market and the present economic situation of Nigeria, the country is bound to face more economic hardship in the nearest future (Egbulonu&Nwokoro, 2016), if this problem of negligence or little attention to diversification of Nigeria's economy is not urgently pursued with all seriousness and commitment from the government and creating conducive business environment for private partners. It is very imperative for the government to look beyond mono economy and concentrate efforts towards diversification of the economy to attain sustainable economic growth and this cannot be overemphasized. As a nation that relies so much on oil for its revenues, the implicit multiplier effects for the entire economy have been most staggering and pervasive. The question is, for how long should we dwell on talking without acting? Let us match words with actions. There is no better time to diversify our economy other than now. It is no longer the time to sit on the fence and watch our economy dwindle. Let us all join hands together and cause our economy to boom again by diversifying our economy now into other sectors particularly agro-allied industries.

1.2 Statement of Problem

It may be difficult for Nigeria to achieve diversification in other sectors of the economy if it continues to rely on oil as its main source of revenue. Nigeria has a near zero structure for agro allied business on the continent today particularly in terms of acquiring the global GAP certification that would open wide the doors of exportation of agricultural products. Typical examples of the leading countries are: Kenya, the leading African Continent and it has 1,879 certifications; South Africa has 1,797 whereas, Ghana has more than 200 certifications and sadly, Nigeria has zero certification, Okakpu (2016) observed. Okonji (2018) warned that the task of growing the economy cannot be done by one entity alone. The Federal Government has to encourage other entities in the private sector, through the creation of a conducive business environment, call on the private sector to partner with the authority to turn the nation's fortune around, especially in encouraging more vibrant business activities in the non-oil sector, like agro allied industry, because of the sector's potential in creating large-scale jobs and also boost the country's earnings. Thus, Dieye (2016) observed that "there is a paradox of a weak linkage between agriculture and industry", in the midst of unexploited opportunities. It is against this backdrop that this paper attempted to x-ray why investing in agro allied industries is a quantum leap into diversification of Nigerian economy by reviewing existing literature.

1.3 Objective of the Study:

The broad objective of this study is the investment in agro-allied industry: a quantum leap into diversification of Nigerian economy. Other specific objectives are to;

i. Ascertain how to strengthened the weak linkages between agriculture and agro-allied industries for economic diversification.

ii. Examine the potential of agro allied industry for creating large-scale jobs in other to diversification the economy.

1.4 Research Hypothesis

i. H0; There is no significant weak linkages between agriculture and agro-allied industries for economic diversification.

ii. H0; Agro allied industry has no creating large-scale jobs potential to diversification the economy.

2. Literature Review

2.1 Conceptual Review

Nick (2019), defines diversification as a technique that reduces risk by allocating investments among various financial instruments, industries, and other categories. It aims to maximize returns by investing in different areas that would each react differently to the same event. Economic diversification is the process of shifting an economy away from a single income source toward multiple sources from a growing range of sectors and markets (UNFCCC, 2019). Diversification simply means going into a new venture that you feel will give you a positive outcome. Kemi (2016) defines diversification as a strategic direction that takes companies into other products and/or markets by means of either internal or external development. According to the same author, there are basically broad forms of diversification and these are: **Related diversification:** This occurs when a company develops beyond its present product and market whilst remaining in the same area. **Backward diversification:** This is when activities related to the inputs in the business are developed. Forward diversification: This refers to development into activities which are concerned with a company's output. **Horizontal diversification:** This occurs when a company develops interests complementary to its current activities. For a company may integrate its activities to include all aspect of the value chain; design, manufacture, market and distribute. A diversified economy *is that economy that has a number of different revenue streams and provides nations with the ability for sustainable growth because there is not a reliance on one particular type of revenue. This diversification provides nations with the security and reliability that they need so that if one economic revenue stream should fail; the nation knows that it has several other options for revenue.*

The Role of Agro allied Industries in Nigerian Economy

Osalor (2016), posit that, the idea of Agriculture and Agro-based industry as a strategy for accelerated economic growth is slowly beginning to take hold. The role of Agriculture and Industrial sectors to the global economy cannot be over emphasized and Nigeria as a developing Nation based on her economic history needs a revolution and re-engagement of agriculture and agro-based industries for diversification and sustainability, (Egbulonuet al, 2016). Nigeria is a giant of Africa and second largest economy after South Africa. Times are changing, so are the opportunities. As a result of the decline in oil prices, the current economic situation can be considered the most suitable time for diversification of Nigerian Economy. Nigeria has enough natural and human potentials. All that needed done is a serious investment in agro-allied industries and agriculture which itself is also a very fertile ground for Sustainable agro-allied industries.

Implications of Agro-allied industries on Nigerian Economic Development

Dieye (2016) noted that Africa has huge potentials for agro-allied transformation more than any other developing region. This includes hosting a large spectrum of suitable agro-climatic conditions that allow a broad range of agricultural production. Nigeria is the 10th most populous country in the world and as a result ought to be one of the top 10 contributors to the global Gross Domestic Product (GDP). The projection of world population growth was that Nigeria will become the third most populated country of the world by year 2050, thus displacing United State of America. And the only feasible means of sustaining this alarming population growth is through sustainable investment in agribusiness (Prince, 2017). According to Adesina in his opening remark at the African Economic Conference (AEC) held in Abuja on 5 December 2016, Africa sits on huge potentials in agriculture and it is estimated that 65% of all the uncultivated arable land left in the world, to feed 9 billion people by 2050, is in Africa. Speaking at the same conference, the Vice-President of Nigeria, Yemi Osinbajo, said the conference came at a point when Nigeria was intensifying efforts to diversify its economy. He further emphasized that the way out of the state in which the sector has found itself in the continent is for everyone to treat agriculture as a business and take the full value chain approach to modernize the sector and such must start with supporting agro-industrial development.

Although many Nigerians have diversified into real sector, the agro allied sector is however the new cash cow, according to Okakpu (2016). This has invariably given rise to agro industries which take care of largescale production, processing, and packaging of food using modern equipment and methods, and depend on agriculture for their raw materials. Abdulmalik Abubakar, a thriving entrepreneur, in Daily Trust (2012), said he had a strong passion for development of agriculture and that was what led him into medium scale integrated agro-allied products and services.

Unarguably, the world will always need agricultural produce for food and industrial raw materials for agro allied industries in ever-increasing quantities. For there to be sustainable agro-allied industries, there is the need to also have a sustainable agricultural sector. The successful Asian experience offers us important lessons for agro-industrialization. There is no gainsaying the fact that having agriculture as one of the big revenue earners of our economy would be to our benefit. It will, among other things, serve as a source of raw materials for agro-allied industries, help advance Nigeria’s quest and march to industrialization (Emefele, 2013) and diversification.

Impact of Agro Allied industries on the Nigerian economy

Ali and Oraka (2018), stated that the agro-allied industry is regarded as an extended arm of agriculture. However, its development could help to stabilize and make agriculture more lucrative, thereby creating employment opportunities both at the production and marketing stages (NPCS, 2000). Furthermore, Ajila (2014) explained that the agro-allied industries bring about diversification and commercialization of agriculture and also enhance the income of farmers and create food surpluses. It is in this sense that the agro-industry is an important and vital part of the manufacturing sector in developing countries (NPCS, 2012). Also, Chengappa (2004) reported that agro-processing offers great scope for conversion of farm produce to consumer commodity and in the process, reduce wastage, increase shelf-life resulting in value addition and higher income transfer to the farmers from different classes of consumers as the processed commodities have wider market outlets. Agro-allied industries have been viewed as a safety valve that needs to be built within rural areas to absorb surplus labour and provide relief to the problem of large-scale unemployment (Ali et al, 2018). Kachru (2008), lamented that the inadequate attention paid to the agro-processing sector in the past has put both producer and the consumer at a disadvantage and this hurts the economy of the country. Gylych et al., (2017), opined that agro-allied industry, just like any other industry, has a positive relationship to economic development in Nigeria. Because history has it that Nigeria has the comparative advantage in agriculture, hence, the need for agro-allied industry.

Benefit of Diversifying into Agro-allied Industries

On the need to diversify our economy by emphasizing more on agro-allied industries, the Vice President, Prof Yemi Osibanjo, in his speech, stressed on the importance of diversifying into agro-allied. He boldly said that in 2019 and beyond, we are confident that by driving agriculture and agro-based industries, technology and innovation, solid minerals, and our vibrant creative sector, Nigeria will harness the energies of our entrepreneurial youth to deliver the promise of our future. Niccolo Machiavelli of 15th century stated that we should never waste the opportunity offered by a good crisis. The prevailing economic situation has prompted Nigeria to work harder to further diversify our economy as well as government revenue and since around 2011, there have been renewed clamoring for economic and thus revenue diversification (Yemi, 2016). Policies aimed at drawing in this huge informal sector into the system must necessarily be deployed at this time if we are to diversify our sources of revenue and achieve a more sustainable structural transformation of our economy. Okakpu (2016) pointed out that since Nigeria is mono economy nation, this is the time to diversify the economy and invest heavily in agriculture and agro allied products.

Excitedly, economic diversification, as a priority for action, has been the subject of numerous plans and initiatives of the Federal Government of Nigeria (FGN) since the fall in crude oil prices. The FGN has indicated, through various ministries, a strong interest for diversification of the economy particularly in the solid minerals, power, agricultural, manufacturing, and gas sectors. Promoting agro-allied industrialization is an effective strategy to realizing the Agenda 2030 and Agenda 2063. In this regard, financing agro-allied industrialization, building value chains, using technology and innovation, and promoting more equitable capabilities and opportunities for greater growth are vital to achieving productive employment and reduction in poverty and inequalities.

Constraints/factors hindering the operations of agro-allied industries

No or low support from the government on agro-allied projects

According to Okakpu (2016), this is exactly where the problem lies. As a matter of fact, the reason why agro-allied industry is not thriving in Nigeria is because of the caliber of people in government. He emphasized that the reason is that the government does not give attention to what is happening in the sector. The success or failure of agriculture or agro allied industries is largely dependent on the policies of government. The only way the government can help is to empower the people and when they do well, they will in turn, collect taxes from the farmers and industrialists to boost their Internally-Generated Revenues (IGR).

Reverse effect of import restriction/Sabotage by powerful political groups

According to Ogundele (2017), one key government policy intervention over the decades has been import restriction that aims to insulate the agriculture and agro-industry sector from international competition. He lamented that instead of increased productivity that, the action has rather fueled smuggling. Again, he further observed that demonstrable political support, political will and protection of the interests of the various elite factions within the political coalition are critical for the success of any government policy intervention in agriculture. Sabotage by powerful political groups led to derailment of agriculture sector reforms of successive governments, thus limiting their successes in terms of productivity growth, food security, and job creation.

Energy as a Challenge to Agro Food Industry in Nigeria

Insufficient energy generation and poor distribution in Africa is attributable to policy and regulatory barriers, resource limitations and financing as well as to exogenous factors. High population density in urban areas leads to a concentrated demand for energy and the opportunity to exploit economies of scale. The majority of Africa's population resides and obtains their livelihoods in rural areas that house agriculture and traditional Agro-industrial processes, and this is very pronounced in case of Nigeria. Such processes include preservation techniques as sun-drying (e.g. fermented cassava and tempered yam slices for lafunandelubo production respectively, vegetables like pepper, okra etc.), milling operations (such as size reduction of dried yam and cassava cubes or slices) and energy intensive operations, including pulping of vegetables and fruits. Low electrification constrains both Agro-industrial production and the consumption of processed food products, since many agricultural raw materials especially highly perishable food raw materials, need to be processed within a few hours of harvesting in order to ensure food conservation, food safety and marketability.

Insecurity

Attacks by herdsmen on farming communities across the country are resulting in increasing loss of lives. As a result, many rural farmers are holding backing from the current planting season because of the fear of being attacked by herdsmen (Adekoya, 2018).

Importation of foods

Nigeria still imports a significant amount of food and does not also earn significant foreign exchange from agriculture. The implication is that the nation is losing at both ends. The policy explains that the private sector operators will lead the food business revolution, while the government will facilitate and provide supporting infrastructure, systems control processes and oversight.

The other factors hindering development of agro-industry in Nigeria are the inadequate and seasonal raw material supplies which can be overcome by irrigations, etc., low levels of technology, high production and raw material costs, faulty distribution and marketing, and the high cost of credit, as well as problems caused by high corruption levels. The money looted by government officials is siphoned to foreign banks in Switzerland, United Arab Emirates, etc. which would have been channel led toward the diversification of the economy (Okosun&Aihie-Ezomo, 2016).

Sustainable Agro-allied industries

Akunwumi (2016) suggested that governments can develop agro-allied industrial zones and staple crop processing zones in rural areas. The zones, supported with consolidated infrastructure, including roads, water, electricity, will drive down the cost of doing business for private food and agribusiness firms. Such zones would create markets for farmers boosting economic opportunities in rural areas, stimulating jobs and attracting higher domestic and foreign investments into the rural areas. He added that, they will turn the rural areas into zones of economic prosperity. According to Ogen (2007), Nigerian government needs to actively promote the establishment of the kind of agro-based industries that are capable of processing Nigeria's agricultural raw-materials in a most efficient manner. Thus, the emphasis should be on the local processing of raw crops for local industries as well as for export. This will create more employment opportunities and additional income will be generated. The Minister of Agriculture and Rural Development, Alhaji Mohammed Nanono (2019), stated that he believes that vibrant Agro-Allied industries would boost the Agric sector and agricultural value chain, which will enhance its global competitiveness.

Strengthening weak linkages between agriculture and agro-allied industry for sustainable diversification of the economy

According to Ola, Marcelino and Nur (2004) farmers and their organizations are the main if not the only producers of the food required by the increasing global population be it in the rural or urban areas. Many farmers and Farmers Organizations even in developing countries are diversifying and becoming active in several components of the agri-business chain, not only produce but also process and market commodities. In other words, farmers constitute or should constitute the central element and focus of researchers and their institutions whose mandate is to improve this continuum of the production-to-consumption system.

The approaches and models of Agro-allied industry can play a major role in revolutionizing agriculture in developing countries. This is about a dollars-and-cents approach, entrepreneurship and enterprise development, value adding for raw materials through processing and packaging, income and employment generation through horizontal and vertical diversification in the agri-food chain. Agro-allied industry with integrated production and processing can provide stable and attractive markets for small producers (e.g. contract farming), large producers, employment for rural workers and landless people, and also economies of scale and bargaining power for all stakeholders in the production-to-consumption chain.

The Nigerian agro-industrial sector covers the textile, vegetable oil and rubber industries. Others are the flour and grain milling, animal feeds, sugar, fruit juice and brewery industries. There is also dairy, confectionary, poultry and leather industries. Agro-industrial growth has been severely hampered by infrastructure issues (roads, water and electricity supplies, school and health services, otherwise referred to as the enabling environment) thereby cutting off the employment opportunities they present. In other words, agro-industries have great potentials for stimulating growth in any agricultural production area in which they are effectively established.

2.2 Empirical review

There is always a shortage in supply of agricultural products and the remaining products are sold at exorbitant prices. A research conducted by Harvard Business School (2014) centered on the tomato value-chain in Nigeria and the findings of the study showed that Nigeria is the 13th largest tomato producer in the world but sadly and ironically accounts for a large proportion of tomato paste importation in the world although Nigeria produces 1.5 million metric tons of tomato every year. This is because half of their harvest is lost before reaching the market and the remaining 50% is subjected to significant downward pressure on price due to general gluts in the market and the perishable nature of the crop, (Harvard Business School, 2014). This means that 750,000 metric tons of tomato gets worse every year in Nigeria as a result of inadequate infrastructures and equipment. Value addition on agricultural produce value chain implies setting up agro-allied industries by the federal government or empowering private individuals who can ensure that these products are available all year round, process them in order to meet the market demands of such processed goods yearly. An example of this is processing tomatoes to tomato paste; and so many others. This will generate employment, better output, quality, quantity or abundant supply, income, low price, and eventually export for foreign exchange which serves as bedrock for the diversification of Nigerian economy. According to Fruman (2017), Chile is a typical example of a diversified economy, exporting more than 2,800 distinct products to more than 120 different countries. Zambia, a country similarly endowed with copper resources, exports just over 700 products or one-fourth of Chile's export basket, and these go to just 80 countries. Other low-income countries have similarly limited diversified economies. The Lao People's Democratic Republic and Malawi, for example, export around 550 and 310 products, respectively. Larger countries that export oil, such as Nigeria (780 products) and Kazakhstan (540 products), have failed to substantially expand the range of products they produce and export, so sad. The study conducted by Eneji, Qijie, Zhanfeng, Eneji and Akaahan (2012) reveals that Nigeria has not made enough investment in poverty reduction through agro-allied industries as in China, both countries have huge potentials for agro-allied industrial diversification, but China has achieved better success. The government's intervention in the Agro-allied sector must essentially be aimed at creating the right environment for rapid expansion of locally-owned enterprises.

3. Methodology and Data Analyses

The data for this study is a yearly data ranging from 1991 – 2019. The time series data used for this study is secondary data obtained from world development indicator (WDI). Stationarity test was investigated using the Augmented Dicker fuller test which is a test for checking the presence of unit root. We also checked for the long run relationship between the variable using cointegration test. The last part of the analysis was conducted using vector error correction model since the variables are Nonstationary series.

The Four variables used in this paper include:

i. GDP: Gross Domestic Product
ii. Agricultural value added (AVA): Agricultural which include forestry, hunting, fishing and cultivation of crops and livestock production.
iii. Export (EX): Export of goods and services represents the value of all goods and other market services provided to the rest of the world. As a proxy for foreign exchange.
iv. Consumer price index

Model Specifications

$$GDP = \alpha_0 + \alpha_1 AVA + \alpha_2 EX + \alpha_3 CI + \pi$$

4. Presentation and Discussion of Findings

In this section, these empirical results are properly discussed and analyzed using EViews.

Fig 1-5 is the graphical representation of each variable used in the study.

Table 1 presents the unit root test carried out using Augmented Dickey-Fuller (ADF) test to check the stationarity of the variables. From the results, it is observed that all the variables are stationary at the 1st difference. This means that the null hypothesis is rejected at 5% level of significance.

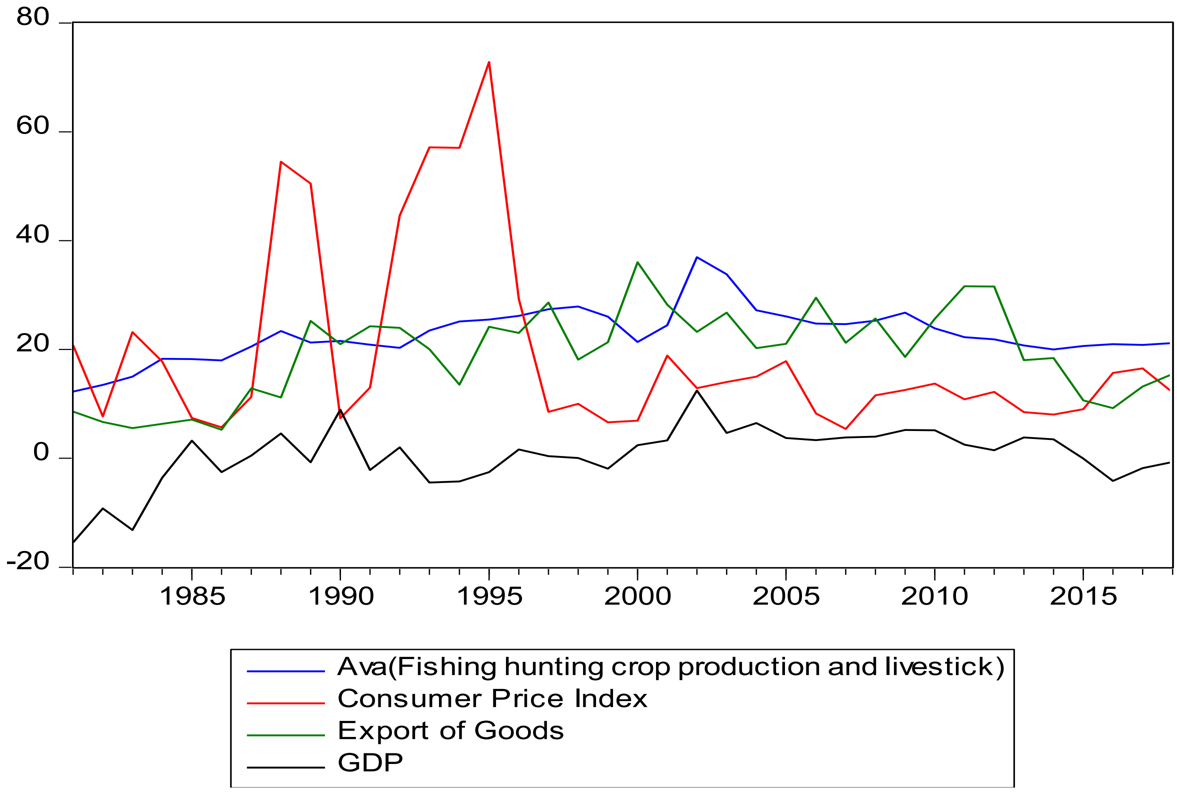

Table 1: Argumented Dickey Fuller Test

Variable	Level	Remark	Ist Difference	Remark
GDP	0.0921	Not Stationary	0.0000	Stationary
CPI	0.0600	Not Stationary	0.0000	Stationary
AVA	0.1441	Not Stationary	0.0000	Stationary
EXP	0.0772	Not Stationary	0.0000	Stationary

Table 1 is the Argumented dickey fuller test, it justifies our curiosity and confirms that at the level stage the entire variable is not stationary, but the first difference stationarity was achieved. Therefore, at the first difference, the null hypothesis which states that the variable contains a unit root is rejected at 5% level of significance.

Table 2: Johansen Cointegration Test

Cointegration Rank Test (Trace)				
No of Equation	Eigenvalue	Statistic	Critical value	Prob.
None*	0.557136	63.43554	47.85613	0.0009
At most 1*	0.408383	35.74281	29.79707	0.0092
At most2*	0.354840	17.89635	15.49471	0.0213
At most 3	0.084336	2.995611	3.841466	0.0835
Cointegration Rank Test (Maximum Eigenvalue)				
No of Equation	Eigenvalue	Statistic	Critical value	Prob.
None*	0.557136	27.69273	27.58434	0.0484
At most 1	0.408383	17.84646	21.13162	0.1357
At most 2*	0.354840	14.90074	14.26460	0.0396

At most 3	0.084336	2.995611	3.841466	0.0835

*** Indicates significance at 0.05%**

Table 2 is the Johansen cointegration test, the presence of at least 3 cointegrating eqn in trace and 2 cointegrating equation in maximum eigenvalue indicate that there is long run relationship between the variables.

Table 3: VECM Result

Vector Error Correction Estimates		
Error Correction	D(GDP)	Prob value
Cointegrating Eqn1	-0.983514* (0.21508) [-4.57281]	0.0001

Table 3 is the vector error correction model which is designed to use with nonstationary series that are known to be cointegrated, this model was used for the regression analysis as the appropriate methodology. The speed of adjustment which is negative and statistically significant i.e. ***-0.983154***suggest that if there is a departure in one direction, the correction would have to be pulled back to the other direction so as to ensure that equilibrium is retained. Hence about 98.31% of departure from long run equilibrium is corrected each period. Since the speed of adjustment is statistically significant it means that the explanatory variable which is Agricultural value added (fishing, hunting, crop production and livestock), consumer price index and export of goods also granger cause GDP in this sense.

Table 4: Wald Test

Wald Test:			
Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	1.648699	(7, 25)	0.1679
Chi-square	11.54090	7	0.1167

From table 4 above we conclude that at 5% level of significance we cannot reject the null hypothesis keeping in mind that the null hypothesis is that Ava, consumer price index, export of goods does not granger cause gross domestic product. So, there is no evidence of short causality running from the explanatory variables to gross domestic product. The analogy of the Granger causality test examines the predicting power of the variables in the model.

RESIDUAL DIAGONISTICS

Table 5: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.715388	Prob. F (2,23)	0.2021
Obs*R-squared	4.543082	Prob. Chi-Square (2)	0.1032

Table 5 indicates that at 5% level of significance, we accept the null hypothesis of there is no serial correlation. Hence, we conclude that there is no evidence of serial correlation.

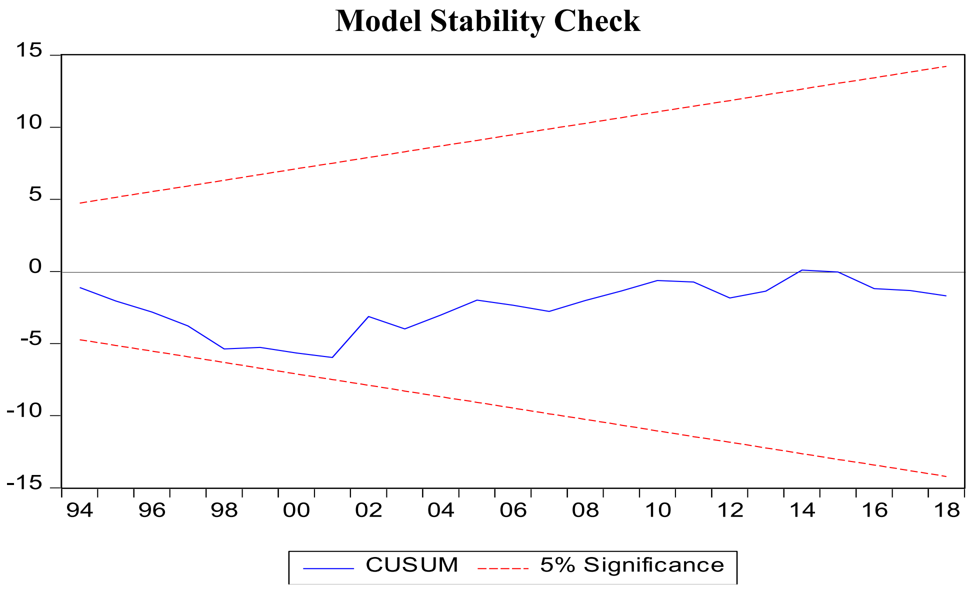

Fig 2: The cusum test above which is used to check for the stability of the model indicates that the model used is dynamically stable since the blue trend line lies between the red boundaries.

5. Conclusion

From our findings using the various econometric techniques we employed for this study, it shows that there is a long run relationship that exist between the agricultural value added (fishing, hunting, crop production and livestock), export index and gross domestic product.

Recommendations

i. Nigerian government both at the federal and state level should adequately ensure that execution and implementations of policies that apply to agricultural sector.
ii. Nigerian Government should device a means of introducing and educating farmers more about mechanized farming so as to ensure maximum crop production.
iii. Nigerian government should encourage more of agricultural/agro allied industrial exportation by making favorable policies which support local farmers and agro allied industrial exportation.

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