Agricultural Development and Employment Generation in Nigeria

Ogbanga, Allwell
Department of Agriculture and Applied Economics.
Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Rivers State, Nigeria

Abstract

This paper examines Agricultural Development and employment generation with particular reference to Nigeria. The paper acknowledged the important role agriculture plays in developing countries such as Nigeria not only in employ ment generation but also for overall economic growth. It showcases the agriculture sector as the most critical and basic sector that has significant potentials for the transformation of the Nigerian economy. It provides the overview of agricultural development in Nigeria and also provides a framework for understanding the agricultural sector in relation to the strategies employed by government to develop the sector. Employment was seen as one of the basic problems confronting the economy of Nigeria, therefore, this paper resort to finding the contribution of the earlier mainstay of the economy to employment generation in Nigeria. The paper further acknowledged that although most public policies in Nigeria have been tailored towards food security, supply of agricultural raw materials needed by the manufacturing sector to provide adequate employment and income. However, the potential of the sector is yet to be maximized. In assessing the growth of agricultural sector in Nigeria and impact in employment, data were obtained from Central bank of Nigeria and Federal Office of Statistics. To achieve this objective the Error Correction and Granger Causality test was employed to analyze the contribution of agricultural sector alongside other explanatory variables such as gross domestic product (GDP), foreign private capital(FPC), federal government expenditure(PEX) and industrial sector output(INQ) on employment generation in Nigeria. The study also provides the overview of agricultural development in Nigeria and also provides a framework for understanding the agricultural sector in relation to the strategies employed by government to develop the sector. The paper also identifies some major factors constraining the development of agricultural sector in Nigeria such as neglect of agriculture arising from the discovery of oil, inadequate infrastructural facilities, inadequate extension services, shortage of labour to rural- urban migration, decline quality of land because of oil activities in the Niger Delta Region, Policy inconsistency etc. However, the result of the study revealed that agricultural sector and other explanatory variables contribute significantly to employment generation in Nigeria. There, to reduce the increasing unemployment in Nigeria, This paper recommends that government should intensify effort in improving the agricultural sector that could serve as feedback mechanism in providing raw materials for industrial purposes, that is by ensuring the provision of credit facilities to farmers, extension services, price stabilization and making agriculture a priority to ensure that the sector takes its rightful place in our economy.

Keywords: *Agricultural development, Employment generation, Economic growth*

Corresponding Author: Ogbanga, Allwell

Background to the Study

The development of an enduring economy all over the world goes hand in hand with agricultural development (Ogbalubi & Wokocha, 2013). Agriculture is considered a catalyst for the overall development of any nation. It is thus a critical sector that drives the economic development and industrialization of the developing nation, and also holds the ace for reducing unemployment. Thus, its' development is critically important for ensuring food and nutritional security, income and employment generation, and for stimulating industrialization and overall economic development of the country. The technological strides recorded by the world's leading economies had their roots in agriculture (Ogbalubi & Wokocha, 2013). Despite the fact that the sector has increasingly shrunk in its contribution to the Gross Domestic product (GDP) of many nations, it still provides the chunks of the GDP of many nations especially the developing ones (Ogbalubi & Wokocha, 2013). Development economists have always assigned the agriculture sector a central place in the development process, however the understanding of that role has evolved overtime. Early development theorists emphasized industrialization, though they counted on agriculture to provide the necessary output of food and raw materials, along with the labour force that would gradually be absorbed by industry. Much later thinking moved agriculture more to the forefront of the development process; the hopes for technical change in agriculture and "green revolution" suggested that agriculture could be the dynamo for growth, (Wilber & Jameson, 1992).

The industrial revolution of the Nineteenth century which catapulted the agrarian economies of the most countries of Europe got the impetus in Agriculture (Ojenagbo, 2011). Indeed, the importance of agriculture in any nation's economy cannot be over emphasized. For instance in United States of America, agriculture contributes about 1.1% of the country's Gross Domestic Product. It is 13 % in China, 2.6 % in Australia, 9% in South Africa, 2.5 % in Israel, 9 % in Argentina, 13.5 % in Egypt and in Nigeria it contributes 26.8 % of the country's Gross Domestic Product (Ogbalubi & Wokocha, 2013). Similarly, agriculture provides major source of employment in most developing countries, accounting for 25 % of the work force in Brazil, 32 % in Egypt, 3.7 % in Israel, 70 % in Nigeria (Bernard & Adenuga, 2017).

Despite the above statistics is an indication that the more developed a country is, the lower the contribution of agriculture to Gross Domestic Product, but every country of the world started development from agriculture. In practical terms, agriculture has worked a tremendous miracle in countries like Mexico, India and China where the Green Revolution is one of the great success stories of modern times (Ogbalubi & Wokocha, 2013, Bernard & Adenuga, 2017).According to Wilber & Jameson (1992) the major contributor to the export –led growth pattern of a country like Taiwan which was able to attain notable increases in per capita GNP and Chile's recent rapid growth has been largely attributed to agricultural exports. In his book titled " The End of Poverty" Jeffrey Sachs describes how the Rockefeller Foundation, fearing the grim possibility of massive hunger because of rapidly rising global population, began developing and promoting high yield varieties of staple crops, first as a pilot project in Mexico, and then replicated it in Asia. As a result of the replication of this Green Revolution in Asia, India went from eleven metric tons of wheat production in 1960 to twenty –four million tons in 1970, thirty –six million tons in 1980, and fifty – five millions in 1990. This also worked wonders

in the Philippines and Peru. Similarly, in China, agriculture led the way to the emergence of Asian giant as a major force in the world economy. This is especially remarkable when you consider that China, with a population of over 1.3 billion people, is able to produce enough food for her people, and yet has more than enough extra to make her a major exporter of agricultural produce to the world. It opens up the economy as it provides the necessary raw materials for the industries. In all these, tremendous employment opportunities were created.

Thus, the importance of agricultural development in generating employment and stimulating overall economic development in a developing country such as Nigeria cannot be undermined. Most public policies in Nigeria, especially since independence are tailored towards promoting food security, provision of the agricultural raw materials needed by the manufacturing sector to provide adequate employment and income to alleviate poverty as well as earn substantial foreign exchange.

In sub- Saharan Africa, Agriculture occupies a prominent position in the national economies, as the sector serves as a key driver of growth, wealth creation, employment as well as poverty reduction. It is also the leading economic activity in the continent which contributes between 20 % and 30 % of its Gross Domestic Product. In an agrarian economy like Nigeria, the land as a unit for agricultural production provides the needed fulcrum upon which a sustainable development would blossom. Agricultural production till date remains the mainstay of the Nigerian economy. With a population that is largely agrarian, agriculture has traditionally been the main sources of livelihood for our people. It provides the means of livelihood for over 70 % of the population and a major source of raw materials for the agro-allied industries and potent source of the much needed foreign exchange (World Bank, 2017, (Ogbalubi&Wokocha,2013).

Statement of the Problem
The agricultural sector after independence, dominated the Nigerian economy, such that the development of the region was hinged on the sector alone. Agriculture accounted for about two-thirds of the Gross Domestic Product (GDP). However, over the years, the sector has witnessed rapid decline in its role and contribution to national development (Ogbalubi & Wokocha, 2013). Hoes have been abandoned in pursuit of the black gold. This situation started with the "Oil boom" which led to the rapid decline of the Agricultural sector. Consequently, Nigeria became a major importer of agricultural products as against its earlier position as a major exporter. This led to a decline of the economically active population in agriculture in Nigeria as well as an increase in the level of unemployment.

In the region. In the late 1970s, Nigeria began its own Green Revolution amidst fanfare, soon after, the programme collapsed and the country lapsed back to its unenviable status of a major importer of grains and processed foods. For a country which once earned most of its foreign exchange from agriculture, which taught Malaysia how to produce palm, it is a sad irony, that, the Nigeria Green Revolution failed due to, among others, a misapplication of funds, insincerity, absolute neglect and a general high level of nationalism. Development economists have in fact attributed the present economic situation in the country to the poor performance of the agricultural sector (Ogbalubi & Wokocha,2013). The near eclipse of the sector in the era of

oil boom (1972- 1975), has been described as the most serious damage done to agricultural sector in Nigeria. The Knowledge of Nigeria agricultural production landscape as noticed by (Okuneye, 1995), has shown that the small scale farmers that dominate the production landscape, produce about 85 % of total production. These small scale farmers were characterized by strong dependence on agricultural labour market, little or no forms of savings or storage facilities and cultural practices adopted and high cost of labour. The socio economic and production characteristics of the farmers, inconsistent and unfocused government policies as well as inadequate infrastructural base (road networking/bad transportation system), all combined to choke the sector, resulting in low production and consequently high prices of food items. This invariably affected the level of unemployment in the country. Another cause of decline in agriculture in Nigeria is the widening technology gap in agriculture itself which results in low labour productivity, and an equally widening rural –urban income gap which promotes rural urban drift. Other factors include, problems connected with high demand for imported goods which affect the demand for domestic goods.

Based on its climatic and agro-ecological conditions, Nigeria has potentials to produce a wide variety of crops. While the Northern part can guarantee the production of cereals such as sorghum, maize, millet, and other crops like cotton, cowpea, groundnut; the Middle belt and the Southern parts of the country have potentials to produce roots/ tubers such as cassava, yam, cocoyam and other crops like plantain as well as maize. The production of these crops, have the potential to create employment opportunities for the unemployed labour force both in their cultivation, processing and marketing.

However, to our knowledge, not much research attention has been given to the estimation of employment elasticity with respect to agricultural development in Nigeria. Though from a cursory look at the Nigerian data on employment level and agricultural development, it appears that the recent trends and patterns have been insufficient to make any appreciable impact on employment generation, but this has not been sufficiently investigated empirically in the literature (Bernard & Adenuga, 2017).

This study is therefore an attempt to fill this gap by employing an econometric method for the purpose of estimating the significance of agricultural development on employment generation in Nigeria. The rest of this paper is organized as follow: Section 2 presents the literature review on the employment agricultural output relationship; Sections 3 presents the research methodology ; section 4 presents the result data presentation section 5 present the discussion of the result while section 6 conclusion and recommendation the paper.
Base on the above problem, the study answered the following research questions
1. What is the significance relationship between agricultural output and employment generation in Nigeria?
2. What is the significance relationship between agricultural output and employment generation in Nigeria?
3. Does public expenditure boost employment generation in Nigeria?

Objectives of the Study
The broad objective of this study was to examine the impact of agricultural development on employment generation in Nigeria. The specific objectives of the study are to:
  i.   Examine the impact of total agricultural output on employment generation in Nigeria
  ii. Determine the impact of foreign private capital on employment generation in Nigeria
  iii. Examine the impact of public expenditure on employment generation in Nigeria

Literature Review
Theoretical Literature
Growth Stage Theory
The study reviews the potential contribution of growth stage theories to the formulation of agricultural development policy. The ones considered are (a) the List industrial fundamentalism approach; (b) the Fisher-Clark industrial transformation approach; (c) the Rostow leading sector approach. In reviewing the potential contribution of the growth stage schema, or any other approach, to agricultural development policy a sharp distinction should be made between economic analysis and economic policy or planning. Analysis implies the breaking down of a complex phenomenon, such as the process of agricultural development, into its components in order to achieve an understanding of component elements and processes. Economic policy or planning involves utilization of the growth components and elemental processes to design new patterns of organization leading to more rapid development.

List Industrial Fundamentalism Approach
List distinguishes five development stages: (a) the savage; (b) the pastoral; (c) the agricultural; (d) the agricultural and manufacturing; and, finally, (e) the agricultural, manufacturing, and commercial. However, major attention is focused on "a description of the conditions under which a mature agricultural stage can exist, under which it may progress, and how an agricultural stage can be transformed into one on a higher level by the introduction of manufacturers".

List regarded the introduction of manufacturing as the dynamic element in the process of economic growth. This dynamic quality was attributed not only to the higher productivity of industrially based societies but to the favourable environment for cultural, social, technological, and scientific progress generated in an industrialized society. List was particularly concerned with demonstrating the positive role of industrial protectionism for countries (such as Germany or the United States in the nineteenth century) which were in transition from a high level of agricultural development to industrialization. At the same time, he argued that free trade was the appropriate economic policy for countries which are "by nature" agricultural or which have not yet achieved a high level of agricultural development (mainly tropical), and which have achieved an advanced level of industrial development (such as Great Britain). List saw no role for agricultural protectionism at any stage of development. Progress in agriculture could only occur (a) under the stimulus of export demand, or (b) through the impact of domestic industrial development. Of these two sources he regarded domestic industrial development as the most important generator of agricultural progress

because of the double impact resulting from (a) the increased demand for farm products from an expanding non-farm sector, and (b) the development of more efficient methods of production resulting from the application of science and technology

Fisher-Clark Industrial Transformation Approach

Structural Transformation (Fisher-Clark) The "resemblance between List's three last stages and the concept of primary, secondary, and tertiary production developed in the 1930's by A.G.B. Fisher and propagated further by Colin Clark". Fisher emphasized the "steady shift of employment and investment from the essential 'primary' activities to secondary activities of all kinds, and even to a still greater extent into tertiary production" which accompanies economic progress. Clark's formulated the economic growth which accompanies this transformation, first, by increase in output per worker in any sector, and second, by the transfer of labour from sectors with low output per worker to sectors with higher output per worker. Fisher, like List, held that such a transition was closely associated with the advance of science and technology. But an intense empiricism inhibited Clark from attempting an adequate theoretical foundation for his transition generalization. He could not provide any significant policy guidance for the problem of how a predominantly agricultural society might proceed to achieve a successful transition to a modern industrial society.

The important impact of the Fisher-Clark generalizations on economic thought and on economic policy during the decade immediately following World War I1 must be attributed to three factors: (a) the weight of empirical evidence generated by Clark's massive scholarship; (b) a felicitous choice of a value loaded terminology; and (c) the equating of economic progress with industrialization by the planners and policy makers of countries which were attempting to emerge from economic and or political colonization. By the mid-1950's the analytical validity and statistical evidence, as well as the policy implications of the Fisher-Clark generalizations, were being questioned. Analytical criticisms were directed toward the arbitrariness of the distinctions and lack of uniformity of income elasticity of demand among products classed within each of the three categories. A number of critics pointed to the tendency of official statistics to conceal the high proportion of time spent by the rural population in secondary (handicraft, etc.) and tertiary (transport, trading, and personal service).

Rostow Leading Sector Approach

The decline of professional interest in the Fisher-Clark stages during the last decade is due primarily to the emergence of Rostow's leading sector growth stage approach. Rostow identifies five stages in the transition from a primitive to a modem economy: (a) the traditional society; (b) the preconditions for take-off; (c) the take-off; (d) the drive to maturity; and (e) the age of high mass consumption. These stages are, except for the first and last, transition stages rather than a succession of equilibrium positions. Rostow's objective in identifying "the five major stages-of-growth and the dynamic theory of production which is their bone-structure" was much more ambitious than the earlier growth stage approaches. Rostow is primarily concerned with the process by which a society moves from one stage to another, and his historical analysis is conducted with the objective of providing policy guidance to the leaders of the developing countries since "it is useful, as well as roughly accurate, to regard the process

of development now going forward in Asia, the Middle East, Africa, and Latin America as analogous to the stages of preconditions and take-off of other societies in the late eighteenth, nineteenth, and early twentieth centuries". Rostow's approach starts from the empirical premise that "deceleration is the normal optimum path of a sector, due to a variety of factors operating on it, from the side of both supply and demand". The problem of transition, and hence of growth, therefore, becomes how to offset the tendency for deceleration in individual sectors to achieve growth in the total economy. On the supply side, Rostow introduces the concept of a sequence of leading sectors which succeed each other as the basic generators of growth. On the demand side, declining price and income elasticity of demand are introduced as technical factors dampening the growth rate of leading sectors and transforming them to sustaining or declining sectors. Technology plays an important role in both the emergence of new leading sectors and the dampening of growth or elimination of older sectors. Among factors operating outside of the market place, social choices with respect to birth rates, political choices with respect to the uses of economic surplus, cultural reactions to the impact of intrusions of external economic, political, and military pressures are identified but are incorporated into Rostow's analysis more loosely than the market and technological factors.

 All three growth stage theories reviewed here treat the transition from an agricultural to an industrial society as the major problem of development policy. Rostow's system is, however, the only one which clearly specifies a dynamic role for the agricultural sector in the transition process. In an open economy, primary sector industries may act as leading sectors and, at a particular time, carry the burden of accelerating growth. In addition, agriculture must (a) provide food for a rapidly increasing population; (b) provide a mass market for the products of the emerging industrial sectors, and (c) generate the capital investment for new leading sectors outside of agriculture. Rostow, just as the other growth stage proponents, has not escaped criticism. Most of the papers presented in 1960s conference of the International Economic Association on "The Economics of the Take-Off Into Sustained Growth" rejected (a) either Rostow's dating of the takeoff for presently advanced countries or (b) the concept of the take-off itself. Cairn cross and Kuznets have vigorously attacked (a) the analytical criteria employed to identify successive stages; (b) the leading sector hypothesis; and (c) the historical validity of Rostow's empirical generalizations concerning the take-off stage for the presently developed countries.   Students from less developed countries have found even greater difficulty in identifying their experience with any particular stage. A recent article reached the rather startling conclusion that "after entering the 'take-off' stage in 1957 the (Philippine) economy immediately slipped back into the 'preconditions' stage.

Classical Theorist
Classical theorist led by Arthur Levis in 1950s view economic development as a growth process of relocating factors of production, especially labour from an agricultural sector characterized by low productivity and the use of traditional technology to a modern industrial sectors with higher productivity. Agriculture acted more as a source of food and labour than as source of growth (Levis 1954). Although passive, agricultural development was seen as a necessity for successful economic transformation for two reasons:

1. To ensure the supply of food and prevent rising food price and real wages from undermining industrial development.
2. To utilize land as an additional "FREE" source of growth that would not compete with resources for industrial development (Levis 1954).

The Solow-Swan neoclassical growth theory and its extension is a popularly adopted framework for analyzing the process of economic growth and development. Assuming a constant-return to scale aggregate production function express as:

$$Yt = Kt + Lt + Bt \text{---------------------} 1$$

Where;
Y, K, L and B represent real GDP per capital, real gross capital, labour and the Hicks neutral productivity term, respectively.

The contribution of agriculture to aggregate economic growth could be modeled via its effects on total factor productivity or as an intermediate input in the industrial production sector (Timmer, 1995, Ruthan 2006). Early development theorist viewed agriculture as an import source of resources to finance the development of the industrial sector. Thus, agricultural production growth serves as an engine of growth for the overall economy. Hwa (1988)argued that agriculture is an engine of growth and added agriculture to the standard Solow-Swan growth equation as a measure of linkages between the rural and industrial sector of the economy, similarly we also include additional determinant of growth (export and inflation rate)that have been found to be robust in explaining aggregate productivity growth (Hwa 1988,Barroand Lee,1994).

Thus, B in equation (1) is assume to be a function of agriculture (A), export(X) and inflation (P), a proxy for other macroeconomic factors.

$$B = f(At, Xt, Pt) = AXP \text{-------------} 2$$

Next substituting (2) into (1) yield the following

$$Yt = Kt = Lt = At = Xt = PYt \text{--------------} 3$$

Taking natural logs of equation (3) and including error term

$$InYt = InKt + InLt + InAt + InXt + InPt + t$$

According to the export led growth literature, exports growth is a measure of outward orientation and could also serve as a proxy for internationally competitive cost structure. Export expansion can be a catalyst for output growth both directly as a component of aggregate output as well as indirectly through efficient resource allocation, greater capacity utilization, exploitation of economies of scale and stimulation of technological improvement due to foreign market competition (Helpman and krugman1985, Awokus 2008), also a higher level of investment(gross capital formation) should stimulate growth while productivity is expected to have a positive effect on aggregate economic growth Hwa (1988), export expansion is expected to have a positive effect on growth while macroeconomic instability captured by high inflation

rates should have a negative effect on economic growth. Agricultural growth is the key impetus to the growth of underdeveloped and developing countries (Enoma 2010).

Agricultural Linkages and Economic Growth and Development
Hayami and Ruthan (1985) revealed that agricultural productivity growth is required to foster the linkages between agriculture and nonagricultural sectors. According to Adelman (1984) because of strong growth linkage effect agricultural development can lead to wider economic growth in many countries even open economics during the early stages of industrialization. Carvantes and Dewbree (2010) are also of the view that agricultural development plays a vital role in poverty reduction and economic transformation. Agricultural growth reduces poverty through direct impacts on farm incomes and employment while indirectly impact are through linkage.

The Relationship between the Theories and the study
The insights into the general growth process provided by the several growth stage approaches has led to a re-examination of agricultural development patterns within the context of growth stage sequences by a number of western economists. Interest in the Fisher-Clark approach has resulted in extensive investigation of the role of urban industrial development as a factor explaining regional disparities in the rate or level of agricultural development.

Rostow's leading sector approach has been utilized as a framework for examining the sequences of agricultural development activities necessary to achieve a transition from a lowly productive traditional agriculture to a highly productive commercial agriculture.
1. The study examines the contribution of each explanatory variables (Total Agricultural Output (AGQ), Real Gross Domestic Product (GDP), Foreign Private Capital (a proxy for Foreign Direct Investment (FPC), Public Expenditure (PEX)) to employment generation in Nigeria.
2. The theories were able to investigate the dynamics relationship between agricultural development and employment generation in other countries eg the G-7 countries Pandalino and Vivarelli (1997).
3. The theories lay emphasis on agricultural policy and planners and agricultural development as one of the major factors that explain the employment generation of a nation

Conceptual Framework
Foreign direct investment is defined as an increase in the book value of the net worth of investment in one country held by investors of another country where the investments are under the managerial control of the investor (Caves, 1996). Jhingan (2002) defined Real gross domestic product (GDP) as "an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year, expressed in base-year prices, and is often referred to as "constant-price," "inflation-corrected" GDP. Agricultural Output on the other hand is usually measured as the market value of final output, which excludes intermediate products such as corn feed used in the meat industry. This output value may be compared to many different types of inputs such as labour and land (yield). These are called partial measures

of productivity. Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs.

Empirical Literature

Several empirical studies have been carried out to examine the nature and character of employment situations in developing nations in general and Nigeria in particular. Working on agricultural sector development as a panacea to employment generation in Nigeria Bernard and Adenuga (2017) agreed with Ogbalubi and wokocha (2013) that GDP is positively related to employment, In this regard, Sodipe and Ogunrinola (2011) obtained the empirical finding that supports the strand of theory suggesting that the positive relationship between GDP and employment is normal and that any observed jobless growth might just be a temporary deviation. Onwioduokit (2006) examined the link between unemployment and several macroeconomic variables in Nigeria and concluded that 'the shift in the composition of unemployment in Nigeria since 2000 is very instructive as it has brought to the fore the inadequacies of the received theory towards explaining the unemployment phenomenon in the country', (Ogunrinola, 1991; Oladeji, 1987). Sodipe and Ogunrinola (2011) formulated a simple model of employment that was subjected to Least Square estimation haven corrected for non-stationary on the basis of the Hodrick-Prescott filter. The result of their econometric analysis shows that a positive and statistically significant relationship exists between employment level and GDP growth in Nigeria Spieza (2004) formulated and estimated a model in which employment was a function of exports, import and non-tradable to examine the effect of trade on employment. He found no significant relationship between FDI (the proxy variable for globalization) and employment.

According to Schmid, (2008), the type of economic growth (extensive or intensive), is an important factor that determines the rhythm of job creation in relation to economic growth. Thus, the economic growth (GDP growth - aggregate production) as reaction to the aggregate demand growth, can be achieved in different ways: either the quantity of inputs (labour force, capital, etc) increases and then we talk about extensive growth, or the productivity of production factors increases (intensive growth), or a combination of the two possibilities.

Fofana (2001) argued that the employment- growth relationship is significant and positive for Cote d'Ivoire having utilized time series data in the study. Fofana results were never in isolation as they were corroborated by those obtained by Swane and Vistrand (2006). On his part, Yogo (2008) posits that the employment issue in sub-Saharan Africa is mostly a matter of quality rather than quantity. In particular, Yogo (2008) observed that the weak employment-growth nexus is not attributable to labour market rigidities; but rather to the weakness of productivity growth over time. The author thus investigated the relationship between economic growth, employment and unemployment in the European Union on one hand, and on the other analyzed the link between economic growth and the labour market. In sum, Walterskirchen (1999) found that a strong positive correlation between GDP growth and change in the level of employment.

Sawtelle (2007) estimated a significant positive elasticity of employment with respect to real GDP in each of fourteen industry sectors of the US with respect to changes in real GDP during the ten year period of 1991-2001. Generally, recent studies (Kapos, 2005 and Dopke, 2001) showed that between economic growth and employment there is a positive and strong relationship, meaning that economic growth generates new jobs, but of different intensity from one period to another and from one country to another. This reflects the different response of the labour market to the economic growth process. The explanation for the existence of different employment intensity in relation to economic growth must be looked for in many directions. Given the high proportion of the informal sector in the labour market of developing nations, Ogunrinola (1991) examined the issue of employment and earnings of the urban informal sector of Ibadan. The study found that the urban informal sector of Ibadan has contributed significantly to employment creation, skill development and entrepreneurial development. For instance, about 90% of the entrepreneurs were trained under the apprenticeship systems who are also involved in capacity development of others. Oladeji (1987) investigated the issue of graduate unemployment in Nigeria while Borisade (2001) examined the structure of educational system and employment relationship in Nigeria. Both conclude that a re-orientation of the educational system towards the employment needs of the economy would go a long way towards promoting productive employment in Nigeria. In terms of the relationship between the level and growth rate of economic activity of the nation and employment generation, a number of empirical studies have been conducted in several different nations.

Swane and Vistrand (2006) examined the GDP-employment growth relationship in Sweden. Using the employment-population ratio as a measure of the extent of employment generation, the study found a significant and positive relationship between GDP and employment growth. This finding supports the strand of theory suggesting that the positive relationship between GDP and employment is normal and that any observed jobless growth might just be a temporary deviation. They however make useful suggestion for further research on the causal relationship between employment and GDP. In an empirical survey of the link between employment and growth in sub-Saharan African countries,

Yogo (2008) is of the view that the employment issues in sub-Saharan Africa is mostly a matter of quality rather than quantity. According to him, the reason for the observed weak employment performances could not be found in labour market rigidities; but that the observed increase of working poor could be explained by the weakness of economic growth over time. Examining the relationship between economic growth, employment and unemployment in the European Union (EU),

Walterskirchen (1999) analyzed the link between economic growth and the labour market. He found that the relationship between GDP growth and change in unemployment is divided into two components viz: those changes in employment and unemployment rates governed by economic factors as well as those governed by demographic influences and labour market policies. He employed time series analysis for individual EU country, while for all the countries he employed the use of panel data. The finding of the study showed a strong positive

correlation between GDP growth and change in the level of employment. Sawtelle (2007) estimated and compared elasticity in each of fourteen industry sectors of the US with respect to changes in real GDP during the ten year period of 1991-2001. Also, the study estimated for each industry sector and the aggregate economy two models of employment determination. One of the models related employment to real GDP while the other related employment to several other macroeconomic variables affecting employment together with the real GDP. Since the demand for labour is a derived demand, the expansion of real GDP for instance generates increased derived demand for workers. The findings of Sawtelle (2007) are in line with those of Pandalino and Vivarelli (1997).

Literature Review

Generally, studies have employed econometric research to estimate the elasticity of employment with respect to real GDP as well as to examine gender differences in employment cyclically. Our study follows a similar approach for Nigeria. However, emphasis on the study of the determinant of employment generation has not recognized the important of agricultural development in generating employment in Nigeria. Most statistical evidence of agricultural contribution to employment has been a point estimate. This studies in addition to estimating the contribution of agricultural sector on employment generation, employed econometrics techniques to analyze time series data to determine the contribution of agricultural sector on employment generation in Nigeria. The study specifically examine the impact of agricultural development on employment generation in Nigeria using the following explanatory variables total agricultural output(TAQ),Real Gross Domestic Product(GDP),Foreign Private Capital (a proxy for Foreign Direct Investment(FPC)),Public Expenditure(PEX) and Industrial sector output(INQ) on employment generation in Nigeria.

Methodology
Research Design

Research design according to Arthur (2004) is a framework used as a guide for collection and analyzing data for a study. A quasi experimental research design was used for the study which included both descriptive and analytical. Descriptive research is that research which specifies the nature of a given phenomenal. This involves a systematic explanation of a situation while analytical analysis involves the use of dependent and explanatory variables in a regression model.

Methods of Data Collection and Sources

This study was basically time series base. The data was sourced from the publications of the Central Bank of Nigeria, National bureau of statistics statistical bulletin. The above sources were augmented from sources such as text books, Journal of Economic and Finance and textbooks. Time series data for real gross domestic product (GDP), foreign direct investment and government expenditure were obtained from Statistical Bulletin while employment figures were from the National Bureau of Statistics, National Manpower Board. We used the published data on foreign private investment as proxy for foreign direct investment. Finally, we used total government expenditure (recurrent and capital) as proxy for public expenditure.

Data Analysis Techniques

This study employed both descriptive and analytical statistics to analyze the trend and flows of the variables. A standard procedure for investigating the stationarity of a time series is via unit root tests using the Phillip Peron (PP), Dickey Fuller (DF) or Augmented Dickey Fuller (ADF) approaches, among many others. This study adopts the ADF approach which appears to be in common use. The econometric software of E-view 8.1 was used in running the model. Some test of significance were conducted as explained above, they include

1) **Coefficient of Determination Test (R^2):** R^2 measures the percentage variation in the dependent variables that is explained by the explanatory or independent variables. It measures the goodness of fit, the higher theR^2, the better the goodness of fit.

2) **F-Statistic**: in this study, the F-test is the test for the overall significance of the model estimated. The decision rule is that if the F-Calculated>F-Critical, it establishes an acceptance of the alternative hypothesis. The reverse is the case if the Calculated<F-Critical.

3) **T-Test**: in this study, the T-test is used to test the statistical significance of each explanatory variable in explaining variation in the dependent variable. The decision rule of T-test is that if the T-Calculated>T-Critical, the particular variable is statistically significant in explaining variation in the dependent variable. The variable is not statistically significant if the T-Calculated<T-Critical or using the rule of thumb.

4) **Durbin Watson Test**: in this study, the D/W test is used to detect the presence of auto correlation from the analysis. The decision rule is that if the

    DW calculated >2: is Negative serial Correlation
    DW calculated <2: is Positive serial Correlation
    DW calculated =2: is No serial Correlation

The Model Specification

Several empirical studies employing various macro-economic variables (as suggested by theory) in cross-country analysis regressions have been employed to examine the employment economic growth relationship in both developed and developing nations. For instance, Levine and Renelt (1992), Barro (1991) and Becker et al. (1990) used simple regression analysis to assess the relationship between the level of employment and other macro variables highlighted in their studies. Pandalino and Vivarelli (1997) used panel data to study the employment economic growth relationship in G-7 countries. Fofana (2001) studied the employment-economic growth relationship for a single country, Cote d'Ivoire using time series data for the study. The methodology of this study takes after Fofana's, and as such we specify our model as:

    EMPT = f (AGQ, GDP, FPC, PEX, INQ)

Where:

    EMPT = Total Employment
    AGQ = Total Agricultural Output
    GDP = Real Gross Domestic Product
    FPC = Foreign Private Capital (a proxy for Foreign Direct Investment)
    PEX = Public Expenditure
    INQ = Industrial sector output

Assuming a linear relationship among explanatory variables the explicit form of equation---- (1)
Becomes:
EMPTt = β0 + β1 AGQt + β2GDPt + β3FPCt + β4PEXt + β4PEXt + β5INQt + μt---------(2)

We similarly estimated the non-linear form of equation (1) which is log-linearised as:
ℓnEMPTt = β0 + β1 ℓnAGQt + β2 ℓnGDPt + β3 ℓnFPCt + β4 ℓnPEXt + β5INQt + μt - - -----(3)

The variables expressed in equation 3 are in logarithm form; they express the Elasticities of employment level with respect to the variables to which each is attached.

In terms of Apriori expectations regarding the signs of the coefficient estimates of the variables in equation 3; we expect a positive sign for each of them.

The Error Correction Model used in this study is specified as
ΔℓnEMPTt = β0 + β1 ℓnAGQt-1 + β2 ℓnGDPt-1 + β3 ℓnFPCt-1 + β4 ℓnPEXt-1, + β5 ℓnINQt-1 + σiECM(-1) + εt...... (4)

The variables were as earlier defined in equation 2 and on apriori,
We expect the estimates of β1 > 0, β2 > 0, β3 >0, β4 >0, and β5 >0.

The coefficient of the ECM variables (σi) contains information about whether the past values of variables affect the current values of the dependent variable. The size and statistical significance of the coefficient of the error correction term (σi) measures the tendency of each variable to return to equilibrium level. A significant coefficient implies that past equilibrium errors plays a role in determining the current outcomes. In other words, it shows the ability of the model to correct the short-term shocks in equilibrium in the long-run.

Results
Data Presentation and Analysis
In carrying out this analysis we recognize that there is a need to assess the stationarity or otherwise of the data series. This is because an attempt to regress a non-stationary series on another non-stationary series leads to spurious regression. Furthermore, statistical tests of the parameters resulting from the regression may be biased and inconsistent. A standard procedure for investigating the stationarity of a time series is via unit root tests using the Phillip Peron (PP), Dickey Fuller (DF) or Augmented Dickey Fuller (ADF) approaches, among many others. This study adopts the ADF approach which appears to be in common use.

To conduct the ADF test, it is crucial to estimate the following regression:
Ayt = 4 (32 t 4 2j=irj- Ayt
Where
yt = relevant time series st = white noise residual, t = linear deterministic trend which is included because the alternative hypothesis is that it is stationary around a linear trend. The ADF test consists of testing the null hypothesis (H0) that Pi= 0 in the regression equation above.

The hypothesis is rejected if the pseudo t-statistics resulting from the above equation is below the absolute value of the critical value reported in Engle and Yoo (1987). We used the E-Views econometric software for all the data analyses carried out in this study.

In analyzing the relationship between employment and all the explanatory variables, we first estimated equations 2 at levels to determine the residual for the formulation of the error correction term (ECM); and secondly the two equations were estimated again after the variables were distended, and lastly we estimated the double-log equation with the error correction variable. The ECM term takes care of the speed of adjustment of the model to its equilibrium in the short run.

Table 1: Data Set on Total Employment (EMPT) Gross Domestic Product (GDP), Foreign Private Capital (FPC), Public Expenditure (PEX), Total Agricultural Output (AGQ) and Industrial Sector Output(INQ)

Observed Years (obs)	Gross Domestic Product (GDP)	Foreign Private Capital (FPC)	Public Expenditure (PEX)	Total Agricultural Output (AGQ)	Industrial Sector Output (INQ)	Total Employment (EMPT)
2008	561931.4	1209.000	1743200.	654193.2	10.82000	34534590.16
2009	595821	1209.000	1842588.	624520.7	8.350000	35457975.28
2010	634251.1	1329.900	2348593.	759380.4	8.350000	33744170.04
2011	672202.6	1249.900	3078252.	971543.8	11.84000	37486876.84
2012	718977.3	1262.700	3280772.	1273816.	12.85000	38430877.24
2013	776332.2	1280.800	3993249.	905730.8	5.670000	36056156.64
2014	834161	1264.500	4233013.	1360308.	4.640000	4060102.718
2015	902794.0	1269.300	4199978.	2216470.	7.700000	7831807.512
2016	964184.0	1271.500	4252317.	2229769.	6.003000	8588118.00
2017	969969.1	1268.400	452446.5	2243147.	6.900000	9234783.25

Source: Central Bank of Nigeria Statistical Bulletin (2017)

Table 2: The ADF Test

Variable	ADF Statistic	Critical value at 5 Percent	Prob.	Remark
LnEMPT	-6.360192	-2.957110	0.0000	I(I)
LnAGQ	-5.711656	-2.957110	0.0000	I(I)
LnGDP	-9.387307	-2.957110	0.0000	I(I)
LnFPE	-8.269832	-2.957110	0.0000	I(I)
LnFEX	-6.480249	-2.967767	0.0000	I(I)
LnINQ	-5.432902	-2.957110	0.0001	I(I)

Source: Author's computation using E-views 8.1`

The result in table 1 above provides evidence that all the variables employed in this study are stationary in their first difference. Using differenced variables for the estimation of regression would suggest a loss of valuable information about the long-run equilibrium between variables. Therefore there is need to integrate the short-run dynamics with the long-run equilibrium using the error correction mechanism (ECM). The ECM reveals the ability of the model to restore or not restore to equilibrium path. In doing this, a co-integration test was conducted using the Johansen co integration test. In the Johansen co-integration test results in table 2 below, the Trace test indicates 6 co integrating equations at 5 percent critical level, while the Max-Eigen value test indicates 5 co integrating equations at the 5 percent critical level.

Table 3: Co integration Test Result
Unrestricted Cointegration Rank Test (when GDP is used)

Null Hypothesis	Trace Statistic	Critical Value At 5 Percent	Null Hypothesis	Maximum Eigen Statistic	Critical Value at 5 Percent
r = 0*	243.2894	95.75366	r = 0*	92.84448	40.07757
r ≤1*	150.4450	69.81889	r ≤1*	72.66231	33.87687
r ≤2*	77.78266	47.85613	r ≤2*	38.25872	27.58434
r ≤3*	39.52393	29.79707	r ≤3*	30.58285	21.13162
r ≤4	8.941086	15.49471	r ≤4	8.908003	14.26460
r ≤5	0.033083	3.841466	r ≤5	0.033083	3.841466

Source: Author's computation using E-views 8.1

Note: r represent number of co integrating vectors. Trace test indicates 4 cointegrating equations at the 0.05 level while max-eigenvalue test also indicates 3 cointegrating equations. *Denotes rejection of the null hypothesis at the 0.05 level.

Table 4: Parsimonious Error Correction Model

Variable	CoefficientStd.	Error	t-Statistic	Prob.
Dependent Variable: D(LNEMPT) Method: Least Squares				
C	1.511199	0.885854	1.705923	0.1045
D(LNAGQ)	0.529390	0.225704	2.345506	0.0027
D(LNGDP)	0.317583	0.148001	2.145817	0.0046
D(LNFPC)	0.034339	0.305465	0.112417	0.9116
D(LNFEX)	0.460223	0.169157	2.720686	0.0009
D(LNINQ)	0.344991	0.171981	2.005983	0.0058
D(LNAGQ(-1))	0.369562	0.104889	3.523363	0.0002
D(LNGDP(-1))	0.774346	0.387701	1.997276	0.0557
D(LNFPC(-1))	0.174868	0.302780	0.577540	0.5700
D(LNFEX(-1))	0.109060	0.705667	0.154549	0.8787
D(LNINQ(-1))	0.999079	0.304599	3.279981	0.0012
ECM	-0.429498	0.150030	-2.862753	0.0096
R-squared	0.754868	Mean dependent var		0.151020
Adjusted R-squared	0.310046	S.D. dependent var		0.826454
S.E.of regression	0.686481	Akaike info criterion		2.365521
Sum squared resid	9.425128	Schwarz criterion		2.915171
Log likelihood	-25.84833	Hannan-Quinn criter.		2.547714
F-statistic	62.26641	Durbin-Watson stat		2.142868
Prob(F-statistic)	0.000200			

Source: Author's computation using E-views 8.1

From table 3 above, the t values of the independent variables (AGQ, GDP, FPC, FEX and INQ) in the parsimonious error correction model has turned out to be significant at 5% level and the variables are positively signed. Hence we observed that, a 1% increase in agricultural output on the average will bring about 53% increase in employment in Nigeria, a 1% increase in gross domestic product on the average will bring about 32% increase in employment in Nigeria, a 1% increase in foreign private capital on the average will bring about 3% increase in employment in Nigeria. Also, a 1% increase in federal government expenditure on the average will bring about 1% increase in economic growth in Nigeria and a 1% increase in FEX on the average will bring about 11% increase in employment in Nigeria.

All the variables except foreign private capital are statistically significant in the long run. The result of the ECM shows that a convergence relationship exists between the variables in the short run. That is, the coefficient of ECM of -0.43 shows a speed of adjustment of the short-run fluctuation to long-run equilibrium. This study has shown that agricultural output and federal government expenditure contribute more to employment generation within the period of study in Nigeria.

Table 5: Relationship between Total Energy Consumption and Economic Growth in Nigeria
Granger Causality test

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
AGQ does not Granger Cause EMPT	32	8.94095	0.0031
EMPT does not Granger Cause AGQ		0.18471	0.8324
GDP does not Granger Cause EMPT		3.44872	0.0464
	32		
EMPT does not Granger Cause GDP		1.25447	0.3013
FPC does not Granger Cause EMPT	32	5.92593	0.0008
EMPT does not Granger Cause FPC		1.10327	0.3463
FEX does not Granger Cause EMPT	32	3.00039	0.0066
EMPT does not Granger Cause FEX		2.28578	0.1210
INQ does not Granger Cause EMPT	32	7.92084	0.0020
EMPT does not Granger Cause INQ		0.42975	0.6550

Source: Author's computation using E-views 8.1

Table 4 above present the causality test result between and total employment in Nigeria, on agricultural output and other independent variable. The result revealed unidirectional causality between total employment in Nigeria and energy consumption in Nigeria. It is evidenced that agricultural output (AGQ), gross domestic product (GDP), foreign private capital (FPC), federal government expenditure (FEX) and industrial output (INQ) contribute to the growth of employment in Nigeria. Therefore, agricultural sector should be considered important in driving employment in Nigeria.

Discussion
Discussion of the Variables in the Model
In analyzing the relationship between employment and all the explanatory variables, we first estimated equations 2 at levels to determine the residual for the formulation of the error correction term (ECM); and secondly the two equations were estimated again after the

variables were distended, and lastly we estimated the double-log equation with the error correction variable. The ECM term takes care of the speed of adjustment of the model to its equilibrium in the short run.

The result in table 2 above provides evidence that all the variables employed in this study are stationary in their first difference. Using differenced variables for the estimation of regression would suggest a loss of valuable information about the long-run equilibrium between variables. Therefore there is need to integrate the short-run dynamics with the long-run equilibrium using the error correction mechanism (ECM). The ECM reveals the ability of the model to restore or not restore to equilibrium path. In doing this, a co-integration test was conducted using the Johansen co integration test. In able 3, r represent number of co integrating vectors. Trace test indicates 4 cointegrating equations at the 0.05 level while max-eigenvalue test also indicates 3 cointegrating equations. Meaning rejection of the null hypothesis at the 0.05 level.

In table 4, the t values of the independent variables (AGQ, GDP, FPC, FEX and INQ) in the parsimonious error correction model has turned out to be significant at 5% level and the variables are positively signed. Hence we observed that, a 1% increase in agricultural output on the average will bring about 53% increase in employment in Nigeria, a 1% increase in gross domestic product on the average will bring about 32% increase in employment in Nigeria, a 1% increase in foreign private capital on the average will bring about 3% increase in employment in Nigeria. Also, a 1% increase in federal government expenditure on the average will bring about 1% increase in economic growth in Nigeria and a 1% increase in FEX on the average will bring about 11% increase in employment in Nigeria. All the variables except foreign private capital are statistically significant in the long run. The result of the ECM shows that a convergence relationship exists between the variables in the short run. That is, the coefficient of ECM of -0.43 shows a speed of adjustment of the short-run fluctuation to long-run equilibrium. This study has shown that agricultural output and federal government expenditure contribute more to employment generation within the period of study in Nigeria.

The table 5 revealed the causality test result between employment generation in Nigeria and agricultural output and other independent variables. The result revealed unidirectional causality between total employment in Nigeria and energy consumption in Nigeria. It is evidenced that agricultural output (AGQ), gross domestic product (GDP), foreign private capital (FPC), federal government expenditure (FEX) and industrial output (INQ) contribute to the growth of employment in Nigeria. Therefore, agricultural sector should be considered important in driving employment in Nigeria.

Conclusion
 From the analysis as well as the error correction mechanism, it is clear that there is a positive relationship between agricultural output and employment generation in Nigeria. The study also identifies increase in economic activities proxies by gross domestic product, activities of foreign investors in Nigeria, government expenditure and increase in industrial activities as stimulus and contributors to employment generation in Nigeria.

This study supports the Keynesian view that increase in aggregate supply will increase employment generation of a country. Also, in addition to other studies on the determinants of employment in Nigeria, this study has succeeded in justifying the contribution of agricultural sector to employment generation in Nigeria. As evidence from other developing and developed countries, the more the increase in economic activities, the more the country's unemployment reduces.

Recommendation

For sustainable increase in employment generation in Nigeria, we recommend that

1) The government should remove every constraints to agricultural policy effectiveness, such as policy instability, policy inconsistencies, narrow-based policy formulation, poor policy implementation and weak institutional framework for policy coordination.
2) The government of Nigeria should develop policies that could improve agricultural activities in Nigeria. These policies could increase credit policies for agricultural purposes, strengthening of the agricultural product marketing board to encourage farmers.
3) This study identified the activities of foreign investors as a determinant of employment. Therefore, government should intensify more effort in creating an enabling environment for foreign investment in Nigeria.
4) Government should also create an enabling environment for industrial activities. This environment should include credit policies and interest rate policies that could encourage borrowing for investment. Also, social amenities in the form of electricity, pipe born water, roads and securities are necessary to encourage industrialization in Nigeria.

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