

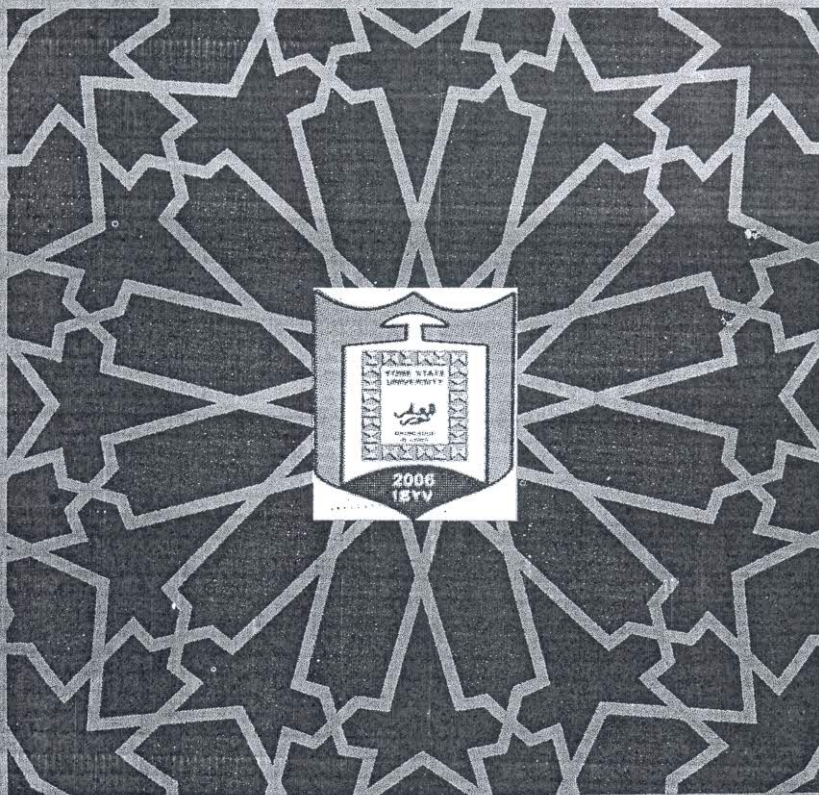
# YOBE JOURNAL OF ECONOMICS (YOJE)

A bi-annual publication of the Department of Economics,  
Yobe State University, Damaturu, Nigeria.

Volume 1, Number 1

September, 2014

ISSN: 2408-5103



The Department of Economics  
Yobe State University,  
Damaturu Nigeria.



## EDITORIAL TEAM

### **Editor-in-Chief:**

Prof. Balami D. Hassan (Department of Economics, University of Maiduguri).

### **Editors:**

Prof. Garba I. Sheka (Department of Economics, Bayero University, Kano).

Nkwatoh S. Louis (Department of Economics, Yobe State University, Damaturu).

Ahmed Mallum (Department of Economics, Yobe State University, Damaturu).

### **Journal Coordinator:**

Cornelius N. Kwanga (Department of Economics, Yobe State University, Damaturu).

### **Editorial Advisory Board:**

Prof. Ummu Ahmed Jalingo (Department of Economics, Bayero University, Kano).

Prof. Isiaka A. Pedro (Department of Economics, Bayero University, Kano).

Prof. Metawalli Ajagana Geidam (Yobe State University, Damaturu).

Dr Njiforti Peter (Department of Economics Ahmadu Bello University, Zaria).



# CONTENT

Paper No.	Title and Author
1.	Oil Industry, human development palliatives and the paradox of women empowerment in Nigeria's Niger Delta <b>Dr. Yohana Kagoro GANDU</b> ... .. 1-37
2.	Significance of government social infrastructure expenditure on economic growth in Nigeria: 1961 - 2012 <b>Prof. Ummu Ahmed Jalingo and Mubarak Usman Jalingo</b> 38-48
3.	Fiscal deficits and economic growth in Nigeria: A disaggregated approach <b>Dr. MOHAMMED Shaibu Jibril</b> ... .. 49-65
4.	Capital flows and economic growth in Nigeria: Empirical evidence <b>Dr. MOHAMMED Shehu Tijjani</b> ... .. 66-78
5.	Long-run effect of financial development on economic growth in Nigeria: (1981-2013) <b>Louis S. NKWATOH</b> ... .. 79-95
6.	Impact of external debt on economic growth in Nigeria: 1980 - 2011 <b>GYONG, Yerima Emmanuel</b> ... .. 96-113
7.	Causal relationship between energy consumption and economic growth in Nigeria <b>Binta YAHYA and Ahmed MALLUM</b> ... .. 114-128
8.	Empirical examination of the nexus between electricity consumption, employment and economic growth in Nigeria: 1980 - 2010 <b>Dr. Amina Abubakar Ismail and Ruqayya Abubakar Ismail</b> ... .. 129-147
9.	Sectoral growth and unemployment in Nigeria: 1986 -2013 <b>Cornelius N. KWANGA</b> ... .. 148-156
10.	Economic growth and unemployment in Nigeria: A time series analysis <b>Dr. BILYAMINU Idris Kadanani and USMAN A. Usman</b> ... .. 157-166
11.	Participation in solid waste recycling process in Kano: The case study of Jakara ward <b>Dr. MUSTAPHA Muktar</b> ... .. 167-181
12.	Nature of the dynamic relationship between CO <sub>2</sub> emissions, economic growth and coal consumption in South Korea <b>Binta YAHYA</b> ... .. 182-195
13.	Budgetary allocation to agriculture, concessionary agricultural credit and household consumption expenditure in Nigeria: an empirical investigation (1981-2013) <b>ABDULLAHI Mohammad Adamu &amp; Dr. Hassan Hassan SULEIMAN</b> ... 196-209
14.	Does fiscal policy really dominate monetary policy in Nigeria? A FTPL approach <b>Louis S. NKWATOH</b> ... .. 210-230
15.	Impact of oil price shocks on agricultural imports in Nigeria <b>Dr. DAHIRU Suleiman</b> ... .. 231-245
16.	Openness and exchange rate movements in developing economies: Time series evidence from Nigeria <b>Dr. Kola L. SUBAIR and MUSA Olalekan Salihu</b> ... .. 246-259
17.	Assessing the entrepreneurial skills among university graduates in Nigeria: A case study of Ahmadu Bello University, Zaria <b>MUHAMMAD Hamisu Yau</b> ... .. 260-271
18.	Mortgage Finance in Nigeria in the era of Global Financial Crisis <b>Rufus JEGEDE</b> ... .. 272-283
19.	An investigation of the relations between institutional reforms, interest rate policy and financing of the agricultural sector: The Nigerian experience <b>Dr ADAMA I. Joseph</b> ... .. 284-297 *
20.	Financing small and medium enterprises: A case for Islamic microfinance banks in Nigeria <b>Dr. Muhammad Muazu Yusuf and Bello Abba Ahmed</b> ... .. 298-310
21.	Estimating non-medical indirect costs of treating malaria in Kaduna metropolis: Evidence from a household survey <b>Dr. MUSTAPHA Muktar, Nura Aliyu KABUGA and ALIYU Yusuf Ahmad</b> 311-332
22.	Peoples perception of Fadama intervention program in Nigeria: A case study of Bauchi State <b>Abarshi Musa Yusuf and Bobai Francis Danjuma</b> ... .. 333-345
23.	Estimating the technical efficiency of soybean farmers in benue state: A case study of Gboko Local Government Area <b>AGBA Dominic Z.</b> ... .. 346-357
24.	Estimating the technical efficiency of maize farmers in Cameroon: A case study of the West Region of Cameroon <b>Raoul Fani Djomo Choumbou, Abolarin Sesan Samuel, Nwalem Monday Patrick, Mfio Efforts Aondofa and Dorothy Malaa Kenyi</b> ... 358-368
25.	Essential components in an economic article <b>Cornelius N. KWANGA</b> ... 369-384





# AN INVESTIGATION OF THE RELATIONS BETWEEN INSTITUTIONAL REFORMS, INTEREST RATE POLICY AND FINANCING OF THE AGRICULTURAL SECTOR: THE NIGERIAN EXPERIENCE

**Dr. ADAMA I. Joseph**

Department of Economics, Ahmadu Bello University, Zaria

E-mail josephadama2009@yahoo.com

## **Abstract**

*The various institutional reform strategies undertaken by governments over a period of about three decades on the agricultural sector in Nigeria were the exploitative strategy, agricultural project strategy, direct production strategy and integrated rural development strategy. Overall, these economic reform strategies were geared toward the achievement of food self-sufficiency and food security, generation of gainful employment, increased production of raw materials for industries, increased production and processing of export crops, rational utilization of agricultural technologies for the improvement of life of its citizens. These strategies notwithstanding, government also pursued other on-going initiatives to step-up agricultural development across the country. Base on this scenario, the study empirically examines the relations between institution and institutional reforms; interest rates policies and some selected macroeconomic variables on agricultural sector growth in Nigeria within a given period of time 1985-2012. The study made use of error correction model (ECM) and co-integration technique with annual time series data. The results reveal that, there is a negative relationship between agricultural value added, interest rate spread, and inflation in Nigeria. By implication, the study infer that the higher the level of inflation and interest rate spread in the country, the lower the level of agricultural sector value added to the growth of output and income generation.*

**Keywords:** Agricultural sector, co-integration, error correction model, interest rates, institution reform

**JEL:** C13, E52, N27.

## **Introduction**

The quest to industrialize by many developing countries has often been highly detrimental to agriculture, most especially in the poorest countries of sub-

Saharan Africa. With a backward and neglected agricultural sector, with miniature or no rural infrastructure, many countries today face a food insecurity of enormous proportion. Agricultural production must be increased to the advantage of rural and urban dwellers equally. The probable way onward among others, includes the provision of credit. Farmers need entrance to cheap finance and not to be enforced to borrow at a very high interest rate from local moneylenders. This can be achieved through the establishment of rural banks specialized in the provision of credit to small farmers. These could be state-owned institutions, or the government could give incentives to private banks to enlarge credit to the rural sector.

A noteworthy observable fact is that fragile and difficult environments distinguish third world agriculture. Although African farmers have increased agricultural crop production at even more faster rates over the past decades, they have done so mostly by cultivating more expanse of land and not, in most case the use of more fertilizer, better management practices, or improved varieties of seeds. Accordingly, even though agricultural crop yields in sub-Saharan Africa (SSA) were virtually equal to those in South Asia in the early 1960s, they are now extremely lower, and the gap is even greater between SSA and other developing countries in the regions. Thus, despite the growth of agricultural output in Africa, productivity in agricultural sector tends to be extremely low. A major consequence of this low agricultural productivity has been the serious wearing away of the competitiveness of African agricultural products on the global world markets. For instance, Africa's contribute to total world trade cut down from 8 per cent in 1965 to within 2 per cent thereabout in 2000 (African Development Bank, 2002).

One of the objectives of agricultural credit policies over the years was to make adequate credit available to the farmers at the right time and at affordable cost. Various measures have been adopted in pursuance of this objective in the recent past. These include purveyance of credit to the agricultural sector at concessionary interest rate, establishment of agricultural finance institutions, introduction of funding schemes, etc. Despite government efforts to ensure the provision of credit through the various mechanisms embarked upon, credit to the agricultural sector remained low, as it did not result to increased allocation of credit to the agricultural sector during the period before 1999 (Bashir, 2013). Furthermore, in most recent time in Nigeria, following the information provided by the Central Bank of Nigeria (CBN) (2010), annual growth rate of agriculture declined from 55.2 per cent in 2002 to 7.4 per cent in 2006. It,



however, drop further to a meager 6.2 per cent by the end of 2009. Based on the report of the African Economic Outlook (2011), nevertheless, the Nigeria agricultural sector has performed extremely well, with an estimated growth rate in 2010 more than 6.0 per cent, sparkly the good weather conditions that boost crop production. The government's effort to tackle prolonged issues of insufficient credit and Scheme (CACS) has also benefit agricultural performance in 2009/2010, the government made available 200 billion Nigerian Naira available at small interest rates to farmers and other agencies in the agricultural sector. Therefore, what responsibility has institution played in the finance of the agricultural sector in Nigeria. And to what extent has interest rate policy influence agricultural production in Nigeria? The study tends to seek explanations to this question.

However, most studies along this line of thought were centered on the manufacturing sub-sector of the economy other than Nigeria. An appraisal of the cross-sectional studies, shows that while there is a consensus in the literature that institutional quality matters for growth, the literature is quite ambiguous about the relative importance of "institutions" vis-à-vis other factors, including manufacturing growth, geography and trade. Other related studies focused on the manufacturing sub-sector in Nigeria but exclude many issues not considered. This study, therefore, tends to examine the financing of the agricultural sector in Nigeria for the period 1980 to 2012. Therefore the main objective is to investigate the relationship that links institution, interest rate policy and the agricultural sector in Nigeria.

The paper is structured into six sections: section two presents the review of relevant literature and the third section of the paper take a general overview of institutional support and financing of the agricultural sector in Nigeria. Data and methodology is the fourth section while section five is Empirical results and Discussion. The sixth section draws conclusions and recommendations.

## **Literature Review**

### **Institution and Institutional Reforms in Nigeria**

There is immeasurable literature on national policies, institutions and economic growth. There is, however, substantial difference about which policies are most linked to economic growth. While some center of attention is on trade liberalization and fiscals, others center on macroeconomic policies and financial growth. Using the recent econometric technique, it has been establish

that national policies are robustly correlated with economic growth (Bashir 2013).

The literature on the relation between economic policies and macroeconomic outcome is broad. Along this line, for instance, the positive contributions of trade liberalization and human capital formation to GDP growth have been comprehensively analyzed and documented indicating a negative relationship between inflation and soaring economic growth. It should be noted that policies are not more useful than the institutions that bring about them. Recent studies considered the significant contribution of institutions as well as policies on economic performance and establish that institutions are the dominant factors with little independence of policies.

In essence, "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction." He goes on to emphasize the key implications of institutions since, "In consequence they structure incentives in human exchange, whether political, social, or economic." Other scholars include in their definition of institutions organizational entities, procedural devices, and regulatory frameworks. He has been of the view that in most of the recent studies, institutions are defined in a broader sense, involving various different procedures of institutional quality to development outcomes from various angles and disciplines. Institutions defined as stable recurring patterns of behavior help determine what policies are chosen and how they are executed. It is glaring in most cases that where institutions are weak or ineffective, policy is likely to be the same. Too often government organizations in Africa are just that – organizations that do not command the respect, loyalty, and dedication that characterizes an institution in the full sense of the term (Goldsmith, 1998). It is very clear that policies stand or fall according to the institutional support that they receive. It is not simple in practice to separate policy from institutions since in reality the two concepts overlie each other (Bashir, 2013). Thus, institutional reforms in Nigeria in the current dispensation take shape around the financial environment such that while Nigeria's financial markets have shown considerable improvement, financing conditions, especially for businesses and firms, remain weak as financial institutions continue to maintain a cautious approach to credit extension.

### **Interest Rates Policy in Nigeria**

The 1970s witnessed unusual interest rates for various sectors through to the mid 1980s. The favored interest rates were based on the assumption that the



market rate, if generally applied, would exclude some of the main concern sectors. Interest rates were, therefore, adjusted once in a while to promote an increase in the echelon of investment in the various sectors of the economy. For instance, agriculture and manufacturing sectors were given much priority, while the commercial banks were instructed (by the central Bank) to charge a special interest rates (Changing from year to year) to all loans and advances to small-scale industries.

The main constituent of the Structural Adjustment Program (SAP) in Nigeria in 1986 was the deregulation of the financial sector of the economy particularly the deregulation of interest rates. This institutional arrangement has had a variety effects on the various sectors of the economy particularly the agricultural sector, the practice of agriculture is mainly subsistence and access to adequate finances have been a major blockage.

In the early part 1990's, the government of Nigeria has pursued a free market-determined interest rate regime, which does not authorize a direct state interference in the general trend of the economy. The market demand and supply was the motivating force of resource allocation. Thus, the formal lending policy did not make provision for special interest rate concession to the agricultural sector. The interest on loan was based on the risk factor of the sector that the loan was predestined for. However, as shown in Table 1 below, the rate of interest in the country revolved around 6.8% within the period of 1970-1979 to 17.9% in 2005.

Year	Interest Rate	Merchant Bank	Commercial Banks	Community Banks	Total
1970-1979	6.8	-	89.9	-	89.9
1980-1989	12.9	250.4	1593.7	-	1844.1
1990-1999	22.5	5557.8	27703.6	371.7	33633.1
1999-2006	19.9	25790.8	208463.8	654	234908.6
1999	21.3	25485.2	118518.3	1007.2	145010.7
2000	18	26096.4	146504.5	1613.7	174214.6
2001	18.3	-	200856.2	77.6	200933.8
2002	24.4	-	227617.6	390.5	228008.1
2003	20.5	-	242185.7	625	242810.7
2004	19.1	-	261558.6	483.1	262041.7
2005	17.9	-	262005.5	69.9	262075.4

**Source:** Bashir O.K (2013), CBN Statistical Bulletin, Various years



In order to reduce drastically the impact of global financial crisis on Nigerian economy, the CBN embarked on policy of quantitative easing. Nevertheless, there was ongoing underperformance of some key monetary aggregates – a factor that had impeded the CBN's decision to implement the quantitative easing policy. The main challenges are still the negative growth in credit to the private sector of the economy, lending rates on the high side and a widening interest-rate spread in spite of declining interbank rates and a relative surplus liquidity in the banking system.

As part of its quantitative easing policy, the CBN guaranteed interbank transactions. This has contributed to a downward slide in interest rates. For example, the weighted average interbank call rate, which stood at 2.89 per cent at end-2009, declined to 1.50 per cent at end-2010, compared with the monetary policy rate (MPR) of 6.00 per cent. The low and declining interbank rate was evidence of surplus of funds in the banking system. Notwithstanding the declining interbank rates, the interest-rate structure of commercial banks showed high lending rates. The average lending rate increased slightly to 23.3 per cent at end-2010 from 23.1 per cent at end-2009. In addition, deposit rates declined from an average 6.13 per cent in 2009 to an average 5.53 per cent in 2010. Thus, the spread between the average lending rate and the average deposit rate widened in 2010 reflecting inefficiencies in cost management, and unrealistic profit expectations and targets in commercial banks.

In 2010, the CBN instructed commercial banks to publish and submit their risk-based interest-rate pricing model to the CBN on a regular basis. The banks will also be required to provide a statement showing the relationship between the MPR and their prime and maximum lending rates. They will be required as well to disclose the maximum rate they charge to their customers. The pricing model would thus also disclose the basis for the spread and provide visibility on the relative efficiency of banks.

Although aggregate domestic credit in the Nigerian economy continues to grow, its composition suggests that the private sector is being crowded out. In 2010, (net) aggregate domestic credit grew by 15.96 per cent and reversed the sharp decline of about 55.6 per cent recorded in 2009. (Net) credit to the government, which grew by 17.84 per cent, was the major contributor to the growth in (net) aggregate credit in 2010, while credit to the private sector declined by about 10.0 per cent. The substantial growth of (net) credit to

government reflects the risk aversion of Deposit Money Banks and suggests a possible crowding out of private-sector credit.

However, monetary agencies have succeeded to some extent in maintaining stability in domestic prices. For instance the rate of inflation decreased in 2010 to the annual average of 13.7% from 12.5 % in 2009. Various factors has contributed immensely to the stability of domestic prices, these includes, the continued monetary reduction, the holdup in the passage of the 2010 federal budget and the expansion in the supply of petroleum products. There is on the other hand a real threat of inflationary pressure in the near-to-medium term, most especially, an inflation risk due to increase in energy prices as the economy rebounds.

The Naira exchange remained relatively stable in all segments of the Nigerian foreign-exchange market. However, the value of the Naira plunged by about 20 percent towards the end of the year 2008. This quick decline made the CBN to pass currency controls. Relative stability in the exchange rate of the naira was maintained in 2009, which enable the CBN to resume to its policy position of a liberalized foreign-exchange market. At an average exchange rate of NGN 146.87 to the US dollar at end-2009, the naira depreciated by only 2.05 per cent in 2010 to NGN 149.87 to the US dollar.

### **Review of Empirical Literature**

The relation between institutions and economic growth has generated much discourse in theoretical and empirical research since the manifestation of the endogenous growth theories. It is now being increasingly acknowledged that institutional quality (e.g. economic and legal institutions) necessary for economic growth. Other factors such are the resource endowment and technical skills. Thus, institutions have direct and indirect impacts on economic growth and development.

Bashir (2013) opine that economic freedom, political Rights and press freedom are highly correlated to economic growth. His study across country concludes that economic and political institutions are important factors that explain differences in growth across countries. Also, he maintained that more than 80 per cent of the variation in GDP per capita in the OECD countries can be explained by both economic and legal determinants. The study yet posits that “countries can develop faster by enforcing strong property rights, fostering an



independent judiciary, attacking corruption, dismantling protecting political rights and civil liberties”

Thus, the relationship between institutions, macroeconomic policy and the growth of the agricultural sector in Nigeria finds significant evidence in support of the hypothesis that institutions matter in economic growth especially the growth of the agricultural sector in Nigeria. It, therefore, recommends that government should liberalize interest rates to the agricultural sector and strengthen institutional support to the sector particularly in terms of subsidized inputs and extension services to farmers.(Abolagba E.O et-al, 2010)

Also, Omojimite, (2012) examine the impact of financial sector reforms on agricultural and manufacturing sectors in Nigeria using the VAR methodology. The results indicate that bank credit to the private sector as a ratio of GDP has a positive effect on manufacturing and agricultural sectors in the short run, medium term and long term. The findings of the study provide a strong evidence to confirm that the reforms in the financial sector succeeded in deepening the financial system, albeit the success achieved so far is below the threshold needed to spur the development of the manufacturing and agricultural sectors. However, it is important to sustain the reform efforts in the country in order to achieve the underlining objectives as they were.

According to Omojimite (2012), the agricultural sector in Nigeria is one of the leading sectors in the country in terms of its contributions to income, employment, foreign exchange earnings and domestic food supply. Nigeria with its several ecological zones and climatic conditions supports the cultivation of a wide variety of food and tree crops. Farming in Nigeria is largely dualistic in structure, with a predominantly traditional subsistence segment and a small modern, fairly mechanized commercial segment. Farming systems are many and are fashioned by traditions, land availability and weather conditions. The common systems include but not limited to: crop rotation, mixed cropping, shifting cultivation, terrace farming, sole cropping and irrigated farming.

### **Institutional Support and Financing of the Agricultural Sector in Nigeria**

Two main institutions established to render institutional support to the promotion and sustainable development of Agricultural sector in Nigeria was the World Bank-assisted Agricultural Development Projects (ADPs) and the River Basin Development Authorities (RBDAs). In 1975 the ADPs,

commenced operation with three pilot projects and by 1985 it had increased to 10, and additional increased more to thirty-one by 1993. The activities of these agencies embraces and, comprises of four integrated components of agriculture, which includes, adaptive research, agriculture extension, input supply and rural infrastructure development.

In accordance with the new center of attention, all the RBDAs were expected to order all their non-water assets and pull out from all activities concerning direct production. Also, a unified extension in services system was adopted to ensure the orderly development of a sustainable agricultural sector during the period, with particular emphasis on the soft transfer of research findings to Nigerian farmers from the research institutes. The Agricultural Project Monitoring and Evaluation Units (APMEU) and ADPs were reorganized to form the integrated extension services to all Nigerian farmers. The fast growth of the ADPs in all states of the federation was planned to make sure there is efficient extension services to the farmers in rural communities, and boost the distribution of agricultural inputs and infrastructure improvement.

Regrettably, the extended mandates of the ADPs overburdened their assets as the level of necessary funding could not be sustained to maintain their activities. The federal and state government was unsuccessful in meeting up to their financial responsibility to the ADPs, leading to non-release of the World Bank's equivalent funding. As might be anticipated in the circumstances, the interval between research findings and their espousal by Nigerian farmers has enlarged rather than decreased. The main reason for government intervention in the agricultural sector was the need for national food security to ensure sustainable access to, and availability and affordability of good excellence and better quality food for all Nigerian citizens. Other reasons of government includes, the provision of agricultural raw materials for export market and for the industrial sector, improvement of farm income and reduction of poverty, encouragement of the value-chain activities in the agricultural sector. The government continued to make available support to farmers in area of Fertilizer Market Stabilization Program.

The Federal Government disbursed the sum of ₦22. 30 billion the same as its 25 per cent subsidy payment to the procurement and distribution of 900,000 tonnes of fertilizer to all the states and the Federal Capital Territory (FCT), prized at ₦89. 31billion. furthermore, the budgetary allocation from the federal government to the sector in 1990 improved from ₦35.8 billion to ₦51.47



billion in 2001. The percentage of this allocation in the total capital expenditure was, on the other hand, was far-off from the 25 percent predetermined by the Food and Agricultural Organization (FAO). This is as shown in table 2 below. Similarly, thus, the total credit provision in the banking sub-sector to the agricultural sector in 1970 – 1979 increased from ₦89. 9 million to around ₦262, 075 million in the year 2005 as shown in Table 1below:

**Table 2. Budgetary Allocation to Agriculture (₦' Billion)**

Year	Agriculture GDP (₦' Million)	Total Capital Expenditure (₦' Million)	Total Capital Expenditure on Agriculture	Capital Expenditure on Agriculture (% of Total)	FAO* Stipulation (%)
1990	35.8	24.05	1.6	6.65	25
1991	36.5	28.34	1.22	4.3	25
1992	37.3	39.76	0.94	2.37	25
1993	37.8	54.5	1.82	3.35	25
1994	38.6	70.92	2.18	3.07	25
1995	40	121.14	2.41	1.99	25
1996	41.7	158.68	3.89	2.45	25
1997	43.5	269.65	6.25	2.32	25
1998	45.25	309	4.33	1.4	25
1999	47.6	498	8.88	1.78	25
2000	48.99	239.5	6.91	2.89	25
2001	51.47	438.7	5.76	1.31	25

**Source:** Bashir O.K (2013) , CBN Statistical Bulletin, various years.

There was an an increase in credit to the agricultural sector within the period 1999 - 2007. This was as a result of various strategies put in place by government to make available credit to the farmers. Such strategies include the Presidential Initiatives and the Agricultural Credit Support Scheme (ACSS). Access to reasonably priced credit continued to receive greater awareness as the CBN carefully supervised and encouraged the expense of funds under the ₦200 billion Commercial Agricultural Credit Scheme (CACs). The Bank had released ₦96. 81billion to eleven participating bank for disbursement to 86 projects and promoters which comprises of eighteen state governments as at December 2010.

The CBN, in collaboration with other stakeholders, initiated the Nigerian incentive-based Risk Sharing System for Agricultural Lending (NIRSAL) in

order to further improve the lending environment to the agricultural sector. In the same vein the Rural Finance Institution Building Program (RUFIN) began operations throughout the year. The program has the prospects of impacting absolutely on the capability of rural financial institutions to meet the credit supplies of rural farmers. A loan of US\$27.2 million from IFAD, a grant of US\$0.5 million from the Ford Foundation and counterpart funding from the Federal Government and the participating states was made available to twelve participating States.

To encourage greater diversification of Nigerian economy, there was extensive increase in the volume of agricultural imports by china from Nigeria. As at the end of 2010 Nigeria have exported almost 80 000 tonnes of cassava to China, with another requests to supply 102 000 tonnes. China has indicated her readiness to buy more Nigerian agricultural produce of which she is currently importing sesame seed from Nigeria. Furthermore, Chinese agricultural experts in Nigeria involved in the construction of small earth dams are currently over 400.

## **Methodology**

### **Data Collection**

The sources of Data for this study is obtained from the publications of World Bank, and National bureau of statistics (NBS), International Financial statistics (IFS), Central Bank of Nigeria (CBN) *Statistical Bulletin*, and *Annual Report and Statement of Account various years*. Also interest rate spread was computed from lending and deposit interest rates. The study made use of the following variables, these includes: inflation rate (INF); interest rate spread (IRS); exchange rate (EXR); domestic bank credit to the agricultural sector (CAS); and agricultural value added (AVA).

### **Model Specification**

The independent variables for this study include the followings: domestic bank credit to the agricultural sector (CAS); exchange rate (EXR); interest rate (IRS); and inflation rate (INF). Thus, the explanatory variables are significant due to the fact that they directly or indirectly affect the general level of output and revenue in the agricultural sector. Agricultural value added (AVA) serves as the dependent variable. The model takes the form as specified in equation (1) below.

$$AVA = \alpha_0 + \alpha_1 IRS + \alpha_2 EXR + \alpha_3 CAS + \alpha_4 INF + \mu \quad (1)$$

Where  $\alpha_i > 0, \forall i = 0, 4 \& 5$  and  $\alpha_i < 0, \forall i = 1, 2 \& 3$ .  $\mu$  = error term



### Empirical Results and Discussion

The widely used Augmented Dickey-Fuller (ADF) test (Dickey and Fuller, 1979) was used to establish the stationarity of the data. This is because carrying out regression on non-stationary time series data would lead to spurious regression estimates. This is performed at the level and first difference as shown in table 3. Out-of-the-way from EXR and AVA that were stationary at level with intercept, we discover that other variables are stationary at first difference, therefore, the series are I (1) series.

Having confirmed the stationarity of the series, it was necessary to establish the causality using the Granger causality test as defined by Granger (1969). The results, on the other hand, fail to support any strict causality between the variables despite the lag length of 2. This means the variables are exogenously determined and independent of one another. The unrestricted co-integration trace and maximum Eigen value tests shows that, one (1) co-integrating equation at 5 per cent level for the series. Furthermore, co-integration is discovered in the agricultural value added model which means there is an existence of a long-run relationship between the explanatory variables and the regressand. The rate of adjustment to equilibrium in its present period will, conversely, take a long period of time. In addition, specifying the parsimonious model, at 1 percent the coefficient of the error correction term is significant and with a negative sign. This result justified the use of an ECM specification of the model. Consequently, one can infer that, there is a negative relationship between each of the regressors and agricultural value added (AVA).

**Table 3.** Augmented Dickey-Fuller Unit Root Test Results for the Variables

Used

Variable	Stage	Critical Value	1%	5%	10%
AVA	Level with Intercept	-4.048503*	-3.670170	-2.963972	-2.521007
IRS	1st Difference	-6.134028*	-2.543302	-1.952473	-1.610111
EXR	Level with Intercept	-4.317007*	-3.667322	-2.946767	-2.522789
CAS	1st Difference	-5.413408*	-2.550145	-1.953381	-1.607796
INF	1st Difference	-5.645303*	-2.63320	-1.952473	-1.610011

**Note That:** In the table above, \* means significance @ 1% level.

### Conclusion

This paper adopted the Error Correction Model to investigate the relation that exists between agricultural value added, exchange rate, interest rate spread, inflation, credit to the agricultural sector in Nigeria. The results shows clearly

that There exist causality between agricultural value added and credit to the agricultural sector; Whereas between agricultural value added and inflation, the causation could not be clearly established in the Nigerian context, thus, even at least at the conventional 1% and 5% levels of significance. By implication agricultural value added could not positively respond to both credit to the agricultural sector and inflation but by an opposite relation to interest rate spread and exchange rate. In real meaning, as causality cannot be established, it means there is a weak and insignificant causation between agricultural value added, credit to the agricultural sector and inflation in Nigeria. Therefore, if the levels of exchange rate and interest rate spread are increased, the volume of agricultural value added will turn down in the country.

### References

- Abolagba, E.O, et-al (2010). "Determinant of Agricultural Exports in Nigeria" *Journal of human ecology*, Vol.29, No.3.
- Acemoglu, D., S. Johnson, and J. Robinson (2004). Institutional as the Fundamental Cause of Long-run Growth. *CEPR Discussion Paper* No. 4458. Available at SSRN: <http://ssrn.com/abstract=571052>.
- Adebiyi, M. A. (2004). "Industrial Finance in Nigeria: Performance, Problems and Prospects" In: *Industrialization, Urbanization and Development in Nigeria, 1950- 1999*, Edited by: Adebiyi, M.A. and B. Babatope-Obasa (2004). Institutional Framework, Interest Rate Policy and the Financing of the Nigerian Manufacturing Sub-Sector. *African Development and Poverty Reduction: The Macro-Micro Linkage Forum Paper*.
- Ajayi, S. I. (2003). Institutions The Missing Link in the Growth Process? Presidential Address Delivered at the 43rd Annual Conference of the Nigerian Economic Society, 7-8 August.
- Mordi, C. N. O., A. Englama, and B.S. Adebusuyi (eds) Agricultural Sector In: *The Changing Structure of the Nigerian Economy*. Second Edition. Research Department of Central Bank of Nigeria.
- Bashir, O. K. (2013). Institutional reforms, interest rate policy and the financing of the agricultural sector in Nigeria, *European Scientific Journal*, Vol.9, No. 12.
- Central Bank of Nigeria, (2010). Economic Report Fourth Quarter. [www.cbn.gov.ng](http://www.cbn.gov.ng).



- Central Bank of Nigeria, (2010). Annual Report. 31st December. [www.cbn.gov.ng](http://www.cbn.gov.ng).
- Dickey, D.A and W.A. Fuller (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root, *Journal of the American Statistical Association*. 74: 427-431.
- Goldsmith, A.A. (1998). Institution and Economic Growth in Africa. *African Economic Policy Discussion Paper* (7). Harvard Institute for Development.
- Granger, C.W. (1969). Investigating Causal Relations by Econometric Models and Cross - Spectral Methods. *Econometrica*, Vol.37.
- Granger, C.W. (1986). "Development in the Study of Co-integrated Economic Variables", *Oxford Bulletin of Economic and Statistics*, Vol. 48(3):213-228.
- IMF (2003). World Economic Outlook, Chapter III.
- Johannes Jütting (2003). "Institutions and development: A Critical Review", Technical Paper No 210 Produced as part of the research programme on Social Institutions and Dialogue.
- Omojimate, B.U. (2012). Institutions, Macroeconomic Policy and the Growth of the Agricultural Sector in Nigeria. **Global Journal of Human Social Science**, Vol. 12. Issue 1, version 1.0 January. Washington D.C. International Monetary Fund.