

## **Effect of Monetary Policies on Agricultural Output in Nigeria (1981 – 2016)**

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**Abstract:** *This study analysed the effectiveness of monetary policy measures in driving agricultural output in Nigeria between 1981 and 2016. Specifically, the impacts of money supply, prime lending rate, deposit money bank credits to agriculture and inflation rate on agricultural output was examined using static and dynamic regression models. The data for each of the variables were collected from the Central Bank of Nigeria Statistical Bulletin. Dynamic error correction model formed the basis for the data analysis. It was found from the parsimonious ECM that one period lag of money supply and deposit money bank credits to agriculture have significant positive impact on agricultural output. A unit increase in the one period lag of broad money supply and deposit money bank credits increase agricultural output by 0.6496 and 4.4528 units respectively. These findings are in accordance with the a priori expectations and also fulfil the statistical criteria. On the other hand, inflation lagged for one period impacted negatively on agricultural output. It was observed from the regression estimate that a unit increase in inflation contracts agricultural output by 2.086 units. Although this finding corroborates with both theoretical and statistical expectations, it is an indication that instability in price level has dampening effect on agricultural output. The study therefore recommends amongst others that the Central Bank of Nigeria (CBN) should place more emphasis on expansionary monetary policy framework with a view to increasing monetary aggregates to boost output in the agricultural sector.*

**Keywords:** *Money supply, CBN, economic growth, development, monetary policy.*

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### **I. Introduction**

Agriculture has often been labelled crucial in the economic development as well as one of the major windows out of Poverty of most developing countries (Agbugba and Binaebi, 2018). Previous studies on the causes of development and underdevelopment have identified investment in agriculture as the key to the economic emancipation of emerging economies of the world. The development of the agricultural sector is seen as the major determinants of ways out of poverty and achievement of long-term economic development of developing nations (Ezihe *et al*, 2017). The agricultural sector contributions to the development of an economy can be viewed in four major ways: product contribution, factor contribution, market contribution and foreign exchange contribution and all this is accompanied in multiplier effect (Tiku and Mellem, 2015). The sector serves all other sectors in the economy especially the industrial sector and at the same time capable for generating broad based sustained growth necessary for development. It is equally fundamental to the sustenance of life and has remained the bedrock of economic development, especially in the provision of adequate and nutritious food vital for human development. More than 70 percent of Nigeria's population depends on agriculture, which contributes roughly 25 percent of GDP and 60 percent of non-oil exports (Nwaokedibe, 2018). According to Edoumiekumo, *et al* (2013) Monetary policy refers to the combination of measures designed to regulate the value, supply and cost of money in an economy through the credit and investment operations of the deposit money banks, monetary policy influences the economy and the agricultural sector through a variety of channels — interest rates, credit and/or bank lending, asset prices via exchange rates, equity and housing prices. In recent times, increasing attention has focused on the sectoral effects of monetary policy given that sectors respond differently to monetary policy shocks. Monetary policy of central bank of Nigeria through its influence on the financial sector of the economy is capable of playing a major role in and engineering credit available to the agricultural sector (CBN, 2008). According to Alam and Waheed (2006), understanding the sectors that are affected adversely by monetary tightening for example, provide valuable policy information for the monetary authority. Such information helps to uncover the underlying nature of transmission mechanism of monetary policy actions. Monetary policy in the Nigerian context refers to the actions of the Central Bank of Nigeria to regulate the money supply which could be through discretionary monetary policy instruments such as the open market operation (OMO), discount rate, reserve requirement, moral suasion, direct control of banking system credit, and direct regulation of interest rate (Iyoha, 2002). A major challenge facing Nigeria is the inability to

capture the financial services requirements of farmers and agribusiness owners who constitute about 70 percent of the population. According to Agbugba and Okafor (2011), farmers need access to capital to purchase land and equipment and to invest in the development of new products, services, production technologies and marketing strategies yet banks are often reluctant to lend money to farmers for agricultural enterprises, development and expansion due to the lack of creditability and collateral. Most of these problems could be solved if appropriate monetary policies are put in place. In a bid to address the problems, the Nigerian government, from 1975 became directly involved in the commercial production of food crops. Interest rate structure was employed principally to direct cheap credit to specific sectors such as agricultural sector (Omorogbe *et al*, 2014). This was done by consistently stipulating relatively lower interest rates for loans and advances of the sector. Thus, this study investigated the monetary policies and instruments used in promoting agricultural performance in Nigeria and how effective the policies have been in achieving an improved agricultural sector output.

### Objectives of the Study

The broad objective of the study is to investigate the effect of monetary policies on agricultural output in Nigeria. Specifically, the objectives:

- I. Determined the effect of money supply on Nigeria’s agricultural output.
- II. Examined the effect of prime lending rate on Nigeria’s agricultural output.
- III. Determined the effect of deposit money bank loans and credit on Nigeria’s agricultural output.

## II. Methodology

### Research Design

This investigation adopted a quasi-experimental research design. Therefore, it is purely analytical. The analytical methods applied for the purpose of determining variation in dependent variable as a result of changes in independent variables.

### Data Collection Method and Sources

The data was sourced from Central Bank of Nigeria statistical bulletin and National bureau of statistics. The data which are thus secondary in nature covered the period between 1981 and 2016.

### Data Analysis Techniques

The study used ADF test and the Ordinary Least Squares (OLS), co-integration and ECM methods. The augmented dickey fuller test (ADF) was employed as test of stationarity of the time series. While, the OLS was employed to establish the relationship between the variables. Also, the correlation test was used to test for the long run relationship among the variables in the model. The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run.

## III. Results and Discussions

The summary statistics reported in Table 1.0 shows that agricultural output averaged ₦5111.68 billion while the average values of broad money supply and deposit money bank’s credit allocation to agriculture are ₦3928.04 billion and ₦87.42 billion. Inflation and prime lending rate respectively averaged 19.40% and 17.60% over the sample period

**Table 1.0: Summary of the descriptive statistics for AGRQ, DMBL, INFL, MS and PLR**

|              | <b>AGRQ</b> | <b>DMBL</b> | <b>INFL</b> | <b>MS</b> | <b>PLR</b> |
|--------------|-------------|-------------|-------------|-----------|------------|
| Mean         | 5111.676    | 87.42222    | 19.40444    | 3928.043  | 17.59528   |
| Median       | 1384.005    | 32.15000    | 11.90000    | 558.5500  | 17.54500   |
| Maximum      | 19636.97    | 401.9000    | 72.84000    | 17680.52  | 29.80000   |
| Minimum      | 17.05000    | 0.600000    | 5.380000    | 14.47000  | 7.750000   |
| Std. Dev.    | 6502.688    | 122.4040    | 17.77628    | 5776.018  | 4.757283   |
| Observations | 36          | 36          | 36          | 36        | 36         |

*Note:* Agricultural output (**AGRQ**), deposit money banks loan and credit to the agricultural sector (**DMBL**), Prime lending rate (**PLR**), money supply (**MS**) and inflation rate (**INFL**) for Nigeria, 1981-2016.

**Source:** Computed by the Author using E-views 9

Moreover, the parsimonious ECM indicated that a dynamic relationship between the monetary policy measures and agricultural output in Nigeria. It was found that one period lag of money supply and deposit money bank credits to agriculture have significant positive impact on agricultural output. A unit increase in the one period lag of broad money supply and deposit money bank credits increase agricultural output by 0.6496 and 4.4528 units respectively. It was observed from the regression estimate that a unit increase in inflation contracts agricultural output by 2.086 units. The F-statistic (9.847) with probability value (0.000) indicates that the

independent variables are jointly significant in explaining changes in agricultural output. The coefficient of determination (0.766) indicates that 76.6 percent of the overall variations in agricultural output are due to changes in the monetary policy measures and other explanatory variables in the model.

#### **IV. Conclusion**

This study empirically analyzed how monetary policy measures affect agricultural output in Nigeria using dynamic regression model. Emphasis was placed on the impacts of money supply, bank credit to agriculture, prime lending rate and inflation on agricultural output over the study period. The parsimonious ECM reveals that money supply and deposit money banks' credits to agriculture are important drivers of agricultural output while inflation rate contracted agricultural output during the period covered. The result further reveals that prime lending rate does not significantly influence the output of the agricultural sector. The conclusion drawn from the findings is that the effectiveness of monetary policy in the agricultural sector is mirrored from the monetary aggregates and credit channels. Based on the findings of this study, the following recommendations were made; the Central Bank of Nigeria (CBN) should place more emphasis expansionary monetary policy framework with a view to increasing monetary aggregates to boost output in the agricultural sector. The deposit money banks should prioritize the agricultural sector in their credit allocation to the real sector in order to make loanable funds available to farmers and boost agricultural output.

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