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THE IMPACT OF MONETARY POLICY ON AGRICULTURAL OUTPUT IN NIGERIA FROM 2000 TO 2022

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Abstract: This paper examined the impact of monetary policy on agricultural output in Nigeriafrom 2000 to 2022. Specifically, the objective of the study includes to: examine the impact of broad money supply on agricultural output in Nigeria, ascertain the impact of exchange rate on agricultural output in Nigeria. The data utilized for the study were extracted from the Central Bank of Nigeria statistical bulletin. The study adopted ordinary least square multiple regression approach for the analysis of the data. The findings of the study revealed that broad money supply had positive andsignificant effect onagricultural output in Nigeria, exchange rate had positive and significant effect onagricultural output in Nigeria. Thus, the study concludes that monetary policy has a positive and significant impact on agricultural output in Nigeria. The study recommends that government should initiate policies that will enable monetary authorities (CBN) to circulate currency to farmers in other to improve on agricultural output.

Key word: Broad money supply, Exchange rate, Agricultural output.

INTRODUCTION

Monetarypolicy is an economic policy used to manage the size and growth rate of the money supply in an economy. It is a powerful tool employed to regulate macroeconomic variables such as inflation and problems associated with agricultural sector. These policies are implemented through different tools, including the adjustment of the interest rates, interest rate structure was employed principally to direct “cheap credit to specific sector such as agriculture sector and it was done by consistently stipulating relatively lower interest rate for loans and advances of the sector as part of the effort of monetary authorities to alleviate the repayment burden of agriculture loans by farmers.

Over the years, agricultural output is one of the most powerful tools to end extreme poverty, boost shared prosperity, and feed a projected to feed 9.7 billion people worldwide by 2050. Growth in the agricultural sector is two to four times more effective in raising incomes among the poorest compared to other sectors. Analyses in 2016 found that 65% of poor working adults made a living through agriculture. Agriculture is also crucial to economic growth. In 2018, it accounted for 4% of global gross domestic product (GDP) and in some developing countries, it can account for more than 25% of GDP.

But agriculture-driven growth, poverty reduction, and food security are at risk: climate change could cut crop yields, especially in the world's most food-insecure regions. Agriculture, forestry, and land use change are responsible for about 25% of greenhouse gas emissions. Mitigation in the agriculture sector is part of the solution to climate change. Current food systems also threaten the health of people and the planet and generate unsustainable levels of pollution and waste. One third of food produced globally is either lost or wasted. Addressing food loss and waste is critical to improving food and nutrition security, as well as helping to meet climate goals and reduce stress on the environment. Risks associated with poor diets are also the leading cause of death worldwide. Millions of people are either not eating enough or eating the wrong types of food, resulting in a double burden of malnutrition that can lead to illnesses and health crises. A 2021 report found that between 720 and 811 million people went hungry in 2020, more than 10% of the world's population. Food insecurity can worsen diet quality and increase the risk of various forms of malnutrition, potentially leading to under nutrition as well as people being overweight and obese. The cost of healthy diets is unaffordable for more than 3 billion people in the world.

However, the goals of the policies vary from one plan to another, portraying changes in the economic environment and circumstances. It should be noted that monetary policy formulation and execution is a major activity of the Central Bank of Nigeria (CBN). To achieve balanced and steady economic growth and development, one of the major inputs identified over the years in the development of the Nigeria agricultural sector has been the agricultural credit (CBN, 2018).

Despite all the efforts and huge investment in the agricultural sector by the government in the form of provision of the needed finance for farmers, the dwindling fortune of the sector seems to persist, prompting the question of the effect of monetary policy on agricultural development in Nigeria.

In spite of the employment of monetary policy, the agricultural sector performance in Nigeria has not been adequate. The sector has not been able to fulfill its traditional roles of feeding the population, meeting the raw material needs of industries, as well as providing substantial export earnings for the economy (Ajudua, Davis & Osmond, 2015). Indeed, the contribution of the sector of gross domestic product (GDP) has been falling, not necessarily because a strong industrial sector is displacing agriculture but as a result of low productivity. The largely subsistence agricultural sector has failed to keep up with rapid population growth. Also, 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 (Omorogbeet al, 2014). This was done by consistently stipulating relatively lower interest rates for loans and advances of the sector. Moreso, researchers like Salim and Ahmed (2019), Moses and Godday (2019), Okonkwo, Egbulonu and Emerenini (2015),Kadir&Tugaal (2015) investigated this area, some found positive and significant effect while others like Kadir&Tugaal (2015) found negative effect hence there have not been a précised conclusion and this present a need for a further research. Thus, this study investigated the effect of monetary policy on agricultural output in Nigeria.

2.LITERATURE REVIEW

Agriculture in the context of the economy is tied with the various sectors and is essential for generating broad growth necessary for development. Agriculture is fundamental in the sustenance of life and it is bedrock of economic development, especially in the provision of adequate and nutritious food vital for human development. The sector is a catalyst and major source of raw material for the industrial sectors and provides the food consumed by over 170 million Nigerians. Although, development in the oil sector have dominated Nigeria's economic scene since the mid-1970s, but the country remains basically agricultural, more than 70 percent of its population depends on agriculture which contributes roughly 25 percent of our GDP and 60 percent of non-oil exports (Mufaudeen&Hussainatu, 2014).

The significance of agriculture in bringing about economic growth and development of a nation cannot be underestimated, the reason why a nation possesses sustainable food security is because it produces enough food to feed her citizens and even export these goods to other needy countries thereby generating foreign exchange which in turn increases the national income in the long-run.

Monetary policy facilities the establishment of agricultural businesses through availability of credit and finance for start-up, investments and expansion. The CBN controls the availability of credit through monetary policy instruments. These instruments affect agricultural output through2 agricultural banks and other financial institutions.

2.1 Agriculture in Nigeria

Agriculture is the first and most thriven occupation of mankind. From its early form of wild fruits, leaf, root, snail and insect gathering, fishing and hunting, to its present mechanized and almost automated form, it has undergone a lot of development. Agriculture is conceived as the cultivation of land, raising animals for the purpose of production of food for man, feed for animals, and raw materials for our industries. It also consists of crop production, forestry, livestock and fishing. It is also essential for expansion of employment opportunity, reduction of poverty and improvement of income distribution, speeding up industrialization and easing the pressure of balance of payments disequilibrium. The role of agriculture in transforming both the social and economic frame work of an economy cannot be over emphasized. Anyanwu (1997), posits that "agriculture has been the main source of gainful employment from which Nigeria nation can feed its population, providing the nation's industries with local raw materials and as a reliable source of government revenue".

The major agricultural export commodities in Nigeria include cocoa, coffee, cotton, groundnut, groundnut oil, palm kernel, soya beans, ginger, rubber, benign seed and chili pepper. There are other commodities that are being demanded in the world market such as cassava and cassava products, banana, plantain and so on. The Nigerian economy, until today is still dependent on primary products both as foreign exchange earner and contributor to gross domestic product.

Agriculture is of two main types, the **subsistence agriculture** and **commercial agriculture:** - the subsistence agriculture is the type of farming which involves the farmer and his family, that is, the farmer produces for himself and his family with little or none to sell in the market, it is practiced in small scale system. It involves only a little amount of money to practice unlike commercial farming that involves huge amount of money to practice. It does not involve the use of machine to carry out, since the land is very small and fragmented. The second type is commercial agriculture, and this is where a farmer produces his crops and sells them in the market. It is carried out in large scale with enough land and machines. These machines are used cultivating crops. It involves a lot of capital and time, and also increases the farmers' income. Commercial farming helps

farmers to engage in the cultivation of different varieties of crops, since the money, land and equipment could easily be used.

2.2Agricultural Output

Owing to the importance of agricultural sector development in Nigeria, successive government have formulated policy progammes and strategies both monetarily and otherwise to stabilize the sector in Nigeria from 1990 with all progammes targeted at increasing agricultural output for consumption and exportation, inputs and subsidies to small scale farmers, makes credit accessible to a large number of rural farmers, eradicate poverty, create employment and as raise the living standard. These programmes included the Farm Settlement Scheme policy of 1959, the Agricultural Development Programme (ADP) of 1974 and 1989, Operation Feed the Nation (OFN) in 1976, the River Basin Development Authorities (RBDAs) was launched in 1976, the Nigeria Accelerated Food Production Programme (NAPP) launched in 1972, and the Green Revolution (GR) launched in 1980. The Director for Food Roads and Rural Infrastructure (DFRRI) launched in 1986, the Better Life Programme (BLP) for Rural Women introduced in 1987, the National Agricultural Land Development Authority (NALDA) launched in 1992, the Family Support 1996 respectively, the National Fadama Development Project (NFDP) of early 1990s, the Family Support Programme (FSP) Family Economic Advancement Programme (FEAP) launched in 1994 and 1996 respectively, the National Fadama Development Project (NFDP) of early 1990s, the National Special Programme on Food Security (NSPFS) launched in 2002, the Root and Tuber Expansion Programme (RTEP) launched in 2003 (Ajuduaet al 2015).

Government has played a more dynamic role in agricultural development by ensuring stability of the financial system as well as guarantee source of credit to the farmers through the manipulation of interest rate. Concessionary interest rate was given to the sector between 1970 and 1985. However, the SAP programme led to the deregulation of interest rate in 1990 and indirect monetary policy control was put in place. Hence agricultural sector had to compete for funding with the other sectors of the economy leading to the stoppage of sectoral credit allocation policy, (Gbosi, 2005). This led to increase in food import bills and hike in prices with food import increasing from 6.3% in 1991 to 27.02% and 30.56% in 1999 and 2011 respectively.

NBS (2012) due to the above negative impact of SAP and to safe-guard the sector from competition and as well as enhance flow of credit, the Agricultural Credit Guarantee Scheme (ACGS) was established in 1977 with the capital of ACGS increased from #199 million in 1977 to #3 billion in 2001. Other financial institutions were formed to complete the funding capacity of ACGS. In 2000, the Nigerian Agricultural Commerce and Rural Development Bank (NACRDB) was formed. The National Micro Policy was launched in 2006 with the aim of creating accessible and easy credit facilities to rural Nigerians. Also, Agricultural Credit Support Scheme (ACSS) was established to provide credit facilities to farmers at single digit interest rate with a view to reduce the cost of agricultural production and increase output on a sustainable basis (Ehinomen&Akorah, 2013).

2.3 Monetary Policy

There are various transmission channels and mechanisms through which monetary policy has affected economic activities by different schools of thought. The transmission mechanisms of monetary policy have been broadly examined under the monetarist and Keynesian schools of thought. The monetarist transmission mechanisms postulate that changes in the money supply lead directly and without going through the financial market, to change in the real magnitude of money. Friedman and Schwartz, (1963) described this transmission, in three views, as an increase in open market operation by the Central Bank increases stock of money, which also leads to an increase in commercial Bank reserves and ability to create credit and hence increase supply through the

multiplier effect. In order to reduce the quantity of money in their portfolios, the bank and non-bank seller would in the initial stance purchase securities with characteristics equivalent to the ones sold to the Central Bank. The increase in the demand, bid up to price of such securities. Thus, through these mechanisms, the initial increase in money supply, involving the open market operations stimulates activities in the real sector.

On the other hand, the Keynesian view of monetary transmission is centered on the ability of changes in money supply to influence the cost of capital through changes in short term interest rates. In this transmission, changes in the money supply through the financial market to affect level of economic activities.

Modighani (1963) analyzed credit availability theory by stating that interest rates charged to borrower by financial intermediaries are largely controlled by institutional forces and should adjust slowly at best and that the demand for funds is accordingly limited not by lender's willingness to lend or more precisely, by the funds available to them to be rationed out among would-be borrowers. Thus, monetary expansion includes banks to relax credit rationing and this result to the increase in income from increase investment and consumption, while savings could raise sustaining further investment through increasing the availability of loadable fund. The transmission mechanism acts through increase in money stock, which in turn increases effective demand, mainly investment partly because of short term reduction in the cost of capital and partly because of reduction in credit rationing and subsequently through flow of financial savings.

Tobin (1978) views transmission mechanism, which involves portfolio adjustment, is similar to that of the monetarist but which influences the cost of capital. He pointed out that an increase in money supply leads to assets substitution between corporate bonds, equities, and commercial paper and Bank deposits. He also indicated that monetary policy affects the economy through liquidity constraints and credit control. During periods of tight monetary policy characterized by high and rising interest rates, which also reduce bank's ability to lend, loan administration favours prime customers and business firms who in the process displace mortgage and consumer applicants. This development he says is strong enough to reduce investment and consumer expenditure. Monetary theory examines the relationship between money and economic activities. It seeks to explain how changes in the stock of money affect overall economic activities, it tries to discover and explain how the demand for and supply of money influence price, interest rates, output, income and employment. It is the foundation for monetary policy formulation (Nwaru, 2014).

According to the Keynesian monetary transmission mechanism, given the assumption that the economic is at less than full employment equilibrium, the built-in-policy transmission mechanism works through the financial system to the real sector via interest rate thus, de-emphasizing the role of money direct impact on the real sector. Keyes posited through his assumptions that the quantity of money has an indirect relationship with price via interest rates, thus an increase in quantity of money will lead to a fall interest rate which increases volume of investments and raises effective demand through the multiplier effect thereby increasing output, income and employment (Gbosi, 2005).

Keynes posited "that economics has been divided into two compartments with no doors or windows between the theory of value and theory of money and prices". This division between the relative price level (as determined by demand and supply of goods) and the absolute price level (as determined by demand and supply of money) arises from the failure of the classical monetary economists to integrate value theory with monetary theory. Consequently, changes in the money supply affect only the absolute price level but exercise no influence on the relative price level (Afolabi, 1998).

This involves the measures through which the Central Bank manages the supply of money, in other to stabilize prices. One of the primary objectives of monetary policy is the attainment of low and stable inflation. The Central Bank also has the added mandate to promote a counter balancing role to address price stability and as well stabilized economy. During a period of high inflation, contractionary monetary policy is to reduce the amount of money in circulation while expansionary monetary policy is used when economic conditions are weak. Depending on the financial development of a country, monetary policy is usually implemented through the banking system and financial markets. Implementing monetary policy involves interactions, using tools of monetary policy such as reserve requirements, open market operation (OMO), policy rates and among others, various frameworks of monetary policy have been used including monetary targeting, exchange rate targeting inflation targeting and so on.

2.4 Empirical Literature

Salim and Ahmed (2019) examined impact of monetary policy on agricultural domestic product in Iraq for the period (1990- 2014). The relationship was estimated through the (VECM) error correction model using statistical beam. The long - run equilibrium relationship between the variables of the model and the results of the estimation of the relationship in the short run revealed that the agricultural GDP is affected by the variables of monetary policy has been found that both inflation and money supply has a positive and significant the effect means that the increase in money supply by 1% will lead to an increase in output. The GDP by 0.25% and this is Identically by the economic logic, in other words, the expansion of any activity needs more capital just the increasing in the inflation rate by 1% will lead to an increase in agricultural GDP by 0.05%. This means that the high level of prices encourages investors and producers to expand production capacities and increase production, while the price of exchange and the price of interest has not proved significant each. In the long term, the most influential variables are the interest rate as a 1% drop-in interest rates will lead to higher GDP Agricultural by 0.3%. The Inflation came after the interest rate in terms of impact and came with positive signal and this is opposed to economic logic. The research concluded that inflation has a positive effect on agricultural production in the short and long run. Furthermore, increasing the money supply by expanding credit has a significant role that exceeds the rest of the variables.

Victor, Moses and Godday (2019) examined the impact of monetary policy on agricultural sector performance in Nigeria, using annual data spanning the period 1981 to 2016. The study employed the Autoregressive-Distributed Lag (ARDL) approach and established a long- run relationship between agriculture value added and some monetary policy variables. Specifically, the findings suggested that in the long-run, money supply and maximum lending rate have significant effects on agriculture value added while exchange rate and inflation do not. Given the important role of money supply in promoting agricultural sector performance, the paper recommends an expansionary but non-inflationary monetary policy to improve value addition to the agricultural sector of the Nigerian economy.

Sotjai, Mary and Daniel (2019) examined the effects of monetary policy on agricultural output in eswatini. Using the Vector Error Correction model (VEC), the empirical results indicated that in the long run, agriculture GDP, exchange rate, interest rate, inflation, broad money supply, and agriculture credit have a negative effect on agriculture GDP in Eswatini. In the short run the study indicated that the variation in agriculture GDP is largely significant caused by the lagged agricultural GDP, interest rate, exchange rate as well as inflation. Money supply and agriculture credit contribute 0.46% and 0.55%, respectively to the variation in agricultural GDP. The study recommends that programs aimed at availing affordable credit to farmers should be prioritized

to cushion the agriculture sector against adverse monetary policy shocks in the short to medium term, specifically interest rates, to ensure continuous production.

3. Research Method

3.1 Model Specification

The adopted model for this study were patterned after the work of Sotjai, Mary and Daniel (2019) who examined the effects of monetary policy on agricultural output in eswatini. This study is modified to investigate the impact of monetary policy on agricultural output in Nigeria and specified to capture the specific objectives whose data was sourced from Central Bank of Nigeria Statistical Bulletin for several years. The following symbols are used to denote variables used in writing the model equations which is in line with the objectives:

The study functional model is stated thus,

AGOUT= F (M2, EXR, INTR, INFR,) (1)

Equation (1) can be transformed and expressed in log-linear form stated below:

$_{log}$**AGOUT** = $b_0 + b_{1log}$M2+ b_2EXR+ b_3 INTR + b_4 INFR+μ (2)

Where;

AGOUT= Agricultural output, M2= Broad money supply, EXR= Exchange rate, INTR=Interest rate and INFR= Inflation rate.

b_0 = the intercept

b_1 = the slope

μ = the error term

Based on the above model, the study further expresses it in the following ways:

Hypothesis One

H0$_1$: Broad money supply has no significant effect onagricultural output in Nigeria is represented by the equation:

log**AGOUT**= b_0 + b_1 logM2 + μ (4)

However, incorporating the control variables in the above equation we have;

log**AGOUT**= b_0+ b_1 logM2 + b_2INFR+ b_3INTR +μ (5)

Hypothesis Two

H0$_2$: Exchange rate has no significant effect onagricultural output in Nigeria is represented by the equation:

log**AGOUT** = b_0 + $b_1$logEXR + μ (6)

However, incorporating the control variables in the above equation we have;

log**AGOUT**= b_0+ $b_1$logEXR + b_2INFR+ b_3INTR +μ (7)

Descriptive Statistics

The test of descriptive statistics is meant to reveal the mean, the median and the standard deviation, and other statistical properties of the dataset.

3.3 Method of Data Analysis

This study employs the ordinary least square multiple regression analysis. The ordinary least squares method is one of the most popular and widely used methods for regression analysis. It is mainly used to establish whether one variable is dependent on another or a combination of other variables. It entails establishing the coefficient(s) of regression for a sample and then making inferences on the population. The simple regression equation is stated thus;

$Y = b_0 + b_1X_1 + \mu$.

Where:

Y = the variable been predicted

b_0 = the intercept

b_1 = the slope

X = the variable used to predict Y

μ = the error term

The intercept (b_0) is the value of the dependent variable when the independent variable is equal to zero while the slope of the regression line (b_1) represents the rate of change in Y as X changes. Because Y is dependent on X, the slope describes the predicted values of Y given X.

4.1 Presentation of Data

Data are presented and interpreted in line with the objectives and models of the study. The data used to test the hypotheses are presented in **appendix 1**. The raw series data was log-transformed by the author and the log transformed series are presented in the table 4.2below.

YEAR	LAGOUT	LM2	INTR	EXR	INFR
2000	8.484870	6.778170	17.98	102.11	14.50
2001	8.522089	7.146237	18.29	111.94	16.50
2002	8.964066	7.317186	24.85	120.97	12.20
2003	9.031791	7.577081	20.71	129.36	23.80
2004	9.092521	7.664731	19.18	133.50	10.00
2005	9.160834	7.877742	17.95	132.15	11.60
2006	9.232344	8.242206	17.26	128.65	8.50
2007	9.301868	8.542354	16.94	125.83	6.60
2008	9.362664	9.064555	15.14	118.57	15.10
2009	9.419817	9.178593	18.99	148.88	12.00
2010	9.476458	9.314832	17.59	150.30	11.80
2011	9.505200	9.443697	16.02	153.86	10.30
2012	9.570090	9.648815	16.79	157.50	12.00
2013	9.599034	9.838579	16.72	157.31	8.00
2014	9.640849	9.924055	16.55	158.55	8.00
2015	9.677353	9.946811	16.85	193.28	9.60
2016	9.717600	10.09654	16.87	253.49	18.60
2017	9.751472	10.26132	17.56	305.79	15.40
2018	9.772476	10.30141	19.33	306.08	11.40
2019	9.795823	10.44167	15.53	306.92	11.98
2020	9.817286	10.49233	12.32	358.81	15.80
2021	9.838331	10.60585	11.55	400.24	15.63
2022	9.856976	10.78854	12.34	425.98	21.34

Source: LAGOUT and LM2 was log Transformed by author using E-views.

Note: LAGOUT= log agricultural output, **LM2**=log broad money supply, INTR= Interest rate, EXR= Exchange rate, and INFR= Inflation rate.

Table 4.3 Descriptive Statistics

	LAGOUT	LM2	INTR	INFR	EXR
Mean	9.417035	9.151883	17.10043	13.07174	199.1335
Median	9.505200	9.443697	16.94000	12.00000	153.8600
Maximum	9.856976	10.78854	24.85000	23.80000	425.9800
Minimum	8.484870	6.778170	11.55000	6.600000	102.1100
Std. Dev.	0.395066	1.248666	2.810869	4.293571	100.1203
Skewness	-0.986382	-0.493758	0.295870	0.784601	1.062104
Kurtosis	3.195481	1.886429	4.447957	3.211803	2.697872
Jarque-Bera	3.766263	2.122926	2.344787	2.402784	4.411725
Probability	0.152113	0.345949	0.309625	0.300775	0.110155
Sum	216.5918	210.4933	393.3100	300.6500	4580.070
Sum Sq. Dev.	3.433697	34.30169	173.8217	405.5645	220529.6
Observations	23	23	23	23	23

Source: Researcher's Eview 9.

Note: LAGOUT = log agricultural output, **LM2**=log broad money supply, INTR= Interest rate, EXR= Exchange rate, and INFR= Inflation rate.

Table 4.3 present the descriptive statistics for the period of 2000 to 2022. The table explains the aggregative averages of the mean, median and standard deviation, a measure of spread and variation which were used for consistency and robustness checks of the results. The skewness, kurtosis and Jarque-Bera probability values demonstrated the series normality test. The minimum row showed the lowest values of each variable and the maximum row gave the highest values of each variable. Log agricultural output, log broad money supply are negatively skewed whileinterest rate, exchange rate, and Inflation rate are positively skewed. Log agricultural output, interest rate and inflation rate exhibited leptokurtic behavior while log broad money supply and exchange rate exhibited platokurtic behavior.

4.2.1 TEST OF HYPOTHESIS ONE

Decision Rule: Accept null hypothesis if P-value is greater than 0.05 and reject null hypothesis if P-value is less than 0.05.

Restatement of the Hypothesis in Null and Alternate forms:

$H0_1$: Broad money supply has no significant effect onagricultural output in Nigeria.

Ha_1: Broad money supply has a significant effect onagricultural output in Nigeria.

Table 4.4: Regression Result of Hypothesis One

Dependent Variable: LAGOUT
Method: Least Squares
Date: 04/16/24 Time: 05:50
Sample: 2000 2022
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LM2	0.330884	0.021132	15.65779	0.0000
INFR	-0.004267	0.004652	-0.917237	0.3705
INTR	0.015747	0.009476	1.661785	0.1130
C	6.175336	0.338982	18.21730	0.0000

R-squared	0.952774	Mean dependent var	9.417035
Adjusted R-squared	0.945318	S.D. dependent var	0.395066
S.E. of regression	0.092383	Akaike info criterion	-1.768971
Sum squared resid	0.162159	Schwarz criterion	-1.571493
Log likelihood	24.34316	Hannan-Quinn criter.	-1.719306
F-statistic	127.7745	Durbin-Watson stat	0.688422
Prob(F-statistic)	0.000000		

Source: Researchers' E-view 9, 2024

Table 4.4 presents the regressionresults for hypothesis one and it reveal that log broad money supply for the period of this study had positive and significant effect on agricultural output in Nigeria. The coefficient of log broad money supply is 0.33; indicating that a unit increase in agricultural outputin Nigeria is due to 33% increases in log broad money supply. Again, this was confirmed by the p-value < 0.05 level of confidence. The coefficient of determination (R^2) is 0.95, suggesting that the model is moderately fitted. Specifically, the coefficient of determination (R^2) indicates that 95% of the variation in the dependent variable (agricultural output) is explained by changes in the independent variable (log broad money supply). The adjusted coefficient of determination (R^{-2}) value is 0**.**94, it implies that 94% of the total variation in the dependent variable is explained by changes in the explanatory variables when the coefficient of determine is adjusted for degree of freedom. For the control variables, it was revealed that inflation rate had negative and insignificant effect on agricultural output in Nigeriawhile interest rate had positive and insignificant effect on agricultural output in Nigeria.

Decision: Based on the results above, since the p-value is less than 5% level of significant the null hypothesis is rejected while the alternative which states that broad money supply has a significant effect onagricultural output in Nigeria is accepted**.**

4.2.1 TEST OF HYPOTHESIS TWO

Decision Rule: Accept null hypothesis if P-value is greater than 0.05 and reject null hypothesis if P-value is less than 0.05.

Restatement of the Hypothesis in Null and Alternate forms:

Ho_2: Exchange rate has no significant effect onagricultural output in Nigeria.

Ha_2: Exchange ratehas a significant effect onagricultural output in Nigeria.

Table 4.5: Regression Result of Hypothesis Two

Dependent Variable: LAGOUT
Method: Least Squares
Date: 04/16/24 Time: 05:48
Sample: 2000 2022
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR	0.003196	0.000728	4.389653	0.0003
INFR	-0.033545	0.013194	-2.542486	0.0199
INTR	-0.014987	0.024192	-0.619508	0.5429
C	9.475355	0.510434	18.56333	0.0000

R-squared	0.674007	Mean dependent var	9.417035
Adjusted R-squared	0.622535	S.D. dependent var	0.395066
S.E. of regression	0.242721	Akaike info criterion	0.162967
Sum squared resid	1.119361	Schwarz criterion	0.360444
Log likelihood	2.125883	Hannan-Quinn criter.	0.212632
F-statistic	13.09450	Durbin-Watson stat	0.679519
Prob(F-statistic)	0.000072		

Source: Researchers' E-view 9, 2024

Table 4.5 presents the regressionresults for hypothesis two and it reveal that exchange rate for the period of this study had positive and significant effect on agricultural output in Nigeria. The coefficient of exchange rate is 0.003; indicating that a unit increase in agricultural output in Nigeria is due to 0.3% increases in exchange rate. Again, this was confirmed by the p-value < 0.05 level of confidence. The coefficient of determination (R^2) is 0.67, suggesting that the model is moderately fitted. Specifically, the coefficient of determination (R^2) indicates that 67% of the variation in the dependent variable (agricultural output) is explained by changes in the independent variable (exchange rate). The adjusted coefficient of determination (R^{-2}) value is 0**.**62, it implies that 62% of the total variation in the dependent variable is explained by changes in the explanatory variables when the coefficient of determination is adjusted for degree of freedom. For the control variables, it was revealed that inflation rate had negative and significant effect on agricultural output while interest rate had negative and insignificant effect on agricultural outputin Nigeria.

Decision: Based on the results above, since the p-value is less than 5% level of significant the null hypothesis is rejected while the alternative which states that exchange rate has a significant effect onagricultural output in Nigeria is accepted**.**

Discussion of findings

The study evaluated the impact of monetary policy on agricultural output in Nigeria. The study revealed that broad money supplyhad positive and significant effect onagricultural output in Nigeria, exchange rate had positive and significant effect onagricultural output in Nigeria. These findings indicate that the increase in broad money supply and exchange rate will bring about corresponding increase in agricultural output. This finding is in consonance with the similar study of Sotjai, Mary and Daniel (2019) and Salim and Ahmed (2019) who investigated the impact of monetary policy on agricultural domestic product in Iraq for the period (1990- 2014).

5.2 Conclusion

The study examined the impact of monetary policy on agricultural output in Nigeria. The objectives include to ascertain the effect of broad money supplyon agricultural output in Nigeria, to determine the effect of exchange rateon agricultural output in Nigeria. The study revealed that broad money supply had a positive and significant effect onagricultural outputin Nigeria, exchange rate had a positive and significant effect onagricultural outputin Nigeria. Hence, the increase on broad money supply and exchange rate will bring about increase on agricultural output in Nigeria. Thus, the study concludes that monetary policy had positive and significant impact on agricultural output in Nigeria. The study recommends that government should initiate policies that will enable monetary authorities (CBN) to circulate currency to farmers in other to improve on agricultural output.

References

Afolabi L. (1998). Monetary Economics Perry Barr Ltd Lagos, 1st Revised Edition.

Anyanwu, S. (2013), Structure and Growth of Domestic Product (1960-2008): Implications for small-scale enterprises in Nigeria, Global Advanced Journal of Management, Vol 2(6), 342-348.

CBN (2006). Statistical Bulletin. Abuja, Nigeria: Central Bank of Nigeria.

Ehinomen C. &Akorah C. C. (2013). The Impact of Monetary Policy on Agricultural Development in Nigeria (1970-2010), IOSR Journal of Humanities and Social Science (JHSS)5(5)13-25 Www.Iosrjournals.Org.

Friedman.M., and Schwartz.A., (1963). Money and Business Cycles. Review of Economics and Statistics, February, 32-64.

Gbosi A.N. (2005). Money Monetary Policy and the Economy; Abigab Associates Ltd Confidence Estate, Uyo Nigeria.

Nwaru N. M. (2014). "Lesson Notes on Monetary Economics"; Kricel Publishers Owerri.

Sanusi, L. (2011), Growth prospects for Nigerian Economy, Research Department CBN.

Tobin .J., (1978). Monetary Policy and the Performance of Commercial Banks in Nigeria, Economic and Financial Review, Central Bank of Nigeria, 33(2),156-170.

Appendix 1

Year	AGOUT	M2	INTR	EXR	INFR
2000	4,840.97	878.46	17.98	102.11	14.50
2001	5,024.54	1,269.32	18.29	111.94	16.50
2002	7,817.08	1,505.96	24.85	120.97	12.20
2003	8,364.83	1,952.92	20.71	129.36	23.80
2004	8,888.57	2,131.82	19.18	133.50	10.00
2005	9,516.99	2,637.91	17.95	132.15	11.60
2006	10,222.47	3,797.91	17.26	128.65	8.50
2007	10,958.47	5,127.40	16.94	125.83	6.60
2008	11,645.37	8,643.43	15.14	118.57	15.10
2009	12,330.33	9,687.51	18.99	148.88	12.00
2010	13,048.89	11,101.46	17.59	150.30	11.80
2011	13,429.38	12,628.32	16.02	153.86	10.30
2012	14,329.71	15,503.41	16.79	157.50	12.00
2013	14,750.52	18,743.07	16.72	157.31	8.00
2014	15,380.39	20,415.61	16.55	158.55	8.00
2015	15,952.22	20,885.52	16.85	193.28	9.60
2016	16,607.34	24,259.00	16.87	253.49	18.60
2017	17,179.50	28,604.47	17.56	305.79	15.40
2018	17,544.15	29,774.43	19.33	306.08	11.40
2019	17,958.58	34,257.90	15.53	306.92	11.98
2020	18,348.18	36,038.01	12.32	358.81	15.80
2021	18,738.41	40,370.41	11.55	400.24	15.63
2022	19,091.07	48,462.07	12.34	425.98	21.34