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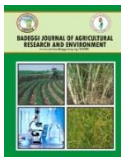

Research Article

Effects of Interest Rate Deregulation on the Growth of Nigerian Agricultural Sector

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Abstract
This paper examined the effect of interest rate deregulation on the growth of Agricultural Sector in Nigeria from 1986 – 2016. This study focuses on the relationship between Agricultural Output and Interest Rate, Agricultural Credits, Exchange Rate and Inflation. Appropriate multiple regression model with parameters was estimated using Ordinary Least Square (OLS) technique. Test of hypothesis was carried out and the result shows that interest rate deregulation has no significant impact on the Agricultural growth in Nigeria. The significance of the level of income to increased investment cannot be overemphasized as the level of income determines the level of saving and investment that can be made to increase agricultural production in Nigeria. Among other recommendations, this study suggests that government should subsidize interest rate to Agricultural sector. Government should also formulate policies that will encourage the banks to give loans to farmers at a concessionary interest rate.

Keywords: Interest rate, Deregulation, Agriculture, Income, Exchange rate, Banks

Introduction

The importance of interest rate deregulation cannot be overemphasized in Agricultural production. Many economists have argued that the deregulation of interest rate has led to trudge in the real interest rate which has induced savings and investment in general.

In developing economies, Agricultural sector is one of the most heavily regulated sectors, serves as a source of foreign exchange. Akiri and Adofu (1988) established that the Agricultural sector is not the only sector that has been widely deregulated rather, other sectors like the Banking, culture and oil industries have also been deregulated both in developed and underdeveloped countries of the world.

The Nigerian economy has at different times witnessed enormous interest rate swings in different sectors of the economy since the 1970s and mid 1980s under the regulated regime. The preferential interest rates were based on the premise that the market, if freely applied would exclude some priority sectors. Thus, interest rates were adjusted through the "invisible hand" in order to promote increased level of investment in the various preferred sectors of the economy (Anyingang and Udoka, 2012). Amassoma *et.al*. (2011) also pointed out that prior to the introduction of Structural Adjustment Programme (SAP) in 1986, the Nigerian financial sector was characterized by rigid exchange rate and interest rate controls,

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mandatory sectoral allocation of Bank credit to the private sector, all of which engendered distortion and inefficiencies that results to low direct investment. Funds were inadequate, the Nigeria currency was overvalued and the monetary and credit aggregate moved rather sluggishly such that the economy was sort of engulfed with a general lull.

The deregulation of interest rate, which is the removal of rules and regulations that constraint the operation of market forces and controls with the aim of allowing interest rate to be set by the forces of demand and supply. According to Iyoha (2010), the ultimate objective of the deregulation under SAP was to bring about improved financial intermediation by enhancing the role of Banks in effectively mobilizing domestic savings and optimally allocating investable resources. Deregulation of interest rate provides a platform for greater competiveness in mobilization and utilization of fund, efficient financial industry and more productive organizations within the financial industry. It has been advocated by many economists that interest rate deregulation helps to enhance savings, boost investment and consequently help to enhance economic growth. However, complete deregulation of interest rate in Nigeria has not been devoid of wide variations and unnecessarily high rate.

Several studies have identified poor credit supply as one of the factors accounting for the poor performance of the Agricultural sector in Nigeria. According to Obilor (2013), Banks precisely the Commercial Banks obviously have no kin interest in Agricultural finance. In order to encourage the Banks, the Government established the Agricultural Credit Guarantee Scheme (ACGS) to provide guarantees against inherent risk in agricultural lending. The rather high lending rate coupled with the general perception of Agricultural enterprises lack of the traditional Bank collateral requirements, this means that there are limitations for Agricultural sectors to access formal Banking loans, hence the creation of special financial schemes for the growth and development of the Agricultural sector in Nigeria. Against this backdrop, this study investigates empirically the effect of interest rate deregulation on the growth of Agricultural sector in Nigeria.

Theoretical Framework

The model on the effects of interest rate policy on Nigerian Agricultural sector is rooted in the Miller and Modiglian (1958) theorem. This study is in alignment with the postulation of the theorem, it however, discard the policy prescriptions of the theorem. This is because the Miller -Modigliani Theorem was developed in a world without taxes. However, when the interest on debt is tax deductible and ignoring other frictions, the value of the company will increase in proportion to the amount of debt used.The source of additional value will be due to the amount of taxes saved by issuing debt instead of equity.

Empirical Review

The empirical works by McKinnon (1973) and Fry (1989) have evidence to support the hypothesis that interest rate affect investment. This pinpoints that there are two transmission channels through which interest rate tends to affect investment; (I) that they relate to investment as cost of capital and (II) that they relate to cost of capital investment as cost of capital. In their study, they also buttress that, interest rates encourage loans which is in form of external finance. The determinant and structure of real interest rates in Nigeria was reviewed by Agu (2008) between 1970 and 1985. His study asserted that there was negative effect of low real interest rate on savings and investment through the financial repression regime and as a result concluded that the relationship between interest rates, savings and investment is inconclusive.

In contrast, Williams (2009) stipulated that real interest rates were generally negative as a result of the repressed regime prior to 1986, when the rates were fixed and as much brought about financial disintermediation which led to low savings, low investment and low growth in the economy.

According to Agu (2008), the Central Bank of Nigeria (CBN) on its part increased lending rate from 11% to 15% in situations where they feel that Naira is undervalued. Sequel to the above the Commercial Banks increased their lending rates between 17% and 22% as opined by Adofu *et al.* (2010). According to Williams (2009), the mandatory interest rate policy will results in a

near shut down of lending rate volume to any Bank with major credit concerns because the new policy ensures that only the highest quality borrower have access to new Bank credits within the year. Akiri and Adofu (1988) are of the view that fixing of interest rates at such a high level does not give Nigerian businesses any chance of competition with their foreign counterparts especially those from countries where interest rates are low compared to that of Nigeria. Interest rate if not controlled, might lead to increase in cost of capital which in turn discourages investment.

On the contrary, Anyanwu *et al*. (1997) is of the assertion that, interest rate deregulation will definitely lead to more efficient allocation of financial market resources due to the fact that, interest rate will now reflect scarcity and relative efficiency in different use. This implies that only efficient investors will have access to scarce financial resources. However, with the nature of Agricultural production in Nigeria, it has therefore become difficult for the sector to access the resources. Eregha (2010) in his study employed dynamic model of two equations using instrumental variable technique of estimation on data from the World Development Indicator. The study revealed that variation in interest rate played a negative and highly significant role in investment decision in the economy and demand for credit also had negative and significant influence on interest rate variations in both the short run and long run. Adofu *et al*. (2010) in their study on the changes in Agricultural production since the deregulation of interest rate in 1986 using Ordinary Least Square method to examine data from 1986 to 2005, found that interest rate deregulation has significant and positive impact on Agricultural productivity in Nigeria within the period under review. The empirical analysis also suggested that interest rate played a significant role in enhancing economic activities and as such, monetary authorities should ensure appropriate determination of interest rate level that will break the double - edge effect of interest rate on savers and local investors.

Methodology

Sources of data: This study employed basically the secondary data from the Central Bank of Nigeria (CBN) publications, the Nigerian Economic Society (NES) publications, the National Bureau of Statistics (NBS) publications, textbooks and seminar papers.

Model specification: The model adopted was Ordinary Least Square (OLS) method to estimate the relationship between interest rate and the growth of the Nigerian Agricultural output. The OLS technique employed was to obtain the numerical estimates of the coefficients using the E-view economic software package. In order for the effect of interest rate on the growth of Nigerian Agricultural sector to be suitable, time series statistics of the included variable was checked. The unit root has become an increasingly popular path to ascertain the properties of macroeconomic time series. To guard against spurious regression result, this study took the step in checking the properties of the variables with the use of the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller (1981). Therefore, test of Stationarityprecedes OLS. The model is specified as follows.

AGDP = F (INTR, ACR, EXR, INF) -------- (1)
Where;
AGDP - Agricultural Output (Agricultural Gross Domestic Product)
INTR – Interest Rate
ACR – Agricultural Credit
EXR – Exchange Rate (Parallel Rate)
INF -- Inflation
The above implicit function in equation (1) is reduced to a linear form as thus:

$$AGDP = \beta_0 + \beta_1 INTR + \beta_2 ACR + \beta_3 EXR + \beta_4 INF + \mu_t \text{ ---------- (2)}$$

Where μ_t is the error term, β is the coefficient to be estimated.

A Prior Expectation

$$\beta_1 < 0, \beta_2 > 0, \beta_3 < 0, \beta_{4<0.}$$

Techniques of Data Analysis: The R^2 is to determine the goodness of fit while the t-test is to determine the causal relationship between each of the indicated variables and the Agricultural output. The DW-Statistics is used to test for the existence of autocorrelation.

Results and discussion

The unit root test was conducted on the variables to check for the time series properties due to non-stationary behavior associated with variables at the level for using augmented Dickey – Fuller test.The unit root test result reveals that all the variables were integrated at level*I* (0) except Agricultural Credit (ACR) integrated of order one, *I*(1).

$$AGPD = 0.032955 + 0.066417AGR + 0.104221INF - 0.046069EXR + 0.120015INTR + U_t$$

The Durbin-Watson Statistic (1.9) indicates the absence of autocorrelation. The signs attached to the parameter estimates conform with the priori expectation. The coefficient of determination, R^2 indicates that 40% of the changes in Agricultural GDP (AGDP) are explained by changes in Agricultural Credit (ACR), Inflation (INF), Exchange rate (EXR) and interest rate (INTR), the remaining 60% are explained by variables not included in the model.

In the model, when compared half of each coefficient with its standard error, it was discovered that the standard errors are more than half of the values of the coefficients of the variables except Inflation (INF). This shows that the estimated values are all statistically insignificant except for inflation.

The result shows that a unit change in Agricultural Credit (ACR) induces about 0.1-unit increase in Agricultural GDP though statistically insignificant. This shows that Agricultural Credit is an important determinant of Agricultural growth in Nigeria. As for inflation, a unit change induces 0.1-unit increase in Agricultural GDP. That is to say inflation has positive impact on Agricultural GDP in Nigeria and it is statistically significant.

A unit change in exchange rate induces 0.05-unit reduction in Agricultural GDP. This indicates that the attendant fluctuations in the rate of exchange create the problem of uncertainty which leaves a negative impact on the Agricultural sector. As for interest rate, a unit change induces 0.1-unit increase in Agricultural GDP, though statistically insignificant.

From the results obtained, the t – statistical value for interestrate was 0.6443686 with probability of 0.5259. This shows that interest rate deregulation has no significant effect on Agricultural output in Nigeria.

Conclusion

It was discovered that monetary policy and interest rate deregulation has no significant effect on the performance of investment in the Agricultural sector. The government should look into improving the macro-economic indicators such as inflation, income level, level of investment and so on. The significant of the level of income to increased investment cannot be over emphasized as the level of income determines the level of savings and level of investment that can be made to increase Agricultural production in Nigeria.

Recommendations

1. Government should subsidize interest rate for the Agricultural sector and stop fuel subsidy, as this will provide more benefit to the society than the fuel subsidy.
2. Government should formulate policies that will encourage Banks to give loans to farmers at a concessionary interest rate.
3. The Agricultural Credit Guarantee Scheme (ACGS) should improve on their conditions for credit guarantee in order to make Agricultural financing attractive to Commercial Banks.
4. Government should make deliberate efforts to expand its Agricultural expenditure by increasing its financial grants to Agricultural firms and Small Scale farmers.
5. It is important that Banks try to diversify in such a way that they can generate more income on their assets and adequate efforts should be made by Banks to increase their level of investments as that will help in generating reasonable returns on their assets.
6. Commercial Bank customers should be aware that the banking system is ever changing and that deregulation will eliminate all ineffective and inefficient lending. Customers should always bear in mind that they are making use of other people's money. They should realize that loanable fund is a repayable fund.

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Table 1. Unit root test variables for time series properties

Variable	Test – Statistic	Critical value	Level of Significance	Level
LAGDP	-2.884978	-2.622986	10%	1(0)
LACR	-5.307576	-3.689104	1%	1(1)
LINF	-2.669504	-2.622989	10%	1(0)
LEXR	-2.925185	-2.622989	10%	1(0)
LINTR	-4.892856	-3.679322	1%	1(0)

Source: e-view

Table 2. Regression Result
Dependent variable: (LAGDP)

Variable	Co-efficient	Standard Error	T-Statistic	Probability
LAGDP	0.032955	0.585661	0.056269	0.9556
D(LACR)	0.066417	0.070953	0.936078	0.3586
D(LINF)	0.104221	0.046397	2.246302	0.0342
LEXR	-0.046069	0.023570	-1.954552	0.0624
LINTR	0.120015	0.186450	0.643686	0.5259
$\boldsymbol{R^2}$ = 0.394431		**DW** = 1.936283		

Source: e-view