

Effect of Nigerian Macro-Economic and Macro-Environment Related Factors on Agribusiness Output (1970 -2007)

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Abstract

The study examined the effect of Nigeria macro-environment related factors on agribusiness output between 1978 and 2007. The study was conducted with a view of evaluating the macro environment policies adopted in Nigeria and the effect on agribusiness output. Secondary data used for this study covered a period of 24 years and this was sourced from Central Bank Statistical Bulletin. The tools of data analyses were descriptive statistics, involving tables, frequency and percentages. Also, Ordinary Least Square multiple regression analysis was used to analyse the relationship between some relevant macro-environment and macroeconomic factors with agribusiness output over the years. A trend analysis was carried out to know the impact of the macroeconomic policies on agribusiness output over the years. The study revealed that all the policy instruments were useful and had a significant impact on agribusiness output at varying rate of changes of their application. The multiple regression result showed that nominal interest rate, price uncertainty and Government investment (debt) had a negative relationship with agribusiness output at 1%, 1% and 10% probability levels respectively. On the other hand Government expenditure and Foreign Private Investment have a positive relationship with agribusiness output and were statistically significant at 1% risk level respectively and this conveyed that as government expenditure and foreign private investment increases, the agribusiness output will also increase. This study showed that agribusiness output depended more on macroeconomic related factors than political environment. . Also, policy statements on price stability should be streamlined for stable price and better implementation via appropriate institutions. Thus, policies reducing nominal interest rate should be encouraged. Also, based on the findings, there is need to increase expenditures on agribusinesses through well fashioned macroeconomic policies.

Key word: Macroeconomic, Environment, Policies, Agribusiness, Output

1. Introduction

In Nigeria, the Agribusiness sector has been invaluable in supporting economic growth and development since 1960. In fact, before the discovery and exploration of petroleum, the Nigerian economy depended heavily from funds generated from agribusiness exports which was further used to develop other sectors. Considering its importance in nation building, the agribusiness sector has continued to be a priority and at the centre of government policies. Since, it has the potentials to spur economic growth and development. The central aim of every government is to ensure improved standard of living for its people, while this has been much talked about over the years, there is little evidence to show that this aim has not been met over the years (Onyido 2006). Nkamleu (2004) posits that there is a direct relationship with agribusiness and the economic growth and development and the agribusiness sector must be properly co-ordinated for achieving any meaningful development and the set target or goals.

Usually several factors can be said to be responsible for the dismal performance of the Nigerian agribusiness but prominent among these factors is the macroeconomic environment. The Nigerian macroeconomic and environmental policies comprise of fiscal, monetary policies, income and other policies used to generate productive activities in the economy including agribusiness sector. The Nigerian macroeconomic policies like other developing countries view the agribusiness sector as a high priority sector, essential for high rate of present and future economic growth. Onyido (2006) posits that drive for increased of the sector which is predicated on the fact that efficient use of the nation's resources would guarantee economic growth and ensure a better standard of living of the citizenry which is the global goal of MDGS. In Nigeria several macroeconomic policies has been used which have directly and indirectly influenced and affected agribusiness growth (Ojo 1955).

In recent years most macroeconomic and environment policies have made significant steps forward ensuring macroeconomic stability even as Nkamleu (2004) observed that such policies arguably provides an environment more conducive to economic growth, thus a general case is often made that stable macroeconomic environment condition benefit growth through reduced uncertainty, though the improvement of Nigeria Agribusiness output to a satisfactory and sustainable level has been a challenge to the policy makers; this is because Ukong (1994) asserted that it is regrettable despite all policies to induce Agribusiness productivity, one can still say that the economy is still saddled with insecurity. It is also important to note that since 1986, major macroeconomic policies changes has created a radically different environment for agribusiness growth indicators , Akpokooje (2002) confirmed that major macroeconomic policy shift heighten agribusiness performance, so it became imperative to examine the Nigerian Macroeconomic environment policies with a view of funding out its effects on agribusiness output. The specific objectives considered in this study involved: examination of the structure and the impact of macroeconomic policies adopted in Nigeria on agribusiness output; next was the analyses of the effect of macroeconomic police indicators on agribusiness output of the nation

2. Methodology

This study uses principally secondary data obtained from the central bank of Nigeria, Federal Ministry of Finance and Bureau of Statistics for a period between 1970 - 2007. The method of data analysis used in this research work involved the use of simple descriptive statistics and the multiple regression analytical technique (ordinary least square procedure). Other statistical tools such as the F-test will be complementary to the OLS tools. The SPSS computer programming package was used in the data analysis with four functional forms namely linear, Semi-linear, Double log and Exponential forms.

Economic theories claim that a change in one variable can be explained by changes in several others .Consequently, the model postulates that the index of Agribusiness output as a function of the indicator of the macroeconomic and macro-environment policies, namely: foreign exchange rate (E), nominal interest rate (N), credit to the agribusiness sector (A), domestic price stability (W), government expenditure on agribusiness (G), inflation rate (L), foreign private investment (P₁), foreign price uncertainty (R), government investment in Naira (P₂) and political environment (X)

The relationship of the variables may be represented as;

$$Y = F(F, N, A, W, G, L, P_1, R, P_2, X) \dots \dots \dots \text{equation 1}$$

While the implicit form of the model is given as;

$$Y = a + b_1 F + b_2 N + b_3 A + b_4 W + b_5 G + b_6 L + b_7 P_1 + b_8 R + b_9 P_2 + b_{10} X + b_{11} + U \dots \dots \dots \text{equation 2}$$

Where;

- Y = Agribusiness Output
- F = Foreign exchange rate
- N = Nominal interest rate
- A = Credit to Agribusiness sector in Naira
- W = Producer price instability
- G = Government expenditure in Naira
- L = Inflation in percentage
- P₁ = Foreign private investment
- R = Foreign price uncertainty
- P₂ = Government investment in Naira
- X = Political environment in Nigeria
- A = Intercept
- b₁ – b₁₁ = Coefficient
- U = Stochastic disturbance term

4. Result and Discussions

The impact of macroeconomic environment policies on Agribusiness output growth between (1970 – 2007)

From Table 1 indicates the assessment of the impact of macroeconomic environment policies on agribusiness output growth in 1970-2007. The periods were grouped into seven years range trying to observe the changes of both agribusiness output growth and selected macroeconomic environment policies. It was observed that the greatest growth change in agribusiness output occurred between the period 1994 and 2001, with an increase of 41946.5 million tonnes, this was occasioned by 19.631 change in foreign exchange rate, -1.94 change in nominal interest rate and -0.84 growth change in the rate of inflation, but further assessment on the effects variables

revealed that under the period of this investigation rate of change in inflation rate was negative and nominal interest rate was negative. However, it is only changes in nominal interest rate that impacted negatively on the output of agribusinesses nationwide. Also, foreign exchange rate impacted positively and significantly on the agribusiness output given the analyses of its rate change.

Analyses of the effect of macroeconomic and macro-environment related factors to agribusiness output growth

The macroeconomic and macro-environment related variables were further analysed using regression analyses to examine their relationship with agribusiness output growth. The result of the analyses is presented on Table 2. The analyses showed that some varying degrees of relationship of macroeconomic and macro environment variables with the agribusiness output. It was observed that nominal interest rate, price stability, government expenditure in Naira, foreign private investment and government investment in naira were statistically significant. Nominal interest rate had a negative relationship with agribusiness output and significant at 1%, which shows that as nominal interest rate increases, the national output of agribusinesses decreased and vice-versa. This finding agreed with the observation of Onwumere and Alamba (2010) on the negative relationship between nominal interest rate and agribusiness output in Nigeria. Also, producer price instability and government investment (debt) in naira had negative relationships with agribusiness output and were statistically significant at 5% and 1% respectively. The implication of this result is that there is poor producer price of agribusiness products and there is the need to work on the quality of the products produced locally to enhance their value. Again, the paste debt overload of the nation has not been paying off well to agribusiness output. This findings corroborate the reports of Mbachu (2001) and Onwumere, Alamba and Onyike, (2008) While government expenditure foreign private investment all have a positive relationship with Agribusiness output and were statistically significant at 1%, this shows that as government expenditure and foreign private investment increases, the agribusiness output will also increase. Foreign exchange rate, foreign price uncertainty and inflations rate were all positively signed and credit to agribusiness and political environment in Nigeria have negative relationship with agribusiness output but they were not statistically significant at the recommended level.

Conclusion

This analysis asserted that agribusiness output growth is a function macroeconomic and macro-environment related factors. It has been able to reveal that nominal interest rate, producer price instability, government expenditure, foreign private investment and government investment have significant impact on agribusiness output. The study unveiled that nominal interest rate, inflation rate, and exchange rate were central in weakening agribusiness output. In view of these, the Government and Monetary authorities need to develop appropriate policies that would ensure macroeconomic stability, government and the monetary authorities should increase expenditure, develop policies that would encourage price stability and keep nominal interest rate low, which is necessary for any meaningful growth in the output of agribusinesses.

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Table1: The structure and impact of macroeconomic environment policies on Agribusiness output growth between (1970 – 2007)

Year range	Output of major agricultural commodities in tonnes	Changes in output growth	Foreign exchange rate	Changes in foreign exchange rate	Nominal interest rate	Change in nominal interest rate	Inflation rate	Changes in inflation rate
1970 - 1977	22848.75	—	44.586	—	100.97	—	15.27	—
1978 – 1985	19257.625	-3591.125	59.503	14.917	106.1	5.13	16.9	1.63
1986 - 1993	45321.75	26064.125	69.387	9.884	13.28	- 19.82	27.16	10.26
1994 – 2001	87268.25	41946.5	89.018	19.631	11.34	- 1.94	26.32	-0.84
2002 – 2007	108505.14	21236.89	127.834	38.816	102.17	90.83	12.27	- 14.05

Source: CBN Statistical Bulletin

Table 2: Determinants of the factors affecting Agribusiness output Growth 1970-2007.

Variables	+ Linear	Exponential	Semi log	Double log
Constant	35176.468 (2.647) ***	10.903 (25.833) ***	- 21974.4 (-3.130) ***	7.243 (3.050) ***
Foreign exchange rate	14.804 (0.072)	- 0.006 (- 0.857)	-25825.79 (- 1.167)	-0.732 (- 0.978)
Nominal exchange rate	-212.754 (-5.21) ***	- 0.008 (- 5.840) ***	-356.696 (-0.254)	- 0.034 (-0.710)
Credit to agribusiness Sector	-0.008 (-0.593)	-2.22E – 007 (- 0.550)	3746.512 (1.007)	0.035 (0.282)
Producer price instability	-0.044 (-1.758) *	-1.40E – 006 (- 1.748)*	11703.464 (2.488)**	0.147 (0.927)
Government expenditure	0.079 (2.824) ***	1.38E – 006 (1.548)*	1332.377 (0.427)	0.032 (0.305)
Inflation rate	82.045 (0.939)	0.003 (1.211)	- 1268.706 (- 0.612)	0.013 (0.191)
Foreign private investment	0.336 (4.261) ***	5.51E – 006 (2.199)**	15621.835 (2.295)**	0.343 (1.489)
Foreign price uncertainty	0.007 (0.803)	-5.82E – 009 (- 0.022)	2580.802 (0.991)	0.025 (0.278)
Government investment (debt)	-0.330 (-2.208)**	2.02E – 007 (0.425)	-1163.290 (- 0.250)	0.005 (0.034)
Political environment	0.002 (- 0.763)	1.25E – 007 (1.463)	1830.812 (1.705)*	0.036 (0.982)
R ²	0.971	0.930	0.961	0.893
R ⁻²	0.960	0.903	0.947	0.853
F – ratio	90.578	35.612	67.065	22.555

Note: *** = Co-efficient is statistically significantly at 1% level

** = Co-efficient is statistically significantly at 5% level

* = Co-efficient is statistically significantly at 10% level

The numbers in parenthesis are the t – ratio and linear function was chosen as the lead equation.

Source: CBN Bulletin, Federal Ministry of Finance, Bureau of Statistics.