

## **CORRELATE EXAMINATION OF CAPITAL ALLOCATION TO AGRICULTURE AND AGRIBUSINESS PRODUCTIVITY IN NIGERIA (1977-2012).**

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### **Abstract**

Agriculture is not only the backbone of our food, livelihood and ecological security system, but is also the very soul of our sovereignty. In Nigeria, population has been increasing day by day and agricultural land has been decreasing because of either lying fallow, fragmenting or converting it into residential plots. To meet the domestic food requirements, enhanced productivity and also enhanced contribution to GDP by the sector to the nation, use of improved production technologies suggested by research is must. This is only attainable through improved funding of the sector by government in its allocation to the sector in their budget. As such, this study delved in to examine the degree of relationship existing between capital allocation to agriculture with agricultural output and some relevant variables. The study utilized data from various issues of the CBN statistical bulletin and employed the Pearson's correlation coefficient with the trend analysis to test the objectives. The Pearson's correlation coefficient result revealed that capital allocated to the agricultural sector had a strong positive significant relationship with agricultural output, agricultural imports and also agricultural exports. On the basis of the results, the study suggested that government should increase capital allocation to agriculture as a panacea for enhanced agricultural productivity and economic development with its attendant infrastructural development.

**KEYWORDS:** Correlate examination, Capital allocation, Agriculture, Agribusiness, Productivity, Nigeria.

### **1. INTRODUCTION**

Agriculture plays a major role in the economy of many developing countries, as it is a significant source of nourishment for citizens and a means of livelihood for the most vulnerable members of these countries. As a consequence, raising agricultural productivity is an important policy goal for concerned governments and development agencies.

Food and Agricultural Organization (FAO) recommends that 25 per cent of government capital budget be allocated to agricultural development. This has not been achieved by the various administrations of Nigeria, thereby affecting government programmes and policies for the sector (Iganiga and Unemhili, 2011). Nigeria has also

consistently failed to reach the 10 per cent agriculture budget standard of the Maputo declaration, which has led to negative implications for food security (Ochigbo, 2012).

With more than half of Nigeria's population currently employed in the agricultural sector (Manyong *et al.* 2005), and with the vast majority of these individuals living in rural areas, the agricultural sector is key to Nigeria's economic development. Though agriculture accounts for about 40 percent of GDP, the level of growth in that sector has lagged behind other sectors. Real annual GDP growth from 2000 to 2007 in the Nigerian economy averaged 8.8 percent, while the agriculture sector grew at 3.7 percent in 2007 (Phillip *et al.* 2009). Low agricultural productivity

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in Nigeria is due to a wide variety of factors including poor soil quality caused by pollution, erosion and leaching, the negative impact of climate change on weather patterns, the scarcity and high cost of inputs, rudimentary implements, and outdated farming practices. Poor agricultural output and widespread poverty has resulted in extensive and persistent food insecurity, with some studies showing that as many as 70 percent of Nigerians are food insecure (Orewa and Iyangbe 2009a; Obayelu 2010).

Increasing agricultural productivity requires one or more of the following: an increase in output and input with output increasing proportionately more than inputs; an increase in output while inputs remain the same; a decrease in both output and input with input decreasing more; or decreasing input while output remains the same (Adewuyi 2006; Oni *et al.* 2009).

Increasing inputs in order to expand output involves raising both the quality and quantity of inputs, examples of which would include the mechanization of agricultural processes, use of high yield varieties, use of fertilizers, irrigation in areas where rainfall is inadequate, and the use of agrochemicals such as herbicides and pesticides. Though all of the aforementioned activities have the potential for productivity enhancement, smallholder farmers, who account for the vast majority of farmers in developing countries, often cannot afford these investments due to their limited resources and restricted access to credit. Hence, the need to allocate more funds by government to agriculture so that small scale farmers and enterprises can access and improve their output.

### **REVIEW OF RELEVANT LITERATURE**

Modernizing agriculture is essential for economic growth and development of a Nation. Employing modern agriculture is possible when farmers are provided incentives and access funds for purchasing the needed and necessary modern inputs (Schultz, 1964; Zuberi, 1989). These facts have been the bedrock of success of many developed countries that had recognized the benefits of using modern farm technology. But application of modern farm technology to increase agricultural

output had increased financing needs of farmers (Mellor, 1966). Adequate agricultural financing is the quickest way for boosting agricultural production (Abedullah, 2009). Agricultural incentives and credit is provided for relief of distress and for purchasing seed, fertilizer, cattle and implements (Yusuf, 1984).

Use of modern technology increased demand for credit and resulted in increase in agricultural productivity of small farmers (Saboor *et al.*, 2009). Governments used improved agricultural funding to provide incentives and credit programs to farmers and agribusiness enterprises to promote agricultural output, (Adams and Vogel, 1990).

Studies conducted in developing economies like India by Dantwala (1989) estimated demand and supply of credit and its role in poverty alleviation in India. He emphasized on supply of credit and to increase technical assistance to farmers to increase agricultural productivity.

Developing countries improved their agricultural output by introducing modern agricultural technology such as chemical fertilizers, recommended seeds, tractors and modern irrigation facilities etc. But modern agricultural technology was capital intensive and hence increased demand for credit (Johnson and Cownie, 1969).

Furthermore, Nosiru (2010) proved in his research that funds enabled farmers to buy the inputs they needed to increase their agricultural productivity. However, the degree of funds obtained by the farmers in the study area did not contribute positively to level of output. This was as a result of non-judicious utilization, or distraction of funds obtained to other uses apart from the intended farm enterprises.

According to Siddiqi *et al.*, (2004) flow of funds to farmers had increased demand for inputs to increase crop production. The elasticity of amount of funds, Number of tractors, irrigation, use of chemical fertilizer and pesticides etc with respect to dependent variable agricultural income on per cultivated as well as per cropped acre basis indicated that funds (production credit) and tube wells impacted positively and significantly at 95 percent confidence level. Number of tractors and use of fertilizers also contributed positively but

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insignificantly. It was because of inappropriate use of fertilizer and tractors.

Various studies have revealed existence of strong correlation between the amounts of government allocations and the real gross domestic product of agricultural sector in a given time period (Carter 1988; Carter and Weibe 1990; Feder *et al*, 1990; Shrestha, 1992; Binswanger and Khandker 1995; Pitt and Khandker 1996). Positive relationships exist between institutional credit and productivity (Bernstein and Nadiri, 1993; Nickell and Nicholitsas, 1999; Schiantarelli and Sembenelli, 1999; Schiantarelli and Jaramillo, 1999; Schiantarelli and Srivastava, 1999). Inefficiently allocated capital by Malaysia's banking sector declined total factor productivity of the country (Ghani and suri, 1999).

Ahmad et al, (2006) analyzed the impact of advancing in-kind credit in the form of fertilizer and seed to smallholder farmers in the Ethiopian. They found that in kind input credit of fertilizer and seed increased crop output reasonably.

Zuberi (1989) found that 70 percent of total formal credit was used for the purchase of seed and fertilizer and concluded that most of the increases in agricultural output could be explained by changes in the quantity and quality of seed and fertilizer.

## MATERIALS AND METHODS

This study was carried out in Nigeria and it used principally secondary data obtained from the Central Bank of Nigeria annual reports and accounts various issues from 1977–2012. The study employed Pearson's correlation coefficient and trend analysis to test the degree of causal relationship existing between capital allocation to agriculture, agricultural output with agricultural imports and exports within the time period under study.

The Pearson correlation analysis is stated as

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2} \sqrt{n\sum y^2 - (\sum y)^2}}$$

Where r = correlation coefficient

Y = Capital allocation to agriculture

X 1=Agricultural output

X2= Agricultural imports

X3= Agricultural exports

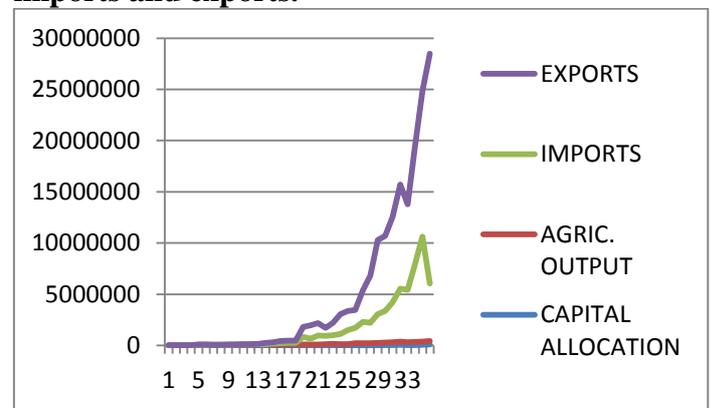
n = sample size

## RESULTS AND DISCUSSION

### TREND ANALYSIS

Figure 1 presents the trends in capital allocation to agriculture, agricultural output with agricultural imports and exports in Nigeria from 1977 to 2012. As shown in figure 1, agricultural exports was increasing at an increasing rate after being almost dormant from period 19 to its present maximum level in period 34 (i.e. 2012).

**Figure 1: Trend analysis of capital allocation, agricultural output, agricultural imports and exports.**



**Source: computed from CBN Statistical bulletins various issues.**

Agricultural imports also followed the trend of exports by experiencing near dormancy from period 1 to 19 and subsequent growth from then to period 33 (2011) and quick downturn trend (decline) in period 34 (2012).

Furthermore, capital allocation and general agricultural output were almost dormant all through the period under study save for some slight upward move in trend from period 19 to 34. The slight upward movement of capital allocation to agriculture resulted to upward movement of agricultural output trend, very high upward trend of agricultural exports and also imports. This implies that a little increase in allocation of agriculture can also result to enhanced agricultural output and also other agricultural variables relevant in economic

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development and balance of payment of a nation.

### CORRELATE EXAMINATION OF CAPITAL ALLOCATION, AGRICULTURAL OUTPUT, AGRICULTURAL IMPORTS AND EXPORTS

The result of the Pearson correlation between the capital allocation to the agricultural sector, agricultural output, agricultural imports and exports indicates a strong positive significant relationship between agricultural output and the capital allocated to the agricultural sector at the 0.01 level of significance. An increase in the capital allocation will lead to an increase in the output of the agricultural sector and vice versa. The correlation coefficient between agricultural imports and the capital allocation to the agricultural sector was a strong positive significant (1%) relationship. An increase in the agricultural imports results to an increase in the capital allocation to the agricultural sector while the correlation between agricultural imports and agricultural output had also a strong positive significant relationship at the 0.01 significant levels (2-tailed) indicating that an increase in the agricultural imports results to an increase in the agricultural output.

More so, the correlation between agricultural exports and capital allocation to agriculture, agricultural output with agricultural imports revealed a strong positive significant relationship existing between them all at the highest level of significance i.e. 0.01 levels (2-tailed). This implies that an increase in agricultural exports results to an increase in capital allocation, agricultural output with agricultural imports and vice versa.

**Table 1: correlate examination of capital allocation, agricultural output, agricultural imports and exports.**

	Capital Allocation	Agric output	Import	
<b>Capital allocation</b>	1			
<b>Agric output</b>	0.770**	1		
<b>Import</b>	0.749**	0.907**	1	
<b>Export</b>	0.866**	0.900**	0.891*	1

\*\***. Correlation is significant at the 0.01 level (2-tailed).**

**Source: Computed from CBN statistical bulletins various issues.**

### CONCLUSION

Having examined the relationship between capital allocation to agriculture with agricultural output, imports and exports, it is inferred that capital allocated to the agricultural sector had a strong positive significant relationship with agricultural output, agricultural imports and also agricultural exports and vice versa. Based on the findings of this empirical study, it is recommended that government should increase capital allocation to agriculture as even suggested by FAO and Maputo accord which Nigeria is a signatory as a panacea for enhanced agricultural productivity and economic development with its attendant infrastructural development.

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