

*A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*  
**A TREND ANALYSIS OF AGRICULTURAL (FDI) AND AGRICULTURAL  
GROWTH IN NIGERIA (1981 – 2016)**

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## **ABSTRACT**

*In empirically establishing the trend of agricultural foreign direct investment (FDI) and agricultural growth in Nigeria, this study made use of annual time series data sourced from the database of the Central Bank of Nigeria (CBN) covering a 36-year period from 1981 to 2016. Descriptive statistics such as tables, percentages, graphs and trends aided by the use of Microsoft Excel and Spearman's Rank Correlation Coefficient using Stata 10.1 with significance taken at the 5% level ( $p < 0.05$ ) were used to analyze data. Results revealed that there was a very low agricultural FDI which was not commensurate with agricultural GDP, compared to other sectors of the economy. Also, statistically significant high positive correlation was established between agricultural FDI and agricultural output. This study, thus recommends that agricultural FDI should be focused on improving existing technologies and management practices or introducing new ones; agriculture should be positioned in a more commercial sense as a business venture rather than a leisure activity in order to improve FDI in the sector and there should be deliberate expansion of agricultural production to attract the much needed investments in agriculture, both from local and foreign sources.*

**Keywords:** Agricultural FDI, Agricultural Growth, Spearman's Rank Correlation, Trends.

## **INTRODUCTION**

Foreign direct investment (FDI) is an investment made to acquire a lasting management interest (normally 10% of voting stock) in a business enterprise operating in a country other than that of the investor(s) defined according to residency (World Bank, 2007). Total FDI in developing countries began to rise from about 1% in the late 1970s to 4% in the mid-1980s peaked at about 6% in 1990s before the Asian crisis and has remained at around 6-7% of the total (Danja, 2012). This indicates that FDI in developing countries has risen sharply over the past two decades, which coincided with the reduction in the large differential between developing and developed countries' growths found in the 1970s. This coincided with some reduction in the growth of outflows to developing countries, suggesting that the same

influences were affecting flows in both directions in spite of the perceived and obvious need for FDI in the continent. Investors/entrepreneurs in most African countries seek to increase their capital base and improve on their production by sourcing for and trying to attract FDI to their businesses through partnerships or other investment opportunities offered to foreign firms and investors/entrepreneurs. The efforts of most countries in Africa to attract FDI, especially into agriculture have been futile and this development is disturbing; sending very little hope for agricultural development and growth for these countries. More so, that the pattern of the FDI does exist is often skewed towards extractive industries, meaning that the differential rate of FDI inflow into sub-Saharan African countries, have been adduced to be due to natural resources, although the

*A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*

size of the local market may also be a consideration (Asiedu, 2001; Macaulay, 2012).

It is of utmost importance to note that one of the most salient features of today's globalization drive, is conscious encouragement of cross-border investments, especially by transnational corporations (TNCs) and firms (Olusanya, 2013). Many countries and continents (especially least-developed and developing) now see FDI as an important element in their strategy for agricultural growth and by extension, economic growth, as the economy of most of these countries rely mainly on agriculture and exploitation of natural resources. This is most probably because FDI is seen as an amalgamation of capital, technology, marketing and management and as such, many policy makers believe that FDI produces positive effects on the host economies of which some of its benefits are in the form of externalities and the adoption of foreign technologies (Ayanwale, 2007). Least Developed Countries (LDCs), developing countries, emerging economies and countries in transition, due to advantages related to FDI, have liberalized their FDI regime and followed best policies to attract investment. It has been recognized that the maximizing benefits of FDI for the host countries can be significant, including technology spill-overs, human capital formation support, enhancement of competitive business environment, contribution to international trade integration and improvement of enterprise development.

Sub-Saharan Africa as a region, is now depending very much on FDI for so many reasons some of which are amplified by Asiedu (2003) and Antwi et al (2013), and as such, preference for FDI stems from its acknowledged advantages (Obwona, 2004; Adeleke, Olowe and Fasesin, 2014). The effort by several African countries to improve their business climates stems from the desire to attract FDI. In fact, one of the pillars on which the New Partnership for Africa's Development (NEPAD) was launched, was to increase available capital to US\$64 billion through a combination of reforms, resource mobilization and conducive environment for FDI (Funke and Nsouli, 2003; Olusanya, 2013).

The United Nations Conference on Trade and Development, UNCTAD (2007), reported that FDI flow to Africa has increased from US\$9.68 billion in 2000 to US\$1.3 trillion in 2006. UNCTAD (2006), in its World Investment Report showed that FDI inflow to West Africa is mainly dominated by inflow to Nigeria, who received 70% of the sub-regional total and 11% of Africa's total. Out of this, Nigeria's oil sector alone received 90% of the FDI inflow. Aggregate output growth measured by the gross domestic product (GDP), according to the Central Bank of Nigeria, CBN (2007), in its Economic Report for the third quarter of 2007, was estimated at 6.05% compared to 5.73% in the second quarter. This growth which was driven by the non-oil sector was estimated at 9.47% and was mainly driven by major agricultural activities (Danja, 2012).

Statistics gathered from UNCTAD (2012), indicated that agricultural FDI (combined FDI in agriculture, forestry and fishery, and food and beverages). World over is still small, but rising and in recent years, however, the increase in agricultural FDI flows to developing countries (Nigeria inclusive) turned out to be higher than the increase in agricultural FDI flows to developed countries. Sulstarova (2012), also posited that average annual agricultural FDI flows to developing countries, soared about ten-fold when comparing the periods between 1989-1991, 2005-2007 and 2008-2010, and as a result, developing countries attracted almost one-tenth of worldwide agricultural FDI flows recently. Fingar (2015), also mentioned that Africa witnessed the largest increase in inward investment, with US\$87 billion of FDI announced in 2014. In the former, for instance, agricultural FDI inflows in 2008-2010 represented an average increased share of 1.0% of gross fixed capital formation, compared to 0.1% in developed countries. Inward FDI stocks of developing countries in 1998, amounted to 20% of their GDP, compared to 12% in developed countries. Even in the light of all these evidences, most of the previous studies (Otepola, 2002; Oyejide, 2005; Ayanwale, 2007; Adelegan, 2008; Shiro, 2009; Adofu, 2010; Egbo, 2011; Umoh, Jacob & Ichuku 2012;

Olusanya, 2013; Adeleke, Olowe and Fasesin, 2014; and Osuji, 2015) concerning FDI and the Nigerian economy, did not concentrate on the agricultural sector, despite the role it plays in the economic growth and development in addressing the country's specific dimension to the FDI-growth debate. In relative terms, it is believed that agricultural FDI plays a more important role in developing countries than in developed countries. As such, it has therefore become essentially imperative to empirically fill the knowledge gap that exists by establishing the trend of FDI in agriculture generally in developing countries and Nigeria in particular.

The main objective of this study is to examine the rate of agricultural FDI and agricultural growth in Nigeria from 1981 to 2016. The specific objectives are to (i) describe the trend in agricultural growth, vis-à-vis other sectors in Nigeria over the sample period; (ii) describe the trend in volume of FDI in agriculture, vis-à-vis other sectors in the country over the sample period; and (iii) determine the strength and direction of the trends of FDI in agriculture and agricultural growth.

### **Hypothesis**

The null hypothesis of this study is:

**H<sub>0</sub>:** There is no correlation between Agricultural FDI and Agricultural Output.

### **Literature Review**

#### **Conceptual Framework**

##### **The Concept of FDI**

According to the World Bank (n. d.), "FDI refers to direct investment equity flows in the reporting economy; the sum of equity capital, reinvestment of earnings, and other capital; a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10% or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship."

Similarly, the UNCTAD (2009), defined FDI as investment in enterprise located in one country but "effectively controlled" by residents of another country. Adeleke, Olowe and Fasesin (2014), believed that FDI is a direct investment into production or business in a country by an individual or company of another country, either by buying a company in the target country or by expanding operations of an existing business in that country, and that it is in contrast to portfolio investment, which is a passive investment in the securities of another country such as stocks and bonds. Okoro and Atan (2013), posited that one school of thought defined FDI as adding new resources in terms of capital, technology, managerial skills and technical know-how, productivity gains and so on to the host economy. Furthermore, we can say that FDI thus implies that the investor has to a significant degree partial or full control or influence on the management of the enterprise resident in the other economy (Djokoto, 2012). The Organization for Economic Co-operation and Development (OECD), cited in Ebekozien, Ugochukwu and Okoye (2015), succinctly described FDI as "an integral part of the international economic system and a major catalyst for development or the flow of capital and human resource from one country to another". FDI in Nigeria is defined as investment undertaken by an enterprise that is either wholly or partly foreign-owned (UNCTAD, 2006). Data on FDI, is normally measured in current United States of America Dollars (US\$) (World Bank, n.d.).

##### **The Concept of Agricultural Growth**

According to De Janvry and Sadoulet (2010), it is also trite that agriculture has multiple functions in economic development as it is a source of economic growth and an instrument for poverty reduction as well as its indicated contributions to the provision of environmental services. Due to its obvious advantage in poverty reduction and alleviation, Shepherd and Prowse (2011), opined that agricultural growth is particularly important pathway for addressing the needs of the chronically poor, who as a group, are particularly reliant on

### *A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*

agriculture. As such, it can be said that agricultural productivity, which brings about agricultural growth is vital for stimulating growth in all parts of the economy (Awan & Mustafa, 2013). Agricultural growth, throughout global history, has been the progenitor of broad-based economic growth and development, as linkages between farm and non-farm economies generated widely-based employment, income and growth (Singh, Kumar, & Woodhead, 2002). Furthermore, Awan and Mustafa (2013), posited that the importance of agricultural growth cannot be denied as it is responsible for feeding more people, and used as a base for foreign trade and providing raw material for industry. They further opined that due to its enormous importance to national economy, high priority should be given to raise agricultural productivity and farm incomes. Agricultural growth shall, thus in the future be the sine qua non for alleviation and eradication of rural poverty and hunger in countries that have not yet fully achieved their broad-based growth (Singh, Kumar, & Woodhead, 2002).

#### **Empirical Framework**

##### **FDI in Nigeria**

Even as the rest of the world struggles to get back to investment levels before the global economic crisis, Nigeria's FDI inflows keep on growing (Corporate Nigeria, 2011a). Ayanwale (2007), was of the opinion that the indigenization policy of 1995 encouraged FDI inflow into Nigeria and efforts must be made to raise the nation's economic growth as to be able to attract more FDI. However, according to Oloyede (2014), there are situations on the ground that may slow the massive inflow of FDI into Nigeria as envisaged by the government. Jerome and Ogunkola as cited by Ebekozen, Ugochukwu and Okoye (2015), in their assessment of the magnitude, direction and prospects of FDI in Nigeria, also noted that while FDI regime in Nigeria was generally improving, some serious deficiencies mainly in the area of the corporate environment (such as corporate law, bankruptcy, labour law, etc.), institutional uncertainty as well as the rule of law still remains.

Ekpo (2010), reported that the variability of FDI into Nigeria, can be explained by the political regime, real income per capital, rate of inflation, world interest rate, credit rating and debt service. Ayanwale (2007), studying the determinants of FDI in Nigeria, identified changes in domestic investment, output or market size as impediments to increased FDI in Nigeria. Moreover, macroeconomic and political instability had significantly impacted adversely on economic growth (Saibu & Keke, 2014). Ebekozen, Ugochukwu and Okoye (2015), submitted that in the past, Nigeria witnessed a decline in the influx of foreign investments as a result of various economic sanctions imposed on the country by the international community. Ekpo (2010), reported that political regime, real income per capita, rate of inflation, world interest rate, credit rating and debt service, were the key factors explaining the variability of FDI into Nigeria. Corporate Nigeria (2011a), also listed the unrest in the Niger Delta and endemic corruption as constraints limiting further FDI in Nigeria.

##### **Agricultural Growth in Nigeria**

Notwithstanding Nigeria's rich endowment in crude oil, most of her economy still largely depends on the agricultural sector and as such, the Nigerian economy is essentially agricultural in terms of national output and employment generation (Oloyede, 2014). Over the years, the growth rate of agricultural production has either stagnated or failed to keep pace with Nigeria's rapid population growth rate of about 3.2 percent, resulting in perennial food shortages, continuous souring food prices and massive importation of food by government (Kareem, Bakare, Raheem, Ologunla, Alawode & Ademoyewa, 2013). According to Ukeje (2003); Olajide et al (2012) and Idowu and Ying (2013), agriculture in Nigeria enjoyed a boisterous era between the 1960s and the 1970s, contributing up to 64% to the total GDP in the 1960s, but gradually declining in the 1970s to 48% and further declining in the early 1980's to about 20%, due to the oil glut of the 1980s. Trading Economics (n.d.) informed that GDP from

agriculture in Nigeria averaged N3,583,037.05 million from 2010 until 2015, reaching an all-time high of N4,816,519.15 million in the third quarter of 2015 and a record low of N2,594,759.86 million in the first quarter of 2010. While Corporate Nigeria (2011b) reported that agriculture contributed 41.84% to GDP in 2009. GDP from agriculture in Nigeria as reported by the National Bureau of Statistics (NBS), increased to N4,816,519.15 million in the third quarter of 2015 from N3,477,845.24 million in the second quarter of 2015 (Trading Economics, n.d.). Kareem, Bakare, Raheem, Ogunla, Alawode and Ademoyewa (2013) argued that agricultural output has been rising gradually from 1985 and fell at a point in 1988 and that between 1990 and 2000 there was a gradual increase in the output which rose sharply from 2005 to 2011.

## **METHODOLOGY**

### **The Study Area**

The study area is officially known as the Federal Republic of Nigeria, but often times, it is referred to as Nigeria. It is situated on the west coast of Africa, located on latitudes 4° and 14° north of the equator and between longitudes 3° and 14° east of the Greenwich Meridian, covering a land area of 923,768 km<sup>2</sup>, while sharing boundaries with the Republics of Benin and Niger in the west, Cameroon in the east, Niger and Chad in the north and the Atlantic Ocean's Gulf of Guinea in the south (Geography of Nigeria, 2014). With a population of about 173 million people, having over 354 languages while speaking the English language as its official language, Nigeria is the largest country in Africa, and accounts for 47% of West Africa's population (World Bank, 2015). It is in the lower middle income group with a gross national per capita income of US\$1,190.00, and its currency is the Naira, which is equal to the subdivision of 100 Kobo (FAO, 2012). The major exports of the country are: crude oil (petroleum), natural gas, sesame, cashew nuts, leather, tobacco, shrimps and prawns, cocoa, cassava, rubber, food, live animals, aluminium alloys and other solid minerals, (CIA

World Factbook, 2015) while major imports are: refined petroleum products, wheat, rice, sugar, herbicides, fertilizers, chemicals, vehicles, aircraft parts, vessels, vegetable products, processed food, beverages, spirits and vinegar, equipment, machines and tools (NBS, 2015). Despite its considerable agricultural resources, Nigeria is still a net importer of food and agricultural products in general (USAID, 2009), and as such, the agricultural sector has been one of the least attractive sectors for FDI in Nigeria. This is evident in the fact that through 1970 to 2001, the sector comprised only 1.7% of the total FDI (FAO, 2012).

### **Data Collection**

To achieve the stated objectives, this research work used secondary data in the form of annual time series data of agricultural output, measured by the share of agriculture to GDP and FDI inflows into agriculture and other business types in Nigeria, all at current basic prices covering a 36-year period, spanning from 1981 to 2016 and sourced from the statistics database of the Central Bank of Nigeria (CBN). Thus, the dataset used has 36 data points.

### **Data Analysis**

This study employed descriptive statistics aided by the use of Microsoft Excel to draw up percentages, tables, graphs and trends to achieve objectives one and two. The trends analysis using a descriptive analytical approach was adopted because according to Akinmulegun (2012), the trend approach allows for numerical, descriptive and figurative analysis of FDI flows in the era of globalization. Objective three was however, achieved with Spearman's Rank Correlation analysis using STATA 10.1 statistical software, while the hypothesis was tested using the t-statistics.

Spearman's Rank Correlation Coefficient ( $r_s$ ) is often employed when evaluating the non-parametric degree of linear association between two independent variables. The advantages stemming from using Spearman's Rank Correlation

### *A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*

Coefficient according to Gauthier (2001), include the fact that it is easy to apply, can be used with small sample sizes and is generally unaffected by the distribution of the population, as it operates on the ranks of the data, making it relatively insensitive to outliers. The Spearman's Rank Correlation Coefficient ( $r_s$ ) was calculated using the following equation:

$$r_s = \frac{1 - 6 \sum_{i=1}^n d_i^2}{n^3 - n} \quad (1)$$

Where:

$d_i$  = is the difference between ranks for each  $x_i$  and  $y_i$  data pair

$n$  = number of data pairs

As such, we determined the probability of getting a correlation coefficient greater than the calculated value for a perfect positive correlation or lower for a perfect negative correlation. That is to say, if  $r_s = 1$ , the data pairs are said to have a perfect positive correlation ( $d_i = 0$ ), if  $r_s = -1$ , then there is perfect negative correlation, but, if  $r_s = 0$ , then the variables are uncorrelated, i. e. independent.

To test the null hypothesis,  $H_0$ , the t-statistic test was used at the five percent (5%) significant level. The formula for the t-statistic is thus given as:

$$t_{cal} = \frac{r_s \sqrt{n-2}}{\sqrt{1-r_s^2}} \quad (2)$$

As stated in the hypothesis above, we assumed that there is no correlation between FDI in Agriculture and Agricultural Output. The calculated t value ( $t_{cal}$ ) was compared to the critical value of t ( $t_{tab}$ ), if the  $t_{cal}$  is greater than  $t_{tab}$  at the 5% level of significance, the null hypothesis is rejected, if otherwise, then it is accepted.

### **Trend analysis of agricultural growth in Nigeria**

The gross domestic product (GDP) of Nigeria is aggregated from five major sectors which are made up of various subsectors as shown below:

- a. Agriculture: consists of the crop production, livestock, forestry and fishing subsectors.
- b. Industry: made up of crude oil (petroleum) and natural gas; solid minerals, i.e. coal mining, metal ores, quarrying and other mining; and manufacturing, consisting of petroleum refining, cement and other manufacturing activities.
- c. Building and construction;
- d. Wholesale and retail trade; and
- e. Services: which includes transport, i.e. road, rail, water, air, pipelines and other transport services; communication, i.e. telecommunications and post; utilities like electricity and water; hotel and restaurant; finance and insurance; real estate and business services; producers of government services such as public administration, education and health; and community, social and personal services like private non-profit organizations, broadcasting and other services.

The breakdown of the GDP of Nigeria by sectoral contributions at current basic prices in billions of Naira (₦ 'B) and corresponding percentage contribution is given in table 4 below, which shows that the industrial sector contributed the highest share to GDP, averaging 40.8%, followed by the agricultural sector which averaged 29.8% and then the services sector with 15.1%, while the building and construction sector contributed the least with about 2.1%, after the wholesale and retail trade sector that averaged 12.2%.

## **RESULTS AND DISCUSSIONS**

**Table 1: Sectoral distribution of the GDP of Nigeria from 1981-2016**

Year	Sector											
	Agriculture		Industry		Building & Construction		Wholesale & Retail Trade		Services		TOTAL GDP	
	(₦ 'B)	(%)*	(₦ 'B)	(%)*	(₦ 'B)	(%)*	(₦ 'B)	(%)*	(₦ 'B)	(%)*	(₦ 'B)	(%)*
1981	19.53	20.7	48.46	51.3	5.37	5.7	7.40	7.8	13.56	14.3	94.33	100
1982	22.56	22.3	51.15	50.6	4.83	4.8	7.58	7.5	14.90	14.8	101.01	100
1983	26.44	24.0	54.70	49.7	4.37	4.0	9.52	8.6	15.05	13.7	110.06	100
1984	33.78	39.0	53.13	45.7	3.69	3.2	9.85	8.5	15.83	13.6	116.27	100
1985	38.24	28.4	64.88	48.2	2.96	2.2	10.55	7.9	17.95	13.3	134.59	100
1986	39.93	29.7	61.70	45.8	3.72	2.8	10.87	8.1	18.38	13.6	134.60	100
1987	57.58	29.8	94.69	49.0	4.21	2.2	16.97	8.8	19.69	10.2	193.13	100
1988	86.58	32.9	126.13	47.9	4.77	1.8	23.76	9.0	22.04	8.4	263.29	100
1989	120.06	31.4	185.99	48.7	5.46	1.4	39.07	10.2	31.69	8.3	382.26	100
1990	122.23	37.3	125.66	38.2	5.67	1.7	42.41	12.9	32.64	9.9	328.61	100
1991	144.70	26.5	299.57	54.9	9.48	1.7	47.95	8.8	43.97	8.1	545.67	100
1992	217.42	24.8	515.98	59.0	11.81	1.3	72.28	8.3	57.85	6.6	875.34	100
1993	350.05	32.1	530.34	48.7	15.50	1.4	118.12	10.9	75.67	6.9	1,089.68	100
1994	528.95	37.8	549.73	39.3	19.94	1.4	186.62	13.3	114.46	8.2	1,399.70	100
1995	940.30	32.3	1,450.00	49.9	26.61	0.9	324.10	11.2	166.34	5.7	2,907.36	100
1996	1,275.75	31.6	2,094.17	51.9	30.97	0.8	423.02	10.5	208.39	5.2	4,032.30	100
1997	1,445.15	34.4	1,992.40	47.6	36.24	0.9	464.95	11.1	250.51	6.0	4,189.25	100
1998	1,600.58	40.1	1,505.13	37.7	48.01	1.2	526.96	13.2	308.77	7.8	3,989.45	100
1999	1,704.82	36.4	1,968.35	42.1	53.12	1.1	575.91	12.3	377.01	8.1	4,679.21	100
2000	1,801.48	26.8	3,757.05	56.0	59.06	0.9	625.62	9.3	470.37	7.0	6,713.57	100
2001	2,410.05	34.9	3,044.91	44.2	78.60	1.1	762.74	11.1	598.90	8.7	6,895.20	100
2002	2,847.11	36.5	3,212.38	41.2	94.40	1.2	916.83	11.8	725.03	9.3	7,795.76	100
2003	3,231.44	32.6	4,589.70	46.3	118.56	1.2	1,094.64	11.0	879.18	8.9	9,913.52	100
2004	3,903.76	34.2	4,610.08	40.4	166.08	1.5	1,484.42	13.0	1,246.72	10.9	11,411.07	100
2005	4,752.98	32.5	6,090.55	41.7	215.34	1.5	1,930.78	13.2	1,621.23	11.1	14,610.88	100
2006	5,940.24	32.0	7,488.74	40.3	250.33	1.4	2,741.79	14.8	2,143.49	11.5	18,564.59	100
2007	6,757.87	32.7	8,085.38	39.1	266.46	1.3	3,044.77	14.8	2,502.83	12.1	20,657.32	100
2008	7,981.40	32.9	9,719.51	40.0	306.58	1.3	3,503.18	14.4	2,785.65	11.4	24,296.33	100
2009	9,186.31	37.1	8,071.07	32.5	347.69	1.4	4,082.35	16.5	3,106.82	12.5	24,794.24	100
2010	13,048.89	23.9	12,033.20	22.0	1,570.97	2.9	8,992.65	16.5	18,966.55	34.7	54,612.26	100
2011	14,037.83	22.3	15,626.42	24.8	1,905.57	3.0	10,325.57	16.4	21,085.01	33.5	62,980.40	100
2012	15,816.00	22.0	16,975.34	23.7	2,188.72	3.1	11,843.53	16.5	24,890.35	34.7	71,713.94	100
2013	16,816.55	21.0	17,614.29	22.0	2,676.28	3.3	13,702.84	17.1	29,282.60	36.6	80,092.56	100
2014	18,018.61	20.2	18,402.19	20.7	3,188.82	3.6	15,704.13	17.6	33,729.86	37.9	89,043.62	100
2015	19,636.97	20.9	15,073.78	16.0	3,472.26	3.7	18,028.90	19.2	37,933.06	40.3	94,144.96	100
2016	21,523.51	21.2	14,372.78	14.2	3,606.56	3.6	20,675.86	20.4	41,310.78	40.7	101,489.49	100
<b>Mean %</b>		<b>29.8</b>		<b>40.8</b>		<b>2.1</b>		<b>11.2</b>		<b>15.1</b>		<b>100</b>
<b>TOTAL</b>	<b>176,485.65</b>		<b>180,539.23</b>		<b>20,809.01</b>		<b>112,378.49</b>		<b>215,083.13</b>		<b>715,295.52</b>	

Source: Central Bank of Nigeria Statistics Database (2017)

\* Author's computation using Microsoft Excel 2016

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## *A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*

The graph of the overall share of agriculture to GDP had a steady, but gentle upward trend from 1981 until 2008, it dipped in 2009, rose again in 2010 and kept rising up until 2016. This rise was however not proportionate to the rise in overall GDP, as shown in figure 1.

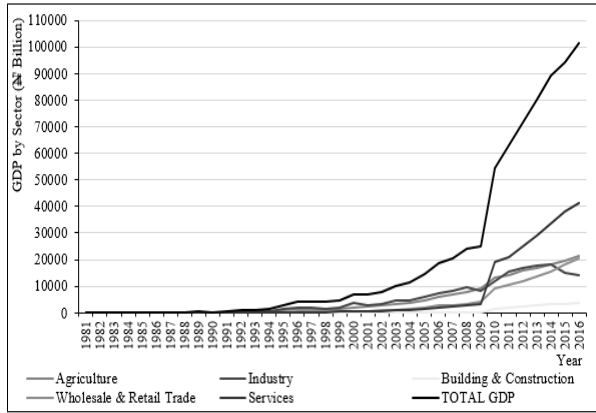


Figure 1: Nigeria GDP by sectoral contributions, 1981-2016  
Source: Author's computation using Microsoft Excel 2016

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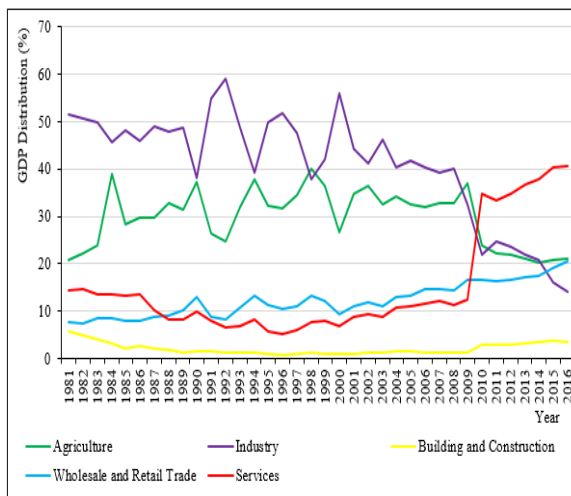


Figure 2: Nigeria GDP by percentage contribution, 1981-2016  
Source: Author's computation using Microsoft Excel 2016

### **Trend of agricultural growth in Nigeria**

While the amount contributed by agriculture to GDP in billions of Naira, as shown in figure 1 above was increasing, figure 2 shows that the percentage contribution of agriculture to the GDP, compared to other sectors was however

undulating, peaking at 40.1% in 1998, thereafter keeps undulating till 2009, dropped sharply in 2010 and maintained a downward trend till 2014 and started rising gently till 2016.

### **Trend analysis of FDI by business type in Nigeria**

Tables 2 and 3 below show that FDI inflow to Nigeria is classified into various business types by the CBN as listed below:

- a. Agriculture: made up of investments in agriculture, forestry and fisheries;
- b. Mining and quarrying: consisting of mining, quarrying, drilling and oil and gas activities;
- c. Manufacturing and processing: this sector is made up of investments in brewing, production/manufacturing, tanning and weaving;
- d. Transport and communications: contains investments made into information technology services, telecommunications and transport;
- e. Building and construction: which consists of construction and electrical works;
- f. Trading and business services: which are banking, financing, marketing, servicing, purchase of shares, hotels and trading; and
- g. Miscellaneous activities: which consists of consultancy and other unclassified businesses.



Table 2: FDI in Nigeria by Business Type

Year	Foreign Direct Investment (N' Million)							TOTAL
	Agriculture, Forestry & Fisheries	Mining & Quarrying	Manufacturing & Processing	Transport & Communication	Building & Construction	Trading & Business Services	Miscellaneous Activities	
1981	141.89	1,944.90	3,015.90	103.97	987.99	1,486.63	284.63	7,965.93
1982	127.33	2,391.74	3,642.56	111.11	1,292.69	2,157.28	505.18	10,227.89
1983	166.21	1,917.25	3,852.17	128.30	1,066.12	3,055.63	498.57	10,684.25
1984	167.04	2,288.68	4,015.17	134.35	1,033.39	3,703.70	485.51	11,827.84
1985	166.09	2,384.44	4,384.71	143.66	1,047.10	3,885.94	616.68	12,628.62
1986	150.75	4,214.02	5,201.92	104.17	655.39	3,382.36	610.13	14,318.74
1987	139.85	4,104.59	5,899.83	101.93	617.52	4,246.95	640.43	15,751.10
1988	221.09	5,448.32	6,893.05	245.85	1,303.78	5,248.96	719.86	20,080.91
1989	263.50	2,876.21	10,422.22	248.58	1,438.43	5,784.77	1,037.02	22,070.73
1990	443.65	6,066.10	15,040.06	751.82	2,108.56	5,263.50	587.82	30,261.51
1991	494.00	4,689.78	19,054.63	871.77	3,099.46	5,779.52	1,293.52	35,282.68
1992	698.88	12,756.48	22,504.38	732.42	3,487.69	6,032.68	7,897.16	54,109.69
1993	1,823.99	34,930.51	36,048.04	812.34	3,075.38	7,166.71	35,603.33	119,460.30
1994	1,805.44	34,776.27	42,998.54	470.97	5,186.59	7,911.26	42,675.35	135,824.42
1995	1,807.65	169,155.37	82,094.27	14,069.75	6,043.34	10,872.17	48,976.69	333,019.24
1996	1,807.65	214,270.22	97,995.31	14,421.99	7,081.92	15,322.91	53,047.68	403,947.68
1997	1,819.90	218,220.25	101,850.82	18,319.87	7,057.84	15,539.28	57,056.77	419,864.73
1998	1,904.00	222,393.51	105,131.74	14,903.20	10,223.39	22,939.07	67,743.16	445,238.07
1999	1,903.96	221,311.56	105,639.39	15,118.25	9,505.38	23,595.72	67,882.11	444,956.37
2000	1,907.83	223,242.42	111,346.37	15,118.25	10,215.26	23,551.43	30,855.45	416,237.01
2001	1,910.78	224,155.08	113,224.13	15,273.13	11,372.62	24,597.08	70,550.64	461,083.46
2002	1,913.91	224,248.94	118,596.78	16,079.91	11,464.02	24,906.17	72,748.82	469,958.55
2003	1,913.91	225,227.43	124,226.30	29,682.16	13,062.53	27,581.23	78,146.35	499,839.91
2004	1,913.91	227,089.16	188,920.86	77,582.42	16,302.76	38,306.36	86,749.94	636,865.41
2005	1,913.91	247,257.99	227,237.53	48,457.50	20,397.90	43,919.08	108,905.23	698,089.14
2006	2,553.53	274,980.99	320,567.06	58,558.67	29,313.67	59,382.25	151,491.63	896,847.80
2007	33,824.40	339,624.15	338,138.42	79,927.42	34,653.97	68,267.98	182,882.01	1,077,318.35
2008	3,171.78	828,333.78	266,258.60	70,424.18	31,036.10	51,296.19	149,812.98	1,400,333.61
2009	11,217.90	262,755.62	266,972.83	95,710.90	26,499.09	49,514.77	165,432.03	878,103.14
2010	1,588.90	4,300.90	132,258.80	74,603.40	7,415.10	670,938.00	37.10	891,142.20
2011	6,815.50	3,788.60	199,469.60	52,574.70	160,705.30	1,029,063.50	17,681.20	1,470,098.40
2012	14,219.70	31,129.80	86,875.60	35,353.10	11,055.20	2,433,668.40	4,694.80	2,616,998.60
2013	13,756.80	21,421.80	67,438.50	148,499.10	175,960.60	3,090,762.50	2,407.50	3,520,246.80
2014	3,943.50	39,548.50	149,670.20	159,625.00	11,369.90	6,092,791.00	4,191.00	6,461,139.10
2015	30,043.90	9,188.34	132,283.15	293,591.22	50,725.17	1,019,089.97	3,236.87	1,538,158.62
2016	8,697.59	220,176.20	86,596.54	286,317.51	28,936.38	876,163.21	894.96	1,507,782.39
MEAN*	4,571.13	127,016.94	100,160.17	45,532.58	19,911.04	438,254.84	42,191.11	777,437.81
TOTAL	157,360.62	4,572,609.90	3,605,765.98	1,639,172.87	716,797.53	15,777,174.18	1,518,880.11	27,987,761.19

Source: Central Bank of Nigeria Statistics Database (2017)

Although, FDI inflows to agriculture on the average is rising, year in year, but the percentage it attracts have been very low when compared to other business types. The chart in figure 3 below, shows FDI into various sectors of the Nigerian economy as business types, measured in millions of Naira (N' Million).

From table 3 below, it can be seen that FDI in agriculture is still very meagre, taking up a mere average of 0.89% of the aggregate FDI inflows from 1981 to 2016 and not exceeding 2% in any one year, except in 2007 where it achieved 3.14% of the total FDI for that year.

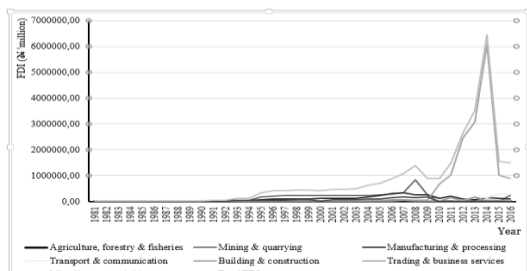


Figure 3: FDI inflows to Nigeria by business type  
Source: Author's computation using Microsoft Excel 2016

**Table 3: Percentage FDI inflows to Nigeria by Business Type**

Year	Foreign Direct Investment by Business Type (%)							TOTAL
	Agriculture, Forestry & Fisheries	Mining & Quarrying	Manufacturing & Processing	Transport & Communication	Building & Construction	Trading & Business Services	Miscellaneous Activities	
1981	1.78	24.42	37.86	1.31	12.40	18.66	3.57	100
1982	1.24	23.38	35.61	1.10	12.64	21.09	4.94	100
1983	1.56	17.94	36.05	1.20	9.98	28.60	4.67	100
1984	1.41	19.35	33.95	1.14	8.74	31.31	4.10	100
1985	1.32	18.88	34.72	1.14	8.29	30.77	4.88	100
1986	1.05	29.43	36.33	0.73	4.58	23.62	4.26	100
1987	0.89	26.06	37.46	0.65	3.92	26.95	4.07	100
1988	1.10	27.13	34.33	1.22	6.49	26.14	3.59	100
1989	1.19	13.03	47.22	1.13	6.52	26.21	4.70	100
1990	1.47	20.05	49.70	2.48	6.97	17.39	1.94	100
1991	1.40	13.29	54.01	2.47	8.78	16.38	3.67	100
1992	1.29	23.58	41.59	1.35	6.45	11.15	14.59	100
1993	1.53	29.24	30.18	0.68	2.57	6.00	29.80	100
1994	1.33	25.60	31.66	0.35	3.82	5.82	31.42	100
1995	0.54	50.80	24.65	4.22	1.82	3.26	14.71	100
1996	0.45	53.05	24.26	3.57	1.75	3.79	13.13	100
1997	0.43	51.97	24.26	4.36	1.68	3.70	13.60	100
1998	0.43	49.95	23.61	3.35	2.30	5.14	15.22	100
1999	0.43	49.74	23.74	3.40	2.14	5.30	15.25	100
2000	0.46	53.63	26.75	3.63	2.45	5.66	7.42	100
2001	0.41	48.61	24.56	3.32	2.47	5.33	15.30	100
2002	0.40	47.72	25.24	3.42	2.44	5.30	15.48	100
2003	0.38	45.06	24.85	5.94	2.62	5.52	15.63	100
2004	0.30	35.66	29.66	12.18	2.56	6.02	13.62	100
2005	0.27	35.42	32.55	6.95	2.92	6.29	15.60	100
2006	0.28	30.66	35.74	6.54	3.27	6.62	16.89	100
2007	3.14	31.52	31.38	7.42	3.22	6.34	16.98	100
2008	0.23	59.15	19.01	5.03	2.22	3.66	10.70	100
2009	1.28	29.92	30.40	10.90	3.02	5.64	18.84	100
2010	0.18	0.48	14.84	8.37	0.83	75.3	0.00	100
2011	0.46	0.26	13.57	3.58	10.93	70.00	1.20	100
2012	0.54	1.20	3.32	1.35	0.42	92.99	0.18	100
2013	0.39	0.60	1.92	4.22	5.00	87.80	0.07	100
2014	0.06	0.61	2.32	2.47	0.18	94.30	0.06	100

Source: Authors' computation using Microsoft Excel 2016

The graphs from the data in table 3 above, as shown in figure 4 below, can be seen that FDI in manufacturing and processing businesses initially attracted the highest proportions of FDI inflows, until 1994 when it was overtaken first by, FDI in mining and quarrying businesses which rose steeply, started undulating downward and later dipped in 2006. However, in 2010, FDI in trading and business services attracted the highest proportion of FDI inflows, grew astronomically and started declining sharply from 2014. FDI in transport and communications was initially low and maintained an undulating low trend until when it

peaked in 2004, declined again and then peaked again in 2009, declined again and rose steeply to its all-time high in 2015 and maintained that trend thereafter while the others undulated downwards.

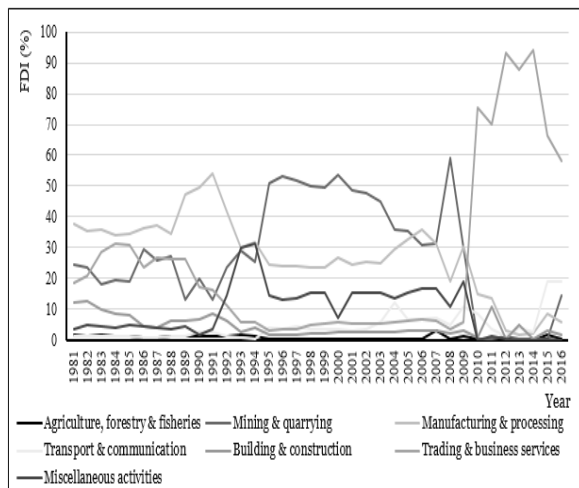


Figure 4: Chart showing percentage FDI inflows to Nigeria by business type  
Source: Author’s computation using Microsoft Excel 2016

From figure 4, it can be seen that the percentage FDI into agriculture is so low, such that it is almost indistinguishable from the zero line, that is almost negligible when compared to FDI in the other sectors, but this cannot be neglected as the amount invested so far from 1981 to 2016 is about ₦157.36 billion (see table 2 above), which is by no means small.

As observed in table 3 above, mining and quarrying businesses attracted the overall highest percentage of 27.85% of aggregated FDI inflows within the period under review, followed closely by manufacturing and processing businesses which had 27.55%, thirdly by trading and business services with 25.34%, followed by miscellaneous services with 9.45%, building and construction with 4.49%, then by transport and communication with 4.42% and lastly by agriculture and related businesses with a meagre 0.89%. This is in consonance with earlier studies by Heumesser and Schmid (2012), Akinmulegun (2012) and Oladele (2015) which showed that FDI in agriculture is very meagre.

**Degree of Association of the Variables**

The result of the Spearman’s rank correlation analysis is presented below.

Table 4: Spearman’s rank correlation results at 0.05% critical level

Parameter	Value
Number of observations	N 36
Spearman’s rank correlation coefficient	$r_s$ 0.9321
Prob >  t	0.0000

Source: Author’s computation using Stata 10.1

Source: Author’s computation using Stata 10.1

The analysis of the 36 observations carried out at the 0.05 (5%) critical level indicated that the Spearman’s rank correlation coefficient ( $r_s$ ) was given as 0.9321, with a probability of 0.0000, thus, implying that there is statistically significant high positive correlation between FDI in agriculture and agricultural output. This means that as FDI in agriculture increases, agricultural output is also increased and vice versa. This result is similar to studies carried out by other scholars such as Antwi et al (2013), Oloyede (2014) and Ebekozien, Ugochukwu and Okoye (2015) who all proved that there is positive relationship between foreign direct investment and economic output. Hence, with the meagre FDI in agriculture, *ceteris paribus*, it has become essentially imperative for the Nigerian Government to find ways to increase FDI in agriculture, maybe by fostering and encouraging foreign partnerships, if it intends to increase agricultural output.

**Test of hypothesis**

The value of the  $t_{cal}$  derived from equation (2) above and  $t_{tab}$  are given as:

$$t_{cal} \text{ for } n = 36 = 15.01$$

$$t_{tab} \text{ for } n = 36 = 2.028$$

Since the calculated value of the t-statistic (15.01) is higher than the tabulated value of t-statistic (2.028), i. e. ( $t_{cal} > t_{tab}$ ) (15.01 > 2.028) and the probability of the Spearman’s rank correlation coefficient (prob > t) is 0.0000, we therefore reject the null hypothesis ( $H_0$ ) and accept the alternative

hypothesis. This means that agricultural FDI and agricultural output have a statistically significant positive correlation.

## **SUMMARY**

This study was carried out to analyze the trend of agricultural FDI and agricultural growth, measured by agricultural output (GDP) in Nigeria, from the 1981 to 2016. Secondary data on agricultural output and FDI were collected from the Central Bank of Nigeria Statistics Database and used to describe the trends in agricultural growth and FDI in agriculture, vis-à-vis other sectors of the Nigerian economy. Tables and graphs were used to present data and describe trends, the Spearman's rank correlation coefficient was used to determine the strength and direction of the trends of agricultural FDI and agricultural growth, while the hypothesis was tested using the student's t-test. Although, the agricultural sector is the largest employer of labour and one of the highest contributors to GDP in Nigeria, it, however, has the lowest inflow of FDI compared to other sectors receiving FDI in the country such as mining and quarrying, manufacturing and processing, trading and business services, and miscellaneous activities which have comparatively very high and significantly far greater shares of the FDI. Results indicated that agricultural growth and agricultural FDI have high positive correlation that is statistically significant at the 5.0% ( $p > 0.05$ ) critical level, signifying that both agricultural growth and agricultural FDI increases together in the same direction.

## **CONCLUSION**

Although, the agricultural sector is the largest employer of labour and one of the highest contributors to GDP in Nigeria, it however, has the lowest inflow of FDI compared to other sectors receiving FDI in the country such as mining and quarrying, manufacturing and processing, trading and business services, and miscellaneous activities, which have comparatively very high and significantly, far greater shares of the FDI. It can be said that domestic investment was also responsible

for Nigeria's agricultural growth within the period under review, as foreign direct investments inflow to Nigeria will not on its own lead to sustainable agricultural growth, except it is combined with the right proportions of domestic investment. This provides an understanding that domestic investment should also be considered as a major factor that contributes to the growth of agricultural output in Nigeria. The results further showed that FDI in agriculture has the potential to grow the agricultural sector, since there is statistically significant positive correlation between FDI in agriculture and agricultural output, and as such, there should be increased activities to further liberalize the domestic economy in order to attract more FDI in this sector, if it is to make any impact at all.

## **RECOMMENDATIONS**

The findings in this study have important policy implications which are recommended as follows:

- i. FDI in agriculture that is focused on either improving existing technologies or management practices or introducing new ones in the agricultural sector should be sought for, to increase productivity and thus, output in the sector.
- ii. Furthermore, the government should position agriculture in a more commercial sense as a business venture as suggested by Kurtishi-Kastrati (2013), rather than a leisure activity and as such improve both foreign and domestic partnerships and investments, as well as output in the sector.
- iii. Nigeria being blessed with abundant human and natural resources, such as water and land which enhances the ability to produce primary agricultural products should embark on deliberate expansion of agricultural production, thus, reducing reliance on imports by carrying out capital projects that would see to the improvement of its fiscal (capital), physical and social infrastructures. This would help attract the much needed partnerships and investments in agriculture both from local and foreign

sources, thereby increasing agricultural output and as such, enhance economic growth.

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*A Trend Analysis of Agricultural FDI and Agricultural Growth in Nigeria (1981 – 2016)*

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