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An analysis of Foreign Direct Investment in Nigeria: The Fate of Nigeria's Agricultural Sector.

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Abstract

The study analysed the fate of the agricultural sector in relation to foreign direct investment (FDI) in Nigeria. Data for the study were obtained from the Central Bank of Nigeria's statistical bulletin from 1970 to 2007. Findings revealed that of the seven sectors into which FDI was classified, agricultural sector got the least average net flow of investment (₦553.6132), while manufacturing and processing sector had the highest mean net investment flow (₦28,267.00) as depicted in the Duncan Multiple Range Test. The Least Square Difference of the Post Hoc Test showed that mean difference in net FDI between agricultural sector and manufacturing and processing sector (₦-27,713.40), mining and quarrying sector (₦-25,754.30), and miscellaneous (₦-19,490.80) were significant at 0.01 level of probability. One-way ANOVA revealed that the difference in net flow of FDI to the sectors under study was significant at 0.01 level of probability. The relationship (0.879) between FDI to agricultural sector and agricultural Gross Domestic Product (GDP) was significant at 0.01 level of probability. It was concluded that net flow of FDI to Nigeria discriminates against the agricultural sector. Foreign countries should increase investment in Nigeria's agricultural sector so as to mitigate capital inadequate faced by key stakeholders of the sector and increase agricultural GDP. Also, efforts should be intensified by government and other stakeholders to make the sector more attractive to foreign investors.

***Keywords**: Agricultural sector, Agricultural Gross Domestic Product, Investment, Foreign Direct Investment, Nigeria.*

Introduction

Investment is the process of adding to capital (Arene and Okpukpara, 2006). Lack of capital has been implicated as the major sustenance of the vicious circle of poverty. This is due to its negative effect on production capacity. In developing countries, national income is low, hence savings and investment are low. Low investment translates to low capital stock, low productivity and low output as well as low income.

In terms of agricultural productivity, Arene and Okpukpara (2006) hold that massive application of capital to land in form of land reclamation and critical productive inputs improve its productivity. In Keynesian terminology, real investment refers to addition to capital (as a factor of production) which leads to increase in the levels of production and income (Jhingan, 2003). Thus, real investment includes new plant and equipment, construction of public works like dams, road, building, net foreign investment, inventories, and stocks and shares in new companies.

According to Jhingan (2003), investment could be induced or autonomous. Induced investment is profit or income motivated. On the other hand, autonomous investment is independent of the level of income. In reality, there are three major determinants of investment. These are the cost of capital asset, expected rate of return and the market rate of interest. These factors are embedded in Keynes' concept of marginal efficiency of capital (MEC). MEC expresses the highest rate of return from an additional unit of a capital asset or fund over its cost or opportunity cost.

From the foregoing, it is clear that the general drive behind any type of investment is return in one form or the other. It is in this light that this study views foreign investment in Nigeria. A rational foreign investor will be interested in a sector that has the highest MEC. Whatever the motive of the foreign investor is, the recipient economy could have its own interest which could be at variance with that of the investor. In an economy where agriculture, despite its neglect by the government, holds the key to sustenance, the preferred sector should be agriculture.

Investment transcends national boundaries in line with economic theory that capital will move from countries where it is abundant to countries where it is scarce. This pattern, according to Oyeranti (2003), will be informed by returns on new investment opportunities, which are considered where capital is limited, especially in developing countries. As suggested by Summers (2000), the resultant capital relocation is expected to boost investment and bring about enormous social and economic benefits to the recipient country.

Foreign direct investment, a major component of international capital flows, refers to investment by multinational companies with headquarters in developed countries. This investment ranges from transfer of funds to whole package of physical capital, techniques of production, managerial and marketing expertise, products, advertising and business practices for the maximization of global profits. The Organisation for Economic Cooperation and Development conceptualized FDI as net financing by an entity in a developed country with the objective of retaining a lasting interest in an entity resident in a developing country (Oyeranti, 2003). The implications of this definition are: one, FDI flows from developed country to developing countries; and two, the investor has a significant influence on the management of the enterprise.

There are three main determinants of FDI, namely firm-specific advantages, internalization advantages, and locational advantages. Akinkugbe (2003) articulates locational advantages into what is called the 'pull-factor'. The pull-factor examines the relationship between the host country's specific conditions and the inflow of investment. In this relationship, the MEC determines how much risk the investor can accommodate. Also, in the case of a sector that has mineral deposits, land, forestry and fisheries resources, investors usually move to them.

As part of the pull-factor theory, certain socio-economic and political factors determine available business opportunities. These factors relate to availability of natural resources, infrastructure, market size, human capital development, distance from major markets, labour cost, openness of the economy to international trade, fiscal and other non-tax incentives, etc. These factors, as shown in many literatures, place Nigerian agricultural sector in a relatively more advantageous position to attract sufficient foreign investment.

For the purpose of this study, Nigerian economy is classified into seven sectors in relation to net flow of foreign investment. The sectors are mining and quarrying, manufacturing and processing, agriculture, forestry and fishery, transport and communication, building and construction, trading and business service, and miscellaneous.

Arene and Okpukpara (2006) posit that the characteristics of a nation's natural resources influence the amount of her Gross Domestic Product (GDP). For Nigeria, oil and agricultural sectors constitute the major proportion of natural resources that contribute significantly to its economy. GDP is the total value of output resulting from all productive activities within the domestic economy irrespective of the ownership of these business activities. It is gross because it includes the amount allowed for depreciation or capital consumption. Therefore, agricultural GDP is the total value of the output of the agricultural sector within the country. In this study, agricultural GDP represents the value of output from key subsectors such as crop production, forestry and fisheries.

Some researchers have worked on various aspects of foreign investment in relation to Nigeria's economy (Fabayo, 2003; Ndukwe, 2003; Ajakaiye, 2003; Okuedo, 2003; and Okpe and Abu, 2009). But no one has determined the relationship between FDI to agricultural sector and the growth of the agricultural sector, neither has anyone demonstrated the discrimination of FDI against the agricultural sector.

Consequently, this study is designed to examine the sectoral allocation of foreign investment from 1970 to 2007 with the view to showing fairness to or discrimination against the agricultural sector; and to evaluate the growth of Nigeria's agricultural sector using agricultural GDP as a proxy.

It was hypothesized that there is significant difference in the net flow of foreign investment to the various sectors of Nigeria's economy; and that FDI has no significant relationship with Nigeria's agricultural sector growth. The *a priori* expectations of this are: the agricultural sector, owing to its strategic relevance to Nigeria's economy and its potential to attract foreign investment ought to have the highest mean net investment; the application of foreign investment available to the agricultural sector should have significant relationship with the growth of the sector.

Methodology

The study covers the entire Nigerian economy. Nigeria has total land area of 923,768 km^2, three-quarters of which are arable. It is located on the west coast of Africa and lies between latitude 4^oN and 14^oN and longitude 3^oE and 15^oE of the meridian. The country is bordered on the west by the Republic of Benin, on the north by Niger Republic, in the east by the Republics of Chad and Cameroun, and in the south by the Gulf of Guinea (Ajakaiye, 1993; Central Bank of Nigeria Statistical Bulletin, 2008). The country has a total population of 140,431,790 according to 2006 national population census (National Population Commission, 2009).

The period of the study spans from 1970 to 2007. The study utilized secondary data (net flow of foreign investment various sectors of Nigeria's economy and agricultural sector's proportion of GDP) which were obtained from the CBN Statistical Bulletin. Descriptive statistics were used to analyse the data for the study. One-way Analysis of Variance (ANOVA) was employed to test the difference in foreign investment among the sectors identified in this work. In this model, the sector was used as the factor while FDI was the dependent variable. The Duncan The Duncan Multiple Range Test of the Post Hoc Analysis was used to compute and arrange mean investment to the various sectors in increasing order. The Least Squared Difference (LSD) was used to determine the mean difference between agricultural sector and each of the other sectors. LSD was used because it compares the sector of interest (Sector I) with other sectors under study otherwise denoted as Sector I. Pearson Product Moment Correlation analysis was used to determine the relationship between agricultural FDI and agricultural GDP. The model is specified as follows:

$$r = \frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{\left[\left[n\Sigma x^2 - (\Sigma x)^2\right]\right]\left[\left[n\Sigma y^2 - (\Sigma y)^2\right]\right]}}$$

Where**,** r = Correlation coefficient x = net flow of foreign direct investment to agricultural sector **y =** agricultural GDP

Net FDI was used for the study. Net FDI is computed as the difference between paid-up capital and reserves and liabilities, or inflow less outflow of FDI. However, the former was used for this study. All the analyses were carried out with the aid of Statistical Package for Social Science Software (SPSS).

Results and Discussion

Sectoral Analysis of Foreign Direct Investment in Nigeria

Table 1 is the sectoral analysis of foreign direct investment (₦million) in Nigeria from 1970 to 2007. Findings revealed that the manufacturing and processing sector was the most highly favoured by the net flow of foreign investment. The minimum, maximum and mean of FDI to the sector were ₦224.80, ₦220,000.00 and ₦28,267.00 respectively. This result is in conformity with Fabayo (2003) that the manufacturing sector attracts more FDI than other sectors of the economy.

The minimum investment to mining and quarrying sector is ₦-810.00, the maximum was ₦132,000.00 and the mean was ₦26,308.00. These statistics place the sector as the second highest beneficiary of the FDI within the period under review. This was probably due to the fact the sector covers exploitation of rich mineral reserve of Nigeria as well as provides materials for the construction of roads and bridges. The pull-factor and the personal interest of the investor account largely for the high investment in this sector.

Miscellaneous sector got mean investments of ₦20,044.00, while trading and business service, building and construction, and transport and communication enjoyed average investment of ₦6,658.00, ₦1,968.00 and ₦1,088.70 respectively. Ndukwe (2003) attributed the communication sector's low share of FDI to grossly underdeveloped infrastructure and the tortuous road to liberalization in the sector. With particular reference to the service sector, Ajakaiye (2003) noted that total FDI to Nigeria shrank because foreign investors relocated from Nigeria between 1985 and 1992.

The agricultural sector, comprising crop production, forestry and fishery, received the least mean net foreign investment of ₦553.61. This shows that even foreign investment discriminates against Nigeria's agriculture, notwithstanding the strategic position of the sector to the economy. What this portends is that foreign investors are more interested in the sectors that are beneficial to them rather than the need to sustainably enhance the economy of their host country. This submission is based on the axiom that the sustainable growth of Nigeria's economy in terms of food security, poverty reduction and employment generation depend largely on the agricultural sector. Fabayo (2003) confirmed the discrimination of FDI against agricultural sector when he noted that the sector accounted for only 30 percent of the

total FDI stock in 1992. Balogun (2003) attested to low net agricultural FDI between 1970 and 2001. The main reason, according to Ajakaiye (2003), was the rudimentary production of Nigeria's agricultural sector.

TABLE 1: SECTORAL ANALYSIS OF FOREIGN DIRECT INVESTMENT IN NIGERIA, 1970-2007

Sectors	N	Minimum	Maximum	Mean
Mining and Quarrying	38	-810.00	132,000	26,308
Manufacturing and Processing	38	224.80	220,000	28,267
Agric, Forestry and Fishery	38	7.90	1,329.90	553.61
Transport and Communication	38	11.60	10,758.20	1,088.7
Building and Construction	38	13.80	12,030.20	1,968
Trading and Business Service	38	187.20	47,505.70	6,658
Miscellaneous	38	-23.70	129,000	20,044

Time Series Analysis of Agricultural GDP (₦ million)

Appendix 1 shows the time series data on agricultural sector from 1981 to 2007. From available data, agricultural sector GDP in Nigeria shows slow growth at a declining rate over time. In 1981, it was ₦84,428.50. The GDP grew by 53.51 percent to ₦129,605.80 in 1991. By 2001, Nigeria's agricultural GDP was ₦182,660.01, representing a growth rate of 40.94 percent, which is lower than the growth rate in the previous ten years. In 2007, agricultural GDP rose to ₦267,051.70, representing a growth rate of 46.20 percent This is in line with Matthew (2008)'s report on the declining productivity of Nigeria's agricultural sector, an indication of persistent neglect by government. In addition, Asogwa *et al.* (2007) reported that Nigerian farmers belong to the poorest segment of the society and so cannot save and invest in their agricultural enterprises. With a fast growing population, a declining growth rate of the agricultural sector is undesirable. This is because the well-being of the farmers is on the decline, a situation that can discourage production and result in food insecurity.

Difference in FDI among Key Sectors of Nigeria's Economy

The Duncan Multiple Range Test of the Post Hoc analysis in Table 2 confirms that the agricultural sector got the least mean net investment (₦553.6132) from abroad. While the manufacturing and processing sector got the highest mean investment

(₦28,267.00) from abroad within the period under review, mining and quarry had the second highest mean net investment (₦26,308.00).

TABLE 2: DUNCAN MULTIPLE RANGE TEST

Sector	N	Mean
Agric Forestry & Fishery	38	553.6132
Transport and Communication	38	1,088.70
Building and Construction	38	1,968.00
Trading and Business Service	38	6,658.00
Miscellaneous	38	20,044.00
Mining and Quarrying	38	26,308.00
Manufacturing and Processing	38	28,267.00

Table 3 presents the comparison of the proportions of FDI to the various sectors of Nigeria's economy. In the Least Square Difference (LSD) analysis, the dependent variable is the foreign investment, while the sectors collectively constitute the factor. Agricultural sector was represented by Sector I, while any other sector was represented as Sector J. Findings revealed that the mean difference between agricultural sector and any other sector under study is negative, confirming that agricultural sector has less mean net investment than the other sectors.

Specifically, the mean investments in manufacturing and processing, mining and quarrying, and miscellaneous exceeded that of the agricultural sector by 27,713.40, 25,754.30 and 19,490.80 respectively. These differences were significant at 0.01 level of probability. The mean investments in trading and business service, building and construction, and transport and communication also exceeded that of the agricultural sector by 6,104.35, 1,414.41 and 535.06 respectively. However, these latter differences were insignificant.

One-way Analysis of Variance (ANOVA) was used to determine the mean difference in FDI among key sectors of Nigeria's economy. As shown in Table 4, the sum of squares (SS) among the sectors (34,700,000,000,000.00) is less than the SS within sectors (190,300,000,000,000.00), implying that FDI varied within sector more than among sectors. The large variances indicate inconsistency which can negatively affect investment planning.

However, the mean square (MS) among sectors (5,784,000,000,000.00) is greater than the MS within sectors (734,800,000,000.00). The F-statistic (7.871) was

significant (0.000) at the 0.01level of probability. This implies that there is significant difference in FDI among key sectors of Nigeria's economy.

Table 3: LEAST SQUARE DIFFERENCE FOR FOREIGN INVESTMENT IN NIGERIA

(I) Sector	(J) Sector	Mean Difference (I) – (J)	Std. Error	Sig.
Agric Forestry & Fishery	Mining and Quarrying	-25,754.30*	6,218.67	0.000
	Manufacturing and Processing	-27,713.40*	6,218.67	0.000
	Transport and Communication	-535.05789	6,218.67	0.932
	Building and Construction	-1,414.41053	6,218.67	0.820
	Trading and Business Service	-6,104.35263	6,218.67	0.327
	Miscellaneous	-19,490.80*	6,218.67	0.002

*. The mean difference is significant at the 0.01 level of probability.
Dependent variable: foreign investment

TABLE 4: ONE-WAY ANOVA OF FOREIGN DIRECT INVESTMENT IN NIGERIA

Model	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34,700,000,000,000.00	6	5,784,000,000,000.00	7.871	0.000
Within Groups	190,300,000,000,000.00	259	734,800,000,000.00		
Total	225,000,000,000,000.00	265			

TABLE 5: RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENT AND AGRICULTURAL GDP

Model	Value
Pearson Correlation Coefficient	0.879**
Sig. (2-tailed)	0.000
N	27

** Correlation is significant at 0.01 level of probability (2-tailed)

Relationship between Foreign Direct Investment and Agricultural GDP

The result of the correlation analysis between foreign direct investment and agricultural GDP is presented in Table 5. Result shows that the correlation coefficient is positive and strong (0.879). This implies that at agricultural GDP increases as FDI increases. Specifically, agricultural GDP increases by 87.9 percent with 1 unit increase in FDI. This relationship is significant at 0.01 level of probability. Thus, the alternative hypothesis is accepted, implying that there is significant relationship between foreign direct investment and agricultural GDP. This finding conforms with Lensik and Morrisey (2001) in Aremu (2003) that FDI has positive impact on the economies of developing countries. It falls within Oyeranti (2003)'s coefficient of 0.5-1.3 between FDI and domestic investment in developing countries between 1970 and 1989. According to Fabayo (2003), both developed and developing countries attract FDI to achieve rapid growth and increased rate of investment.

Conclusion and Recommendations

From 1970 to 2007, agricultural sector got the least average foreign direct investment while the manufacturing and processing sector topped the chart among the sectors as shown by DMRT and LSD of the Post Hoc test. In other words, agricultural sector is the least preferred of the sectors under FDI.

The mean investments in three sectors – manufacturing and processing, mining and quarrying, and miscellaneous – were significantly greater than that of the agricultural sector. The mean investments in trading and business service, building and construction, and transport and communication sectors were also greater than that of the agricultural sector but insignificantly.

Agricultural GDP showed slow growth but at a declining rate. In a country with a fast growing population, this trend and relatively low foreign investment portend negative implications for the agricultural sector and the entire economy.

It is interesting to note that there is a strong positive relationship between agricultural sector's share of foreign direct investment and agricultural GDP, implying that increase in agricultural sector's share of FDI is associated with growth in agricultural GDP.

Based on the findings from the study, the following recommendations are put forward:

- FDI should focus more on Nigeria's agricultural sector because of the strategic relevance of the sector to the nation's economy. This will mitigate capital (fund) constraints faced by key actors in the agricultural subsector of Nigeria's economy;

- Concerted efforts should be made by the government, stakeholders and NGOs to enhance the growth of agricultural GDP. This will make the sector attractive to foreign investors, encourage production and generate employment especially for the rural populace.

Reference

Ajakaiye, D.O. (2003). Foreign Direct Investment in Nigeria's services sector. In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp. 227 – 236.

Akinkugbe, O. (2003). Flow of Foreign Direct Investment in Developing Countries: The openness hypothesis and policy implications. *The International Trade Journal, 7:655 – 672.*

Arene, C.J. and Okpukpara, B.C. (2006). *Economics of Agricultural Production, Resource Use and Development*, Prize Publishers, Nsukka, Nigeria.

Asogwa, B.C., Umeh, J.C. and Ater, P.I. (2007). Technical efficiency analysis of Nigerian cassava farmers: A guide for food security policy. In: Haruna, U., Jibril, S.A., Mancha, Y.P. and Nasiru, M. (eds). Consolidation of Growth and Development of Agricultural Sector. *Proceedings of the 9th Annual National Conference of Nigerian Association of Agricultural Economists*, held at Abubakar Tafawa Balewa University, Bauchi, Bauchi State, November 5-8, 2007. Pp 2 – 10.

Balogun, E.D. (2003). Foreign direct investment in Nigeria's agricultural sector: performance and problems, In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp. 193 – 214.

Central Bank of Nigeria (2008). Statistical Bulletin. Central Bank of Nigeria, Abuja, Nigeria.

Fabayo, J. (2003). Foreign Direct Investment in Nigeria's manufacturing sector. In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp. 177 – 192.

Jhingan, M.L. (2003). *Advanced Economic Theory.*12th ed. Vrinda Publications (P) Ltd., Delhi, India.

Matthew, A. (2008). The Impact of Public and Direct Sector Investment on Agricultural Productivity in Nigeria. In: *Indigenous Knowledge for Sustainable Development*. Proceedings of the 4th Annual International Conference of Nigeria Society of

Indigenous Knowledge and Development, Held of Kogi State University, Anyigba, Kogi State, November 5 – 8, 2008. Pp 263-273.

Ndukwe, E.C. (2003). Foreign Direct Investment in Nigeria's communication sector. In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp. 215 – 226.

Okpe,I.J. and Abu, G.A. (2009). Foreign Direct Investment and Poverty in Nigeria (1975 – 2003). *Journal of Social Science*, 19(3): 205 – 211.

Okuedo, O.E. (2003). Foreign Direct Investment in Nigeria's solid mineral sector. In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp. 237 – 268.

Oyeranti, A.O. (2003). Foreign Direct Investment: Conceptual and Theoretical issues. In: Nnana, O.J., Okafor, C.M. and Odoko, F.O. (eds), *Foreign Direct Investment in Nigeria.* Proceedings of the 12th Annual Conference of the Regional Research Units of the Central Bank of Nigeria, held at Hamdala Hotel, Kaduna, Kaduna State, September 1 – 5, 2003. Pp 9 – 38.

Summers, L. (2000). International Financial Crises: Causes, Prevention and Cures. *American Economic Review, Papers and Proceedings*, 90:1 – 16.

APPENDIX 1: AGRICULTURAL GDP (NMILLION) Source: CBN, 2008

Year	Agric GDP	Year	Agric GDP	Year	Agric GDP
1981	84428.5	1992	132699.2	2003	203012.6
1982	86494.2	1993	135185.2	2004	216208.5
1983	85283.6	1994	138753.6	2005	231463.6
1984	80978.7	1995	143706.3	2006	248599
1985	96783.8	1996	149512	2007	267051.7
1986	106676.3	1997	155934.8		
1987	102759.7	1998	162248.8		
1988	113497.7	1999	170813.9		
1989	119486.2	2000	175876.6		
1990	124674.4	2001	182660		
1991	129605.8	2002	190369.1		