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IMPACT OF FOREIGN DIRECT INVESTMENT ON DISAGGREGATED AGRICULTURAL SECTOR IN NIGERIA

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Abstract: Foreign direct investment is usually thought to have the responsibility of sustaining the agricultural sector when invested in, and it tends to promote growth and development. From 1981 to 2019, this study looked at the impact of foreign direct investment on Nigeria's disaggregated agricultural sector. The study adopted ARDL model to analyze the data. The variables were found to be stationary using an augmented Dickey-Fuller test. The ARDL bound test was used to examine the long-term relationship between the variables. It was discovered that foreign direct investment, foreign portfolio investment, credit to the private sector, net export, inflation rate, money supply, and rainfall in the agricultural sector of Nigeria have a positive and significant impact on crop production, livestock production, forestry production, and fishery production. The paper concludes with a policy recommendation that the government should create a stable and conducive environment capable of supporting the agricultural sector's growth potential and the flow of international investment, and that the government should also prioritize the agricultural sector's development by increasing government budgetary allocation to the sector.

Keywords: FDI, Crop, Livestock, Fishery, Forestry and Ardl Model

Introduction

Since the beginning of time, humans' primary needs have been food and shelter. Agriculture has long been the backbone of developing economies, which Nigeria is equally inclusive of, and the current rise in the population has necessitated substantial investment in the agricultural sector to ascertain food security. Through the attraction of foreign investments, the latest trend of integration and globalization has expanded mutual cooperation among nations around the world (Akinwale, Adekunle &Obagunwa, 2018). On the other hand, foreign direct investment is a critical component of a country's economic development and prosperity. According to Caves (1996), the notion that FDI has multiple positive benefits is the rationale for increasing efforts to attract more FDI. According to a purported overview description of FDI in a nation other than the investors' home country, foreign direct investment denotes net inflows of investment to gain a substantial managerial stake (10%) at most in voting shares in a firm operating in a nation other than the investors' home country. The balance of payments indicates that it is the sum of equity capital, reinvestment of equity, additional long-term capital, and short-term capital. It frequently necessitates managerial engagement, joint partnerships, and technology and skill transfer. The two types of FDI that result in a net FDI inflow (positive or negative) and a "stock of foreign direct investment," which is the overall sum of FDI for a given period, are inner foreign direct investment and offshore foreign direct investment. Agriculture, on the other hand, is expected to be one of the main driving forces behind Africa's economic revival, aided by an increasing interest in the continent's natural resources. Sub-Saharan Africa is home to more than 60% of the world's accessible

and unexploited cropland as of 2019. Agriculture accounts for roughly 30% of Nigeria's GDP and over 90% of its jobs. On the other hand, small-scale farmers with less than two hectares under crop account for roughly 90% of agricultural production. These circumstances pose enormous opportunities for good, potentially putting an end to the era of treating agriculture as a development program rather than an enterprise (Andrew, 2015).

There is universal unanimity on Nigeria's agricultural potential. Regardless of the fact that oil revenues account for the majority of government earnings, Nigeria's economy is still primarily agrarian, with agriculture being the largest sector and employer of labour. With a total land area of 910,768 square kilometres out of 923,768 square kilometres, Nigeria has a total of 84 million hectares of arable land, of which 40% is under cultivation (This Day Newspaper, 2016). Nigeria's climate and landscape are ideal for agriculture and breeding from north to south, west to east. Increased agricultural production and high crop yields are required for food security, making farming systems infinitesimally vulnerable to natural disasters. In order for agriculture to be more successful in creating a sustained higher economic growth path and decreasing poverty in Nigeria, a policy structure must be rooted in a favourable socio-political climate, appropriate governance, and good macroeconomic rudiments (Adetiloye, 2013).

Nigeria is considered a developing economy and it currently receives the most foreign direct investment (FDI) in Africa. The inflow of FDI to Nigeria grew during the last decade, growing from $1.14 billion in 2001 to 2.1 billion in 2004, according to the United Nations Conference on Trade and Development's (UNCTAD) 2020 World Investment Report. Due to the consequences of austerity measures, FDI inflows to Nigeria reached $33 billion in 2019, down 48.5 per cent from the previous year ($6.4 billion in 2018). The country's overall stock of FDI was reported to be 98.6 billion in 2019, ranking it third in Africa and the world's nineteenth largest recipient of FDI, respectively.

Agriculture's potential position in economic development is to minimize poverty and stimulate growth in countries with agricultural economies. A growing population necessitates agriculture expansion that is consistent with meeting food demand. A change in consumption patterns as a result of that per capita income necessitates a higher protein-rich diet. Agriculture's transformation from traditional to modern farming methods is dependent on sufficient inputs such as certified seeds, balanced fertilizer usage, modernization, and agricultural finance, all of which can be financed by foreign direct investment. However, agricultural finance, especially through foreign direct investment, plays a critical role in improving disaggregated agricultural productivity in developing countries, particularly in Nigeria, which has Africa's largest population (Akpaeti, 2015). From the submission above, this study focuses on the effect of FDI on Nigeria's disaggregated agricultural sector from 1981 to 2019. And it attempts to answer the following empirical questions; What is the impact of foreign direct investment on crop production, livestock, forestry, and fisheries in the agricultural sector in Nigeria?

Literature Review

According to Sodersten (1970), foreign direct investment is defined as an investment in a foreign country in which the investing party (corporate firm) retains authority. According to Ammer and Ammer (2012), foreign private investment is the ownership of assets in foreign countries in the form of securities, title to land, building requirements, bank deposits, and so on, by private individuals, business institutions, or governments.

Likewise, Benham (1978) split private investment into long-term capital and medium-or short-term capital; the latter is primarily made up of export credit, which is repaid at a rate that is roughly equivalent to new lending over time. Long-term capital was further divided into direct and portfolio investments, according to him. Direct investment is mostly made by the expansion of a company's operations. Even when a portfolio investment is made up of stock exchange securities, it is done through overseas branches or subsidiaries. The nature of direct investment is that foreign investors have access, and when this is the case, investments are known as direct (rather than portfolio) investments.

Table 1: Classification of the Agricultural Sector

S/N	Sector	Sub- Sector	Economic Activity
1	**Agriculture**	Crop	Crop Production
2		Animal	Livestock
3		Forestry	Forestry
4		Fishing	Fishing

Source: Researcher's Computation, 2021

A few empirical studies on the influence of FDI on Nigeria's disaggregated agricultural sector have been conducted. Some were based in Nigeria, while others were based in other countries. The following are some of their main findings:

According to Ojo (2013), FDI can help complement domestic relationships and encourage local people to participate in entrepreneurship by providing them with capital. He went on to say that the main advantage of FDI is the accompanying package deals of strategies and management skills, which can be expensive, challenging, or even impossible to acquire in other ways. In general, the less developed a country is, the less likely it is to use patents, technical guidance, and contract management aid without purchasing the whole kit. The above stance supported Penrose's (1961) view that there are two types of benefits realized from foreign investment: additional capital supply, on the one hand, and new development and management methods, entrepreneur skills, new goods, new ideas, and so on. The special benefit of FDI is mainly found in the second group.

Abu, Wafure, and Auta (2012) investigated the determinants of FDI in Nigeria. A multiple regression model and OLS were adopted in the analysis. FDI, GDP, deregulation, political regime, trade openness, inflation, and exchange rate variables were used. It was found that the OLS was effective to capture the problem.

Selvanathan (2016) used the multivariate VAR and ECM with variables GDP, FDI, and domestic investment to examine the nexus between FDI and growth in the economy. It was found that FDI and economic growth have a bi-directional causal relationship, while FDI has a single-directional causal relationship with FDI and economic growth.

Alvarado Iniguez andPonce(2017) examine the effect of FDI on economic growth, using Nineteen Latin American countries. Panel data model was used, the researchers observed empirical evidence that influence of FDI on economic growth is not statistically significant in an aggregate form, when the level of development of the countries in the study area is taken into consideration, therefore, the outcome varies. That is, in high income countries, FDI has a positive and significant impact on goods, while in middle income countries, the impact was unequal and not significant. However, the effect was negative and significant in lower income countries, therefore, the study suggests that FDI is not a satisfactory mechanism for accelerating economic growth in Latin America.

Theoretical Framework and Methodology

The integrative school of thought, as well as the backwardness hypothesis, are the models' underpinning theories.

The Integrative School of thought. The integrative school aims to change categorical thinking about FDI by examining its benefits from both the host and investor perspectives. It incorporates the principles of dependence and modernization that are important to current FDI research. Milton had created the integrative school concept to account for both the causes of FDI and how it was treated by host countries (2004).

The Hypothesis of Backwardness. Alexander Gerschenkron, a Russian economist, was the main proponent of the backwardness hypothesis. He argued that developing countries can benefit from their initial lack of development by emulating developed countries' more advanced technology and skills and attracting capital investment from them, including foreign direct investment. He believed that by

doing so, they would be able to skip some of the stages of economic development and rise faster than developing countries (Susan, 1999).

This study used the Autoregressive Distributed Lag Model (ARDL) method established by Pesaran and Pesaran (1997), Pesaran and Smith (1998), and Pesaran, Shin & Smith (2001) to explore the impact of components of FDI on Nigeria's disaggregated agricultural sector.

Pesaran (1997), the amplified Autoregressive Distributed Lag ARDL $\left(q, q^1, q^2 \ldots q^k\right)$. Thus:

$$\delta(L,p)\, y_t = \delta_0 + \sum_{j=1}^{k} \beta_i (L, q_i)\, x_{it} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.1)$$

Where δ_0 is a constant, y_t denotes the dependent variable, L is a lag operator, $x_{i,t}$ is the vector of repressors (where j= 1, 2,…, k) and ε_t is the disturbance term. In the long-run, we have

$$y_t = y_{t-1} = \ldots = y_{t-q} \text{ and } x_{it} = x_{it-1} = \ldots x_{it-q} \ldots\ldots\ldots\ldots\ldots\ldots (3.2)$$

Thus, x_{it-q} is the q^{th} lag of i^{th} variable data.

The equation for the long run is as follows:

$$y_t = \alpha + \sum_{i=1}^{k} \beta_i x_{it} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.3)$$

Specifications for the Model

In the theoretical model for aggregate real production, it was hypothesized that agricultural output will respond to some factors. Aside from that, agricultural production is largely dependent on irrigation, making the sector highly vulnerable to weather and other natural events. Credit to the Private Sector was added as a control variable due to the value of infrastructure and finance in agriculture. The model specifies output in this sector as a function of money supply, inflation, interest rate, net export (NE), and rainfall. (Mordi et al., 2013; Yaqub, 2010).

The agricultural production equation is written in functional form as:

$$AgricRGDP = f(FDI, REMIT, MS, INF, INT, NE, RF, CPS, EPI) \ldots\ldots\ldots\ldots\ldots\ldots (3.4)$$

We can now break down equation 3.4 into the sub-sectors:

The Crop sub-sector equation is given as

$$GROP_t = \alpha_0 + \alpha_1 FDI_t + \alpha_2 MS_t + \alpha_3 INF_t + \alpha_4 INT_t + \alpha_5 NE_t + \alpha_6 CPS_t + \alpha_7 EPI_t + \mu_{it} \ldots\ldots (3.5)$$

The Livestock sub-sector equation is given as

$$LIVESTK_t = \beta_0 + \beta_1 FDI_t + \beta_2 MS_t + \beta_3 INF_t + \beta_4 INT_t + \beta_5 NE_t + \beta_6 CPS_t + \beta_7 EPI_t + \mu_{2t} \ldots\ldots (3.6)$$

The Forestry sub-sector equation is given as

$$FOREST_t = \phi_0 + \phi_1 FDI_t + \phi_2 MS_t + \phi_3 INF_t + \phi_4 INT_t + \phi_5 NE_t + \phi_6 CPS_t + \phi_7 EPI_t + \mu_{3t} \ldots\ldots (3.7)$$

The Fishing sub-sector equation is given as

$$FISH_t = \lambda_0 + \lambda_1 FDI_t + \lambda_2 MS_t + \lambda_3 INF_t + \lambda_4 INT_t + \lambda_5 NE_t + \lambda_6 CPS_t + \lambda_7 EPI_t + \mu_{4t} \ldots\ldots (3.8)$$

Where, $CROP_t$ = Cropping contribution to Agricultural sector at time t, $LIVESTK_t$ = Livestock contribution to Agricultural sector at time t, $FOREST_t$ = Forestry contribution to Agricultural sector at time t, $FISH_t$ = Fishing contribution to Agricultural sector at time t, FDI_t = Foreign Direct Investment at time t, MS_t = Money supply at time t, INF_t = Inflation rate at time t, NE_t = Net export at time t, RF_t = Rainfall at time t, CPS_t = Credit to Private sector at time t and EPI_t = Foreign Portfolio

Investment. The majority of the data used in this study came from secondary sources. Relevant information will be gathered from the Central Bank of Nigeria, which is the country's apex bank, as well as data from the World Bank.

Table 2: Descriptive Statistics for CROP, LIVESTOCK, FORESTRY and FISHERY

	Mean	Median	Max.	Min.	Std. Dev.	Jarque-Bera	Prob.	Obs
LOGCROP	12.72991	12.60937	13.22409	12.24529	0.329209	3.837547	0.146787	39
LOGLIVESTK	11.80093	11.74310	12.10941	11.53328	0.175512	3.527273	0.171420	39
LOGFOREST	11.00548	10.94484	11.26669	10.82806	0.135077	4.829037	0.089410	39
LOGFISH	11.14555	11.12466	11.55473	10.60905	0.280555	1.936914	0.379668	39
LOGRF	2.808721	2.672098	3.110590	2.285557	0.303722	5.006517	0.081818	39
LOGCPS	11.75316	11.72458	13.45185	9.932983	1.194469	3.208056	0.201085	39
LOGMS	11.90054	11.94372	13.53501	10.16050	1.142469	3.259308	0.195997	39
NE	31.66273	8.372218	351.8886	-481.5409	164.8754	2.946014	0.229235	39
INF	20.10410	13.00000	72.73000	5.400000	16.48055	19.80701	0.000050	39
LOGFDI	10.73447	11.06446	11.95012	8.422097	1.185833	5.127964	0.076998	39
LOGFPI	6.227496	10.48046	12.23554	-9.765473	7.296169	6.276547	0.043358	34***

Source: Researcher's Computation Obtained Data from 2019 CBN Annual Statistical Bulletin

From table 2, the variables used include inflation rate (INF), rainfall (RF) money supply (MS), credit to private sector (CPS), net export (NE), foreign direct investment (FDI), foreign portfolio investment (FPI), cropping contribution to agricultural sector (CROP), livestock contribution to agricultural sector (LIVESTK), forestry contribution to agricultural sector (FOREST) and fishery contribution to agricultural sector (FISH) were available from 1981 to 2019 except foreign portfolio investment variable which was not available from 1981 to 1985.

The table 2 provides summary statistics for these variables, including averages and medians, as well as maximum and minimum values for the time. There appears to be evidence of large differences in the minimum and maximum values for the variables in question. During the time period under inquiry, the variables are volatile. The descriptive result reveals that foreign direct investment was 11.95% at maximum while the minimum was (8.42%), this variability is considerably a bit high. However, the foreign portfolio investment was 12.23% while minimum was -9.76%, same vein the variability was too high. The descriptive statistics result also indicates that the highest net export given was 351.88 and the least was -481.87. Rainfall peak was 3.11 mm per year while the minimum was 2.28mm per year. And for the cropping production, livestock, forestry and fishery at maximum were 13.22%, 12.10%, 11.26%, 11.55% and minimum were 12.24%, 11.53%, 10.82, 10.60% respectively.

A test was carried out in order to establish if the study adheres to normalcy condition. Also, the Jacque Bera normality test was used to juxtapose between the normal and non-normal distribution. If the probability value is higher than 5%, the null hypothesis of the normal distribution is accepted; or else, it is rejected. Table 2 shows that FDI is normally distributed as a result of the acceptance rejection criterion since all probabilities are higher than the 5% level of significance.

Table 3: Augmented Dickey Fuller, Unit Root Test Result

Variables	ADF @ Level	ADF @ FirstDifference	Order of Integration	Remark
LOGFPI	-3.2108	-6.914270	I(1)	Reject H_o
INF	-3.7146	-5.546404	I(1)	Reject H_o
LOGCPS	-3.0904	-4.180344	I(1)	Reject H_o
LOGCROP	-2.2125	-5.675825	I(1)	Reject H_o
LOGFDI	-0.0056	-9.257845	I(1)	Reject H_o
LOGFISH	0.0510	-4.201034	I(1)	Reject H_o
LOGFOREST	0.9897	-5.996908	I(1)	Reject H_o
LOGLIVESTK	1.2446	-4.110941	I(1)	Reject H_o

LOGMS	-0.6296	-3.425732	I(1)	Reject H_o
LOGRF	-1.2653	-7.233869	I(1)	Reject H_o
NE	-5.5128	-9.799012	I(0)	Reject H_o

Source: Researchers Estimates

Note: 5% Critical value at level and 1st Difference = -2.9484 and -2.9511

Source: Author's Computation, 2021

Table 3 above shows that the ADF reported foreign portfolio investment (PFI), inflation (INF), credit to private sector (CPS), crop production (CROP), foreign direct investment (FDI), fishery (FISH), forestry (FOREST), livestock (LIVESTK), money supply (MS), rainfall (RF) were found to be at first difference except net export which its stationarity is at level as their Augmented Dickey Fuller statistics were statistically significant at 5% while tested at first difference. As a result, their seasonal variation has been adjusted, and they are now suitable for regression.

Table 4: ARDL Co-Integration Test

LOS	CROP EQN		LIVESTOCK EQN		FORESTRY EQN		FISHERY EQN	
	I(0)	*I(1)*	*I(0)*	*I(1)*	*I(0)*	*I(1)*	*I(0)*	*I(1)*
10%	1.92	2.89	1.92	2.89	1.92	2.89	1.92	2.89
5%	2.17	3.21	2.17	3.21	2.17	3.21	2.17	3.21
2.5%	2.43	3.51	2.43	3.51	2.43	3.51	2.43	3.51
1%	2.73	3.9	2.73	3.90	2.73	3.90	2.73	3.90
F. Stat	7.3876		10.2688		8.7058		27.9139	
D.F	7		7		7		7	

Source: Researcher' Computation with Data Extracted from CBN 2019

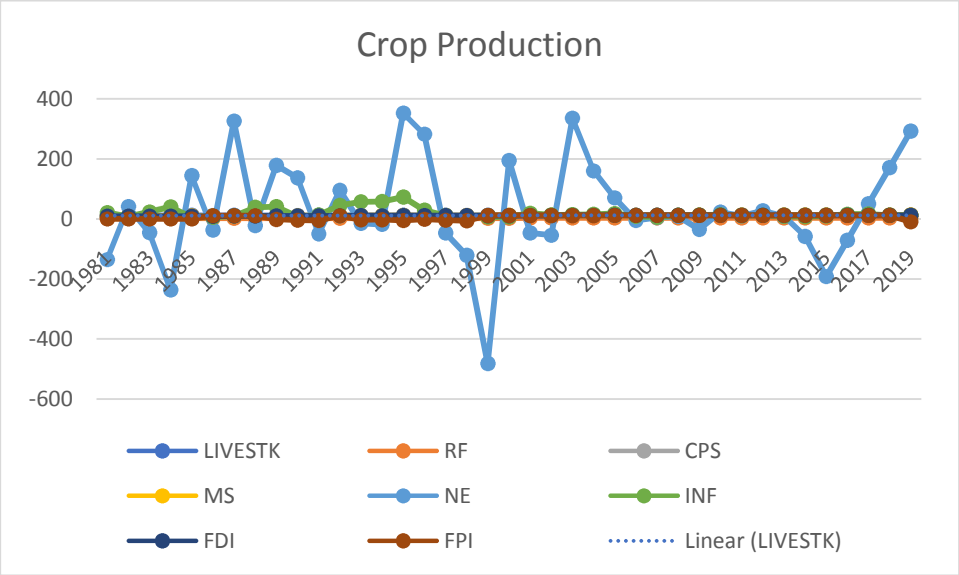
Table 4 above shows there is a long run relationship among the variables of the model. Decision rule: we compare the F-stat. to the critical values at both I(0) and I(1) bounds. When the f-stat. (7.3876), (10.2688), (8.7058) and (27.9139) are greater than bound critical values I(0) at all the level of significance i.e. 1%. 2.5%, 5% and 10% levels; we can say here that co-integration exists among the variable. Since the f-stat. (7.3876), (10.2688), (8.7058) and (27.9139) are greater than both lower bound and upper bound the critical value at I(0) or I(1), this confirms the presence of co-integration.

Table 5: ARDL Model Estimate Result for CROP PRODUCTION

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOGCROP(-1)	0.309050	0.087709	3.523574	0.0018
LOGRF	0.028444	0.030945	0.919174	0.3675
LOGRF(-1)	0.236359	0.037220	6.350249	0.0000
LOGCPS	0.063858	0.075123	0.850056	0.4041
LOGMS	-0.101582	0.097540	-1.041438	0.3085
LOGMS(-1)	0.191230	0.084137	2.272845	0.0327
NE	-3.04E-05	2.44E-05	-1.243102	0.2264
INF	0.000498	0.000246	2.022573	0.0549
LOGFDI	-0.021909	0.013656	-1.604343	0.1223
LOGFPI	-0.001255	0.000632	-1.987872	0.0589
C	6.502429	0.839087	7.749408	0.0000
R-squared	0.997455			
F-statistic	901.3156			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	2.058858			

Source: Author's Computation

Trend Response to Crop Production Under Review



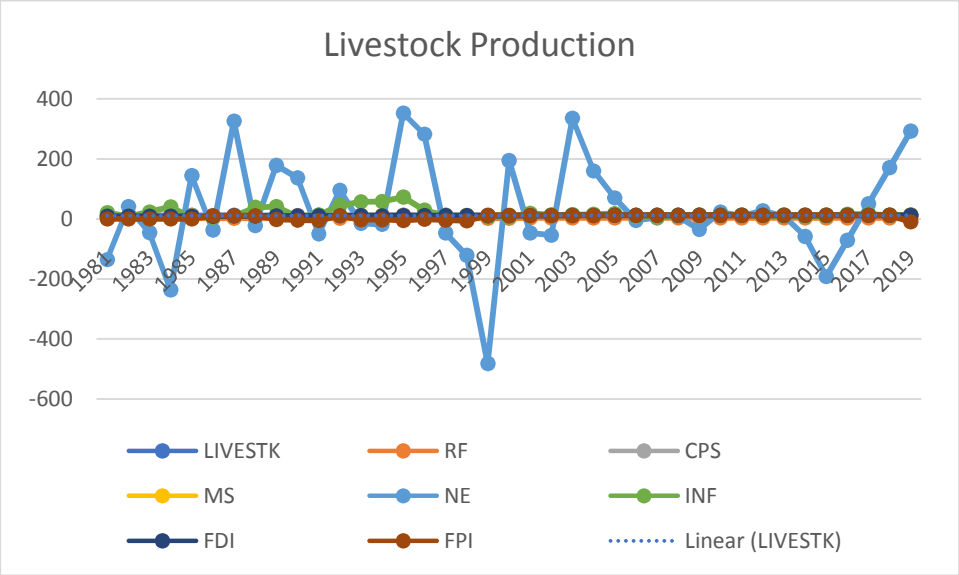
As can be seen from above graph, that crop production was inconsistent, at some point from 1981 to 2019. More specifically, in 1982 the trend was below average, also in 1987 to 1988, was above average point, the same in 1999 to 2000 the trend was below the average, also such equally occurred in 2003 and as well 2015 to 2019.

Table 6: ARDL Model Estimate Result for LIVESTOCK PRODUCTION

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOGLIVESTK(-1)	0.896948	0.069179	12.96560	0.0000
LOGRF	0.019401	0.011707	1.657201	0.1100
LOGCPS	0.054402	0.036124	1.506002	0.1446
LOGMS	-0.045098	0.036311	-1.241979	0.2258
NE	8.34E-06	1.09E-05	0.768786	0.4492
INF	-5.56E-08	0.000112	-0.000498	0.9996
LOGFDI	0.004473	0.009444	0.473607	0.6399
LOGFPI	0.000123	0.000305	0.402521	0.6907
C	1.020702	0.709960	1.437688	0.1629
R-squared	0.997823			
F-statistic	1432.389			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	1.537570			

Source: Author's Computation

Trend Response to Forestry Production Under Review



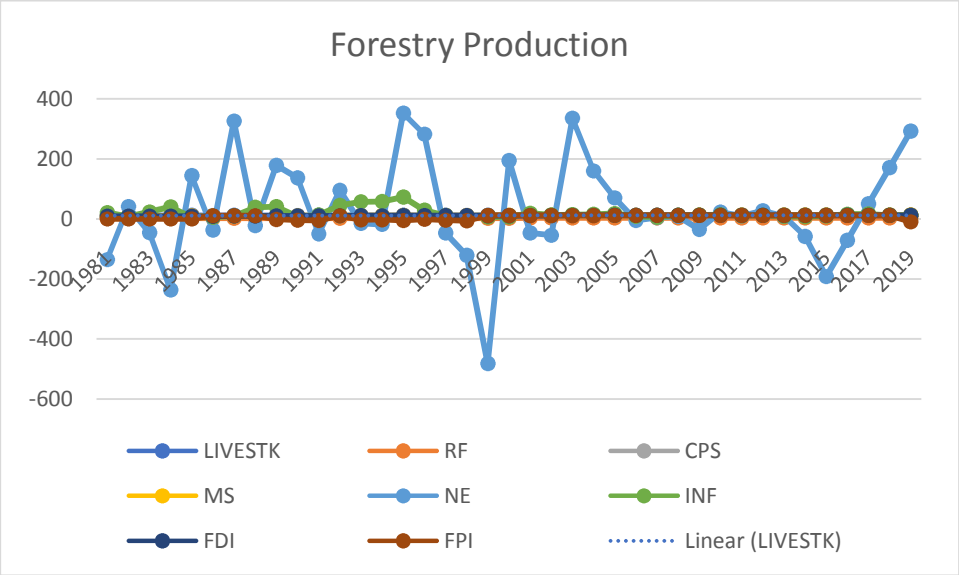
Above graph some level of variability, livestock production fluctuated steadily over the period under review, the graph trend was at some below average and the same time above trendline, especially in the year 1999, where we have highest below trendline and 2017 to 2019 where there was above trendline. This may be owing to contribution of other variables in the analysis.

Table 7: ARDL Model Estimate Result for FORESTRY PRODUCTION

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOGFOREST(-1)	0.545084	0.093344	5.839511	0.0000
LOGRF	-0.015148	0.029709	-0.509891	0.6154
LOGCPS	0.193987	0.083241	2.330421	0.0298
LOGCPS(-1)	-0.088888	0.049831	-1.783788	0.0889
LOGMS	0.027557	0.085813	0.321127	0.7513
NE	4.72E-05	1.91E-05	2.473282	0.0220
NE(-1)	3.34E-05	2.04E-05	1.636586	0.1166
INF	-0.000189	0.000213	-0.887925	0.3846
LOGFDI	-0.045805	0.014860	-5.774219	0.0000
LOGFPI	0.000718	0.000536	1.340736	0.1943
LOGFPI(-1)	-0.001323	0.000870	-1.520471	0.1433
C	4.412102	0.952518	4.632040	0.0001
R-squared	0.992655			
F-statistic	258.0089			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	2.051837			

Source: Author's Computation

Trend Response to Fishery Production Under Review



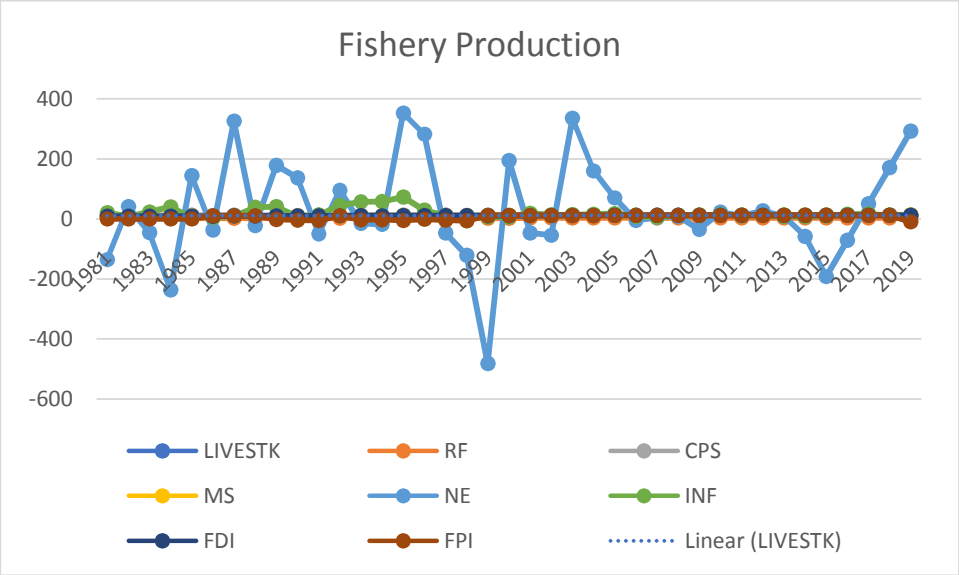
Forestry production experience some kind of fluctuation over the period under review, in which during 1987, 1999, 2003 to 2005, and also 2016 to 2018. These periods experience a very rigorous variability. We want to suggest that this may due to other variables such as, rainfall, credit to private sector, money supply, net export, foreign direct investment and as well foreign portfolio investment, during this period.

Table 8: ARDL Model Estimate Result for FISHERY PRODUCTION

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOGFISH(-1)	0.683567	0.117857	5.799993	0.0000
LOGRF	0.193585	0.060164	3.217635	0.0038
LOGCPS	-0.236493	0.180873	-1.307508	0.2040
LOGCPS(-1)	0.655692	0.194596	3.369504	0.0026
LOGMS	-0.087050	0.262402	-0.331744	0.7431
LOGMS(-1)	-0.377631	0.291012	-1.297648	0.2073
NE	-5.78E-05	5.50E-05	-1.051034	0.3042
INF	-1.35E-06	0.000626	-0.002161	0.9983
LOGFDI	0.006746	0.036311	1.838173	0.0790
LOGFPI	-0.001408	0.001567	-0.898813	0.3781
C	2.918184	0.921338	3.167334	0.0043
R-squared	0.981672			
F-statistic	123.1929			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	2.020639			

Source: Author's Computation

Trend Response to Livestock Production Under Review



Graph above gives us tend response and the behavious of the variables used during period under review. There was steadily fluctuation of the variables in the graph. fishery production trendline was at some the trendline below the average and as well above the average, of course it may be due to the impact of other variables the led to this. However, the most obvious of them all was 1999 which gives the highest mark where trendline was below the average, also 2018.

Presentation and Analysis of Result

Based on the above ARDL estimate results, we now attempt to provide an answer to the questions earlier stipulated in the previous section

Research Question One: What is the impact of foreign direct investment on crop production of the agricultural sector in Nigeria?

Table 5 shows that, the coefficient of foreign direct investment is negative and statistically significant at 5%, implying that foreign direct investment has a negative and statistically significant impact on crop production. A 1% increase in foreign direct investment resulted in a 0.021 percent decline in crop production. As a result, a rise in foreign direct investment will eventually result in an increase in crop yield. However, the findings revealed that, in the short run, foreign direct investment has a beneficial but small impact on crop production.

Research Question Two: What is the impact of foreign direct investment on livestock of the agricultural sector in Nigeria?

As can be seen from Table 6 that the coefficient of FDI is positive value and statistically significant at 5%, implying that foreign direct investment has a positive and statistically significant impact on livestock output in the agricultural sector. That is to say, a unit increase in FDI resulted in a 0.004 percent rise in livestock production. Furthermore, foreign portfolio investment has a positive coefficient of 0.0001 but statistically significant at 5%. As a result, a rise in foreign direct investment and foreign portfolio investment will eventually result in an increase in livestock production. However, the findings revealed that, in the short run, foreign direct investment and foreign portfolio investment have a positive and minor impact on livestock output in the agricultural sector.

Research Question Three: What is the impact of foreign direct investment on forestry of the agricultural sector in Nigeria?

Table 7 shows that, the coefficient of foreign direct investment is negative and statistically significant at 5%, implying that foreign direct investment has a negative and significant impact on forestry production in the agricultural sector. As a result, a 1% increase in foreign direct investment will to

0.045 decline of forestry production and also foreign portfolio investment is positive and statistically significant at 5%. The implication of this is that, an increase in foreign direct investment and foreign portfolio investment will lead to an increase and fall in forestry production in the agriculture sector, respectively. However, the findings revealed that, in the short run, foreign direct investment and foreign portfolio investment had a negative and considerable influence on forestry in the agricultural sector.

Research Question Four: What is the impact of foreign direct investment on fishery of the agricultural sector in Nigeria?

Above table 8, the coefficient of FDI is positive and statistically significant at 5%, implying that foreign direct investment has a positive and significant impact on fishery production in the agricultural sector. Foreign portfolio investment, on the other hand, has a negative and statistically significant impact at 5%. Thus, an increase in FDI and decrease in foreign portfolio investment by 1% led to a rise and decrease in fishery production by 0.006% and 0.001% respectively. Implication of this is that increase in foreign direct investment and decrease in foreign portfolio investment will eventually lead to a decrease and increase respectively in fishery production in agricultural sector. The result however showed that for the short run, there is a positive and significant impact of foreign direct investment and foreign portfolio investment on fishery in agricultural sector.

Conclusion and Policy Implication

Through its contribution to economic growth and development, the agricultural sector plays an important role in the Nigerian economy. The sector's growth potential has been stifled over time due to underfunding, which has resulted from the government and financial institutions' complete disregard for the sector. It was discovered that inflows of foreign direct investment have a major impact on agricultural growth in Nigeria, implying that the agricultural sector must continue to take advantage of the enormous financial and technical opportunities provided by international investment in the economy. In a similar vein, it was discovered that commercial bank credit to the agricultural sector has been steadily increasing over time, contributing significantly to the sector's increased productivity. Finally, it was discovered that while government spending has a positive impact on agricultural production, the effect is negligible in the long run, indicating that the government is underfunding the sector and diverting funds allocated to it. However, it was discovered that in order for the Nigerian economy to benefit from the vast potential of the agricultural sector, it must be willing to take advantage of opportunities provided by foreign investors.

Recommendations

1. It is very important to note that, to attract foreign investment to the agricultural sector, the government should put in place adequate infrastructures through a massive rural-urban infrastructure investment scheme.
2. The government should create a stable and conducive environment capable of promoting the agriculture sector's growth potential and the flow of foreign investment.
3. Also, the government should also make the growth of the agricultural sector a priority by increasing government budgetary allocation to the sector.
4. Finally, the government should establish a board to control funds allocated to the agricultural sector in order to prevent funds from being diverted by government agencies or farmers.

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