Quest Journals
Journal of Research in Business and Management
Volume 9 ~ Issue 11 (2021) pp: 43-52
ISSN(Online):2347-3002
www.questjournals.org

Research Paper

Foreign Direct Investment and Economic Growth: Proof from Nigeria

[1]ADUM, Paul Justice [2]ETUK, Idorenyin Udo
[3]Anthony Aniagbaoso Igwe
[1,2,3]*University of Nigeria, Enugu Campus*
Faculty of Business Administration
Department of Management

Abstract
This quantitative investigation conscientiously searched secondary data from 1987-2019,sourced from Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicator (WDI)dispatched in 2020.Descriptive and regression analyses were used as the estimation techniques. The result revealed thatFDI in Nigeria has an important effect on economic growth proxied with gross domestic product. The study found out that FDI and domestic investment was positive, only the FDI was significant to economic growth of Nigeria at 5% alpha level. More avenues should be created by Government and the policy makers that will draw the attention of foreign investors toaugmentknowledge transfer and increase productivity into the economy.
Keywords: *Foreign Direct Investment, Economic Growth, Exchange Rate and Domestic Investment*

Received 03 November, 2021; Revised: 15 November, 2021; Accepted 17 November, 2021 © The author(s) 2021. Published with open access at www.questjournals.org

I. INTRODUCTION

Various literatures debated on foreign direct investment (FDI) and economic growth. A number of studies are of the opinion that (FDI) contributes largely in the economy growth (Ali, & Hussain,2017;Adegbite, &Ayadi, 2011), at the same time, many people are of the opinion that the contribution of FDI islittle and not significant (Louzi, & Abadi,2011).

The relationship between FDI and economic growth involved mainconcentration to developing countries and to the academics of the governments. The growth of the Economyis always one of the majorattentions, FDI magnetismto policies is the main courseto development and to the growth of the countries (Vo, Duc Hong, Anh The Vo, & Zhaoyong Zhang 2019a).FDI help thehome revenue to boost its gap in developing economy(Adegbite and Ayadi 2010; Dan-Jumbo & Akpan, 2018), known that countries under developing will not generate adequate revenue to the expenditure in need.

In this epoch of globalization,economic, business-related, and barriers to the technological fades, FDI are been depended on by developing countries for sustenance owing to the positive effects (Demirsel, Mustafa Tahir, Adem Ögüt, & Mehmet Mucuk, 2014). When working towards economic growth, each countries characteristics and strengths are to make the most of; FDI still hasnecessarypositionin the midst of the main factors distressingthe growth of the economy. Nguyen, Ha Minh, Ngoc Hoang Bui, & Duc Hong Vo.(2019); Borensztein,Eduardo R., José R. de Gregorio, & Jongwha Lee.(1998) consent that the solution to worldwidefinancialaddition, as well as economic stability, drivingthe growth and recuperating social wellbeing and amenity is from FDI.

Thequality of FDI to the economy of the globe isexaggerated. FDI is a savingspreparedby means of investor either by individuals or unified bodies in a nationwith the main aim to creating business and trading(Kolade, 2019). John (2016) asserts that (FDI) is a procedure of shifting knowledge, expertise and funds from a nation through urbanized and just beginning countries to another nation. (Farrell, 2008)consent that packages of knowledge, expertise, funds, administration, and entrepreneurship that is use by firms to function and supplycommodities and services in internationalmarketplace known as FDI. Third host economy in Africa is Nigeriaafter Egypt and Ethiopia in the running of FDI in the world. In Nigeria, the investing countries are numbered from the USA, China, UK, France and Netherlands (UNCTAD 2018).The FDI flows in Nigeria 2017 reduced by 20% to attain 3.5 billion USD and it is as consequence of effect of supportunsteadiness, be deficient intransparency,prevalentdishonesty and underprivileged of infrastructure (UNCTAD 2018).Though, this study tends to review(FDI) and economic growth with proof from Nigeria.

Conceptualization of Related Literature

FDI

FDI and growth has involved great thought from scholars throughout the world (Duc Hong,Vo Vo, & Zhaoyong Zhang, & Anh The Vo. 2019a;Chandana Chakraborty,Basu, Parantap,& Derrick Reagle. 2003). FDI is the solitaryargued topic and development the core theory which still keeps its famousposition. Economic growth is viewed byassort of social, political, economic and institutional factors.

The main element in global economic integration is FDI. The stability and long-lasting links between economies is created by means of FDI. This encourages the shift of knowledge andacquaintance between countriesand the host economy is allowed to encouragethe international markets to spread its products widely. OECD Factbook, (2012) consent that investmentfund under right policy environmentand it is important means for development. Investment byFDI is a cross-boundaryand itsoccupant entity in one economy with the mainreason of long-termattentionto another economy enterprise resident. Tadaro, (1999), consent that investment of FDI is agreat multinational corporation with head office in urbanizednations. The idiosyncratic feature of multinational enterprises is FDI (Amadi 2002). He goes further saying that, FDI is not justaglobalmove of fundsbut the enterpriseexpansion from its home country.According to Root (1984), themovement of fund, knowledge and entrepreneurial skills to the host economy are mutually local factors in the production of goods for local and for export markets.

In a foreign country firms, local firms are allow fitting in its skill andis a right of entry to the benefits obtainablefrom the host country,right of entry to precious local skill and prospect of accepting commercial compensation(Ikiara 2003). A country like Nigeria under developing by insinuation needsindustrialmodification and hi-tech learning to attain to itssignificantenlargement.

FDIis an external resource which includesskill, professional and advertisingexpertise and resources makes a substantialeffectto host nation's manufacture capabilities.

According to Kumar (2007), FDI engage parent enterprise tobring ineven-handednessfundsto purchase shares in overseas affiliates. WTON (2001)assert that the occurrence of FDI is when home investor can obtain benefit in another country; that is the supervision of the asset will be the host country. Here, FDI is a speculation to obtain a long-termattention and interest tofunction in countries other than the home country of investors (Mwilima 2003). Ayanwale (2007), consent voting stock asdecisive factor for the survival of a direct investment association or possession of at least 10% of the normal shares. The United Nations assert that FDI is an enterprise situated in a country successfullydirect by people of a different country. It does not simplydeemFDIfrom an investment, butto the position of corporate control.

Economic growth can be seen as augment in the quantity of goods and services shaped by afinancial systemin excess of time. Thehigh rate of real gross home product is conservatively deliberated. Expansion is frequentlyconsidered in real terms, so as torise adjusted terms to mesh out the result of rise on the value of the commoditiesmanufactured. The movement in FDI hasfully fledged in significancevirtual to other businesses of foreign fundmovements, and the manufactureresulthas enlarged itsportion of global output of 8% during 20th century. The US started its position as overseas investors back 19th century, and they are leadingdealer of straightspeculation to the remainingglobe, financial aspect of the global stock in 1966, through them the rest of the countries have become major investors.

Stylized Facts

Uwubamwen and Ajao (2012) studied the determinants and effect of FDI in Nigeria spanned from 1970 through 2009. Astool for economic growth and means of bridging the gaps flanked by the wealthy and unfortunate nations, empirical analysis reveals that the exchange rate, interest rate, inflation and directness of the economy are with the main and significant factors that settle on the inflow of FDI in Nigeria all through the periods. Salami, Fatimah, Gazi and Makua (2012), reported through that FDI ownsmajor effect on economic enlargement. Complementary evidence was specified in the review relatingto the effect of FDI on the host country's economy. Najia, Mryam and Nobeel, (2013), obtained Pakistan case and test the supposedorganizationdesigned for this country. The statistics used for this review spanned the period of 1981-2010. Theresultspoint out that Pakistan's financial performance is unenthusiasticallyand is pretentious by international investment while its domestic investment has gained its market. Furthermore, the country debt, buy and sell and price rises found to have negative effect on GDP. Adegbite and Ayadi, (2010), studiedtheconnectionbetweenFDI flows and economic expansion in Nigeria. It wasacceptedthat there is avaluable role of FDI on expansion. Though, the role of FDI on growth may be imperfect by individual capital. Arshad and Shujaat (2011) additional reported that Hermes and Lensink (2003) completed that FDI exerts majoreffect on the host country.

Abbes, Seghir,Guelli, and Zakarya, (2014) studiedthe fundamentalconnectionsof FDI and economicenlargement: 65 countries panel were co-integration and Granger causality tests used. Findingsexplainunidirectional causality of FDI to gross homemanufactured goods while the panel co-integration exposedthedifference between results during the study period. Adeleke, Olowe, and Fasesin, (2014) examined the effect of FDI in Nation of Nigeria economic enlargementthrough 1999 to 2013 andOLS regression method was used. It was found that inflow of FDI is optimistic and statistically important to enlargement of Nigeria. John (2016) reviewed the force of FDI in economic strength in Nigeria spanned from 1981-2015 by means of regression technique. It was resulted that FDI in Nation like Nigeria hasoptimistic and importantimpact on economic strength proxied with homemanufactured goods. Ali and Hussain (2017) studied the effect of FDI on the economic strength of Pakistan ranging from1991-2015, correlation and regression analysis techniques were used. The findings exposedtheoptimisticeffect on the economic strength of Pakistan.Louzi and Abadi (2011) studied the force of FDI on economic strength in Jordan spans 1990 to 2009. Co-integration and error correction mechanism were used in the study. The outcomedisplays that FDI inflows have nothing toput forth tosovereign influence on economic growth. Koojaroenprasit (2012) studied the influence of FDI on economic strength in South Korea covering from 1980 to 2009. Regressions modelwas used as the inference technique. It wasresulted that theyexist a physically powerful and positive influence of FDI on economic enlargement in South Korea.

Ayanwale (2007) studied relationship connecting Non-extractive FDI and economic expansion in Nigeria for the period of 1970-2002. In result, it wasseen that there is positive linkage within FDI and economic growth, but the general effect may not be important. Ayadi (2007) studied on FDI and Economic strength in Nigeria that spansfrom1980-2007. In the findings,there is not significant contribution to explain the output of growth in Nigeria. The failure generatedfrom the required growth rate and it is attributed to imperfect infrastructural progress in Nigeria (Ivwurie, & Akpan, 2021). Ayadi (2007) suggestedit is good Nigeria as a nation should spend in human capital growth to benefit from technological spill over.

Convincingly, the stylized facts viewed from preceding researchers haveoutlineddissimilaroutcomes with the help of methodology and time period mutually in urbanized and just beginning countries of the globe. The knowledge of the researcherto the study ofFDI and its influence on economic enlargement exist in Nigeria.

II. METHODOLOGY

To accomplish this study, John (2016) model was adapted through his revise on effect of FDI in economic expansion in Nigeria, the method is as follows:

GDP = f(FDI, EXR)
Meaning:
GDP(Gross Domestic Product) = f(Frequency); FDI(Foreign Direct Investment), EXR(Exchange Rate)

The model was modified to extend variables and time and the periodenclosed. The method is as follows:
RGDP = f (FDI, RINT, REXRT, DI)
Meaning:
RGDP(Real Gross Domestic Product) = f(Frequency); FDI, RINT(Real Interest Rate), REXRT(Real Exchange Rate), DI(Domestic Investment).
Functional model of econometric form is seen as follows:

$$RGDP = \mu_0 + \mu_1 FDI + \mu_2 RINTR + \mu_3 REXRT + \mu_4 DI + \varepsilon_t$$

Meaning:
μ_0(Constant); μ_1-μ_4(Shift Parameters)

The econometric form of time series is:

$$RGDP_t = \mu_0 + \mu_1 FDI_t + \mu_2 RINTR_t + \mu_3 REXRT_t + \mu_4 DI_t + \varepsilon_t$$

Meaning:
t(time series)
In course of this study, theform of log-linearity was used to get the unit values of the variables;it'sspecified as follows:

$$LRGDP_t = \mu_0 + \mu_1 LFDI_t + \mu_2 RINTR_t + \mu_3 LEXRT_t + \mu_4 DI_t + \varepsilon_t$$

III. RESULT AND DISCUSSION

Descriptive Analysis

Table 1

	LRGDP	DI	LEXRT	LFDI	RINTR
Mean	26.13596	1.992193	4.141393	-0.678011	2.357002
Median	26.12011	2.551734	4.792298	-0.463384	3.023542
Maximum	26.84221	40.38866	5.535332	0.563197	18.18000
Minimum	25.48843	-23.74670	1.390296	-2.473420	-15.92023
Std. Dev.	0.428135	13.86016	1.238628	0.877351	9.067010
Skewness	0.155391	0.416324	-1.005607	-0.826544	-0.241926
Kurtosis	1.634454	4.328397	2.464271	2.873846	2.537068
Jarque-Bera	1.879580	2.355526	4.151490	2.634092	0.429734
Probability	0.390710	0.307967	0.125463	0.267926	0.806649
Sum	601.1272	45.82045	95.25204	-15.59426	54.21104
Sum Sq. Dev.	4.032596	4226.291	33.75239	16.93438	1808.635
Observations	23	23	23	23	23

Source: Author's computation using Eviews 9

Table 1 above is the statistics resultof the standard value of the log of GDP, log of DI, real exchange rate,FDI and RINT rate is 26.13596, 1.992193, 4.141393, -0.678011 and 2.357002 respectively. The result of the median shows that LGDP equal to 26.12011, DI(2.551734), LREXRT(4.792298), LFDI(0.463384) and RINTR(3.023542). In the table 1, skewness statistics reveals the variables except LRGDP and DI were negatively skewed, such that, LEXRT, LFDI and RINTR are unhelpfully skewed with the values of-1.005607, -0.826544 and -0.241926 respectively while LRGDP and DI was positively skewed at 0.155391 and 0.416324.The Kurtosis statistics reveal that all the variables except DIwhich is leptokurtic are platykurtic less than 3. Statistics of Jarque-Bera all the way through probability reveal the variables usuallydispersedapart from for LEXRT.

Regression Analysis

Table 2

Dependent Variable: LRGDP
Method: Least Squares
Date: 06/07/21 Time: 13:11
Sample (adjusted): 1 30
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DI	0.000727	0.003803	0.191213	0.8505
LEXRT	0.282983	0.048068	5.887168	0.0000
LFDI	-0.090985	0.067739	-1.343174	0.1959
RINTR	0.002057	0.007169	0.286947	0.7774
C	24.89603	0.213414	116.6560	0.0000

R-squared	0.728521	Mean dependent var.	26.13596
Adjusted R-squared	0.668193	S.D. dependent var.	0.428135
S.E. of regression	0.246618	Akaike info criterion	0.227704
Sum squared resid.	1.094764	Schwarz criterion	0.474551
Log likelihood	2.381400	Hannan-Quinn criter.	0.289786
F-statistic	12.07588	Durbin-Watson stat	0.164132
Prob.(F-statistic)	0.000061		

Source: Author's computation using E-views 9

The regression analysis in table 2, showP-value of 0.0000which indicate that all the variables are held constant and the positive variation where up to the tune of 24.89603with a significant way. The LFDI is -0.090985 in the coefficient value and the p-value is 0.1959 which implies that LFDIcomponentaugment will raise LGDP with value of -0.090985and FDI will exhibit negativeinsignificant influence on economic augmentation ina country like Nigeria. The RINTRcoefficient value is 0.002057 with p-value of 0.7774representing a real interest ratecomponent will augment the gross homemanufactured goods but not important to, RINTR is optimistic but not important to economic enlargement. Also, DI is 0.000727 in coefficient value with p-value of 0.8505 which implies that home investment elementwill rise gross homemanufactured goodsabsolutely with the value of 0.8505 at 10% significant but not significantly at 5% alpha level. The log real EXRTcoefficient value is 0.282983; p-value is 0.0000representingEXRTto haveoptimistic and importantforce on growth in Nigeria.

Furthermore, multiple determinant ofcoefficient is as wellidentified goodness of fit, (R^2) value is 0.728521 and attuned R^2 is 0.668193. The independent variables above have 72% disparityto dependent variable. F-statistic value is 12.07588 with the p-value of 0.164132representing all the independent variables can mutuallypressure the dependent variable.

IV. CONCLUSION AND RECOMMENDATIONS

This review investigatedFDI and economic growth in Nigeria spannedfrom 1987-2019. Numerous reviews have been done on the existing literature unfolding the area under discussion. The study concluded that FDI and home investment waspositive to the strength in Nigeria and FDIwas significant and the home investment was insignificant at 5% alpha level. It went further to conclude that RINT rate and EXR are togetherpositive and RINT rate was insignificantly, other thanEXR significant to weight the strength of Nigeria. It wassuggested that the law enforcement agencies and the strategy makers should generateadditionalapproach to drawinternationalmoney makersthat will augmentknowledge transfer, and job opportunities, add tooutput of the economy. It went further to recommend that home investors need to be uncared for in formulating strategywith the purpose ofinspire the existing and possiblehome investors.

REFERENCES

[1]. Abbes, S.M., Guelli, B.M., Seghir, G.M. and Zakarya, G.Y. (2014) Causal Interactions between FDI, and Economic Growth: Evidence from Dynamic Panel Co-Integration. *Procedia Economics and Finance*, 3, 276-290.

[2]. Adegbite, E.O. and Ayadi, F.S. (2011) The Role of Foreign Direct Investment in Economic Development: A Study of Nigeria. *World Journal of Entrepreneurship, Management and Sustainable Development*,6, 133-147.

[3]. Adegbite,E.O & Ayadi, F.S. (2010). The role of foreign direct investment in economic development: A study of Nigeria, *World Journal of Entrepreneurship, Management and Sustainable Development*, 6(1/2), 133-147.

[4]. Adeleke, K.M., Olowe, S.O. and Fasesin, O.O. (2014) Impact of Foreign Direct Investment on Nigeria Economic Growth. *International Journal of Academic Re-search in Business and Social Sciences*,4, 234-242.

[5]. Akinlo, A.E. (2004). Foreign direct investment and growth in Nigeria: an empirical investigation. *Journal ofPolicy Modelling, 26,* 627-39.

[6]. Alfaro, L. (2003) Foreign Direct Investment and Growth: Does the Sector Matter?

[7]. Ali, N. and Hussain, H. (2017) Impact of Foreign Direct Investment on the Economic Growth of Pakistan. *American Journal of Economics*, 7, 163-170.

[8]. Amadi, S.N.,(2002,) The impact of macroeconomic environment on Foreign Direct Investment in Nigeria, *International Journal of Development*, 4(2).352-361.

[9]. Arshad, B. & Shujaat, A. (2011). Foreign Direct Investment and Economic Growth in Pakistan: Sectoral Analysis, *PIDE Working Paper*, 67,

[10]. Ayadi, F.S. (2007). Foreign direct investment. Available at http://www.allbusiness.com. Retrieved 1 16/4/2012

[11]. Ayanwale, A.B. (2007). FDI and economic growth, evidence from Nigeria. *AERC Research Paper 165, AfricanEconomic Research Consortium*, Nairobi

[12]. Basu, Parantap, Chandana Chakraborty, and Derrick Reagle. 2003. Liberalization, FDI, and growth in developing countries: A panel co-integration approach. Econ. Inq. 41: 510–16.

[13]. Borensztein, Eduardo R., José R. de Gregorio, and Jongwha Lee. 1998. How Does Foreign Direct Investment Affect Economic Growth? Available online: https://www.nber.org/papers/w5057.pdf (accessed on 3 April 2019).

[14]. Central Bank of Nigeria (CBN). Statistical Bulletin, Various Issues.

[15]. Dan-Jumbo, C. T. & Akpan, E. E. (2018). The promises and perils of multinational corporations: The Nigerian experience. *International Journal of Management Science and Business Administration*, 4(3), 71-76.

[16]. Demirsel, Mustafa Tahir, Adem Ögüt, and Mehmet Mucuk. 2014. The Effect of Foreign Direct Investment on Economic Growth: The Case of Turkey. *Paper presented at International Academic Conferences*, Prague, Czech Republic, September 1–4.

[17]. Farrell, R. (2008) Japanese Investment in the World Economy: A Study of Strategic Themes in the Internationalisation of Japanese Industry. Edward Elgar, Britain.

[18]. Hermes, N. & Lensink, R.(2003). Foreign Direct Investment, Financial Development and Economic Growth, *TheJournal of Development Studies*, 40(2),142-163.

[19]. Ikiara, M.M.(2003). Foreign Direct Investment (FDI), Technology Transfer, and Poverty Alleviation: Africa's Hopes and Dilemma, *African Technology Policy Studies Network (ATPS) Special Paper Series No. 16*, 2003, Nairobi, Kenya.

[20]. Ivwurie, E. A. & Akpan, E. E. (2021). Strategic corporate social responsibility and sustainability of multinational corporations in Nigeria. *Research Journal of Business and Management*, 8 (2) , 51-61.

[21]. John, E.I. (2016) Effect of Foreign Direct Investment on Economic Growth in Nigeria. *European Business & Management*, 2, 40-46.
[22]. Koojaroenprasit, Sauwaluck. 2012. The impact of foreign direct investment on economic growth: A case study of South Korea. Int. J. Bus. Soc. Sci. 3: 8–19.
[23]. Kumar, A. (2007). Foreign Direct Investment. *Insights from the Federal Reserve Bank of Dallas*; Vol. 2 No 1.
[24]. Louzi, B.M. and Abadi, A. (2011) The Impact of Foreign Direct Investment on Economic Growth in Jordan. *IJRRAS*, 8, 253-258.
[25]. Mwilima, N. (2003). Foreign direct investment in Africa. *Social Observatory Pilot Project, Final Draft Reportfor the Labour Resource and Research Institute*, 29-45.
[26]. Nguyen, Ha Minh, Ngoc Hoang Bui, and Duc Hong Vo. 2019. The Nexus between Economic Integration and Growth: Application to Vietnam. Annals of Financial Economics 14: 1950041.
[27]. Noormamode, S. (2008) Impact of Foreign Direct Investment on Economic Growth: Do Host Country Social and Economic Conditions Matter? 1-39.
[28]. Onu, J.C. (2012) Impact of Foreign Direct Investment on Economic Growth in Nigeria. *Interdisciplinary Journal of Contemporary Research in Business*, 4, 64-78.
[29]. Oyatoye, E. O., Arogundade, K. K., Adebisi, S. O., & Oluwakayode, E. (2011). Foreign direct investment, export and economic growth in Nigeria. *Journal of Humanities and Social Sciences*, *2*(1).
[30]. Root, F.R. (1984). International Trade and Investment. 5thEdn. South Western Publication Company, Cincinnati, Ohio.34-39.
[31]. Salami D. K., Fatimah K., Gazi M. A., G.O. Makua C. and Oke M. D. (2012). Foreign Direct Investment into Oil Sector and Economic Growth in Nigeria. *The International Journal of Applied Economics and Finance*, 6, 127-135.
[32]. Tadaro, M.P. (1999). Economic Development. 7th Edn., Addison Webley Longman Inc. Reading Massachusetts.
[33]. UNCTAD (2018) United Nations Conference on Trade and Development. World Investment Report.
[34]. Uwubanmwen, A.E. and Ajao, M.G. (2012). The Determinants and Impacts of Foreign Direct Investment in Nigeria. *International Journal of Business and Management;* 7(24), 67 – 77.
[35]. Vo, Duc Hong, Anh The Vo, and Zhaoyong Zhang.2019a. Exchange Rate Volatility and Disaggregated Manufacturing Exports: Evidence from an Emerging Country. J. Risk Finance Management. 12: 12.

Appendix

Year	LRGDP	LFDI	RINTR	DI	LEXRT
1987	25.48843	-1.91313	-4.76964	-6.22928	1.390296
1988	25.55921	0.762696	-2.96268	6.68359	1.512259
1989	25.57821	0.374621	-6.61241	6.517264	1.996703
1990	25.68955	-2.47342	17.46624	13.80424	2.084216
1991	25.69313	-0.98945	0.990847	-1.2394	2.293493
1992	25.7384	-0.46338	-14.9872	0.512945	2.850615
1993	25.71784	0.45649	-7.05247	7.533617	3.094011
1994	25.69952	0.563197	-15.9202	-2.45882	3.090861
1995	25.69879	0.762196	-31.4526	-6.64314	3.08627
1996	25.7399	0.977521	-5.26078	6.793911	3.085775
1997	25.76884	0.862276	12.12661	5.845782	3.085849
1998	25.79433	0.548616	11.48467	1.393454	3.085847
1999	25.80015	-0.642	6.047248	2.675391	4.525457
2000	25.8491	-0.70167	-1.14089	7.285385	4.622001
2001	25.90659	-0.74409	12.1387	-23.7467	4.711611
2002	26.04921	-0.39252	3.023542	10.19303	4.792298
2003	26.12011	-0.43407	9.935713	21.40866	4.861535
2004	26.20858	-1.14637	-2.60485	-19.9368	4.889507
2005	26.27098	0.039089	-1.59368	2.342505	4.877289
2006	26.32981	-0.32743	-5.62797	40.38866	4.857108
2007	26.39364	-0.24351	9.187171	-21.8953	4.834758
2008	26.45909	-0.11834	6.684909	-2.60106	4.775475
2009	26.5364	0.072747	18.18	9.924205	5.003141
2010	26.61341	-0.67109	1.067736	4.01246	5.012617
2011	26.66513	-0.24756	5.68558	-8.24668	5.036059
2012	26.70656	-0.82185	6.224809	2.551734	5.059425
2013	26.77114	-2.41421	11.20162	7.864836	5.058229
2014	26.83232	0.858612	11.35621	13.42649	5.066087

2015	26.85851	0.629447	13.59615	-1.3197	5.259786
2016	26.84221	-2.35633	6.686234	-4.8405	5.535332
2017	26.85023	0.932277	5.790567	-2.97726	5.722899
2018	26.86928	0.502904	6.055977	9.73767	5.723859
2019	26.89112	0.736205	4.522188	11.78408	5.72659

Source: World Development Indicator and CBN statistical bulletin 2020.

Unit Root Test Results

LRGDP @ first difference

Null Hypothesis: D(LRGDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.598429	0.0117
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LRGDP,2)
Method: Least Squares
Date: 06/07/21 Time: 13:32
Sample (adjusted): 3 33
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LRGDP(-1))	-0.614399	0.170741	-3.598429	0.0012
C	0.025789	0.009889	2.607734	0.0143

R-squared	0.308679	Mean dependent var	-0.001579
Adjusted R-squared	0.284841	S.D. dependent var	0.041618
S.E. of regression	0.035195	Akaike info criterion	-3.793472
Sum squared resid	0.035922	Schwarz criterion	-3.700957
Log likelihood	60.79882	Hannan-Quinn criter.	-3.763314
F-statistic	12.94869	Durbin-Watson stat	2.199003
Prob(F-statistic)	0.001176		

RINTR@ Levels

Null Hypothesis: RINTR has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.327092	0.0016
Test critical values:	1% level	-2.639210	
	5% level	-1.951687	
	10% level	-1.610579	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RINTR)
Method: Least Squares
Date: 06/07/21 Time: 13:34
Sample (adjusted): 2 33
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RINTR(-1)	-0.525932	0.158076	-3.327092	0.0023

R-squared	0.262603	Mean dependent var	0.290370
Adjusted R-squared	0.262603	S.D. dependent var	11.08344
S.E. of regression	9.517554	Akaike info criterion	7.374904
Sum squared resid	2808.099	Schwarz criterion	7.420708
Log likelihood	-116.9985	Hannan-Quinn criter.	7.390087
Durbin-Watson stat	1.996767		

LDI @Levels

Null Hypothesis: DI has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.438201	0.0000
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(DI)
Method: Least Squares
Date: 06/07/21 Time: 13:18
Sample (adjusted): 3 33
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DI(-1)	-2.186139	0.231627	-9.438201	0.0000
D(DI(-1))	0.675538	0.142535	4.739461	0.0001
C	5.810172	1.732356	3.353913	0.0023

R-squared	0.802658	Mean dependent var	0.164532
Adjusted R-squared	0.788562	S.D. dependent var	19.77803
S.E. of regression	9.094415	Akaike info criterion	7.344964
Sum squared resid	2315.835	Schwarz criterion	7.483737
Log likelihood	-110.8469	Hannan-Quinn criter.	7.390200
F-statistic	56.94269	Durbin-Watson stat	2.042956
Prob(F-statistic)	0.000000		

LFDI @ first difference

Null Hypothesis: D(LFDI) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.821111	0.0000
Test critical values:	1% level	-2.708094	
	5% level	-1.962813	
	10% level	-1.606129	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LFDI,2)
Method: Least Squares
Date: 06/07/21 Time: 13:27
Sample (adjusted): 5 27
Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LFDI(-1))	-1.266170	0.185625	-6.821111	0.0000

R-squared	0.743150	Mean dependent var	0.083650
Adjusted R-squared	0.743150	S.D. dependent var	1.405998
S.E. of regression	0.712564	Akaike info criterion	2.217129
Sum squared resid	8.123966	Schwarz criterion	2.266142
Log likelihood	-17.84560	Hannan-Quinn criter.	2.222001
Durbin-Watson stat	1.215307		

LEXRT @first difference

Null Hypothesis: D(LEXRT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.386937	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LEXRT,2)
Method: Least Squares
Date: 06/07/21 Time: 13:23
Sample (adjusted): 3 34
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEXRT(-1))	-0.983423	0.182557	-5.386937	0.0000
C	0.134333	0.055699	2.411754	0.0222

*Corresponding Author: ADUM, Paul Justice

R-squared	0.491690	Mean dependent var	0.001070
Adjusted R-squared	0.474746	S.D. dependent var	0.389518
S.E. of regression	0.282301	Akaike info criterion	0.368776
Sum squared resid	2.390817	Schwarz criterion	0.460385
Log likelihood	-3.900418	Hannan-Quinn criter.	0.399142
F-statistic	29.01909	Durbin-Watson stat	1.942759
Prob(F-statistic)	0.000008		