International Journal of Business Systems and Economics
ISSN: 2360-9923, Volume 13, Issue 5, (April, 2022) pages 130 - 155
www.arcnjournals.org

Foreign Direct Investment, Tax Administration and Economic Growth in Nigeria

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Abstract: *The relationship between foreign direct investment and economic growth has been extensively studied, but available studies have only offered conflicting results. However, an unresolved issue in the analysis of the impact of FDI on economic growth relates to how sensitive FDI is to taxation. Thus, this study investigated the impact of foreign direct investment (FDI) on economic growth, while explicitly accounting for the effect of taxation (company income tax) on FDI in Nigeria during the period 1981 – 2019.The objectives of the study were to determine the extent to which company income tax drives foreign direct investment in Nigeria; To evaluate the impact of foreign direct investment on real GDP (economic growth) in Nigeria; To establish the direction of causality among foreign direct investment, company income tax and economic growth in Nigeria. Secondary sources of data were gotten from Central Bank of Nigeria Statistical Bulletin. The study employed the contemporary econometric techniques of cointegration and error correction mechanism, to establish the longrun relationship among the chosen variables, and to determine the impact of taxation (company income tax) on FDI flows, and the impact of FDI on economic growth. The results show that taxation (company income tax) exerted a significant negative impact on FDI flows, while FDI significantly contributed positively to the growth of the economy of Nigeria. Also, a unidirectional causality runs from taxation (company income tax) to FDI and from FDI to economic growth in Nigeria during the review period. Based on these findings, the study recommends among other things that the government should not only sustain the current tax incentive policies, but also add more as they help in the attraction of much needed FDI into growth oriented sectors of the economy. Implementing policies aimed at promoting FDI flows into growth-driven sectors of the economy through the establishment of more viable industries capable of ushering FDI-led companies needed to grow the economy*

Keywords: *foreign direct investment, tax administration and economic growth, taxation, ECM*

1.1 INTRODUCTION

Economic growth has, over the years, been widely celebrated as a precondition for the overall economic development. Economic growth has the indirect potential to alleviate poverty, as a result of a simultaneous increase in employment opportunities and increased labour productivity (Melamed, Hartwig & Ursula, 2011). Indeed, deterioration in economic growth is a manifestation of fall in the standard of living of the people which cumulates into poverty (Ijaiya, Ijaiya, Bello & Ajayi, 2011). Conventionally, economic growth is measured as the percentage rate of increase in the real gross domestic product over time (IMF, 2012). As pointed out by Todaro and Smith (2011), an economy is considered to be growing if there is a sustained increase in the country's real gross domestic product over a specific period of time, which is usually accompanied by expansion in labour force, capital stocks, consumption and volume of trade.

Thus, economists, from all over the world, have often endeavoured to understand the reasons and the mechanics of long-term economic growth. As suggested by economic theory, economic growth is usually brought by accumulation of factors of production, as well as improvement in technology (Ovat & Antakikan, 2018). Also, in the celebrated Harrod-Domar (HD) growth model, saving is considered to be the chief driving force for capital accumulation (investment) and long-term economic growth. According to the HD model, for any economy to grow, new investments representing net additions to the capital stock are necessary. However, given that raising savings for investments is usually difficult, especially for developing countries, there is usually a saving-investment gap in the domestic economies of developing countries. In a bid to bridge the saving-investment gap in these developing countries, international capital flows, usually in the form of foreign direct investment (FDI) has been widely celebrated as providing the desired panacea towards overcoming the problem of capital deficiency in developing countries (Ovat & Amba, 2018).

Foreign Direct Investment (FDI) is an investment made to acquire a lasting management interest in a business enterprise operating in a country other than that of the investor (World Bank, 2019). The role of FDI in driving economic growth in developing countries is well known in development literature (Todaro & Smith, 2011). Foreign direct investment is expected to fill the savings-investment gap that exists in developing countries, as well as enhance capital accumulation and technological transfer required to achieve sustainable economic growth. It is on this premise that developing countries have, in recent times, intensified the drive for FDI inflow into their economies.

As pointed out by Blomstrom and Koko (1997), the main reason for many countries' efforts to attract more foreign direct investment is their desire to get modern technology for their economies. In corroborating their view, Ayanwale (2007) maintained that FDI is seen by developing countries as an important element in strategizing for the achievement of sustained economic growth. Hansen and Rand (2006) also pointed out that FDI is crucial to economic growth enhancement through the attraction of capital, technology and know-how into the host country. Kanimi and Yusop (2009) posit that FDI is supposed to increase the existing stock of knowledge through the transfer of skills and new managerial practices. The FDI has the potentials to promote the utilization of more advanced technologies in local firms through the process of capital accumulation in the host economies, while opening-up export markets, as well as promoting domestic investments through technological spillovers (Barba & Venables 2004; Ghironi & Melitz, 2004; Claudia & Lipponer 2005; Almfraji, Almsafir, Yao, 2014).

Given the potential benefits of FDI, virtually all the responsible governments across the globe have shown keen interest towards attracting foreign direct investment (FDI) in their countries. However, attracting FDI is harped on the macroeconomic environment of the host countries (Organization for Economic Cooperation and Development [OECD], 2008). In other words, the volume and location of investments that come into a country is based on the factors that are in place to ease their business operations. Such factors include access to markets and profit opportunities; a predictable and non-discriminatory legal and regulatory framework; macroeconomic stability; skilled and responsive labour markets; a well-developed infrastructure,

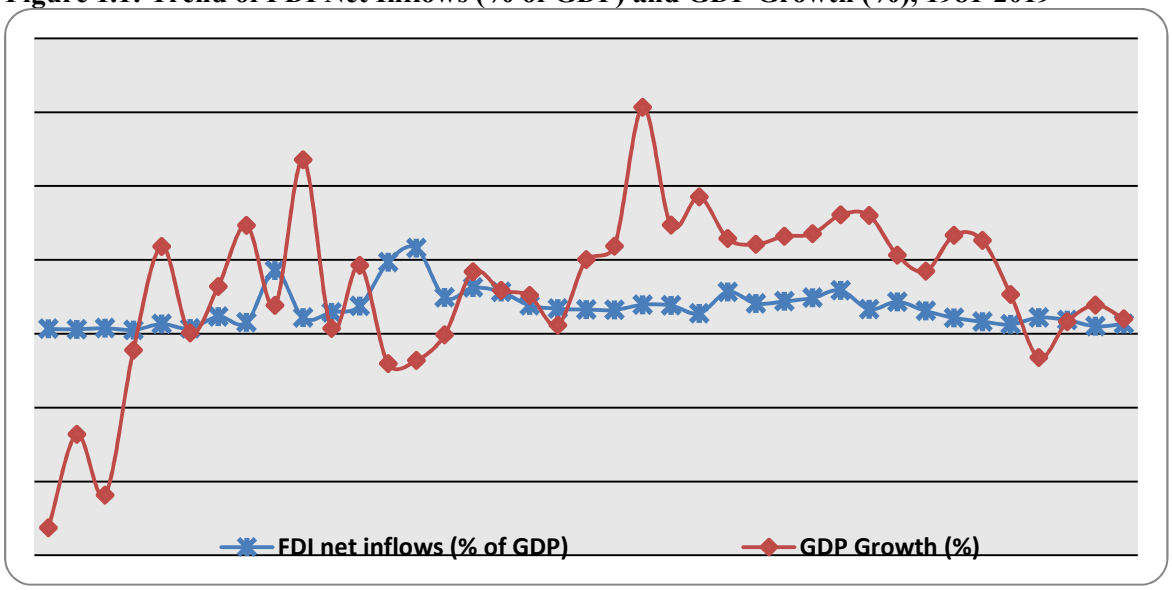
and the tax regime prevalent in the host country, since higher tax rates reduce returns and consequently reduce incentives to commit investments funds (Gordon & Hines, 2002).

Tax policy regime is recognized as being an important factor in decisions on where to invest. In recognition of the foregoing, policy makers in host countries continually review their tax rules to ensure that they are friendly to inbound investment. Tax policies may also support direct investment abroad, as outbound investments may provide efficient access to foreign markets, leading to increased net domestic income (OECD, 2008). The expected inherent gains from FDI inflows have led to competition for FDI destination among various countries especially the developing nations (Ugwu, 2018).

The competition among the developing countries to attract FDI coupled with the unprecedented increase in the wave of globalization has led to a rapid growth in the FDI flows (though volatile) in developing countries, especially in recent times. The total FDI in developing countries rose from annual rate of $2.4 billion in 1962 to $35 billion in 1990 before surging to $565 billion in 2007 (about 28.3% of the global $2 trillion FDI), and even when the global FDI fell back in 2008, the FDI flows to developing countries hit a new record of $630 billion before falling to $478 billion in 2009 (UNCTAD, 2016).

Nigeria, as a developing country, has enjoyed her own share of the total FDI flows into developing countries of the world. However, the flow of FDI into Nigeria had, over the years, remained highly volatile and seemingly an unsustainable source of foreign capital. For instance, the percentage contributions of FDI to GDP seem to have deteriorated over the years with the average annual contribution of 1.73% from 1981 to 2019 (see Figure 1.1).

Figure 1.1: Trend of FDI Net Inflows (% of GDP) and GDP Growth (%), 1981-2019



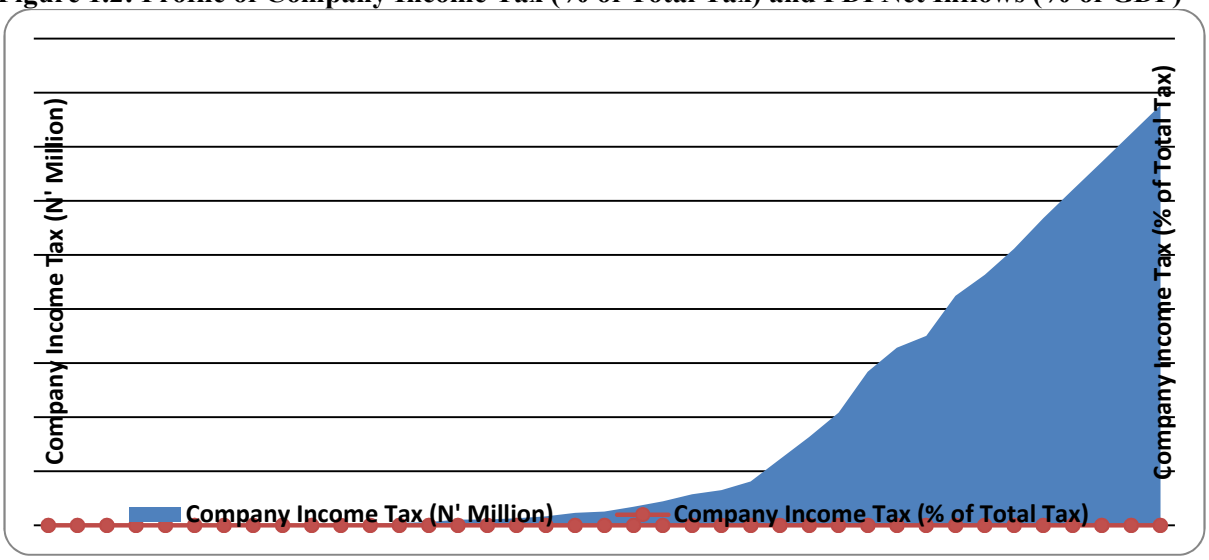
Source: World Bank (2019)

More specifically from Figure 1.1, the period between 1981 and 1985 saw the FDI share of the GDP moving at the average annual rate of 0.38%. This era coincided with the period of economic downturn from 1979 to 1985 when the economy recorded negative growth with the average annual rate of -5.21%. This period was followed by an era of increase in the percentage share of FDI to GDP (1986-1992) with the average annual rate of 1.57%, with the highest share of 4.28% in 1989. Within the same period, the economy experienced an era of economic growth with the average annual growth rate of 5.21%. This period coincided with the introduction of the Structural Adjustment Programme (SAP) which brought about trade liberalization and opening-up of the economy to international trade and capital movement. Between 1993 and 1998, the FDI share of the GDP further grew at the average annual rate of 3.49% with an all time high share of 5.79% in 1994, but contrary to this, the GDP experienced another round of economic downturn with the average annual rate 2.65% during the same period.

The period 1999-2004 witnessed a sharp drop in FDI share of the GDP with the average annual rate of 1.7%, while the economy grew at the average annual rate of 4.22%. This was an era of oil boom which the economy enjoyed during the period 1999-2007. From 2005 to 2014, the contribution of FDI to GDP grew marginally at the average annual rate of 1.97%, while the economy grew at an average annual rate of 6.2%. The period between 2015 and 2019 saw the average annual percentage contribution of FDI to GDP drop drastically to 0.76%. Interestingly, this was followed by another period of economic recession within which the economy grew at an average annual rate of 0.96% with a negative growth of -1.62% in 2016. In line with the foregoing analysis, there seems to be a significant movement in FDI flows in Nigeria over the years. In the year 1981 FDI stood at 0.32%, and increased to 0.65% in 1985, in 1990 FDI witness a sharp increase at the rate of 4.28%, as well as 5.7% in 1995, in 2000 and 2005 FDI witness a decline at the rate of 1.69% and 1.35% respectively. FDI was at 2.9% in 2010 and sharp decline in 2015 and 2010 at the rate of 0.81% and 0.65% respectively.

A number of analyses support the view that the contribution of FDI to GDP depends on the tax policy environment in the host country among other factors (OECD, 2008). The deterioration in the flow of FDI into Nigeria could have resulted from periodic adjustment in the structure of the company income tax. Thus, at this juncture, it is needful to take a historical exploration of the company income tax in Nigeria in order to appreciate the extent to which tax reform could have contributed to the flow of FDI in the country. Based on data from the Federal Inland Revenue Service ([FIRS], 2019), the average annual percentage share of the company income tax (CIT) to the total taxes (TT) is about 10.68% from 1981 to 2019 (see Figure 1.2). However, when compared to the FDI flows in Nigeria, a similar trend seems to exist. For instance, the average percentage share of the CIT to TT was about 7.52% between 1981 and 1985 when FDI share was 0.38%.

Figure 1.2: Profile of Company Income Tax (% of Total Tax) and FDI Net Inflows (% of GDP)



Source: FIRS (2019); World Bank (2019)

The CIT grew to an average share of 8.90% from 1986 to 1992, a period when the FDI share rose to the average annual rate of 1.57%. From 1993 to 1998, the CIT share of TT grew at the highest average annual rate of 13.67%, while the FDI recorded its highest average annual contribution (3.49%) to GDP in the same period. This was followed by a drop in CIT and FDI within the period 1999 to 2004 to 9.41% and 1.70% respectively. From 2005 to 2014, the CIT rose to 12.80% while the FDI increased to 1.97%, and between 2015 and 2019, there was a drop in CIT and FDI to 10.03% and 0.76% respectively. The direct movement observed between the CIT and FDI in Nigeria is contrary to the expectation that increase in the company income tax may have negative effect on FDI inflows. As revealed by OECD (2008), studies examining cross-border flows suggest that on the average, FDI decreases as the company income tax rate increases.

In the light of the foregoing, the fundamental question in determining the impact of FDI on economic growth is: how sensitive is FDI to taxation? This study, while examining the impact of FDI on economic growth, also addresses the question of how FDI responds to taxation in Nigeria.

1.3 Objectives of the Study

The broad objective of this study is to examine the impact of foreign direct investment on economic growth in Nigeria, while recognising the role of taxation (company income tax) in driving foreign direct investment. Hence, the specific objectives are:

1. To determine the extent to which company income tax drives foreign direct investment in Nigeria.

2. To evaluate the impact of foreign direct investment on real GDP (economic growth) in Nigeria.

3. To establish the direction of causality among foreign direct investment, company income tax and economic growth in Nigeria

REVIEW OF RELATED LITERATURE

2.1 Theoretical Frameworks

2.1.1 Neoclassical Growth Theory

The neoclassical growth theorists consider the problem of underdevelopment in the developing economies as endogenously motivated mainly by excessive government intervention and poor economic policy formulations. The neoclassical free-market theory asserts that opening up an economy through liberalization of national markets call for additional domestic and foreign investment and therefore increases the rate of capital accumulation. In terms of Gross Domestic Product (GDP) growth, this is equivalent to raising domestic savings rates, which enhances capital/labour ratios and per capita incomes in capital-poor developing countries (Todaro & Smith, 2011). The neoclassical views on development centres on the role of the state and advocate liberalization in both local and international markets, thereby marginalizing the role of the state to an extent. According to the neoclassical growth theory, longrun growth is exogenously determined by factors from outside the economic system which is basically the state of technology.

This growth theory is chiefly characterized by the Solow-Swan model, which in turn, is advancement over the Harrod-Domar growth model by the inclusion of labour as a factor of production. The Solow-Swan model postulates continuous production function linking output to the inputs of labour and capital. It states that longrun growth of the economy is inversely related to the capital-labour ratio and that once the economy reaches its full employment level, any further growth in the economy cannot be attributed to adjustment in internal factors but exogenous factors.

The assumptions of the model are as follows (Jhingan, 2010):

- Diminishing returns to labour and capital separately.
- Constant returns to scale to both factors jointly.
- Technological progress is a residual factor explaining long term growth and its growth is assumed to be exogenously determined, that is independent of all other factors.
- There is factor input substitutability.

- There is full employment of labour and capital.

The neoclassical theory credits the bulk of economic growth to an exogenous or complete independent process of technological progress. Though intuitively plausible, this approach has at least two insurmountable drawbacks (Jhingan, 2010). First, using the neoclassical framework, it is practically impossible to analyze the determinants of technological progress because it is completely independent of the decisions of economic agents. Second, the theory fails to explain large differences in residuals across countries with similar technologies (the Asian Tigers). In other words, a great deal of faith has been placed in a poorly understood external process for which there is little theoretical or empirical support.

2.1.2 The New Growth Theories

The New Growth Theory (NGT) is anchored on the endogenous growth theories which were developed as reactions to omissions and deficiencies in the neoclassical growth theory. They are the new growth theories which explain the longrun growth rate of an economy on the basis of endogenous factors as against exogenous factors of the neoclassical growth theory. The neoclassical growth theory explains the longrun growth rate of output based on two exogenous variables: the rate of population growth and the rate of technological progress and that are independent of the saving rate. As the longrun growth rate depended on exogenous factors, the neoclassical theory had few policy implications. Romer (1986) pointed out that in models with exogenous technical change and exogenous population growth, it never really mattered what the government did. The new growth theory did not only criticize the neoclassical growth theory but extended it by introducing endogenous technical progress in the growth models. The endogenous growth models have been developed by Arrow, Romer and Lucas, among other economists who emphasize technical progress resulting from the rate of investment, the size of capital stock and human capital stock.

The new growth theories are based on the following assumptions:

- There are many firms in the market.
- Knowledge or technological advance is a non-rival good.
- There are increasing returns to scale to all factors taken together and constant returns to a single factor, at least one.
- Technological advance comes from things people do. This means that technological advance is based on the creation of new ideas.
- Many individuals and firms have market power and earn profits from their discoveries. This assumption arises from increasing returns to scale in production that leads to imperfect competition.

These assumptions are the requirements for explaining the three main models of endogenous growth theory.

2.1.3 The Arrow's Learning by Doing and Other Models

Arrow was the first economist to introduce the concept of learning by doing in 1962 by regarding it as endogenous in the growth process. He states that at any point in time new capital goods incorporate all the knowledge then available based on accumulated experience, but once built, their productive deficiencies cannot be changed by subsequent learning. Arrow's model in a simplified form can be written as:

$$Y_i = A(K)\ F\ (K_i, L_i) \qquad 2.1$$

Where Y_i denotes the output of firm i, K_i is the stock of capital for firm i, L_i denotes the stock of labour for firm i, K without a subscript denotes the aggregate stock of capital and A is the technology factor. The theory maintained that if the stock of labour is held constant, growth ultimately comes to a halt because socially very little is invested and produced. Thus, Arrow failed to explain that his model could lead to sustained endogenous growth.

2.1.4 The Romer Model

Romer in his first paper on endogenous growth in 1986 presented a variant on Arrow's model which is known as learning by investment and later in 1990 identifies a research and development sector as specializing in the production of ideas. This sector invokes human capital along with the existing stock of knowledge to produce ideas or new knowledge. To Romer, ideas are more important than natural resources with a citation on the example of Japan which has very few natural resources but it was open to new western ideas and technology. In the Romer model, new knowledge enters into the production process in three ways: first, a new design is used in the intermediate goods sector for the production of new intermediate input; second, in the final sector, labour, human capital and available producer durables produce the final product; third, a new design increases the total stock of knowledge which increases the productivity of human capital employed in the research sector. Romer assumes the creation of knowledge as a side product of investment. He takes knowledge as an input in the production function of the following form:

$$Y = A(R)\ F\ (H, K, L) \qquad 2.3$$

Where Y is the aggregate output (real gross domestic product); A is the stock of result from the purchase of research and development knowledge R by firms; H is the public stock of human capital; K and L are capital stock and labour stock of firms respectively. The model assumes the function F homogeneous of degree one in all its inputs R, K and L, and treats R as a rival good. Three key elements of the Romer model are externalities, increasing returns in the production of output and diminishing returns in the production of new knowledge. Romer pointed out that it is spillovers from research efforts by a firm that leads to the creation of new knowledge by other firms. In other words, new research and development knowledge by a firm spills over instantly across the entire economy. Furthermore, new knowledge is regarded as the ultimate determinant of longrun growth which is determined by investment in research and development knowledge. This is to say that research and development knowledge exhibits diminishing returns which

means that investments in research and knowledge may not double knowledge. In addition, a firm investing in research and development knowledge will not be the exclusive beneficiary of the increase in knowledge. The other firms also make use of the new knowledge due to the inadequacy of patent protection and increase their production. Thus, the production of goods from increased knowledge displays increasing returns, and competitive equilibrium is consistent with increasing aggregate returns owing to externalities. Therefore, Romer takes investment in research and development knowledge as an endogenous factor in terms of the acquisition of new knowledge by rational profit maximization firms.

2.2 Empirical Literature Review

Saidu (2015) examined the relationship between corporate taxation and foreign direct investment in Nigeria from 1970-1980. The annual data were analyzed using descriptive Statistic, correlation and regression. The independent variable corporate taxation was measured using corporate tax rate (CTR) whilst dependent variable foreign direct investment was measured using FDI net inflow (% of GDP). The result showed a negative significant relationship between CTR and FDI whilst exchange rate and FDI indicated negative insignificant relationship.

Similar to the above, though in a panel study, Mudenda (2015) investigated the impact of Corporate Income Tax (CIT) on foreign direct investment for twelve southern african economies. the study estimated fixed effects model, random effects model and the dynamic panel data model. The study found that Corporate Income tax rate has a significant negative effect on FDI.

In a different approach, Peters and Kiabel (2015) examined the influence of tax incentives in the decision of an investor to locate FDI in Nigeria. The study employed a model of multiple regressions using Ordinary Least Square to determine the time series properties of tax incentives captured by annual tax revenue as a percentage of Gross Domestic Product (GDP) and FDI. The result showed that FDI response to tax incentives is negatively significant, that is, increase in tax incentives does not bring about a corresponding increase in FDI.

Contrary to the above finding, Uwgu (2018) revealed a positive association between tax incentives and FDI in Nigeria, Ghana and South Africa. The study evaluated the contribution of tax incentives towards FDI inflow into Nigeria, Ghana and South Africa as well as the effect of such FDI inflows on those countries' exports after their adoption of IFRS for the period 1999-2015. The study was based on ex-post- facto research design and secondary data were collected and analyzed using descriptive and inferential statistics. The study further revealed that there was no significant difference in the effect of FDI on exports of all the countries of study in their pre- and post-IFRS adoption periods. This implies that the more corporate tax rate is reduced, as well as increase in other tax incentives, the more FDI inflow into those countries and when significant level of FDI inflow have been achieved, the effect on export would become significant.

Also, Olaniyi, Ajayi and Oyedokun (2018) evaluated the impact of tax policy incentives on the inflows of foreign direct investment in Nigeria. Specifically, the study investigated the impact of company income tax incentives, petroleum profit tax incentives, value added tax incentives, and custom and excise duties incentives on inflow of foreign direct investment into the country from

1994 to 2016. This study adopted ex-post facto research design, while multiple regression and correlation methods were used to analyze the secondary data. The study revealed that custom and excise duties and value added tax incentives had significant effects respectively on foreign direct investment in the country, while companies income tax and petroleum profit tax incentives showed insignificant impact respectively on foreign direct investment in Nigeria.

In a more recent study, Eiya and Okaiwele (2019) examined the relationship between the different forms of taxes collected and foreign direct investment in Nigeria. The study adopted the ex-post facto research design and covered a period of thirty-four years from 1982 – 2015. Secondary data were analysed using the Autoregressive Distributed Lag (ARDL) regression technique. The study found that there is a negative and significant relationship between taxes collected and foreign direct investment. The study further revealed that there exist positive and significant relationship between value added taxes; company income tax and foreign direct investment, while petroleum profits taxes and custom and excise duties do not influence Foreign Direct Investments in Nigeria.

In a diverse conclusion, Uwuigbe, et al. (2019) found that a negative relationship exists between corporate taxation and FDI having investigated the factors that may impact foreign direct investment in Nigeria. In particular, the study sought to establish the role of taxation (corporate tax) for foreign direct investment in Nigeria, over a period of 31 years (1985–2015). The study employed the Ordinary Least Squares (OLS), Johansen Co-Integration model and Unit Root Test. Also, the study added that corporate tax has a significant impact on FDI and there exists a long-run relationship between the two variables.

RESEARCH METHOD

The central purpose of this chapter is to provide the study plan and its descriptions on how to achieve the objectives of the study. This chapter also deals with how empirical estimates were tested and analyzed, the model developed and justified and how results were interpreted.

3.1 Model Specification

In examining the impact of FDI on economic growth in Nigeria, the study uses a Two-Step procedure to first examine the role of taxation (company income tax) on FDI in Nigeria.

Model One: Impact of Taxation (Company Income Tax) on FDI in Nigeria

In line with the first objective of this study, which seeks to evaluate the impact of taxation (company income tax) on FDI, the study adopts with modifications the model of specified by Saidu (2015) which is based on Hartman (1984). Thus, our FDI-tax model is specified as follows:

$$FDI = f(CIT, INFR, EXCR, INFL, INTR, TOPN) \qquad 3.2$$

$$\Delta FDI_t = \alpha + \Sigma\beta_i \Delta FDI_{t-i} + \Sigma\delta_j \Delta CIT_{t-j} + \Sigma\lambda_k \Delta INFR_{t-k} + \Sigma\gamma_m \Delta EXCR_{t-m}$$

$$+ \Sigma\Theta_n\Delta INFL_{t-n} + \Sigma\chi_o\Delta INTR_{t-o} + \Sigma\Omega_p\Delta TOPN_{t-p} + \pi_1 FDI_{t-1} + \pi_2 CIT_{t-1} + \pi_3 INFR_{t-1}$$

$$+ \pi_4 INST_{t-1} + \pi_5 EXCR_{t-1} + \pi_6 INFL_{t-1} + \eta\pi_7 INTR_{t-1} + \pi_8 TOPN_{t-1} + \mu_{1t} \quad 3.6$$

Where FDI = foreign direct investment; CIT = company income tax; INFR = infrastructure (measured in terms of aggregate electricity power supply (KWh)) due to the paucity of data); EXCR = exchange rate; INFL = inflation rate; INTR = interest rate; TOPN = trade openness (export + import/GDP);

α_0 = intercept term; α_1 - α_7 = parameters of interest; μ = stochastic error term.

Model Two: Impact of FDI on Economic Growth (Real GDP) in Nigeria

In line with the second objective of this study, which seeks to investigate the impact of FDI on economic growth in Nigeria, the study relies on the Romer growth model as discussed earlier. Thus, our RGDP-FDI model is specified as follows:

$$RGDP = f(GFCF, LAB, HCI, FDI, TOPN, EXCR) \quad 3.4$$

$$\Delta RGDP_t = \alpha + \Sigma\beta_h\Delta RGDP_{t-h} + \Sigma\delta_i\Delta GFCF_{t-i} + \Sigma\chi_j\Delta LAB_{t-j} + \Sigma\lambda_k\Delta HCI_{t-k} + \Sigma\phi_l\Delta FDI_{t-l}$$

$$+ \Sigma\theta_n\Delta TOPN_{t-n} + \Sigma\alpha_o\Delta EXCR_{t-o} + \eta_1 RGDP_{t-1} + \eta_2 GFCF_{t-1} + \eta_3 LAB_{t-1}$$

$$+ \eta_4 HCI_{t-1} + \eta_5 FDI_{t-1} + \eta_6 INST_{t-1} + \eta_7 TOPN_{t-1} + \eta_8 EXCR_{t-1} + \mu_{2t} \quad 3.5$$

Where RGDP = real gross domestic product; GFCF = gross fixed capital formation; LAB = labour force; HCI = human capital index; FDI = foreign direct investment; TOPN = trade openness (export + import/GDP); EXCR = exchange rate; β_0 = intercept term; $\beta_1 - \beta_7$ = parameters of interest; and ν = stochastic error term.

NB: μ and ν are uncorrelated; all variables are in natural logarithm form.

3.2 A priori Specification

All independent variables of Model One are expected to have a positive impact on FDI except company income tax and interest rate. However, in Model Two, all the independent variables are expected to have a positive impact on economic growth. The a priori signs of the variables in both models are summarized in Table 3.1.

Table 3.1: Summary of A priori Expectation

Model One (Equation 3.3, DV: FDI)		Model Two (Equation 3.5, DV: RGDP)	
CIT	-, $\alpha_1 < 0$	GFCF	+, $\beta_1 > 0$
INFR	+, $\alpha_2 > 0$	LAB	+, $\beta_2 > 0$
INST	+, $\alpha_3 > 0$	HCI	+, $\beta_3 > 0$

EXCR	+, $\alpha_4 < 0$	FDI	+, $\beta_4 > 0$
INFL	+, $\alpha_5 > 0$	INST	+, $\beta_5 > 0$
INTR	-, $\alpha_6 < 0$	TOPN	+, $\beta_6 > 0$
TOPN	+, $\alpha_7 > 0$	EXCR	+, $\beta_7 < 0$

3.3 Estimation Technique

This study used a Single-Equation Multiple Regression Model (SEMRM) to investigate the impact of CIT on FDI, and FDI on economic growth (RGDP) in Nigeria. The Ordinary Least Squares (OLS) was used as the estimation technique. The choice of this (OLS) technique is built on the premise that the OLS among other estimators provides a researcher with unique estimates of the parameters of economic relationship that have the smallest standard errors. The OLS method is also unique and simple and is preferred to other estimators because of its BLUE properties and consistent estimates. However, applying OLS directly without accounting for the time-series properties of the relevant data may result in spurious regression. In order to overcome the impending problems associated with time series, the study engaged in the following pre-test analyses:

Stationarity Test

One of the important types of data used in most empirical works is time-series data. These empirical works that are based on time-series data always assume that the underlying time series is stationary. A stationary time series is the one with mean, variances, and auto-covariance constant over time. However, it is widely known that most economic time series are non-stationary and the regression of a non-stationary time series on another non-stationary time series may lead to spurious regression. A spurious regression is one with high R-squared and significant t-ratios even when there is no theoretically meaningful relationship between the variables of interest. To avoid the problem of spurious regression, there is a need for unit root test (that is, to test whether a variable is stationary or not). This study employed the Augmented Dickey-Fuller (ADF) test

Cointegration Tests

Following the stationarity tests, cointegration test was carried out using the Autoregressive Distributed Lag (ARDL) bound testing approach to cointegration as proposed by Pesaran et al (2001). This procedure is adopted because it has better small sample properties than alternative methods (ie Engel-Granger (1987), Johansen and Juselius (1990), and Philip and Hansen (1990)). Another advantage of ARDL bounds testing is that the Unrestricted ECM seems to take satisfactory lags that captures the data generating process in a general-to-specific framework of the specification. This method also avoids the classification of variables as I(1) and I(0) by developing bands of critical values which identifies the variables as being either stationary or non-stationary processes. Unlike other cointegration techniques (e.g., Johansen's procedure which require certain pre-testing for unit roots and that the underlying variables to be integrated of the same order), the ARDL model provides an alternative test for examining a long-run relationship regardless of whether the underlying variables are purely I(0) or I(1), or even

fractionally integrated. Therefore, the previous unit root testing of the variables is unnecessary. Moreover, the traditional cointegration method may also suffer from the problems of endogeneity bias, while the ARDL method can distinguish between dependent and explanatory variables. Thus, estimates obtained from the ARDL method of cointegration analyses are unbiased and efficient, since they avoid the problems that may arise in the presence of serial correlation, and endogeneity. Note also that the ARDL procedure allows for uneven lag orders, while the Johansen's VECM does not. However, Pesaran and Shin (1999) contended that appropriate modification of the orders of the ARDL model is sufficient to simultaneously correct for residual serial correlation and problem of endogenous variables. In summary, it can be seen that ARDL bound test can be used with a mixture of I(0) and I(1) data; it involves just a single-equation set-up, making it simple to implement and interpret; and different variables can be assigned different lag-length as they enter the model.

The ARDL bounds testing procedure consists of estimating an unrestricted error correction models in the following generic forms:

$$\Delta FDI_t = \alpha + \Sigma\beta_i \Delta FDI_{t-i} + \Sigma\delta_j \Delta CIT_{t-j} + \Sigma\lambda_k \Delta INFR_{t-k} + \Sigma\phi_l \Delta INST_{t-l} + \Sigma\gamma_m \Delta EXCR_{t-m}$$

$$+ \Sigma\Theta_n \Delta INFL_{t-n} + \Sigma\chi_o \Delta INTR_{t-o} + \Sigma\Omega_p \Delta TOPN_{t-p} + \pi_1 FDI_{t-1} + \pi_2 CIT_{t-1} + \pi_3 INFR_{t-1}$$

$$+ \pi_4 INST_{t-1} + \pi_5 EXCR_{t-1} + \pi_6 INFL_{t-1} + \eta\pi_7 INTR_{t-1} + \pi_8 TOPN_{t-1} + \mu_{1t} \qquad 3.6$$

$$\Delta RGDP_t = \alpha + \Sigma\beta_h \Delta RGDP_{t-h} + \Sigma\delta_i \Delta GFCF_{t-i} + \Sigma\chi_j \Delta LAB_{t-j} + \Sigma\lambda_k \Delta HCI_{t-k} + \Sigma\phi_l \Delta FDI_{t-l}$$

$$+ \Sigma\gamma_m \Delta INST_{t-m} + \Sigma\theta_n \Delta TOPN_{t-n} + \Sigma\alpha_o \Delta EXCR_{t-o} + \eta_1 RGDP_{t-1} + \eta_2 GFCF_{t-1} + \eta_3 LAB_{t-1}$$

$$+ \eta_4 HCI_{t-1} + \eta_5 FDI_{t-1} + \eta_6 INST_{t-1} + \eta_7 TOPN_{t-1} + \eta_8 EXCR_{t-1} + \mu_{2t} \qquad 3.7$$

The above equations represent the Unconstrained ECM versions of the ARDL specifications. The so-called bound test is based on the F-statistic whose asymptotic distribution is non-standard under the null hypothesis of no cointegration. The F-statistic has a non-standard distribution which depends upon (i) whether variables included in ARDL model are I(0) or I(I), (ii) the number of regressors and (iii) whether the ARDL model contains an intercept and/or a trend. Two sets of critical values are reported in Pesaran et al. (2001) namely: one set is calculated assuming that all variables are I(0) and the other is estimated on the assumption that all variables are I(1). We therefore reject the null hypothesis of no-cointegration if the F- statistic exceeds the upper critical bounds value, while we do not reject the null if the F- statistic is lower than the lower bounds and finally, the decision is inconclusive if the F- statistic fall between the lower and upper bound critical values.

Error Correction Model

It is a customary practice to apply error correction model when variables are cointegrated. In other words, when a stable longrun relationship is confirmed by way of cointegration test, then the shortrun dynamic coefficients are usually estimated using error correction model. For this study, the following ARDL-based ECMs would be estimated:

$$\Delta FDI_t = \alpha + \Sigma\beta_i\Delta FDI_{t-i} + \Sigma\delta_j\Delta CIT_{t-j} + \Sigma\lambda_k\Delta INFR_{t-k} + \Sigma\phi_l\Delta INST_{t-l} + \Sigma\gamma_m\Delta EXCR_{t-m}$$

$$+ \Sigma\Theta_n\Delta INFL_{t-n} + \Sigma\chi_o\Delta INTR_{t-o} + \Sigma\Omega_p\Delta TOPN_{t-p} + \sigma ECM_{t-1} + \mu_{1t} \quad 3.8$$

$$\Delta RGDP_t = \alpha + \Sigma\beta_h\Delta RGDP_{t-h} + \Sigma\delta_i\Delta GFCF_{t-i} + \Sigma\chi_j\Delta LAB_{t-j} + \Sigma\lambda_k\Delta HCI_{t-k} +$$

$$\Sigma\phi_l\Delta FDI_{t-l} + \Sigma\gamma_m\Delta INST_{t-m} + \Sigma\theta_n\Delta TOPN_{t-n} + \Sigma\alpha_o\Delta EXCR_{t-o} + \Psi ECM_{t-1} + \mu_{2t} \quad 3.9$$

Where ECM_{t-1} appearing in equations 3.8 and 3.9 are the error correction terms resulting from the verified long run equilibrium relationship, while σ and Ψ are the parameters indicating the speed of adjustment to the long run equilibrium after any shortrun shock. The sign of the ECM_{t-1} is theoretically expected to be negative and significant to ensure strong convergence to the longrun equilibrium. The values of the coefficients σ and Ψ, which show the speed of adjustment, range from -1 to 0. The value -1 shows perfect and immediate convergence, while the value of 0 shows no convergence after a shortrun shock.

In addition to the above, Pesaran and Pesaran (1997) had argued that it is instructive to test the constancy of the longrun coefficients by conducting a stability test on the above ECMs. The most commonly used test for stability is the cumulative sum (CUSUM) which has been provided by Brown et al (1975).

Causality Test

In line with the third objective of this study, a pairwise Granger causality test was conducted to establish the direction of causality among foreign direct investment, company income tax and economic growth in Nigeria. The Granger causality test is a time series-based test of hypothesis for determining whether a variation in one variable (known as the cause) had led to a follow-up variation in another variable (known as effect) after some time lags. This test is based on F-statistic and the decision rule is that we reject the null hypothesis of no causality if the probability of the F-test is less than 0.05.

3.4 Evaluation Technique

The study employed the OLS because of its BLUE property. After the estimation of the model, we proceeded to the evaluation of the results of the estimations, which deal with the determination of the reliability of results. The evaluation consists of deciding whether the estimates of the parameters are theoretically meaningful, statistically reliable, and econometrically satisfactory. For this, the study used the various criteria which are classified into three groups.

Economic Criterion

As summarized by Iyoha (2004), this criterion discusses the appropriateness of the specification of the model from the point of view of economic theory. This criterion includes examining whether all relevant variables have been included, and analysis of the conformity of the empirical results, particularly signs and magnitudees, with relevant theory. This also examines whether the results agree with a priori specification or not and how do they satisfy restrictions contained in the underlying theory.

Statistical Criterion (First-Order Test)

Under this criterion, the OLS estimates are evaluated based on statistical theory. This criterion is also called the first-order test because it tests the reliability of economic theory. This criterion uses test statistics such as the R-squared and R-squared adjusted; F-statistic and the T-statistics to evaluate the reliability of the estimates. The **R-squared and R-squared Adjusted** measure the percentage of total variations in the dependent variable that was accounted for by variations in the independent variables. That is, they measure the explanatory powers of the explanatory variables but the R-squared adjusted accounts for loses in the degree of freedom. The **F-statistic** measures the overall significance of the regression model. However, the **T-statistics** measure the individual significance of the parameter estimates.

Econometric Criterion (Second-Order Test)

This criterion is also called the second-order test because it tests the reliability of statistical theory. Under this criterion, we test the OLS estimates for various econometric problems such as the problem of autocorrelation; heteroskedasticity; and multicollinearity problems. The OLS assumes no autocorrelation in the residuals, explanatory variables are not perfectly correlated (no multicollinearity), the variance of the error term is constant (homoskedasticity) and normality of the error term. In this study, we shall use Breush-Godfery-Pagan statistic for heteroskedasticity test, correlation matrix for multicollinearity test, and Jaque-Bera statistic for normality test.

3.5 Nature and Sources of Data

The study is based on annual secondary time series data. The data span from 1981 to 2019 and were sourced and obtained from the CBN (2017) statistical bulletin and the World Bank (2019).

DATA PRESENTATION, ANALYSES AND DISCUSSION OF FINDINGS

4.1.1 Unit Root Tests

The aim of unit root test is not only to identify which variable has unit root or not, but also to determine the order of integration of the relevant variables so as to apply necessary precautions to overcome the problem of spurious results that usually characterize the OLS regression involving non-stationary variables. In view of the above, the ADF unit root test as proposed in the previous chapter has been carried out on levels and differences of the relevant time series. The test was performed allowing intercept and no trend in the ADF specifications, while a maximum lag of 4 was set under the automatic lag selection of Schwarz Information Criterion (SIC) for the optimal lag length. The results of the ADF unit test are reported in Table 4.1.

Table 4.1 Unit Root Test

variable	ADF	Integration	Significant
GFCF	-9.658444	I(1)	1%
LLAB	- 4.148187	I(1)	1%
HCI	-6.816324	I(1)	1%
FDI	-5.299282	I(1)	1%
TOPN	-5.162148	I(1)	1%
EXCR	- 3.883981	I(1)	1%

RGDP	-3.762578	I(1)	1%
CIT	-5.601253	I(1)	1%
INTR	-2.936776	I(1)	1%
INFL	- 2.890503	I(1)	1%
INFR	-8.412824	I(1)	1%

Source: Author's computation using E-view 10

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From the table above it was observed that on the application of ADF test on the level series none of the variables were stationary. But on the application of the ADF on the 1st differences all the variables becomes stationary. This implies that all the variables are stationary at the order of integration stated above and at 1% level of significance.

4.2 Testing For Co-Integration

Once a unit root has been confirmed for a data series, there arises a question whether there is any possibility for the existence of a long run equilibrium relationship among a given set of variables. Granger states that it is a test to avoid spurious regression situation. Co-integration analysis is therefore used to investigate the long – run equilibrium relationship between, government spending on education and Nigeria economic growth. To conduct co-integration test, this study uses the method developed by Johansen and Juselius. The Johansen- Juseliu test gives better results and test co integration by applying maximum like Likelihood estimation procedure.

Table 4.2: Johansen Co-integration Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None *	0.991602	706.5272	306.8944	0.0000
At most 1 *	0.986956	529.6776	259.0294	0.0000
At most 2 *	0.922125	369.1184	215.1232	0.0000
At most 3 *	0.881842	274.6702	175.1715	0.0000
At most 4 *	0.825270	195.6482	139.2753	0.0000
At most 5 *	0.733279	131.1012	107.3466	0.0006
At most 6 *	0.582360	82.20383	79.34145	0.0299
At most 7	0.400250	49.89782	55.24578	0.1361
At most 8	0.355546	30.98186	35.01090	0.1267
At most 9	0.286695	14.72583	18.39771	0.1515
At most 10	0.058376	2.225512	3.841466	0.1357
Trace test indicates 7 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None *	0.991602	176.8496	73.94036	0.0000
At most 1 *	0.986956	160.5592	67.91026	0.0000
At most 2 *	0.922125	94.44822	61.80550	0.0000
At most 3 *	0.881842	79.02200	55.72819	0.0001
At most 4 *	0.825270	64.54696	49.58633	0.0008
At most 5 *	0.733279	48.89737	43.41977	0.0116

At most 6 *	0.582360	32.30602	37.16359	0.1631
At most 7	0.400250	18.91595	30.81507	0.6377
At most 8	0.355546	16.25603	24.25202	0.3929
At most 9	0.286695	12.50032	17.14769	0.2093
At most 10	0.058376	2.225512	3.841466	0.1357
Max-eigenvalue test indicates 7 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				

Source: Author's computation using E-view 10

The result of the Johansen's co-integration test as show inhale 4.2 above uses seven test statistics namely the trace statistics and the maximum Eigen value proposed by Johansen and juselius. The co-integration result indicates seven co integrating equations as the trace statistics rejects the null hypothesis of no-co-integrating vector at 5 percent significance and accept the alternative hypothesis of more than zero co-integrating equation, which indicates existence of long-run equilibrium relationship between the dependent and independent variables

Table 4.3 Error Correction Result for model One

Variable	Coefficient	Std.error	T-test	Prob
C	-13.20443	6.373980	-2.071615	0.0470
LCIT	0.860883	0.595118	1.446576	0.1584
LINFR	0.499184	1.506180	2.659286	0.0075
EXCR	0.001264	0.004916	0.257047	0.7989
INFL	0.028410	0.010864	2.614968	0.0138
INTR	0.078864	0.040417	1.951269	0.0604
TOPN	0.047324	0.048209	3.981643	0.0001
ECM(-1)	-0.948714	2.894706	-2.018658	0.0065
R-Squared: 0.528545; Adjusted R-squared: 0.418539, ;F-statistic: 4.804686; Prob(F-statistic): 0.001018; Durbin-Watson Stat: 2.114196				

Source: Author's computation using E-view 10

The results presented above will be analyzed using three criteria; economic a priori criteria, statistical criteria and econometric criteria.

❖ **Economic a priori Criteria**

The a'priori expectation is used to determine the existing economic theories and this indicates the signs and magnitude of our variables.

- From the result in table 4.3, the result shows a regression line intercept of -13.20443. The value is negative and statistically significant -2.071615 with p-value of 0.0470 which is less than 0.05. Hence this is an indication that the productivity will be constant at 13.% per percent per annum when there is no change in the explanatory variables.
- The regression result shown in Table 4.3, shows a significant positive relationship between company income tax and foreign direct investment. The value for company income tax is 0.860883, this implies that One percent increase in company income tax, ceteris paribus, will lead to about 86 percent decrease in foreign direct investment. This is

consistent with apriori expectation. This result supports the fact that increasing company income tax output discourage foreign direct investment.

- Infrastructure has a positive correlation with foreign direct investment. The value for Infrastructure is 0.499184, this implies that One percent increase in Infrastructure, ceteris paribus, will lead to about 49 percent decrease in foreign direct investment. This is not consistent with apriori expectation. This result supports the fact that increasing Infrastructure does not drives the foreign direct investment
- Exchange rate has a positive correlation with foreign direct investment. The value for Exchange rate is 0.001264; this implies that One percent increase in Exchange rate, ceteris paribus, will lead to about 1 percent decrease in foreign direct investment. This is consistent with apriori expectation. This result supports the fact that increase in Exchange rate discourage foreign direct investment.
- Inflation rate has a positive correlation with foreign direct investment. The value for Inflation rate is 0.028410; this implies that One percent increase in Inflation rate, ceteris paribus, will lead to about 1 percent decrease in foreign direct investment. This is consistent with apriori expectation. This result supports the fact that increase in Inflation rate discourage foreign direct investment
- Interest rate has a positive correlation with foreign direct investment. The value for Interest rate is 0.678864; this implies that One percent increase in Interest rate, ceteris paribus, will lead to about 1 percent decrease in foreign direct investment. This is consistent with apriori expectation. This result supports the fact that increase in Interest rate discourage foreign direct investment
- Trade openness has a positive correlation with foreign direct investment. The value for Trade openness is 0.678864; this implies that One percent increase in Trade openness, ceteris paribus, will lead to about 1 percent decrease in foreign direct investment. This is not consistent with apriori expectation. This result does not supports the fact that increase in Trade openness drives foreign direct investment

- The result shows that the coefficient of ECM is negative -0.948714 and insignificant at 94% percent critical level. This shows that about 94 percent disequilibria in the labour productivity in the previous years are corrected for in the current year. The significance of the ECM is an indication and a confirmation of the existence of a long run equilibrium relationship between foreign direct investment and the independent variables used in this study. The robustness of the error correction method further buttresses that only 94 percent is corrected in the previous year.

❖ **Statistical Criteria**

- From the results obtained, the company income tax is revealed positive and statistically insignificant with their t- value and p-value of 1.446576 (0.1584) respectively. This is because their p-value is greater than 5% level of significance. This result means that company income tax is positive and has insignificant impact on foreign direct investment output in Nigeria.

- The infrastructure has a positive and significant impact on foreign direct investment in

Nigeria. This is because their t-value is 2.659286 while the p-value of 0.0075, were less than five percent level of significance. This result means that infrastructure were significant in causing changes in foreign direct investment in Nigeria.

- The exchange rate has a positive insignificant impact on foreign direct investment in Nigeria. This were revealed through their t-value which is 0.257047 while the p-value of 0.7989, were greater than five percent level of significance. This result means that exchange rate is insignificant in causing changes in foreign direct investment in Nigeria.
- The inflation rate has a positive and significant impact on foreign direct investment in Nigeria. This were revealed through their t-value which is 0.614968 while the p-value of 0.0138, were greater than five percent level of significance. This result means that inflation rate is insignificant in causing changes in foreign direct investment in Nigeria.
- The interest rate has a positive and insignificant impact on foreign direct investment in Nigeria. This were revealed through their t-value which is 1.951269 while the p-value of 0.0604, were greater than five percent level of significance. This result means that interest rate is insignificant in causing changes in foreign direct investment in Nigeria.
- The trade openness has a positive and significant impact on foreign direct investment in Nigeria. This were revealed through their t-value which is 3.981643 while the p-value of 0.0001, were less than five percent level of significance. This result means that trade openness is insignificant in causing changes in foreign direct investment in Nigeria.
- From the result, the value of the coefficient of determination R^2 is 0.528545 which implies that 54% of the variation in foreign direct investment is explained by the independent variables included in the model. While about 36 % are accounted for by variables outside our model. This further show that there is a high goodness if fit in the model

- The *f*-statistics value of 4.804686 in the model, which are a measure of the joint significance of the explanatory variables, is found to be statistically significant at 1 percent level as indicated by the corresponding probability value of 0.0010. This indicates that there is a significant differences between the dependent and independent variables.

❖ **Econometric Criterion**

- Finally, the Durbin Watson test of autocorrelation shows an absence of serial autocorrelation. This is because the calculated value of DW (2.114196) falls between lower critical level (DU) and 2 at 1% significant level. Where DU= 1.8. With this result we reject the hypothesis that there is presence of serial autocorrelation in our model. Therefore, parameter estimates from our model are stable, efficient suitable for policy simulation.

Table 4.4 Error Correction Result for model Two

Variable	Coefficient	Std.error	T-test	Prob
C	1.143607	4.101265	0.278843	0.7823
LGFCF	0.039616	0.026047	1.520970	0.1387
LLAB	0.967462	0.367290	2.634051	0.0032
HCI	0.235549	0.250998	0.938451	0.3555

FDI	0.308324	0.010592	3.785869	0.0001
TOPN	0.020799	0.003171	6.558536	0.0000
EXCR	-0.000456	0.000377	-1.211474	0.2352
ECM(-1)	-0.624495	0.153579	-4.066268	0.0003
R-Squared: 0.792505; Adjusted R-squared: 0.780756, ;F-statistic: 567.5306; Prob(F-statistic): 0.001000; Durbin-Watson Stat: 1.986807				

Source: Author's computation using E-view 10

The results presented above will be analyzed using three criteria; economic a priori criteria, statistical criteria and econometric criteria.

❖ **Economic a priori Criteria**

The a'priori expectation is used to determine the existing economic theories and this indicates the signs and magnitude of our variables.

- From the result in table 4.3, the result shows a regression line intercept of 1.143607. The value is positive and statistically significant 0.278842 with p-value of 0.7823 which is greater than 0.05. Hence this is an indication that the productivity will be constant at 1.% per percent per annum when there is no change in the explanatory variables.
- The regression result shown in Table 4.4, shows a significant positive relationship between gross fixed capital formation and real gross domestic product. The value for gross fixed capital formation is 0.039616, this implies that One percent increase in gross fixed capital formation, ceteris paribus, will lead to about 3 percent increase in real gross domestic product. This is consistent with apriori expectation. This result supports the fact that increasing gross fixed capital formation encourage real gross domestic product.
- Iabour has a positive correlation with real gross domestic product. The value for Iabour is 0.499184, this implies that One percent increase in Iabour, ceteris paribus, will lead to about 49 percent increase in real gross domestic product. This is consistent with apriori expectation. This result supports the fact that increases Iabour increases the real gross domestic product
- Human capital index has a positive correlation with real gross domestic product. The value for Human capital index is 0.235549; this implies that One percent increase in Human capital index, ceteris paribus, will lead to about 1 percent decrease in Human capital index. This is consistent with apriori expectation. This result supports the fact that increase in Human capital index increases real gross domestic product
- Foreign direct investment has a positive correlation with real gross domestic product. The value for foreign direct investment is 0.308324; this implies that One percent increase in foreign direct investment, ceteris paribus, will lead to about 1 percent increase in foreign direct investment. This is consistent with apriori expectation. This result supports the fact that increase in foreign direct investment increases real gross domestic product.
- Trade openness has a positive correlation with real gross domestic product. The value for trade openness is 0.020799; this implies that One percent increase in Interest rate, ceteris paribus, will lead to about 1 percent decrease in Trade openness. This is consistent with apriori expectation. This result supports the fact that increase in trade openness increases real gross domestic product

- Exchange rate has a positive correlation with real gross domestic product. The value for exchange rate is 6.558536; this implies that One percent increase in exchange rate, ceteris paribus, will lead to about 1 percent decrease in real gross domestic product. This is consistent with apriori expectation. This result supports the fact that increase in exchange rate decrease real gross domestic product

- The result shows that the coefficient of ECM is negative -0.624495 and significant at 62% percent critical level. This shows that about 62 percent disequilibria in the real gross domestic product in the previous years are corrected for in the current year. The significance of the ECM is an indication and a confirmation of the existence of a long run equilibrium relationship between real gross domestic product and the independent variables used in this study. The robustness of the error correction method further buttresses that only 62 percent is corrected in the previous year.

❖ **Statistical Criteria**

- From the results obtained, the gross fixed capital formation is revealed positive and statistically insignificant with their t- value and p-value of 1.520770 (0.1387) respectively. This is because their p-value is greater than 5% level of significance. This result means that gross fixed capital formation is positive and has insignificant impact on real gross domestic product in Nigeria.

- The labour has a positive and significant impact on real gross domestic product in Nigeria. This is because their t-value is 2.634051 while the p-value of 0.0032, were less than five percent level of significance. This result means that labour were significant in causing changes in real gross domestic product in Nigeria.
- The Human capital index has a positive and insignificant impact on real gross domestic product in Nigeria. This were revealed through their t-value which is 0.938451 while the p-value of 0.3555, were greater than five percent level of significance. This result means that Human capital index has not contributed insignificantly on real gross domestic product in Nigeria.
- The foreign direct investment has a positive and significant impact on real gross domestic product in Nigeria. This were revealed through their t-value which is 3.78536 while the p-value of 0.000, were less than five percent level of significance. This result means that foreign direct investment is significant in causing changes in real gross domestic product in Nigeria.
- The trade openness has a positive and significant impact on real gross domestic product in Nigeria. This were revealed through their t-value which is 6.558536 while the p-value of 0.0000, were less than five percent level of significance. This result means that trade openness has contributed significantly on real gross domestic product in Nigeria.
- The exchange rate has a negative and insignificant impact on real gross domestic product in Nigeria in Nigeria. This were revealed through their t-value which is -1.211474 while the p-value of 0.2352, were greater than five percent level of significance. This result means that exchange rate is insignificant effect on real gross domestic product in Nigeria.

- From the result, the value of the coefficient of determination R^2 is 0.792505 which implies that 79% of the variation in real gross domestic product is explained by the independent variables included in the model. While about 21 % are accounted for by variables outside our model. This further show that there is a high goodness if fit in the model

- The *f*-statistics value of 567.5306 in the model, which are a measure of the joint significance of the explanatory variables, is found to be statistically significant at 1 percent level as indicated by the corresponding probability value of 0.0010. This indicates that there is a significant differences between the dependent and independent variables.

❖ **Econometric Criterion**

- Finally, the Durbin Watson test of autocorrelation shows an absence of serial autocorrelation. This is because the calculated value of DW (1.986807) falls between lower critical level (DU) and 2 at 1% significant level. Where DU= 1.9. With this result we reject the hypothesis that there is presence of serial autocorrelation in our model. Therefore, parameter estimates from our model are stable, efficient suitable for policy simulation.

Causality Test among FDI, CIT and RGDP in Nigeria

In line with the third objective of this study, a Pairwise Granger Causality Tests was carried out to determine the direction of causality among FDI, CIT and RGDP in Nigeria. The results are reported in Table 4.7. Based on these results, we posit that a unidirectional causality runs from FDI to RGDP in Nigeria, and at the same time, a unidirectional causality runs from CIT to FDI in Nigeria. This conclusion was drawn from the fact that the p-value of the F-statistic in each case was less than 0.05. This finding also validates the earlier findings that CIT drives FDI, while FDI, in turn, drives RGDP.

Table 4.5: Pairwise Granger Causality Tests among FDI, CIT and RGDP

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause RGDP	37	5.38034**	0.0003
RGDP does not Granger Cause FDI		1.76215	0.1879
CIT does not Granger Cause RGDP	37	2.68523	0.1122
RGDP does not Granger Cause CIT		0.40749	0.6687
CIT does not Granger Cause FDI	37	6.76619**	2.0005
FDI does not Granger Cause CIT		2.74024	0.0797

NB: ** implies significant at 1% level.
Source: Researcher's Computation using EVIEWS 10

Post-Estimation Diagnostic Tests

In order to ensure the robustness of the estimated models, some relevant post-estimation diagnostic tests were performed. Such tests include the Breusch-Godfrey Serial Correlation LM test, Breusch-Pagan-Godfrey Heteroskedasticity test, Jaque-Bera Normality test, and the Cumulative Sum (CUSUM) for Model Stability test. The results of these tests are reported in Table 4.8.

From the results in Table 4.8, we could not reject the null hypotheses of no serial correlation of the residuals, homoskedasticity of the residuals' variances, normality of the residuals, no specification error, and stability of the estimated models (see Figure 4.1). This implies that our models (both RGDP and FDI models) do not suffer any one of serial correlation, heteroskedasticity, non-normality, specification error, and instability of the estimated models. This is because the associated probability values of F-statistics/JB-statistics for all tests are greater than 0.05. Also, the estimated models are considered stable since the fitted lines fall within the upper and lower confidence bounds at the 5% level of significance (see Figure 4.1).

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study investigated the impact of foreign direct investment (FDI) on economic growth (real GDP), while explicitly accounting for the effect of taxation (company income tax) on FDI in Nigeria during the period 1981 – 2019. The study employed the contemporary econometric techniques of cointegration and error correction mechanism, within the framework of the Error Correction Model (ECM) model to establish the longrun relationship among the chosen variables, and to determine the impact of taxation (company income tax) on FDI flows, and the impact of FDI on economic growth. Based on the findings already summarised earlier, the study concludes that taxation (company income tax) exerted an insignificant positive impact on FDI flows, while FDI significantly contributed positively to the growth of the economy of Nigeria. Also, a unidirectional causality runs from taxation (company income tax) to FDI and from FDI to economic growth in Nigeria during the review period.

5.2 Recommendations

In line with the findings of this study, the following recommendations are proffered:

- Since taxation (company income tax) exerts significant negative impact on FDI flows in Nigeria, tax incentives in the form of downward adjustment in company income tax can significantly attract more FDI into Nigeria. Thus, the study recommends that the government should not only sustain the current tax incentive policies, but also add more as they help in the attraction of much needed FDI into growth oriented sectors of the economy. This should be complimented with friendly economic policies that will strengthen the quality of institutions as this will help in the attraction of more FDI flows into the country.

- Given that FDI contributes positively and significantly to the growth of the economy of Nigeria, the government should implement policies aimed at promoting FDI flows into growth-driven sectors of the economy through the establishment of more viable industries capable of ushering FDI-led companies needed to grow the economy. This is to be supported by tax incentive policies, as well as more liberal trade policies.

- The flow of causality from taxation (company income tax) to FDI, and from FDI to economic growth suggests that if the right tax and FDI policies are undertaken, the economy would experience significant growth after two years (2 period lags). Thus, we recommend that tax incentive policies and FDI policies should be seen as a matter of priority and thus, must be approached with utmost caution to ensure they are growth-driven.

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