

Impact of Taxation on Foreign Direct Investment in Nigeria

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Abstract: *The main goal of the study is to investigate the impact of taxation on foreign direct investment in Nigeria from 1980 to 2015. The study utilized cointegration test, vector error correction model (VECM) and Pairwise Granger causality technique in the analysis. The variables employed in the study include foreign direct invest (FDI), tax revenue (TAR), openness to trade (OPNTR), exchange rate (EXR), inflation rate (INFR) and money supply (MS). Stationarity test was conducted via the application of the Augmented Dickey-Fuller (ADF) unit root test. The results showed that all the variables were non-stationary at level; however, all the variables became stationary after first differencing. The results of the cointegration test indicated long run relationship among the variables under study. Furthermore, the results of the VECM showed that tax revenue and exchange rate have positive and insignificant impact on foreign direct investment (FDI) in Nigeria. The results further indicated that openness to trade and inflation rate have negative and insignificant impact on foreign direct investment. However, the results revealed that money supply has positive and significant impact on FDI in the economy. Finally, the results of the Pairwise Granger causality test indicated no causality between taxation and foreign direct investment in Nigeria. Similarly, it showed no causality between openness to trade, exchange rate, inflation rate and foreign direct investment in the economy. However, the results showed unidirectional relationship between money supply (MS) and foreign direct investment (FDI) with causality running from MS to FDI. Thus, the study recommends that government should go ahead to apply tax as a tool for attracting more foreign direct investment into Nigerian economy since tax revenue has positive impact on FDI. More so, government should as a matter of urgency discontinue exchange rate devaluation policy adopted to attracting FDI into the economy, as it does not affect the inflow of FDI of the country significantly.*

Keywords: *Taxation, Foreign direct investment, Cointegration, Vector error correction model, Granger causality*

I. Introduction

Taxation as one of the instruments of fiscal policy is used by government to influence economic activities and attain macroeconomic objectives of a nation such as improved aggregate demand and level of economic activities, income distribution and pattern of resource allocation. Taxation is an involuntary contribution levied on private units such as individuals, properties or business, which enables government to carry out its developmental projects in the country. It does not include public borrowing, user charge fee, gifts, fines and postal rates, etc. Taxation is basically designed to support government in carrying out its obligation for the overall socio-economic well-being of the citizenry. However, issues often arise that require a selective taxation to be applied when the economic concern in tax administration focuses on improved economic growth and increase in the level of employment in the country. Thus, consideration on how tax policy can be geared toward attracting foreign investors to a host country in a developing economy like Nigeria had dominated the past three decades (Sunday, Arzizeh & Okon, 2013). Klemm (2004) cited in Sunday et al. (2013) emphasized that taxes influences the net return on capital, as well as influences the capital movements between countries. In this view, Kaldor & Hume (2004) stated that there should be modification in the attitude geared towards inward foreign direct investment especially when most countries have liberalized their policies to attract investment from companies outside their countries. This is very important because the expectation that investment from foreign multinational company will increase tax revenue, employment, exports or that it brings new technology and innovation in the economy.

Taxation is crucial part of fiscal policy that can effectively be utilized by government and developing economies to achieve economic development of a country including reduction in income inequalities, resources mobilization, social welfare improvement, regional development, foreign exchange, inflation control, among others. According to the classical economist, the main goal of taxation was to raise government revenue. However, with the evolution of circumstances and ideologies, the primary achieve of taxes has equally changed. Today, in spite of the objective of raising the public revenue, taxes affect production, distribution and consumption with a view to ensuring the social welfare through the economic development of a country. Hence, tax can be used as an important tool in the following ways: raising government revenue, optimum allocation of available resources, encouraging savings and investment, control mechanism, acceleration of economic growth,

price stability (Edame & Okoi, 2014). Tax incentives are important tools used to increase induce flow of foreign direct investment in most of the economies of the developing countries from 1990s. Since then, the competition for inflow of foreign direct investment took the centre stage that some of tax incentives designed are conceived as being against the interest of the economies of the developing countries (Joseph & Fidelis, 2017). However, many scholars have criticized this policy as they argued that many of the developing countries remained indifference, while scholars gave their backing to the incentive policy and at the same time, some remained skeptical on how the incentives can bring good result. For instance, Christiansen et al. (2003), Kransdorff (2010) and Asiedu (2002) argued that tax incentives bring about induce inflow of foreign capital into the economies of the developing countries. According to Asiedu (2002), foreign investment promotes growth of an economy because it is a veritable source of employment, investment capital, technology and managerial skills. In the same view, Christiansen et al. (2003) contend that in a depressed poor economy, foreign direct investment is not only provides finance for long term investment, but also produce a spill-over effects to other firms in the form of transfer of technology and human capital formation. Similarly, Kransdorff (2010) equally supported the argument by arguing that foreign direct investment brings new technology and management practices that can benefit the economy of the developing countries.

In contrary, some scholars view tax incentives as factors that work against the interest of developing countries. Some of these authors include James (2009) and Klemm & Van (2010). These scholars believe that tax incentives come with revenue loss to government which will have serious consequence on public expenditures power of the government in developing countries, especially in social services that affects the poor. Similarly, Edmiston et al. (2003) cited in Joseph & Fidelis (2017) was of the opinion that tax incentives can increase burden of tax of those firms which are not benefiting from the given incentives.

In Nigeria, the attention for external sourcing of investment capital is anchored on two basic reasons. Firstly, it is based on the poor level of domestic savings that have been inadequate for the mobilization of long term investment capital required to rapidly accelerate economic growth and development. Secondly, it is based on the decline in the world market price of oil in early 1980s which negatively affected the government's revenue profile, leading to low economic activities in the country (Joseph & Fidelis, 2017). Having over relied on oil revenue, the government activities were almost grounded to a halt as the oil revenue performance fell in early 1980s thereby resulting to government excessive borrowing to finance development projects, which has over the years plunged the country into debt overhang. In view of this, economic crisis in Nigeria lingered for long and in effort to tackle this situation, government adopted Structural Adjustment Programme (SAP) and other economic reforms in 1986.

The structural adjustment programme and other economic reforms such as economic liberalization were adopted with the objective to diversify the economy and reduce government over dependent on the oil sector for its revenue. However, after a decade of the adoption of the structural adjustment and other economic reforms in the Nigerian economy, the expected improved non-oil sector performance could not be attained. Exchange rate and trade liberalization failed to accelerate the growth of non-oil export revenue. In order to find solution to this problem, tax incentives were introduced mainly to induce flow of foreign capital into the country. Meanwhile, it was believed that foreign resources inflow will raise the economy's carrying capacity which has been very low since the oil boom era. It was in these notions that, Nigeria investment promotion council was established in 1995 to negotiate major tax incentive packages to encourage, promote and coordinate inflow of foreign investment to the country, with particular attention to deserving industries and sectors (Joseph & Fidelis, 2017).

Foreign direct investment (FDI) has been described as investment made so as to acquire a lasting management interest (10% of voting stocks) and as least 10% of equity shares in an enterprise operating in another country other than that of the investor country (Mwillima, 2003; World Bank, 2007). Policy -makers believe that foreign direct investment (FDI) produces positive effects on host economies. Some of these benefits are in the form of externalities and the adoption of foreign technology. Externalities here can be in the form of licensing agreement, limitation, employee training and the introduction of new processes by the foreign firms (Aifaro, 2006). According to Anyanwu (1997), foreign investment could be direct or portfolio investment that consists of investment by non-citizens in the domestic economy. Foreign investment is direct if it entails investment in physical assets in the host country by the foreign investors. However, where it entails the purchase of securities and the expenditure of incomes on intangible investment assets, it is classified as portfolio investment. Both general commerce and foreign investment occupy a dominant place in the Nigerian economy.

Nigeria is like a country caught in a web on the role of foreign capital in its quest for development. The realities of structural adjustment programme (SAP) and imperatives of a balanced of payment equilibrium as well as the burden of external debt services ratio combined to make injections of foreign capital a sone-qua-non for economic recovery and accelerated development. However, it is obvious that the inflows of foreign capital are not clear. Agbachi (1998) noted that foreign investors invest in an economy with the aim to maximize their returns. In this course, the foreign investors are said to have emasculated and preyed on domestic economy, thus

retarding real growth. Despite these changes, the foreign investors are not entirely predacious in their operations in the domestic economy. Influx of foreign capital consequent upon his investment is known to have served as catalyst to growth and development. Muttaka (2011) stated that despite government's economic reforms, the problems with the nation's economy were insecurity and mismanagement. No investor will ever want to invest in a country where there is insecurity as that would amount to taking unnecessary risk. International organizations and rating agencies are counting the cost of the Nigerian insecurity on foreign investment. The world investment report (WIR) of the United Nations conference trade and development (UNCTAD) indicated that the domestic economy has lost a whopping of ₦1.33 trillion foreign direct investment following security challenges. In this sense, the report indicates that FDI revenue to Nigerian fell to \$ 6.1 billion in 2010. This is close to a 30 percent from the \$8.65 billion (₦1.33 trillion) in 2009 and fell to \$3.06 billion in 2012. The report also revealed that the sharp decline of FDI to the country as compounded in the aftermath of the global financial crisis. This condition has recently, been attributed to the increasing rate of insecurity in the country, as well as infrastructural delay. It is against this background that this study investigates the impact of taxation on foreign direct investment in Nigeria.

II. Review of Related Literature

Theoretical Review

Several theories have been developed mainly to explain the relationship between tax policy and foreign direction investment behaviours in an economy. The reviews of the theories of the foreign direct investment and determinants range from the economic theories of internationalization theories of Rugman (1981), Vernon (1966) to Dunning's (1993) eclectic paradigm. Thus, the theory adopted in this study is Dunning (1993) cited in Dunning (2011), which revealed that the major factors that drive foreign direct investment inflows have been the need to secure market access, the opportunities presented by large scale privatization processes and the degree of political and economic stability (Babatunde, 2012). The eclectic paradigm of Dunning, postulated that the undertaking of FDI is determined by the realization of three groups of advantages of ownership which arise from the firm's size and access to markets and resources. The firm's ability to coordinate complementary activities like manufacturing and distribution and the ability to exploit differences between countries, then locational advantages which includes differences in country transport costs, natural endowments, cultural factors, macroeconomic stability and government regulations. More so, the internationalization incentives which arises from exploiting imperfections in external markets that include the reduction of uncertainty and transaction costs in order to generate knowledge more efficiently and the reduction of state generated imperfections such as subsidies, tariffs, foreign exchange controls and subsidies. Considering the objective of this study, an emphasis has been placed on the locational determinants of FDI.

According to Erdal & Tatoglu (2011), the locational determinants of FDI can therefore, be summarized as market size and market growth, raw materials and labour supply, political and legal environment, host government policies, geographical proximity and host country infrastructure. Therefore, the main focus is on market size which is anchored on per capita GDP, raw materials using availability of crude oil exports as a percentage of GDP. Host country policies are viewed from the perspective of macroeconomic stability and taxation policies. Macroeconomic stability is measured using inflation rate and exchange rate separately, and tax incentive policy through effective tax and average tax rates.

Lipsey (1979) cited in Edame & Okoi (2014) conceived the deterrents of investments to include investment rate, national income and expectations. The degree of demand for goods is the major determinant of investment. Thus, it was argued that the higher the degree of demand and income is the higher the firms' willingness to invest, because of the favourable expectations about the future. These are strong limitations to the ability of firms in obtaining funds by borrowing (Edame & Okoi (2014). However, the accelerator theory assumes a capital-output ratio and that the industry would be operating at its full capital if demand for its products increases and the industry is to produce the higher level of output, capital stock must increase and this necessitate new investment. Most firms finance their investments with funds borrowing, as long as the rate of return on capital is exceeds the interest rate charged on borrowed funds, firms would always like to add to their existing capital being equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital assets during its life just equal to the supply price.

More so, firms are aware of the factor such as direct taxation on the expected rate on capital. Consequently, it is assumed that since taxes tend to decrease expected returns, firms try to lower investment expenditures. On the part of government, it does grant tax incentives with a prior view that the action would attract net investment in the economy. The link between such tax incentive, example accelerated depreciation reduce whatever curtailing effect the income tax may have on investment. The neoclassical theory of demand assumed perfect certainty, fixed relative prices and interest rate, technology and substitutability of capital for other inputs. It is proposed that initial allowance and tax credits on net investment favour short live investment (Edame & Okoi, 2014).

Meanwhile, After the Berlin conference of 1884 and the consequent consolidation of British rule in the country, the imperative of colonial economic hegemony were put in place. Lucky enough, the time coincided with the industrial revolution of Europe when most companies were looking for materials sources. Activities of alien entrepreneurs were therefore concentrated in export oriented mineral and agricultural production as well as in public utilities, like railway services that facilitate the British commercial activities. The large internal market of Nigerian economy attracted foreign investors from France who competed with understanding price under the auspices of participant Association of West African Merchants (AWAM). But despite the existence of AWAM, the continue entry of new firms from other parts of the world and the emergence of indigenou entrepreneurial class led to great competition in the country's commercial activities. By 1950, pioneer manufacturing e started emerging because of the increasing competition as well as responses to the demand of the nationalist movement. The immediate post in dependence period witnessed considerable legislation aimed at promoting industrial development of the country.

Foreign Direct Investment in Nigeria

The goal of attracting foreign direct investment in many economies of the world especially the developing countries that most require such investment to boost domestic capital has overtime preoccupied the macroeconomic objective of every economy. Foreign direct investment as the easiest way of sourcing external finance complements domestic savings and encourages growth through investment financing. Foreign direct investment is conceived to be more stable than other kinds of financial flows as foreign investors who have link to foreign sources of capital are not restricted by the underdeveloped nature of domestic capital market or by the ability of the domestic economy to source foreign cash flow from the export of domestic production (George & Bariyima, 2015). Similarly, another economic reason revealed for the pull towards this type of investment is a link to western markets, creation of new job opportunities, access to advanced managerial techniques, including advanced technology that stimulates technological adaptation and innovation which fosters rapid economic growth as well as privatization.

In Nigeria, various government regimes have overtime developed various policies to improve investment conditions mainly to attract foreign direct investment. Nigeria as the most populous country in Africa is striving to attain international competitiveness among other Africa countries as far as foreign direct investment inflows is concerned. For instance, in 2000, the foreign direct investment (FDI) position of Nigeria was ₦1,140,137,660 million, and rose to ₦1,190,632,024 million and ₦1,874,042,130 in 2001 and 2002 respectively. By 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 and 2011, the FDI of Nigeria were ₦2,005,390,033 million, ₦1,874,033,035 million, ₦4,967,898,866 million, ₦4,534,794,015 million, ₦5,167,441,548 million, ₦7,145,016,198 million, ₦7,029,701,142 million, ₦5,133,465,493 million and ₦8,025,110,597 million respectively.

Taxation and Foreign Direct Investment in Nigeria

The Nigerian economics have witnessed a remarkable growth in foreign direct investment (FDI). Right from time, some economics have become concerned about the effect of this growth on economic performance (of both within and outside the country) and about the need for an appropriate government policy toward foreign direct investment. Not surprisingly, this concern has been fueled by the responsiveness of foreign direct investment (FDI) to attempts to tax the income that it produces. If FDI is not responsible to taxation, then it may be an appropriate target for taxation by the host country, which can raise revenue without sacrificing any of the economic benefits that foreign direct investment produces. For some countries in which the degree of foreign direct investment (FDI) penetration is larger than the revenue raised from taxing (F1) can represent a significant fraction of tax revenue in Nigeria. For example, tax payments by its corporations alone exceeds 10 percent of host country corporate tax revenues, Alworth (2000) if the volume of FDI responds negatively to taxation then the host country must trade off the revenue gains of the increased taxation against the economic cost of discouraging FDI.

Most reviews of literature on tax sensitivity of FDI have focused on investment to and from the united state, in part because these flows are well document. It this case, the effect of taxation on foreign direct investment (FDI) would be concluded that FDI in Nigeria is sensitive to Nigerian tax regime and to the regimes of the investing countries. The regulating frame work and overall economic and political climate in the country also exercise important influences on FDI transfers and reinvestment in Nigeria. Dercreus & Griffith (2001) uses individual firm data of U.S multinational investing in Europe (restricted to the U.K, France and Germany). In line with Markusen and Brasnard, they show that the choice between producing abroad or exporting is determined by the proximity. Concentration trade off then the choice of the location, conditional to the decision to produce abroad rather than to export is driven by taxation and other cost related factors it is important to note that the factors which triggered the decision to invest abroad in many cases can be approach from customers, suppliers local agent and government management to consider investing abroad.

Gordon and Hines (2004), assert that “tax policies are obviously capable of affecting the volume and location of foreign direct investment since higher tax rates reduces after tax returns there by reducing incentives to commit investment funds’. This feeling that FDI should to corporate profit taxation is widely shared, both in academic operational circle, even though empirical as well as theoretical reason could justify this impact to the empirically unnoticeable and even misleading. First, the use of transfer pricing and intra-firm debt contracting allows firms to shift profits where to taxation and invest. Edozrn (I 998), noted that adequate foreign investment inflow is crucial, crucial, for the achievement of the objective of structural adjustment programme. Foreign investment Stimulates e supply needed during and beyond the medium term programmed to re-force the demand management measures of stopping inflation and restoring general macroeconomic stability. However, a further theoretical attempt at explaining the determinant of foreign private investment is that based on the pure theory of firm using micro—economic analysis with perfect market as a basic assumption, the theory opines that TNIS invest in overseas when their to suffer diminishing return to scale. It is therefore on basis of the above theoretical literature that e review some of’ the empirical literature and evidence of the foreign direct ii vestment sector.

Empirical Review

George & Bariyima (2015) investigated the influence of tax incentives in the decision of an investor to locate foreign direct investment in Nigeria using data series obtained from CBN statistical bulletin and the World Bank World Development Indicators Database. Multiple regressions estimation based on static Error Correction Modelling (ECM) utilized 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 study discovered that foreign direct investment has negative and significant influence on tax incentives, which implies that increase in tax incentives does not bring about a corresponding increase in FDI.

Onakoya, Afintinni & Ogundajo (2017) investigated the impact of taxation on economic growth in Africa for the period 2004-2013 by employing Augmented Dickey Fuller (ADF) test, Levin et al. test, Im, Pesaran and Shin W-stat tests. The appropriate fixed and random effect test was employed to determine the fitness of the model using the Hausman test. The study equally conducted the Hausman-Test to determine the appropriate estimator between Fixed and Random Effect. To confirm the robustness and validity of regression model, some post estimation tests were conducted which were omitted Variable Test, and Heteroscedasticity test. The study discovered that tax revenue has positive impact on gross domestic product and as well promotes economic growth in Africa. Hence, the study concluded that tax revenue has a significant and positive relationship with Gross Domestic Product. Therefore, high and weak levels of taxation are favorable to economic growth as upheld by the economic effect of Ibn Khaldun’s theory on taxation, which approves the positive impact that lower tax rate have on work, output and economic performance.

Sunday et al. (2013) studied the impact of tax policy and incentives on foreign direct investment (FDI) and economic growth with evidence from export processing zones in Nigeria using data collected through questionnaire and analyzed by employing ordinary least square (OLS) techniques. The study indicated that tax rates have a significant impact on foreign direct investment and economic growth in the economy. Therefore, the study recommended for abolition of exonerations, despite finding a determinant role of the fiscal and financial incentives on the development and growth of private investment, particularly in the export processing sector. Babatunde (2012) examined the impact of tax incentives on foreign direct investments in the oil and gas sector in Nigeria. Similarly, it investigated the determinant factors of foreign direct investment and analyze whether or not some selected factors including tax incentives, macro-economic stability, availability of natural resources, openness to trade, market size, political risk and infrastructural development risk have influence on foreign direct investment in the oil and gas sector of Nigeria. Karl Pearson coefficient of correlation ‘r’ statistical method of analysis was utilized in the analysis. The results indicated that availability of natural resources; tax incentives and openness to trade have significant impact on foreign direct investment in the oil and gas sector in Nigeria. However, there is insignificant influence of macro-economic stability, market size, political risk and infrastructural development on FDI in the oil and gas sector in Nigeria. This result supports the trend of findings in similar studies in the literature.

Edame & Okoi (2014) examined the impact of taxation on investment and economic growth in Nigeria from 1980-2010. Ordinary least square (OLS) technique of multiple regression analysis was utilized in the analysis. The results revealed that corporate income tax (CIT) and personal income tax (PIT) have negative impact o investment. The economic implication of the result is that a percent rise in CIT will lead a decrease in the level of investment in Nigeria. Consequently, a unit rise in PIT will lead to a decrease in the level of investment. Finally, the result therefore showed that taxation is negatively related to the level of investment and the output of goods and services (GDP) and is positively related to government expenditure in Nigeria. The study also indicated that taxation statistically is significant factor influencing investment, GDP and government expenditure in Nigeria. Olaleye, Riro & Memba (2016) examined the effect of company income tax incentives

on foreign direct investment in Nigerian selected manufacturing companies. The study adopted descriptive research design and the target population of the study was the 74 selected manufacturing companies with approximately more than 56,000 employees. A sample size of 352 respondents from thirty two (32) manufacturing companies was selected from seventy four (74) companies using stratified purposive sampling and respondents were grouped into three strata; top, middle and lower management levels. Descriptive statistics adopted were; frequencies, mean and standard deviation, while inferential statistics consisted of correlation and regression analysis. The study showed strong positive linear relationships between reduced company income tax incentives and foreign direct investment.

Joseph & Fidelis (2017) investigated whether the tax incentive policy has any significant effect on the flow of foreign direct investment to the non-oil sector. Multiple regression model was adopted which was transformed into log-log model in the analysis. Regime switch model helped us to evaluate the effectiveness of the policy introduced in late 1999. Both company income tax and investment allowance appeared with the right sign. The results indicated that the tax incentive policy influence the flow of foreign investment to the non-oil sector, showing that the country's tax incentives can help revive the ailing non-oil sector. Fakile & Adeghile (2011), while contributing to the debate on FDI and tax incentives, stated that it is on the basis of these assertions about the advantages of FDI that governments have often provided special incentives to foreign firms to set up companies in their countries. Fakile and Adeghile (2011) Morisset (2003), supported the view that tax incentive is a tool to attract FDI. In fact Edmiston, Mudd & Valev (2003), opined that government often seek to attract FDI offering tax incentives to firms in exchange for certain benefits. Curiously, the empirical evidence of the benefits of offering tax incentives both at the firm level and at the national level remains ambiguous. Although trade theory expects FDI inflows to result in improved competitiveness of host countries' exports, the pace of technological change in the economy as a whole will depend on the innovative and social capabilities of the host country, together the absorptive capacity of other enterprises in the country (Carkovic & Levine, 2002).

Edozi (1998), noted that adequate foreign investment inflow is crucial, crucial, for the achievement of the objective of structural adjustment programme. Foreign investment Stimulates the supply needed during and beyond the medium term programmed to re-force the demand management measures of stopping inflation and restoring general macroeconomic stability. However, a further theoretical attempt at explaining the determinant of foreign private investment is that based on the pure theory of firm using micro—economic analysis with perfect market as a basic assumption, the theory opines that FDI invest in overseas when their to suffer diminishing return to scale. It is therefore on basis of the above theoretical literature that we review some of the empirical literature and evidence of the foreign direct investment sector.

III. Methodology

This study focuses on the impact of taxation on foreign direct investment in Nigeria for the period 1981-2015. The study employed stationarity test via the application of Augmented Dickey-Fuller (ADF) unit root test, cointegration test, vector error correction model (VECM) and Granger causality test in the investigation. The stationarity test is employed to determine the order of integration of the variables under study. The cointegration test is used to examine the long run relationship among the variables of the study. Similarly, the vector error correction model (VECM) is utilized to investigate the short run dynamics and long run relationship among the variables, while the Granger causality test is used to determine the causality between taxation and foreign direct investment in Nigeria. The variables employed in the investigation include foreign direct investment (FDI), tax revenue (TAR), openness of trade (OPNTR) and exchange rate (EXR). Data for the study are collected from the Central Bank of Nigeria (CBN) statistical bulletin, volumes, 20, 24, 25 of 2010, 2014 and 2015 respectively.

Model Specification

Following the theoretical background that explains this study, the work adopts a modified version of the model employed by Ajah (2005) in order to specify a model that captures the relationship between the two variables. The model is, therefore, specified in mathematical form as:

$$FDI = f(TAR, OPNTR, EXR, INFR, MS)$$

1
Where;

FDI is the foreign direct investment; TAR is the tax revenue; OPNTR is the openness of trade; EXR is the exchange

In linear function, the model is expressed thus:

$$FDI_t = \phi_0 + \phi_1TAR_t + \phi_2OPNTR_t + \phi_3EXR_t + \phi_4INFR_t + \phi_5MS_t + U_t$$

2
Where;

FDI is the dependent variable; TAR, OPNTR and EXR are the explanatory variables ϕ_0 is the constant term; t is the current period; U_t is the error term and ϕ_{is} are the coefficients of the regression equation. In log function, it is expressed as:

$$LFDI_t = \phi_0 + \phi_1 LTAR_t + \phi_2 LOPNTR_t + \phi_3 LEXR_t + \phi_4 LINFRT_t + \phi_5 LMS_t + U_t$$

Where; L is log of the parameters of the regression equation

A priori expectation

It is expected that tax revenue, openness of trade and exchange should positive relationship with foreign direct investment in the estimation model. That is they should possess positive sign in the estimation.

Method of Evaluation

Unit Root Test

This method of estimation procedure investigates the unit root level otherwise known as stationarity level of the time series used in the investigation. The test would help to determine the order of integration of the time series through the application of the Augmented Dickey-Fuller (ADF) stationarity test. Hence, the test would be conducted with or without a deterministic trend (t) for each of the time series. ADF test is estimated using the following model.

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{n=1}^n \alpha_n \Delta y_t + \epsilon_t$$

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Where;

Y = a time series, t = linear time trend, Δ = first difference operator, α_0 = constant, n = optimum number of lags in the development variable and ϵ_t = error term. Thus, if the ADF result fails to reject the test in levels but rejects the test in the first difference, it implies that the series contains one unit root and is of integrated of order one. But if the test fails to reject the test in levels and first difference but rejects it in second difference, it means that the series contains two unit roots and is of integrated of order two.

Johansen Cointegration test

This evaluation procedure examines the level of cointegration of the variables by applying Johansen co-integration technique. This implies that, if two or more variables move closely together in the long run, even if the variables are trended, their difference is constant. Hence, Hall & Henry (1989) observed that when this happened, it would be regarded that it has defined long run relationship, and they are stationary. Meanwhile, if no cointegration is found, that means that the variables did have long run relationship properties. In theory, they can move randomly away from one another. Johansen & Juselius (1990) state that to achieve the empirical result would amount to establishing maximum-likelihood test procedure. Meanwhile, the Johansen co-integration model is specified below.

$$\square \text{ trace } (r) = -T \sum_{i=1}^r \ln (1 - \lambda_i)$$

Where;

T is the usable observations number, $\lambda_{1,s}$ = estimated eigenvalue from the matrix; λ trace is the trace test, which tests the H_0 that postulated that level of distinct cointegrating vector number is less than or equal to q . Rejecting null hypothesis indicates that the variables contain unit root and have to be differenced at least once to achieve stationarity of the variables.

Granger Causality Test

To explain the granger causality text, we often ask question like ‘is it taxation that cases FDI (TAX → FDI) or is FDI that causes taxation (FDI → Tax)? Here, the arrow points causality. The granger causality text to be used in this research work is specified as:

$$FDI_t = \sum_{i=1}^n \alpha_i FDI_{t-i} + \sum_{i=1}^n \beta_i TAX_{t-i} + U_{1t}$$

$$TAX_t = \sum_{i=1}^n \gamma_i FDI_{t-i} + \sum_{i=1}^n \delta_i TAX_{t-i} + U_{2t}$$

α , β and δ are parameter estimates, and U and U are the error terms, and are L

Sources of Data

Data for the study covers the period from 1981 to 2015. Data for the investigation are collected from the Central Bank of Nigeria (CBN) statistical bulletin, volumes 20, 24, 25 for 2010, 2014 and 2015 respectively.

IV. Results and discussion

Stationarity Test

The stationarity test is conducted by employing the Augmented Dickey-Fuller (ADF) unit test in order to examine the order of integration among the variables of the study. Thus, the estimation results of the unit root test are revealed below.

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	At Level			At First Difference			Remarks
	ADF Statistic	5% Critical Value	Prob.	ADF Statistic	5% Critical Value	Prob.	
LFDI	-1.758008	-2.951125	0.3941	-7.978703	-2.954021	0.0000	Stationary
LTAR	-1.497262	-2.951125	0.5229	-6.348478	-2.954021	0.0000	Stationary
LOPNTR	-1.023645	-2.951125	0.7336	-6.402005	-2.954021	0.0000	Stationary
LEXR	-2.007371	-2.951125	0.2824	-4.955164	-2.954021	0.0003	Stationary
INFR	-2.824899	-2.951125	0.0654	-5.916658	-2.957110	0.0000	Stationary
LMS	-0.763689	-2.954021	0.8162	-3.173199	-2.954021	0.0308	Stationary

Source: Researcher's compilation from E-view 9

Table 1 above represents the test of unit via the application of the Augmented Dickey-Fuller (ADF) stationarity test at 5% critical value. The results indicated that at level, all the variables including LFDI, LTAR, LOPNTR, LEXR, INFR and LMS were non-stationary; however, all the variables became stationary after first differencing. The evidence of this claim is shown by the ADF statistics, critical values as well as the respective p-values in the estimation results. This implies that the variables possessed long run properties, which indicate that its mean, variance and covariance are constant overtime. Thus, it means that the series are reliable and they can be used in decision making about economic behaviours in the economy.

Cointegration Test

Having established evidence of order of integration among the variables at the same order one, cointegration test is employed to examine the long run relationship among the variables under study. Thus, the estimation is carried out through the application of the Johansen cointegration test as shown in tables 2 and 3 below.

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.928773	210.8872	95.75366	0.0000
At most 1 *	0.880789	126.3470	69.81889	0.0000
At most 2 *	0.604950	58.28759	47.85613	0.0039
At most 3	0.352284	28.56781	29.79707	0.0688
At most 4	0.251982	14.67013	15.49471	0.0663
At most 5 *	0.154742	5.379639	3.841466	0.0204

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Source: Researcher's compilation from E-view 9

Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.928773	84.54014	40.07757	0.0000
At most 1 *	0.880789	68.05943	33.87687	0.0000
At most 2 *	0.604950	29.71978	27.58434	0.0262
At most 3	0.352284	13.89768	21.13162	0.3735
At most 4	0.251982	9.290491	14.26460	0.2628
At most 5 *	0.154742	5.379639	3.841466	0.0204

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Source: Researcher's compilation from E-view 9

Tables 2 and 3 above depict the test of cointegration test. The estimation results showed that long run relationship exist among the variables under study. This claim is supported by the trace statistic and the maximum eigenvalue statistic as well as their respective p-values. Both the trace statistic and the maximum eigenvalue statistic indicate 2 cointegrating equations at 5% critical value, which implies there is evidence of cointegration among the variables such as LFDI, LTAR, LOPNTR, LEXR, INFR and LMS respectively.

Vector Error Correction Model (VECM)

This test is conducted to examine the short run dynamics and long run relationship among the variables, since evidence of long run relationship has been established in the study. Hence, there is need for the study proceeded to estimate the vector error correction model (VECM) for further analysis of the data. The estimation results of the VECM are shown in table 4 below.

Table 4: Vector Error Correction Model (VECM)

	Coefficient	Std. Error	t-Statistic	Prob.
ECT	-0.003019	0.001404	-2.150556	0.0453
C(LFDI(-1))	-0.450377	0.205693	-2.189564	0.0420
C(LFDI(-2))	-0.115703	0.194721	-0.594197	0.5598
C(LTAR(-1))	0.908735	0.433843	2.094618	0.0506
C(LTAR(-2))	0.619602	0.516259	1.200176	0.2456
C(LOPNTR(-1))	-1.096864	0.722734	-1.517659	0.1465
C(LOPNTR(-2))	-0.697705	0.771861	-0.903925	0.3780
C(LEXR(-1))	0.362126	0.677464	0.534531	0.5995
C(LEX(-2))	0.263694	0.754414	0.349536	0.7307
C(INFR(-1))	-0.035274	0.022261	-1.584548	0.1305
C(INFR(-2))	-0.016851	0.018181	-0.926870	0.3663
C(LMS(-1))	8.637134	2.730862	3.162787	0.0054
C(LMS(-2))	-5.612786	2.591192	-2.166102	0.0440
C	-0.254674	0.593370	-0.429199	0.6729
R-squared	0.536809	Mean dependent var		0.231171
Adjusted R-squared	0.202281	S.D. dependent var		1.196934
F-statistic	451.604679	Durbin-Watson stat		2.121690
Prob(F-statistic)	0.00733	Schwarz criterion		3.912299

Source: Researcher's compilation from E-view 9

Table 4 above shows the results of the vector error correction model (VECM). It revealed that a priori expectation is satisfied, and that a stability condition is also met in the study. This is indicated by the ECT value with its desired signs. The ECT is negative, fractional and significant, which means that the condition is satisfied. The result of the ECT is -0.003019, while the p-value is 0.0453. The ECT value indicates that the speed of adjustment from short run disequilibrium towards long run equilibrium relationship that will be corrected annually is 45.7%.

Similarly, the estimation results revealed that the coefficients of tax revenue (LTAR), exchange rate (LEXR) and money supply (LMS) are 0.908735, 0.362126 and 8.63713 respectively at lag one year period, which implies that tax revenue and exchange rate have positive and insignificant influence on foreign direct investment (LFDI), while money supply (LMS) has positive and significant impact on foreign direct investment in Nigeria. Thus, it estimated on the average that 1% increase in tax revenue (LTAR) will lead to 0.908735 increases in foreign direct investment (LFDI). Similarly, a percentage in rise in exchange rate (LEXR) as well as money supply (LMS) will result to 0.362126 and 8.63713 increases in LFDI in the economy. More so, the results indicated that the coefficients of inflation rate and openness to trade are -0.035274 and -1.096864 with their p-values being 0.1305 and 0.1465 respectively at lag one year period. These results imply that inflation rate and openness to trade have negative and insignificant influences on foreign direct investment (LFDI) in Nigeria. Hence, it is estimated that 1% rise in inflation rate (INFR) as well as openness to trade (OPNTR) will lead to 0.035274 and 1.096864 decreases in LFDI of Nigeria.

Furthermore, the result revealed F-statistic value of 51.604679, with the Prob(F-statistic) being 0.00733. This result implies that the joint influence of the independent variables on the dependent variable is statistically significant. The R² value is 0.536809, which means that 53.7% of the variations foreign direct investment (LFDI) is explained by the independent variables such as LTAR, LOPNTR, LEXR, INFR and LMS while the remaining 46.3% of the variations in the dependent variable is attributed to other variables not included in the specified model. More so, the result as well indicated the Durbin Watson (DW) statistic value of 2.121690. In this study, the tabulated value of the lower limit (dL) of the Durbin Watson is 1.271, whereas the

upper limit is 1.651. Therefore, since the Durbin Watson statistic of 2.121690 is greater than the upper limit value of 1.651, the study concludes that serial correlation does not exist in the model. To confirm this assertion, the result of Breusch-Godfrey Serial Correlation LM Test showed that Obs*R-squared value of LM test is 2.873135, while the p-value is 0.2377, which confirmed the claim that serial correlation does not exist in the model. Thus, the finding of this research conformed with the findings of Olaleye et al. (2016), Joseph & Fidelis (2017), Fakile & Adeghile (2011) and Sunday et al. (2013) who investigated the influence of tax policy on foreign direct investment, and discovered that taxation has positive influence on FDI; however, the finding of the study contradict the findings of Edame & Okoi (2014), Babatunde (2012) and George & Bariyima (2015) who as well carried out research on the related topic, and found that taxation has negative and insignificant influence on foreign direct investment (FDI) in the countries studied.

Pairwise Granger Causality Test

Pairwise Granger causality test is applied to investigate the causality between taxation and foreign direct investment in Nigeria. The results are shown in table 5 below.

Table 5: Pairwise Granger Causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
LTAR does not Granger Cause LFDI	33	0.29158	0.7493
LFDI does not Granger Cause LTAR		0.46989	0.6299
LOPNTR does not Granger Cause LFDI	33	1.76767	0.1893
LFDI does not Granger Cause LOPNTR		1.65169	0.2099
LEXR does not Granger Cause LFDI	33	2.08664	0.1430
LFDI does not Granger Cause LEXR		0.73520	0.4884
INFR does not Granger Cause LFDI	33	0.50829	0.6070
LFDI does not Granger Cause INFR		0.66918	0.5201
LMS does not Granger Cause LFDI	33	6.30610	0.0055
LFDI does not Granger Cause LMS		0.67750	0.5160
LOPNTR does not Granger Cause LTAR	33	1.31065	0.2857
LTAR does not Granger Cause LOPNTR		0.66415	0.5226
LEXR does not Granger Cause LTAR	33	1.22575	0.3088
LTAR does not Granger Cause LEXR		0.24411	0.7851
INFR does not Granger Cause LTAR	33	1.41306	0.2602
LTAR does not Granger Cause INFR		0.99910	0.3810
LMS does not Granger Cause LTAR	33	2.31141	0.1177
LTAR does not Granger Cause LMS		0.58889	0.5617
LEXR does not Granger Cause LOPNTR	33	6.71172	0.0042
LOPNTR does not Granger Cause LEXR		0.94670	0.4001
INFR does not Granger Cause LOPNTR	33	1.36948	0.2707
LOPNTR does not Granger Cause INFR		1.53038	0.2340
LMS does not Granger Cause LOPNTR	33	0.19967	0.8202
LOPNTR does not Granger Cause LMS		2.26322	0.1227
INFR does not Granger Cause LEXR	33	1.96442	0.1591
LEXR does not Granger Cause INFR		0.85769	0.4350
LMS does not Granger Cause LEXR	33	0.06108	0.9409
LEXR does not Granger Cause LMS		5.01573	0.0137
LMS does not Granger Cause INFR	33	3.47253	0.0450
INFR does not Granger Cause LMS		1.16723	0.3259

Source: Researcher's compilation from E-view 9

Table 5 above illustrates the results of the Pairwise Granger causality test. The results indicate that significant causality does not run between taxation and foreign direct investment. The evidence of this claim is supported by the p-values of the causalities that run from LTAR to LFDI (0.7493) and from LFDI to LTAR (0.6299) in the estimation results above. Similarly, the results also showed that LOPNTR, LEXR and LINFR do not have causality with LFDI in the economy. However, the results indicated that unidirectional relationship exists between money supply (LMS) and foreign direct investment (LFDI) with causality running from LMS to LFDI. This is evidenced by the p-value of the causality that runs from LMS to LFDI which is 0.0055.

Policy Implications of the Results

The study investigated the influence of taxation on foreign direct investment in Nigeria for the period 1981-2015. The results of cointegration test revealed that long run relationship exist between among the

variables under study in Nigeria. More so, the results of the vector error correction model (VECM) demonstrated that tax revenue has positive and insignificant influence on foreign direct investment in Nigeria. Hence, it is estimated on the average that any attempt by government to increase tax revenue by 1% will increase foreign direct investment in the 0.908735, though statistically insignificant.

Similarly, the results revealed that exchange rate has positive and significant influence on foreign direct investment (FDI) in the economy. Thus, it is estimated on the average that 1% rise in exchange rate will result foreign direct investment to increase by 0.362126 in Nigeria. Furthermore, the result showed that inflation rate and openness to trade have negative and insignificant influence on foreign direct investment in Nigeria. This implies that any economic policy that increases inflation rate and openness to trade by 1% will lead foreign direct investment to decrease by 0.096864 and 0.35274 respectively. Lastly, the result of the Pairwise Granger causality test showed no causality between taxation and foreign direct investment in Nigeria. This implies that any economic policy aimed at increasing or decreasing tax revenue by 1% will not affect the Nigerian economy significantly.

V. Conclusion and Recommendations

The broad objective of the study is to investigate the influence of taxation on foreign direct investment in Nigeria for the period 1980-2015. Cointegration approach, vector error correction model (VECM) and Pairwise Granger causality approach were utilized in the analysis. The variables employed in investigation include foreign direct invest (FDI), tax revenue (TAR), openness to trade (OPNTR), exchange rate (EXR), inflation rate (INFR) and money supply (MS). Unit root test was conducted by applying the Augmented Dickey-Fuller (ADF) stationarity test. The results showed that all the variables were non-stationary at level; however, all the variables became stationary after first differencing. The results of the cointegration test indicated that long run relationship exists among the variables under study. Furthermore, the results of the VECM showed that tax revenue and exchange rate have positive and insignificant influences on foreign direct investment (FDI) in Nigeria. The results further indicated that openness to trade and inflation rate have negative and insignificant influence on foreign direct investment in Nigeria. However, the results revealed that money supply has positive and significant influence on foreign direct investment in the economy.

Finally, the results of the Pairwise Granger causality test indicated no causality between taxation and foreign direct investment in Nigeria. Similarly, it as well showed no causality between openness to trade, exchange rate, inflation and foreign direct investment in the economy. However, the results showed unidirectional relationship between money supply (LMS) and foreign direct investment (LFDI) with causality running from LMS to LFDI. In view of the above, the study recommends that government should go ahead to apply tax as a tool for attracting more foreign direct investment in the economy of Nigeria, since tax revenue has positive influence on FDI. More so, government should as a matter of urgency discontinue exchange rate devaluation policy adopted as a measure attracting FDI into the country, as it does not affect the inflow of FDI of the country significantly.

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