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**FOREIGN DIRECT INVESTMENT AND REVENUE GENERATION IN NIGERIA  
(1970-2018)**

**Emmanuel Uzoma Makwe (Ph.D)**

Department of Banking and Finance

Faculty of Humanities Social and Management Sciences

Edwin Clark University, Delta State

**Akeeb Olushola Oladele**

Department of Economics

Faculty of Social Sciences, School of Graduate Studies

University of Port Harcourt

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**ABSTRACT:** *This study examined the effect of Foreign Direct Investments flow to agriculture, manufacturing and processing, and mining and quarrying subsectors of the Nigerian economy on revenue generation in Nigeria proxied by company income tax and petroleum profit. The six hypotheses that guided the study were formulated in line with the stated objectives and relevant theoretical as well as empirical literature were reviewed and evaluated. The relevant data were extracted from the annual statistical bulletin of the central Bank of Nigeria. Unit root tests were carried out using Augmented Dickey Fuller method which revealed that the variables were integrated at different orders. The autoregressive distributive lag/bound test was used to explore the long run relationship existing among the variables in each model and the result of the bound test showed that the variables in the two models are co-integrated thus the study proceeded in evaluating the long run as well as the co-integrating form in each model. It was found that Foreign Direct Investments to agriculture does not enhance the generation of company income tax and petroleum profit tax in Nigeria in the long run as its coefficient turned out negative and insignificant whereas the coefficient of manufacturing and processing was positive but not significant in relations with company income tax, but negative and non-significant with respect to petroleum profit tax. Going further, Foreign Direct Investments to mining and quarrying had positive and significant relationship with both company income tax and petroleum profit tax generation in Nigeria. The study recommended that Government can by the use of moral suasion; appeal to foreign investors to plough back about 70% of their earnings so as to expand their output as such expansion will invariably increase the company income tax and petroleum profit tax revenues of government. Tax holidays should be granted to investors in Agriculture and Manufacturing and Processing sectors so as to encourage Foreign Direct Investments inflow to these sub-sectors which will no doubt increase output, stimulate growth and increase the government tax revenue generation capacity in Nigeria.*

**KEYWORDS:** Foreign Direct Investment, agricultural sector, manufacturing sector, mining and quarrying sector, company income tax, petroleum profit tax.

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## **INTRODUCTION**

Revenue generation has to do with the deliberate efforts of government to raise financial resources required to effectively execute the business of governance, this is partly achieved through internally generated revenues of the various arms of government (Adenugba & Chike,

2013). Internally Generated Revenue (IGR) denotes the revenue that the federal, state and local governments generate within their respective areas of jurisdiction (Abiola & Ehigiamusoe, 2014).

According to Asimiyu and Kizito (2014), economic development and sustainability of states in Nigeria depend on the ability of such states to generate revenue internally to supplement the revenue allocation from federation account. In other words, federal allocations are not enough to guarantee economic development of states and local governments, hence the emphasis on local generation of revenues to sustain the economy of the nation locally and at the federal level.

Ekankumo and Braye (2011) submitted that economic development and viability in Nigeria depend on the ability of the country to boost her revenue generation base which is not only dependent on tax, but through entrepreneurial options which will help to complement the revenue from statutory account. Kiabel and Nwokah (2009) in their investigation on what could help states generate more IGR argued that the use of External Tax Consultant provides the solution since states could collect more tax through the consultant's efforts and initiatives. With the persistent economic situation globally and locally, there have been urgent needs for Nigerian government to diversify the economy and stop concentrating on oil and gas. Regrettably, Nigeria's reliance on the oil sector is too critical and the adverse effect of Nigeria's declining oil revenue has had such negative impacts on the Nigerian economy.

Balogun (2015) stated that Nigeria's revenue in the 1970s was majorly from Agricultural sector. The four regions that made up Nigeria (North, East, West and the Mid-West) were giants in exporting agricultural products. The North was known for its groundnuts, cotton, hides and skin; the East for its palm produce and coal; the West for its Cocoa and the Mid-West for its rubber and timber. The individual regions made use of the revenues to develop their areas while the remaining balance is remitted to the Federal Government. Unfortunately, this rich source of IGR in the Nigerian regions providing unlimited economic development has been sacrificed at the dwindling 'altar of crude oil'. The undue dependence on statutory allocations has become a major constraint why most Nigeria States cannot perform basic functions (Balogun, 2015). However Foreign Direct Investment is a viable source through which Nigeria can boost her revenue base.

The prevailing economic crises across the globe has informed the critical and fundamental role which foreign capital inflows play in the effective reintegration process of transition and developing economics in the structure of the global economic market, as foreign direct investment is constructed as a fundamental element of economic growth (Makwe, 2018).

During the fluctuations of capital flows especially in the 1990's, foreign direct investment was the major source of flows to developing countries. Undoubtedly, the Nigerian economy has consistently faced an economic crises situation resulting from inadequate resources availability for desired long term development, high rate of poverty, low capital utilization, high level of unemployment, declining gross domestic product, and other related economic challenges which is manifesting in the inabilities of the government of Nigeria, to achieve the projected Millennium Development Goals (MDG's) by the year 2020 (Osuka, Otiwu & Makwe, 2018).

Otto and Ukpere (2014) posits that most countries in Africa strives to attract foreign direct investment because of its advantages as a tool of economic development. Thus Nigeria has since joined the rest of the world in soliciting for sectoral inflows of foreign direct investment through her role in the constitution of the new partnership for Africa's development (NEPAD), whose major goal is the attraction of foreign direct investment into Africa.

Consequently, in view of the above Yu, Tu and Tan (2011) emphasized on the significance of foreign direct investment in providing technological know-how, capital availability, management and marketing skills, facilitating access to foreign marketing and generating both technological and efficiency spillovers to local firms provided the right policy and business conditions are readily available.

Busse and Groizard (2005) argued that the enormous increase in foreign direct investment flows across countries is one of the clearest signs of the globalization of the world economy over the past 20 years. Evidently, the total foreign direct investment flows increased from about 55 billion US dollars in 1985, to 1,511 billion US dollars, before dropping to 573 billion US dollars in 2003 (World Bank, 2005). Also, in terms of the growth of the Gross Domestic Product, there is an evident increased inspired by the significant impact of foreign direct investment, Omankhanlen (2011) observed that in the high income countries, the share of foreign direct investment to gross domestic product increased from 0.5 to 1.0 percent in the 1980's, to more than 5 percent in 2000, but however declined considerably to 1.4 percent in 2003.

### **Objectives of the Study**

The general objective of this study is to examine the relationship between foreign direct investments and revenue generation in Nigeria. However, the specific objectives include;

- i) to examine the effect of foreign direct investment in the agricultural sector on company income tax in Nigeria,
- ii) to examine the effect of foreign direct investment in the agricultural sector on petroleum profit tax in Nigeria,
- iii) to examine the effect of foreign direct investment in the manufacturing sector on company income tax in Nigeria,
- iv) to examine the effect of foreign direct investment in the manufacturing sector on petroleum profit tax in Nigeria,
- v) to examine the effect of foreign direct investment in the mining sector on company income tax in Nigeria,
- vi) to examine the effect of foreign direct investment in the mining sector on petroleum profit tax in Nigeria.

## **LITERATURE REVIEW**

### **Conceptual Review**

#### **Foreign Direct Investment (FDI)**

FDI has been defined by various scholars and stakeholders at different times for instance Omankhanlen (2011), sees Foreign Direct Investment as an investment made by an investor or enterprises in another enterprise or an equivalent in voting power or other means of control in another country with the aim to manage the investment and maximize profit. In brief, FDI

serves as an important engine for growth in developing countries through two modes of action: expanding capital stocks in host countries and bringing employment, managerial skills, and technology. Several frameworks have evolved for analyzing the determinants and effects of FDI.

Macaulay (2011) citing World Bank (1996); Adeolu (2007), citing World Bank (2006), opined that 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. Foreign direct investment (FDI) is an integral part of an open and effective international economic system and a major catalyst to development. Yet, the benefits of FDI do not accrue automatically and evenly across countries, sectors and local communities. National policies and the international investment architecture for attracting FDI to a larger number of developing countries and for reaping the full benefits of FDI for development. The challenges primarily address host countries, which need to establish a transparent, broad and effective enabling policy environment for investment and to build the human and institutional capacities to implement them (Pfister, 2009).

### **Foreign Direct Investments and the Agricultural Sector in Nigeria**

Although, oil and gas still maintains its predominant position in the economy, Nigeria still remains essentially an agricultural based economy, with agriculture still accounting for a significant share of gross domestic product (GDP) and total export, as well as employing the bulk of labour force (Makwe, 2018). Available data shows that at independence in 1960, the contribution of agriculture to GDP was about 60% which is typical for developing agrarian nations (Macaulay, 2012) quoted in Makwe (2018). However, this share declined, over time, to only about 25% between 1975 and 1979 due, partly, to the phenomenal growth of the mining sector, particularly oil and gas, during the period, and partly as a result of the wrong and discouraging policies pertaining to the agricultural sector support created by the government (Onu, 2012). Similarly, the growth rate of agricultural production and FDI influx into the sector exhibited a downward trend during the period. Thus, between 1970 and 1982, agricultural production stagnated at less than 1% annual growth rate, at a time when the population growth was between 2.5% to 3.0% per annum (Macaulay, 2012). There was also a sharp decline in export crop production, while food production increased only marginally (Macaulay, 2012). Therefore, domestic food supply had to be augmented through large imports of food sustained by the inflow of revenue from the export of oil and gas products (Solomon & Eka, 2013). The food import bill rose from a mere N141.88 million annually during 1970-74 to N1,964.8 million in 1991 (Shiro, 2009). The advent of the oil boom reduced the share of agriculture in total exports to a mere 2%. Previously the world's leading producer and exporter of palm-oil, Nigeria became a net importer of vegetable oil by 1976 (Omankhanlen, 2011). By 2016, the agricultural sector in Nigeria was still inactive, contributing less than 10% to the aggregate Gross Domestic Products as the volume of Foreign Direct Investments in this sector has not been encouraging (CBN, 2017).

### **Foreign Direct Investments and the Manufacturing Sector in Nigeria**

The Nigerian economy has been one of the highest recipients of capital inflow in the manufacturing sector from the rest of the world (CBN Statistical Bulletin, 2017). The reasons behind this, of course, are undoubtedly the large market size of the economy, the level of its trade openness among other reasons. But recent events in the country show that such benefits might not be sustained given the present socio-political upheavals from the sect of some anti-

social group popularly known as the ‘Boko Haram’; the insecurity threats from the Fulani herdsmen, kidnapping and cultism, etc. in the country which is highly detrimental to the economic health of the nation as well as the entire growth of the country (Makwe, 2018). The effect of this among others has led to a very slow economic development process which will eventually lead to a complete overhauling of the entire system (Makwe, 2018). The level of Nigeria’s share of Foreign Direct Investments (FDI) inflows in the manufacturing sector to Africa fell from 35.3% in 1990 to 13.6% in 2000 then rose to 16.3% in 2005 and stood at 14.1% in 2010 (CBN Statistical Bulletin, 2010). Similarly, the volume of Foreign Direct Investments in the manufacturing and processing sector in Nigeria was 34.5% in 2006, it declined to 19.9% in 2010 and by 2015 Foreign Direct Investments in the manufacturing and processing sector stood at 18.08% with a slight decline to 17.72% in 2016 (CBN, 2017). Hence, the macroeconomic environment of the country is no longer conducive for investors to thrive and no one will like to invest in a place where he will suffer capital loss no matter how promising and profitable it appears (Makwe, 2018).

### **Foreign Direct Investments and the Mining Sector in Nigeria**

According to National Bureau of Statistics report (2015), Mining is known to be one of the oldest economic activities and can be traced back to when early mankind extracted clay, and later other metals, for the production of cosmetics, crude implements and utensils. In Nigeria, extractions of tin dates as far back as 500 BC, where the Nok culture of the Benue/Northern Zaria areas of Nigeria were understood to have knowledge of Iron smelting (Macaulay, 2011). More famously, however was the rise of the Benin Bronze casting in Ile-Ife around 1400 AD, under the rule of Oba Ogunta, the Sixth king of Benin (Nwankwo, Ademola & Kehinde, 2013). Later, early European explorers located and informally mined tin, galena, gold, and other minerals that could be traded internationally. Yet, records show that organised exploration activities in Nigeria did not commence until 1903 and 1904, when the Secretary of State for Colonies conducted mineral surveys of the Southern and Northern Protectorates respectively (Olayiwola & Okodua, 2007). This period, could be stated as the period FDI started flowing into the sector. The principal mineral deposits discovered by the survey teams included lignite at Asaba, widespread lead and zinc ore deposits, tin and columbite in the south-east and monazite, limestone and lead-zinc ores at Abakaliki district (Shiro, 2009). Other examples are coal at Enugu, brine springs at Arufu and Awe, Galena in Jos Plateau, iron ore deposits in Niger and Kwara districts and marble deposits in Jakura (Rekha, 2010). Apart from the exploration stage, organised Mining and Quarrying commenced in the country in 1915, with the production of coal at the Enugu mines. This has led many European countries to invest in the Mining and Quarrying sector of the economy, notably, the Oil and Gas sector, which has attracted far more FDI than any other sector in the history of Nigeria (Omankhanlen, 2011).

Foreign Direct Investments into the mining and quarrying sector of the Nigerian economy stood at 10.5% growth rate in 1990, by 1995, it has increased further to 47.5%. FDI in the mining and quarrying sector dropped slightly to 38.2% in 2000, and by 2005 it dropped to as low as 4.05%. The Foreign Direct Investment in mining and quarry sector further declined to 0.1% growth rate in 2010 and by 2016 it only increased slightly to 0.31% (CBN, 2017). This thus is probably evidence that this sector has reached its full capacity as more inflow of FDI will contribute to an increasing inflation rate in Nigeria.

### **Revenue Generation**



Revenue has been defined by various scholars at different time. It lacks universal accepted definition. According to Webster New International Dictionary, revenue is defined as the annual or periodically yield of taxes, exercise as the other sources of income that a nation state or public sector collect or receives into their treasury for public use. This means that it is a public income of whatever kind. Dixon (2000) sees revenue as the total amount obtained from the sale of a merchandise services to customers. According to Procter (2005), revenue is an income. Fayemi (2001) sees revenue as all tolls, taxes, impress, rates, fees, duties, fine, penalties, fortunes and all other receipt of government from whatever source arising over a period either one year or six months. Flesher and Flesher (2007) define revenues as an increase in owner's equity resulting from the performance of a service or sale of something. This definition is anchored on the concept of equity which may increase due to sale of goods or provision of services in other words there are two sides to revenue; something received and given. Walgenbach, Glison (2006) defined revenues as the increase in owners' equity a firm earns by providing goods or services for its customers.

Revenue generation in Nigeria is principally derived from tax. Tax is a compulsory levy imposed by government on individuals and companies for the various legitimate function of the state (Olaoye, 2008). Tax is a necessary ingredient for civilization. The history of man has shown that man has to pay tax in one form or the other that is either in cash or in kind, initially to his chieftain and later on a form of organized government (Ojo, 2003). No system or rules can be effective whether foreign or nature unless it enjoys some measures of financial independence.

Federal government cannot perform all the activities of the rural areas by themselves, but this can only be done by the people elected in by the people, this however, does not prevent or stop the federal government from implementing their roles by providing all the social amenities such as construction of roads, provision of pipe borne water, hospitals, good education for the youth, stadium, electricity and museum etc. All these social amenities are made available from the revenue generated through taxes. The resources of the central government usually come in the form of taxes generated from individuals and corporate entities as well as natural resources. On a duty basis every adult, a Nigerian, alien, organization, transaction of object of values are required to contribute towards the support of the authority through dutifully remitting of taxes and levies as at when due. Therefore, it is expedient on the part of government in authority to appreciate that although the citizenry out of hard work and ingenuity scarified his resources for the upkeep of government in turn deserves that issues concerning his welfare and wellbeing are taken care of.

With the investment in the economics and social welfare of the citizenry, the most relevant growth, development and progress of the nation is assumed.

### **Company (Corporate) Income tax**

A company or corporations an established entity by law operating within the precincts of Nigeria incorporation under the companies and Allied Matters Acts. Also, foreign companies are non-Nigeria Company established by under any law in force in any territory or country outside Nigeria or a company that is not incorporated under the companies and Allied Matters Acts. One of the Acts regulating the taxation practice relating to company's income in Nigeria is the Companies Income Tax Act, formerly companies Income Tax Act 1979 (CITA). The Act is contained in chapter 60, laws of the Federation on Nigeria (LFN) 1990. It is a consolidation

of the provision of the former principal Act (the companies Income Tax Act 1961) and various amendments there to. It becomes operation with effect from the year of assessment commencing on 1<sup>st</sup> April 1977.

### **Petroleum Profit Tax**

The oil industry has achieved great prominence in the Nigeria economic environment since the early seventies. It is because of the importance that government attached to oil exploration and production that the taxation of profit or gains of companies engaging in such operations are taxable under a law different from the companies' income tax. The petroleum profit tax was enacted in 1959 and has been severally amended overtime. This Act dealing with the taxation of companies that are engaged in petroleum operation has long been enacted as chapter 354 of the laws of the Federal Republic of Nigeria (LFN) (1990). Petroleum operation includes petroleum exploration, development, production, and sale of crude oil. Thus companies that only market petroleum products including refined oil does not fall in the categories of companies engaging in petroleum operations and they are therefore taxable under the companies' income tax.

### **Relationship between Foreign Direct Investments and Revenue Generation**

A number of studies have analyzed the relationship between FDI inflows, economic growth and revenue generation, but the issue is far from settled in view of the mixed findings reached. The center-piece of the neo-liberal School otherwise known as the Pro-Foreign Investment School is that FDI can provide crucial help in modernizing the industrial order for the developing countries. They also believed that Trans-National Corporations (TNCs), through their FDI, could provide much of the resources needed for economic growth and increased revenue generation in developing countries (Chenery & Stout, 1996). As opposed to the claim of the dependency theorists that FDI leads to transfer of economic control and wealth to foreign powers ultimately leading to economic marginalization of the FDI host countries, neo-liberals argue that FDI provides vast benefits to recipient firm and host economies of TNCs affiliates (Hansen & Rand, 2006). Firstly, they believe that FDI brings crucial western knowledge and value in the form of superior Western management qualities, business ethics, entrepreneurial attitudes, better labour/capital ratio, and production techniques. Secondly, FDI makes possible industrial grading by tying firms of developing countries hosting TNCs affiliates into global research and development (R&D) networks, and thus resulting in technology transfer as well as providing a greater deal of investment fund (Fisher & Gelb, 1991). Thirdly, FDI leads to the growth of enterprises by providing access to Western markets. This growth in turn provides a source of new jobs and stimulates demand for input from domestic suppliers. And so, FDI introduces new market entrant beyond the domestic economies hosting TNCs affiliates (Javorcik, 2004). In contrast to this submission by the pro-foreign investment school, the dependency theory advocates see FDI as the advanced guard for a new diplomacy of economic imperialism (Bailey, 2018; Ake, 2001). To them, foreign investors' penetration into a host economy would result in 'disarticulated development'. They also believe that the integration of developing countries' economy into the world of capitalist system result in their underdevelopment in a sort of what Blomstrom and Wolff (1994), referred to as "dependence causes underdevelopment". According to Aremu (2005), dependency theory maintains that, developing countries are poor because they have been systematically exploited through: imperial neglect; overdependence upon primary products as exports to developed countries; foreign investors' malpractices, particularly through transfer of price mechanics; foreign firm

control of key economic sectors with crowding-out effect of domestic firms; implantation of inappropriate technology in developing countries; introduction of international division of labour to the disadvantage of developing countries; prevention of independent development strategy fashioned around domestic technology and indigenous investors; distortion of the domestic labour force through discriminatory remuneration; and reliance on foreign capital in form of aid that usually aggravated corruption and dependency syndrome (Amin, 1976). In the same vein, the dependency theorists have also focused on how FDI of multinational corporations distort developing nation economy. In the view of these scholars, distortions include the crowding out of national firms, rising unemployment related to the use of capital-intensive technology, and a marked loss of political sovereignty (Umah, 2007). It is also argued that FDIs are exploitative and imperialistic in nature, thus ensuring that the host country absolutely depends on the home country and her capital. (Anyanwu, 1993). From the forgoing, dependency theories believe that the participation of developed countries into developing nations via their FDI or any other means cannot be expected to produce beneficial result on the developing economies. Economic models of endogenous growth have been applied to examine the effects of FDI on revenue generation and economic growth through the diffusion of technology (Barro, 1991; Barrell & Pam, 1997). FDI also promotes economic growth through creation of dynamic comparative advantages that lead to technological progress (Balasubramanyam, Salism & Sapsfold, 1999; Borensztein, De Gregorio & Lee, 1998).

## THEORETICAL REVIEW

**Keynesian Theory of Investment:** In Keynesian terminology, investment refers to real investment which adds to capital equipment. It leads to increase in level of income and production by increasing the production and purchase of capital goods (Keynes, 1936). Investment thus includes new plant and equipment, construction of public works like roads, dams, buildings, etc. In the words of John Robinson, “by investment, is meant an addition to capital, such as that which occurs when a new house is being built or a new factory is built. Investment means making an addition to the stock of goods in existence”.

**Acceleration Theories of Investment:** The principle of acceleration propounded by Clark (1917) is based on the fact that the demand for capital goods is derived from the demand for consumer goods which the former helps to produce. The acceleration principle explains the process by which an increase or decrease in the demand for consumption goods leads to an increase or decrease in investment on capital goods. The accelerator coefficient is the ratio between induced investment and an initial change in consumption expenditure. Symbolically,  $\beta = \Delta I / \Delta C$  or  $\Delta I = \beta \Delta C$  where  $\beta$  is the accelerator coefficient,  $\Delta I$  is net change in investment and  $\Delta C$  is net change in consumption expenditure.

**Socio Political Theory taxation:** This theory of taxation argues that social and political objectives should be the major factors in selecting taxes. The theory advocates that a tax system should not be designed to serve individuals but should be used to cure all ills of the society as a whole. Wagner the advocate of this theory believe that each economic problem should be looked at in its social political context and an appropriate solution found accordingly.

**Theory of Laffer Curve:** Laffer (2004), postulated this theory to explain the theoretical representation of the relationship between government revenue raise by taxation and all



possible rates of taxation. The theory was demonstrated with a curve based on his observation that increasing tax rate beyond a certain point will become counter-productive for raising further tax revenue because of diminishing returns.

This study therefore is anchored on the accelerated theory of investment and the socio political theory of taxation.

### **Empirical Review**

Uwubanmwun and Ogiemudia (2016) examined the effect of foreign direct investment on economic growth in Nigeria using annual time series data covering the period 1979 to 2013. The data were analyzed using Error Correction Model. The results reveal that FDI has both immediate and time lag effect on Nigeria economy in the short run but has a non-significant negative effect on the Nigeria economy in the long run.

Pulstova (2016) studied the effects of foreign direct investment and firm export on economic growth in Uzbekistan. The study covered the period 1990 – 2014 and descriptive method was adopted. He found that an increase in FDI may cause firms to increase their export of products. Muntah, Khan, Haider and Ahmad (2015) studied the impact of foreign direct investment on economic growth of Pakistan covering the period 1995 to 2011. The data were sourced from World Bank, Economy of Pakistan Books, Index Monde and Economic Survey of Pakistan. Regression analysis was used in the study. They found that FDI impacts positively on economic growth of Pakistan.

Agrawal (2015) assessed the relationship between foreign direct investment and economic growth in the five BRICS economies, namely, Brazil, Russia, India, China and South Africa over the period 1989 – 2012. Co-integration and Causality analysis were applied. The results indicate that foreign direct investment and economic growth are co-integrated at the panel level, indicating the presence of long run equilibrium relationship between them. Results from causality tests indicate that there is long run causality running from foreign direct investment to economic growth in these economies.

Melnyk, Kubatko and Pysarenko (2014) examined the impact of foreign direct investment on economic growth in post-communism transition economies. The study used neoclassical growth theory to analyze the effect of FDI on economic growth. They found a significant FDI influence on economic growth of host countries. They concluded that in addition to the direct capital financing it supplies, FDI can be a source of valuable technology and know-how while fostering linkages with local firms, which can help to jumpstart an economy.

Otto and Ukpere (2014) assessed foreign direct investments and economic development and growth in Nigeria over a 41-year period. They observed that there is a positive relationship between foreign direct investments and economic growth in Nigeria. They suggested that policies are required which will facilitate foreign direct investments into Nigerian economy.

Koojaroenprasit (2012) explored the impact of foreign direct investment on economic growth of South Korea using secondary data for the period 1980–2009. Multiple regression analysis was employed in the study. This study found that there is a strong and positive impact of FDI on South Korean economic growth. Furthermore, the study indicated that human capital, employment and export also have positive and significant impact, while domestic investment has no significant impact on South Korean economic growth. He argued that the interaction

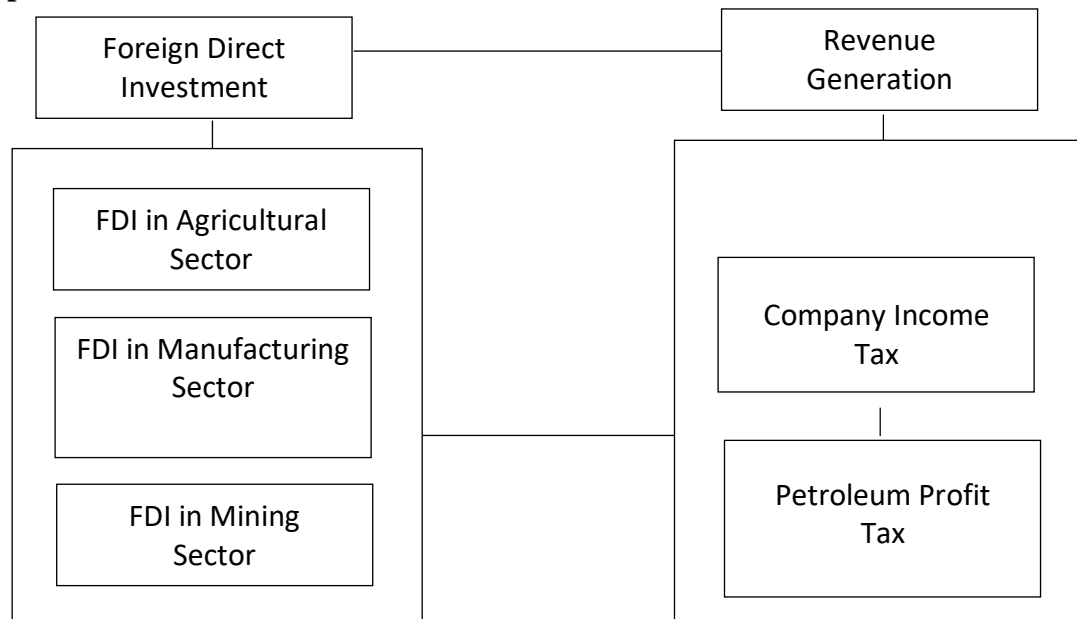
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effects of FDI- human capital and FDI-export indicated that the transfer of high technology and knowledge has an adverse impact on South Korean economic growth.

Jyun-Yi and Hsu (2008) analyzed the effect of FDI on economic growth for 62 countries over the period 1975-2000. It was found that FDI did not accelerate growth in all sampled countries. The authors used the Least Square approach for panel data estimations. Moreover, using the Generalized Method of Moments (GMM) method (controlling for indigeneity and non-spherical errors), it was found that FDI did not have any positive effect on growth. The results of the threshold regression controlled for the amount of GDP, initial human capital, some social and institutional parameters do represent positive influence of FDI on economic growth. It was stated that recipient countries can learn and as a result benefit from foreign investors.

Ayanwale (2007) examined FDI and economic growth in Nigeria using secondary data sourced from the Central Bank of Nigeria, International Monetary Fund and Federal Office of Statistics. The period of analysis was 1970- 2002. An augmented growth model was estimated via the ordinary least squares and the Two-Stage least square (2SLS) method to ascertain the relationship between the FDI, its components and economic growth. Results suggest that the determinants of FDI in Nigeria are market size, infrastructure development and stable macroeconomic policy. Openness to trade and available human capital, however, are not FDI inducing. He observed that FDI in Nigeria contributes positively to economic growth. He stressed that although the overall effect of FDI on economic growth may not be significant, the components of FDI do have a positive impact. He added that FDI in the communication sector has the highest potential to grow the economy and is in multiples of that of the oil sector. The manufacturing sector FDI negatively affects the economy, reflecting the poor business environment in the country. According to him, the level of available human capital is low and there is need for more emphasis on training to enhance its potential to contribute to economic growth.

Khaliq and Noy (2007) studied the impact of foreign direct investment on economic growth using detailed sectoral data for FDI inflow to Indonesia over the period 1997 – 2006. The sectors examined are: farm food crops, livestock product, forestry, fishery, mining and quarrying, non-oil and gas industry, electricity, gas and water, construction, retail and wholesale trade, hotels and restaurants, transport and communications, and other private and services sectors. According to their findings, in the aggregate level, FDI is observed to have a positive effect on economic growth. However, when accounting for the different average growth performance across sectors, the beneficial impact of FDI is no longer apparent. When examining different impacts across sectors, estimation results show that the composition of FDI matters for its effect on economic growth with very few sectors shows positive impact of FDI and one sector even showing a robust negative impact of FDI inflows (mining and quarrying).

**Conceptual Framework**

**Figure 2.1:** Operational Conceptual Framework on Foreign Direct Investments and Revenue Generation in Nigeria

**Source:** Research's Concept, 2019

**H<sub>01</sub>:** There is no significant relationship between foreign direct investment in the agricultural sector and company income tax in Nigeria.

**H<sub>02</sub>:** There is no significant relationship between foreign direct investment in the agricultural sector and petroleum profit tax in Nigeria.

**H<sub>03</sub>:** There is no significant relationship between foreign direct investment in the manufacturing sector and company income tax in Nigeria.

**H<sub>04</sub>:** There is no significant relationship between foreign direct investment in the manufacturing sector and petroleum profit tax in Nigeria.

**H<sub>05</sub>:** There is no significant relationship between foreign direct investment in the mining sector and company income tax in Nigeria.

**H<sub>06</sub>:** There is no significant relationship between foreign direct investment in the mining sector and petroleum profit tax in Nigeria.

**METHOD OF STUDY**

This section is centered on the method of study adopted in this research. It explained the various econometric techniques as well as analytical procedures that were adopted in the analysis of the established relationship between the variables of Foreign Direct Investments and that of Revenue Generation

**Research Design**

Nachmias and Nachmias (1976) cited in Baridam (2001) sees research design as a framework or plan that is used as a guide in collecting and analyzing data for a study. In this regard, the framework that is adopted in this study is a quasi-experimental design. This design is adopted

because the study seeks to explore the effect of the proxies for Foreign Direct Investments on Revenue Generation. Nwankwo, (2014) has it that the quasi-experimental design allows for the evaluation of the effect of independent variable(s) on a dependent variable. The quasi-experimental designs are widely used in administrative and social sciences research because of the complex relationship that exists between variables, such relationship is not subject to manipulation. Therefore, the choice of quasi-experimental research design is premised on the fact that the research variables cannot be subjected to controlled laboratory tests which make the experimental design option not suitable for this study.

### Sources of Data

The major source of data employed in this study is the secondary source. Thus, the data for this research analysis is obtained from various issues of the Central Bank of Nigeria Statistical bulletin (1970 to 2018). These data covered information on Foreign Direct Investments, and the values of the Company Income Tax and Petroleum Profit Tax as proxies for Revenue Generation for the periods under investigation. Data for Foreign Direct Investments is proxied by FDI in mining and quarrying, manufacturing and processing, and agriculture.

### Model Specification

#### 3.3.1 Company Income Tax Model

The Company Income Tax model is stated as:

$$CIT=f(FDIAF, FDIMP, FDIMQ) \quad (1)$$

Stating the exact or mathematical form of (1) above we have:

$$CIT = \alpha_0 + \alpha_1(FDIAF)_t + \alpha_2(FDIMP)_t + \alpha_3(FDIMQ)_t \quad (2)$$

Stating (2) above in econometric form we have:

$$CIT = \alpha_0 + \alpha_1(FDIAF)_t + \alpha_2(FDIMP)_t + \alpha_3(FDIMQ)_t + U \quad (3)$$

#### *Apriori Expectation*

Foreign Direct Investments (FDI) on revenue generation in Nigeria. Foreign Direct Investments is assumed to benefit a developing country like Nigeria, not only by supplementing domestic investment, but also in terms of increasing the revenue base of government. Therefore, we expect a positive relationship between FDI and Company Income Tax (CIT).

#### Petroleum Profit Tax Model

The petroleum profit tax model is stated as:

$$PPT=f(FDIAF, FDIMP, FDIMQ) \quad (4)$$

Stating the exact or mathematical form of (4) above we have:

$$PPT = \beta_0 + \beta_1(FDIAF)_t + \beta_2(FDIMP)_t + \beta_3(FDIMQ)_t \quad (5)$$

Stating (5) above in econometric form we have:

$$PPT = \beta_0 + \beta_1(FDIAF)_t + \beta_2(FDIMP)_t + \beta_3(FDIMQ)_t + U \quad (6)$$

#### *Apriori Expectation*

Foreign Direct Investments is a major source of external capital that developing countries rely upon. As expected, Foreign Direct Investments (FDI) inflow is to expand existing capital stock which would ultimately increase total output and boost government revenues through increased taxes. Therefore, we expect a positive relationship between FDI and Petroleum Profit Tax (PPT).

Where:

FDIAF	=	Foreign Direct Investments in Agriculture
FDIMP	=	Foreign Direct Investments in Manufacturing and Processing
FDIMQ	=	Foreign Direct Investments in Mining and Quarrying
CIT	=	Company Income Tax
PPT	=	Petroleum Profit Tax

### Data Analysis and Estimation Technique

This study adopted econometric technique. According to Theil (1971) cited in Gujarati and Sangeetha (2007), econometrics is concerned with the empirical determination of economic laws. It is a combination of economic theory, mathematical economics and statistics but it is completely distinct from each of these three branches of science (Koutsoyianis, 1977).

In line with the above, an Autoregressive Distributed Lag (ARDL)/bound testing approach developed by Pesaran *et al* (2001) was adopted to establish a long run relationship between the variables in each model. This approach was adopted because it can be used with a mixture of variables integrated at levels 1(0), variables integrated at first difference 1(1) or variables that are fractionally integrated (see Persaran et al, 2001). But for the avoidance of having any variable integrated at order 2, we used the Augmented Dickey Fuller (ADF) test to formally explore the stochastic properties of each individual series. Another reason why this approach was adopted is because it involves a single equation setup, making it simple to implement and interpret. Also, different variables can be assigned different lag lengths as they enter the model. And finally because of its extra robustness and better performance for small sample size such as this study period (see Pesaran & Shin, 1997). The bound test is based on the F-test which has a non-standard distribution and with two sets of critical bounds provided by Peraran *et al* (2001). The lower critical bound assumes that all the variables are integrated at levels 1(0), while the upper bound assumes all the variables to be integrated at first difference 1(1).

The generic form of the autoregressive distributed lag, unrestricted Error Correction Model is given as:

The test for the Null hypothesis of no co-integration against the alternative of the existence of a long run relationship is given as:

$$H_0: \theta_0 = \theta_1 = \theta_2 = \theta_n = 0$$

$$H_1: \theta_0 = \theta_1 = \theta_2 = \theta_n \neq 0$$

If the computed F-statistic exceeds the upper bound critical values for the asymptotic distribution of the F-statistic provided by Pesaran *et al* (2001), we conclude that there is co-integration i.e., the null is rejected. On the other hand, if the computed F-statistic falls below the lower bound critical value, we conclude that the variables are 1(0) and the null of no co-integration cannot be rejected. If the F-statistic falls between the bounds, the test is inconclusive.

Recasting (3) and (6) in consonance with equation (7) we have:



**ANALYSIS AND RESULTS****Pre-Estimation Test**

The data pre-subjected to descriptive statistics and the result is presented on table 4.1 below.

**Table 4.1: Descriptive Statistics**

	CIT	FDIAF	FDIMP	FDIMQ	PPT
Mean	4.821369	1.550638	28.29638	23.44319	4.277447
Median	7.936160	1.200000	24.00000	22.60000	4.410000
Maximum	15.75634	4.600000	71.00000	54.70000	33.74000
Minimum	-13.93506	0.180000	0.010000	-6.600000	-13.13000
Std. Dev.	10.20035	1.065367	12.72252	19.63315	7.871906
Skewness	-0.727324	1.212099	1.128214	0.064673	1.012879
Kurtosis	2.045390	3.806263	4.980580	1.491270	6.716483
Jarque-Bera	5.928421	12.78165	17.65274	4.490450	35.08538
Probability	0.051601	0.001677	0.000147	0.105904	0.000000
Sum	226.6043	72.88000	1329.930	1101.830	201.0400
Sum Sq. Dev.	4786.172	52.21028	7445.679	17731.19	2850.478
Observations	49	49	49	49	49

**Source:** Eview Data Output, 2019

From the above table, the mean values are 1.55, 28.29, 23.44, 4.27 and 4.82 for foreign direct investment inflows for agriculture, manufacturing and processing, mining and quarrying, company income tax and petroleum profit tax respectively. From these, the data suggests that FDI to the agricultural sector is the least relative to FDI to manufacturing and processing and mining and quarrying.

The standard deviation showed that foreign direct investment in the agricultural sector (FDIAF) has a smaller spread relative to foreign direct investment to manufacturing and processing and mining and quarrying used in this study. The standard deviation for company income tax and petroleum profit tax stood at 10.20 and 7.87 respectively.

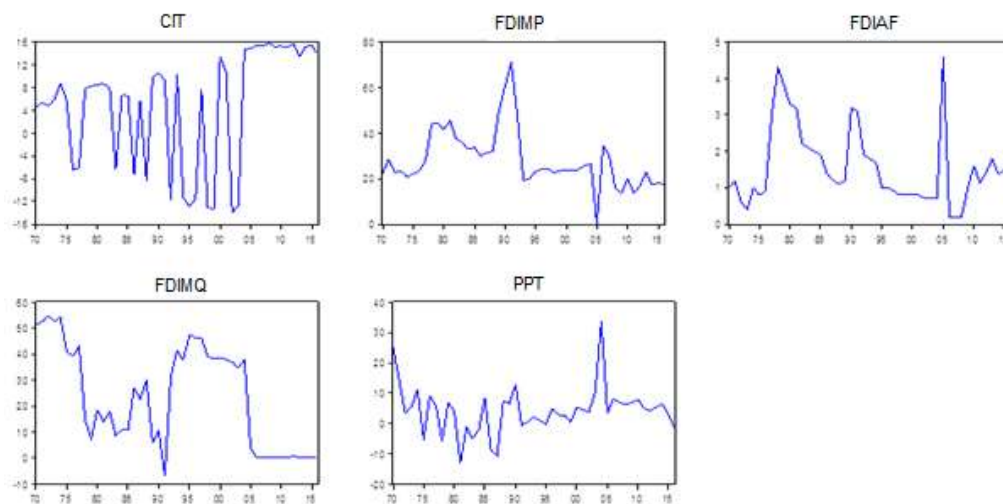
The table also shows that FDI to manufacturing and processing had the highest inflow in relation to agriculture and mining and quarrying. The agricultural sector had its highest/maximum as 4.6% which is far below mining and quarrying that recorded 54.70% and 71% for manufacturing and processing. This suggests that the agricultural sector receive very little attention from foreign investors. Furthermore, the minimum for agricultural FDI stood at

0.18% which was greater than both that for manufacturing and processing and mining and quarrying. This implies that FDI to agriculture is much more stable than FDI to the other subsectors.

Table 4.1 further reveal that all the data for the respective variables have a positive tail. This is evidenced by their skewness coefficients. The Jarque-Bera test statistics which compares the difference between the skewness and kurtosis calculated with that of normal distribution shows that all variables except foreign direct investment to mining and quarrying are not normally distributed given their respective probability values.

### Plots for the Series

All the series were plotted individually and presented below on figure 4.1



**Figure 4.1:** Line graph for CIT, PPT and FDI to various subsectors

**Source:** Eview Data Output, 2019

The diagram above suggests that all our series are non-stationary. Technically, the diagrams show that all the series are not mean-reversing and they don't have a constant variance given the wide fluctuation as suggested above. Thus, a more formal test for non-stationarity or the presence of unit root is required.

### Unit Root Test

The series were subjected to the Augmented Dickey-Fuller (ADF) test to explore their stochastic properties. The result of the ADF test is presented below on table 4.3.

**Table 4.2: Unit Root Result**

VARIABLE	LEVEL		1ST DIFFERENCE		REMARK
	C	C&T	C	C&T	
FDIAF	-3.80*	-3.96**	-8.70	-8.60	I(0)
FDIMP	-2.82	-3.28	-7.08*	-7.00*	I(1)
FDIMQ	-2.03	-2.32	-7.90*	-7.81*	I(1)
CIT	-5.88*	-5.98*	-8.95	-8.83	I(0)
PPT	-4.41*	-4.73*	-7.53	-7.54	I(0)

C is Intercept, C&T is Intercept and Trend. \* indicate significance at 1% and \*\* indicate significance at 5%.

**Source:** Eview Data Output, 2019

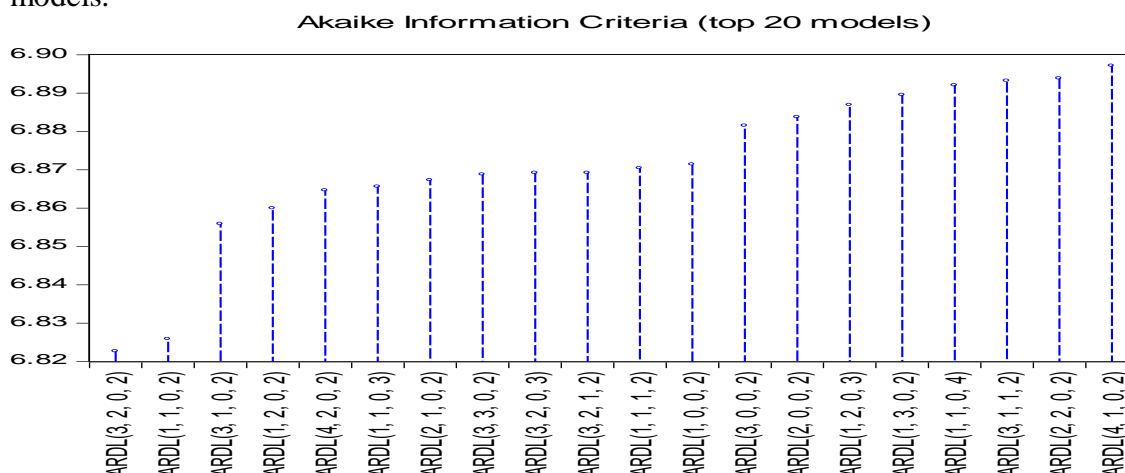
The formal unit root result presented on table 4.2 above shows that some of the variables (series) had the presence of unit root while some had no unit root. In other words, some of the series were stationary at level while some were stationary at first difference. For instance, Foreign Direct Investment in Agriculture (FDIAF), Company Income Tax (CIT) and Petroleum Profit Tax (PPT) were stationary at level or integrated at order zero I (0) while foreign direct investment to manufacturing and processing (FDIMP), and foreign direct investment to mining and quarrying (FDIMQ) were stationary at first difference or integrated at order one I(1). This result suggest that we may likely estimate a spurious relationship using the data without differencing therefore we explore the long run relationship existing (if any) among our variables in various models. To this end, we adopt the Autoregressive Distributive Lag/Bound testing procedure put forward by Pesaran *et al* (2001) as it allows for the combination of variables integrated at order 1 and order 0.

### Autoregressive Distributive Lag/Bound Test

There are two models that need to be estimated using this procedure. We start with the company income tax model.

### Company Income Tax Model

About five hundred models were estimated from which the most preferred model was chosen using the Akaike model selection criterion (AIC). Figure 4.2 below is a chart of the top twenty models.



**Figure 4.2:** Top twenty models preferred by AIC

**Source:** Eview Data Output, 2019

From the diagram, the most preferred model among the top twenty models is (ARDL 3,2,0,2). Extract of this preferred model is presented as follows on table 4.3.

**Table 4.3: ARDL Model (3, 2, 0, 2)**

Variable	Coefficient	t-Statistic	Prob.*
CIT(-1)	0.12	0.70	0.48
CIT(-2)	-0.22	-1.21	0.23
CIT(-3)	0.29	1.95	0.05
FDIAF	-0.22	-0.16	0.87
FDIAF(-1)	-1.18	-0.72	0.47
FDIAF(-2)	-2.40	-1.64	0.10
FDIMP	0.05	0.53	0.59
FDIMQ	0.09	0.78	0.43
FDIMQ(-1)	-0.34	-2.55	0.01
FDIMQ(-2)	0.24	2.23	0.03
C	7.10	1.90	0.06

R – Square 0.39, Adjusted R-Square 0.20 F-Stats: 2.12, Prob. 0.05

**Source:** Eview Data Output, 2019

The first and third lag of the dependent variable shows that the previous values of company income tax is positively related to its present value while the second lag showed otherwise. These lagged values are not significant except the third lag that is marginally significant at 10% given their respective probability values. The coefficient of Foreign Direct Investment in Agriculture (FDIAF) and its associated lagged values (first and second lag) showed negative suggesting that FDI flows to the agricultural sector inhibit company income tax generation. Specifically, a 1% increase in FDI flow to the agricultural sector in a current period reduces the value of company income tax in Nigerian by about 0.22%. A 1% increase in FDI flow to agriculture in a previous year reduces company income tax by 1.18% in the current years and 1% increase in two previous year reduces company income tax by 2.40%. These coefficients of FDI to agriculture are not significant given their respective probability values.

The coefficient of FDI to manufacturing and processing shows that FDI flows to manufacturing and processing is positively related to company income tax generation in Nigerian. Specifically, an increase of FDI to manufacturing and processing by 1% increases company income tax by 0.5%. This however is not significant given its probability value. The coefficient of FDI to mining and quarrying subsector and its first and second lags suggest that FDI flows to mining and quarrying is positively related to company income tax generation in Nigeria, and the lagged coefficients are significant given their probability values. The R-square value of about 0.39 shows that the explanatory variables explain about 39% of the variation in the dependent variable the remaining 61% is explained by variables equally important to the model but not explicitly stated in the model. The F-statistic value and its associated probability value show that the entire model is significant at 5% significance level.

**Bound Test**

The ARDL model (3, 2, 0, 2) was subjected to bound test to explore the long run relationship among the variables and the result is presented in table 4.4. From the result, the null hypothesis of no long run relationship existing among the variables was rejected as the calculated f-statistic of 4.92 is greater than the upper critical bound of 4.35 at 5%. Thus, the variables in the company income tax model are co-integrated. Put differently, the variables have long run relationship among them.

**Table 4.4: Extract of Bound Test**

ARDL Bounds Test

Date: 12/12/19 Time: 16:45

Sample: 1975 2018

Included observations: 44

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.920425	3

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89

**Source:** Eview Data Output, 2019

It is required that the error term from the ARDL model should be serially independent otherwise the parameter estimates will not be consistent due to the lagged values of the independent variables that appear as regressors in the model. To this end, we look out for the serial independence of the error term using correlogram. It is evident that there is no autocorrelation in the residuals of the model. Thus, there is serial independence of the residuals in the model. The autocorrelation and partial correlation suggest the absence of serial dependence of the error term given that all probability values are greater than 5%.

**Co-integrating and Long Run Form**

The long run and co-integrating form are presented below on table 4.5.

**Table 4.5: ARDL Co-integrating and Long Run Form**

ARDL Co-integrating And Long Run Form

Dependent Variable: CIT

Selected Model: ARDL(3, 2, 0, 2)

Date: 12/12/19 Time: 17:02



Sample: 1975 2018

Included observations: 44

## Co-integrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CIT(-1))	-0.071677	0.199373	-0.359514	0.7215
D(CIT(-2))	-0.293787	0.150010	-1.958448	0.0587
D(FDIAF)	-0.226314	1.378779	-0.164141	0.8706
D(FDIAF(-1))	2.400650	1.457228	1.647408	0.1090
D(FDIMP)	0.053986	0.101152	0.533708	0.5971
D(FDIMQ)	0.090811	0.115508	0.786182	0.4374
D(FDIMQ(-1))	0.247228	0.110767	-2.231960	0.0325
CointEq(-1)	-0.800473	0.228979	-3.495837	0.0014

$$\text{Cointeq} = \text{CIT} - (-4.7675*\text{FDIAF} + 0.0674*\text{FDIMP} - 0.0064*\text{FDIMQ} + 8.8760)$$

## Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDIAF	-4.767522	2.236307	-2.131873	0.0406
FDIMP	0.067442	0.133345	0.505775	0.6164
FDIMQ	0.006352	0.076058	-0.083515	0.0339
C	8.876046	3.933417	2.256574	0.0308

**Source:** Eview Data Output, 2019

The result shows that in the long run Foreign Direct Investment to Agriculture in Nigeria is inversely related to company income tax. Specifically, a 1% increase in FDI flow to the agricultural subsector reduces company income tax by about 4.76%. This negates the apriori expectation. Foreign Direct Investment to Manufacturing and Processing is positively related to company income tax suggesting that it spurs company income tax generation in Nigeria, however it is not significant given its associated probability value of 0.61 which is greater than 5% significance level. Furthermore, Foreign Direct Investment to Mining and Quarrying subsector is positively related to company income tax generation in the long run. Also, the coefficient is significant given its probability value of 0.03 which is less than 5% significance level.

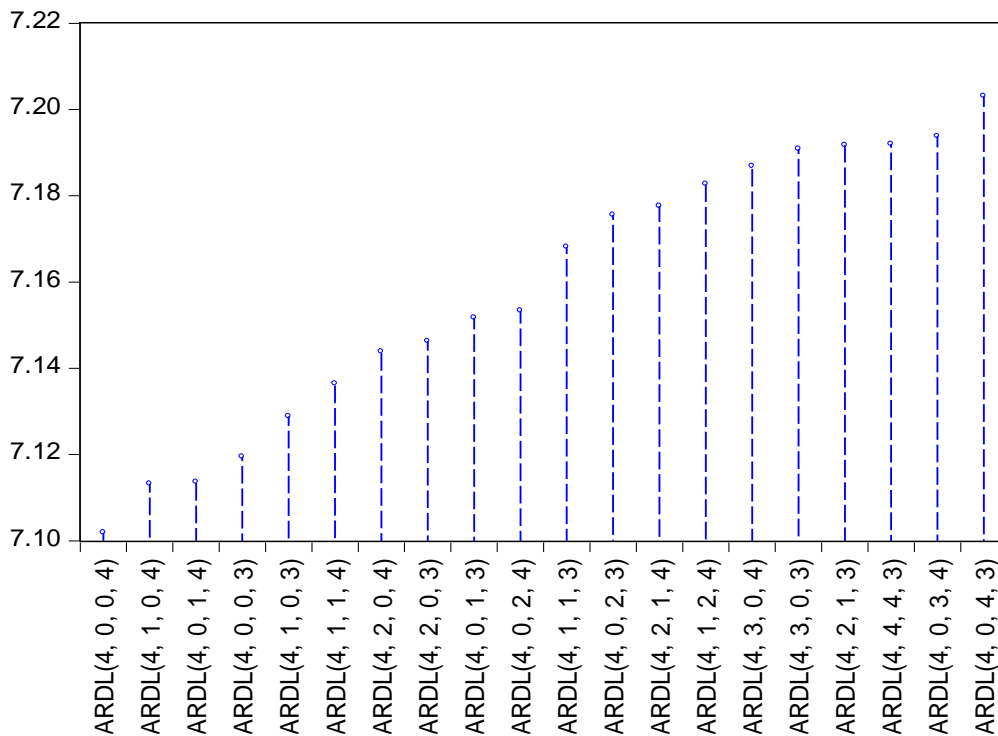
The co-integrating form which is the equivalent to the famous error correction mechanism shows that in the short-run, all coefficients are not significant except the coefficient of one period for mining and quarrying. While the contemporaneous effect of FDI to mining and quarrying is positively related and significant. Furthermore, foreign direct investment to manufacturing and processing is positively related to company income tax generation but the coefficient is not significant given its probability value of 0.59 which is greater than 5% significance level. The contemporaneous effect of foreign direct investment to agriculture is

negatively related to company income tax whereas its one period lag suggests otherwise. However, they are both not significant given their probability values of 0.87 and 0.10 which are greater than the 5% significance level. The error correction term which measures the speed of adjustment shows up with the appropriate negative sign and is significant with a probability value of 0.001 which is less than 5% significance level. Specifically, the error correction term shows that 80% of disequilibrium is reconciled annually. That is, disturbances or shocks in any previous period to the long run relationship are adjusted back to equilibrium in the current period. Thus, the error correction term appearing with the appropriate negative sign and been significant further buttresses the fact that the variables are co-integrated as suggested by the bound test.

**Petroleum Profit Tax Model**

About five hundred models were estimated from which the most preferred model was chosen using the Akaike model selection criterion (AIC). Figure 4.3 below is a chart of the top twenty models.

Akaike Information Criteria (top 20 models)



**Figure 4.5:** Top twenty models preferred by AIC

**Source:** Eview Data Output, 2019

From the diagram, the most preferred model among the top twenty models is (ARDL 4,0,0,4). Extract of this preferred model is presented below on table 4.6.

**Table 4.6: ARDL Model (4, 0, 0, 4)**

Variable	Coefficient	t-Statistic	Prob.*
PPT(-1)	-0.069193	-0.426115	0.6730
PPT(-2)	-0.281501	-1.843608	0.0748
PPT(-3)	0.079584	0.533997	0.5972
PPT(-4)	0.432574	2.751473	0.0098
FDIAF	-1.883271	-1.364426	0.1823
FDIMP	-0.078376	-0.673835	0.5054
FDIMQ	0.389070	-3.044130	0.0047
FDIMQ(-1)	0.071527	-0.445625	0.6590
FDIMQ(-2)	0.265484	-1.779259	0.0850
FDIMQ(-3)	0.246243	1.594654	0.1209
FDIMQ(-4)	0.174000	1.432132	0.1621
C	14.92624	2.509593	0.0175

R-Square = 0.63, Adjusted R-Square= 0.50, F-Stats = 4.88, Prob. 0.00

Source: Eview Data Output, 2019

From table 4.6 above, the coefficient of Foreign Direct Investments to Agriculture (FDIAF) shows that FDIAF is inversely related to petroleum profit tax but on statistical ground, the coefficient is not significant given its reported probability value of 0.18 which is greater than 0.05 (5%) significance level. The coefficient of Foreign Direct Investments in Manufacturing and Processing (FDIMP) shows that it is inversely related to Petroleum Profit Tax (PPT) but not significant given its reported probability value of 0.50 which is greater than 0.05 (5%) significance level. The coefficient of Foreign Direct Investments to Mining and Quarrying (FDIMQ) and its first, second, third and fourth lags coefficient are positively related to Petroleum Profit Tax.

The R-Square value of 0.63 suggest that the model has an explanatory power of 63% and the F-Statistic of 4.88 and its associated probability value of 0.00 shows the overall significance of the model given that it is less than 0.05 (5%) significance level. The ARDL model (4, 0, 0, 4) was subjected to bound test to explore the long run relationship among the variables and the result is presented below on table 4.7. From the result, the null hypothesis of no long run relationship existing among the variables was rejected as the calculated F-Statistic of 4.66 is greater than the upper critical bound of 4.35 at 5%. Thus, the variables in the petroleum profit tax model are co-integrated. Put differently, the variables have long run relationship among them.

**Table 4.7: Extract of Bound Test**

ARDL Bounds Test

Date: 12/13/19 Time: 10:31

Sample: 1976 2018

Included observations: 43

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.666414	3

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

**Source:** Eview Data Output, 2019

It is required that the error term from the ARDL model should be serially independent otherwise the parameter estimates will not be consistent due to the lagged values of the independent variables that appear as regressors in the model. To this end, we look out for the serial independence of the error term using correlogram. It is evidenced that there is no autocorrelation in the residuals of the model. Thus, there is serial independence of the residuals in the model. The autocorrelation and partial correlation suggest the absence of serial dependence of the error term given that all probability values are greater than 0.05 (5%) significance level.

### ARDL Co-Integrating Form and Long Run Form

The long run and co-integrating form are presented below on table 4.8.

**Table 4.8: ARDL Co-integrating and Long Run Form**

ARDL Co-integrating And Long Run Form

Dependent Variable: PPT

Selected Model: ARDL(4, 0, 0, 4)

Date: 12/13/19 Time: 14:31

Sample: 1970 2018

Included observations: 43

Co-integrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PPT(-1))	-0.230657	0.245758	-0.938554	0.3552
D(PPT(-2))	-0.512158	0.198583	-2.579059	0.0149
D(PPT(-3))	-0.432574	0.157215	-2.751473	0.0098
D(FDIAF)	-1.883271	1.380267	-1.364426	0.1823
D(FDIMP)	-0.078376	0.116313	-0.673835	0.5054
D(FDIMQ)	0.389070	0.127810	-3.044130	0.0047
D(FDIMQ(-1))	0.265484	0.149210	1.779259	0.0850
D(FDIMQ(-2))	0.246243	0.154418	-1.594654	0.1209
D(FDIMQ(-3))	0.174000	0.121497	-1.432132	0.1621
CointEq(-1)	-0.838536	0.295635	-2.836390	0.0080

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$$\text{Cointeq} = \text{PPT} - (-2.2459 * \text{FDIAF} - 0.0935 * \text{FDIMP} - 0.3647 * \text{FDIMQ} + 17.8004)$$


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Long Run Coefficients

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDIAF	-2.245905	1.822366	-1.232412	0.2271
FDIMP	-0.093468	0.128498	-0.727384	0.4724
FDIMQ	0.364729	0.089986	-4.053168	0.0003
C	17.800359	4.252820	4.185542	0.0002

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**Source:** Eview Data Output, 2019

The long run coefficient of FDIAF indicates that in the long run FDIAF flow is inversely related to petroleum profit tax generation in Nigeria. Similarly, the coefficient of FDIMP is inversely related to petroleum profit tax generation. Going further, the coefficient of FDIMQ appeared with a positive sign suggesting that FDI flows to Mining and Quarrying is positively related to petroleum profit tax generation. On statistical ground, the coefficients FDIAF and FDIMP are not significant but FDIMQ is significant. This implies that increased flows of FDIAF and FDIMP have the tendency to reduce petroleum profit tax generation, while FDIMQ has the tendency to enhance or increase petroleum profit tax generation in Nigeria.

The co-integrating form which is the equivalent to the famous error correction mechanism shows that in the short-run, the coefficients of Foreign Direct Investments to Agriculture (FDIAF) and Foreign Direct Investments to Manufacturing and Processing (FDIMP) are inversely related to PPT suggesting that an increase in FDIAF and FDIMP reduce petroleum profit tax generation in Nigeria. These coefficients are not significant given their probability values which are greater than 0.05 (5%) significance level. The contemporaneous coefficient of Foreign Direct Investments to Mining and Quarrying (FDIMQ) and its first, second and third lags indicate a positive relationship between PPT and FDIMQ. The contemporaneous coefficient of Foreign Direct Investment to Mining and Quarrying (FDIMQ) is significant given its reported probability value of 0.00 which is less than 0.05 (5%) significance level. Based on our analysis above, we therefore submit that;

There is a negative and non-significant relationship between foreign direct investment in the agricultural sector and company income tax in Nigeria.

There is a negative and non-significant relationship between foreign direct investment in the agricultural sector and petroleum profit tax in Nigeria.

There is a positive and non-significant relationship between foreign direct investment in the manufacturing sector and company income tax in Nigeria.

There is a negative and non-significant relationship between foreign direct investment in the manufacturing sector and petroleum profit tax in Nigeria.

There is a positive and significant relationship between foreign direct investment in the mining sector and company income tax in Nigeria.

There is a positive and significant relationship between foreign direct investment in the mining sector and petroleum profit tax in Nigeria.



## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The findings of this work are based on the outcome of the analysis carried out on the two models developed for the purpose of this study. The finding from the analysis on the company income tax model revealed that in the short run, there is an inverse and insignificant relationship between Foreign Direct Investments in the agricultural sector and company income tax; there is a positive and insignificant relationship between Foreign Direct Investments in the manufacturing and processing sector and company income tax; there is a positive and significant relationship between Foreign Direct Investments in the mining and quarrying sector and company income tax;  $r^2$  of 0.39 shows that the explanatory variables explains 39% of the variations in the dependent variable and the f-statistics of 2.12 shows that the entire variables in the model are significant.

In the long run, Foreign Direct Investments in the agricultural sector is inversely related to company income tax, 1% increase in FDI AF reduces CIT by 4.768%, this negates the Apriori Expectation, however, the coefficient is significant; Foreign Direct Investments in the manufacturing and processing sector is positively but insignificantly related to company income tax, Foreign Direct Investments in the mining and quarrying sector is positively and insignificantly related to company income tax; the error correction term of the model turned up with the appropriate negative sign and is significant at 0.001. It also showed that 80% of disequilibrium in the model is reconciled annually.

The outcome of our analysis on the petroleum profit tax model reveals that in the short run, Foreign Direct Investments in the agricultural sector is inversely and insignificantly related to petroleum profit tax; Foreign Direct Investments in the manufacturing and processing sector is inversely related to petroleum profit tax and the relationship is not significant; Foreign Direct Investments in mining and quarrying sector is positively related to petroleum profit tax in the first, second and third lags, however, the relationship is not significant;  $r^2$  of 0.63 shows that the model has an explanatory power of 63% and the f-statistics of 4.88 shows the overall significance of the entire model.

In the long run, Foreign Direct Investments in the agricultural sector is inversely and insignificantly related to petroleum profit tax; Foreign Direct Investments in the manufacturing and processing sector is inversely related to petroleum profit tax and the relationship is not significant, Foreign Direct Investments in the mining and quarrying sector is positively related to petroleum profit tax and the relationship is significant; the error correction term of the model turned up with the appropriate negative sign, it also showed that 84% of disequilibrium in the model is reconciled annually.

Obviously, the outcome in relation with the petroleum profit tax model is informed by the fact that petroleum profit tax in Nigeria does not affect the agricultural and manufacturing sectors directly, therefore that the relationship between foreign direct investment in agricultural and manufacturing sectors of the economy and petroleum profit tax is inversely and insignificantly related is expected.

### Recommendations

- Government can by the use of moral suasion; appeal to foreign investors to plough back a reasonable percentage of their earnings so as to expand their output as such expansion will invariably increase the company income tax and petroleum profit tax revenues of government.
- Frantic efforts should also be made through active policies to redirect some of the excess and idle capital in the mining sector to other producing sectors like agriculture, manufacturing, real estate, telecommunications etc. as such will help to increase the output of these sectors and consequently increase government revenue generation from the sectors.
- Tax holidays should be granted to investors in Agriculture and Manufacturing and Processing sectors so as to encourage Foreign Direct Investments inflow to these sub-sectors which will no doubt increase output, stimulate growth and increase the government tax revenue generation capacity in Nigeria.

### Contribution to Knowledge

This research has positively developed and explored two major models that created a link between the proxies of Foreign Direct Investments and Government Revenue Generation, i.e.

$$1. \quad CIT = \alpha_0 + \alpha_1(FDIAF)_t + \alpha_2(FDIMP)_t + \alpha_3(FDIMQ)_t + U \dots \dots \dots (1)$$

$$2. \quad PPT = \beta_0 + \beta_1(FDIAF)_t + \beta_2(FDIMP)_t + \beta_3(FDIMQ)_t + U \dots \dots \dots (2)$$

These models have made it very easy to explain the direction of relationships between these variables which has added to the knowledge stock in this area of study.

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