# Effect of Direct Tax on Income Redistribution in Nigeria

**OKUTUME, Ndidi Endurance**
Internal Audit Department, University of Delta Agbor, Delta State, Nigeria.
Okotumeendurance79@gmail.com

WILSON-**OSHILIM**, Uduak Deborah
Accounting Department, University of Benin, Nigeria.
Debbywilly18@yahoo.com

**ODUBUASI, Augustine Chukwujekwu**
Department of Accounting, Hezekiah University, Unudi Imo State, Nigeria.
Auglaw03@gmail.com

*Abstract*

*The Study empirically investigated direct taxes revenue and income redistribution in Nigeria to ascertaining their relationships. It however used specific objectives as company income tax, petroleum profit tax, personal income tax and education tax on income redistribution. The study made use of ex post facto research design and sourced data from Federal Inland Revenue Service (FIRS) and Central Bank of Nigeria (CBN) statistical bulletin. The population of study consisted of all the direct taxes as mentioned above which span from 1990 to 2020 financial years. The secondary data generated was analysed with Error Correction Model (ECM), Augmented Dickey fuller (ADF) and Engle and Granger co-integration test. The result showed that Company Income Tax and Petroleum Profit Tax have positive significant influence on income redistribution while Personal Income Tax and Education Tax have no significant effect on income redistribution in Nigeria. That followed the recommendations that the government should formulate policy that will improve the collection of direct taxes in Nigeria as to support income redistribution agenda of fiscal policy.*

*Key Words: Personal Income Tax, Company Income Tax, Petroleum Profit Tax, Education Tax*

## SECTION ONE – INTRODUCTION

Nigeria is the largest economy in Africa with over 200 million people, but income disparity has left more than 63% of its citizens, approximately 133 million people classified as multidimensionally poor (Multidimensional Poverty Index Survey, 2022). Poverty level in Nigeria is exacerbated by income inequality. However, the problem of income inequality is a global issue that every country tries to resolve (Agidi, 2023). The country has a growing economy with plenty of human resources and the potential for raising millions out of poverty. Poverty and injustice are not caused by a shortage of resources in Nigeria, but by the misuse, misallocation and misappropriation of these resources (Ugbede, 2020). Political class has extremely amassed the

wealth of the nation through high cost of governance as a trade off to infrastructural investments in the nation. Moreover, Nigeria being a mono economy that solely depends on crude revenue has overtly expended the revenue on frivolities and luxuries that has little or no economic relevance to the citizenry other than those political class. For instance, the purchase of one hundred and fifty billion (150 billion) naira presidential Jet, and five billion (5 billion) naira presidential yacht in the hash period of economic recession in the nation (Daily Post, 2024), all point to the fact that political class is enriching themselves to the detriment of the reasonable investments in public goods that will benefit the citizenry. Moreover, pervasive corruption in the form of withholding civil servants' wages and pensions, stagnating their salaries for years without increment despite wide rise in exchange rate, inflation rate and interest rate widens the gap in income parity among the citizens. It is important to restate the stand of Akogo and Akadakpo (2022) that increase in income inequality has an economic effect, leading to a rise in the rates of poverty, a big decline in real incomes, private per capita spending, social services and a general decrease in welfare.

Because of the ease with which they can be collected, direct taxes bring in a very considerable amount of income for authorities. As a result of the fact that it is founded on the ability-to-pay concept, the study concentrates on direct taxation. An education tax, a personal income tax, a company income tax, and a petroleum profit tax are some of the direct taxes that we focus on. To evaluate the impact that these direct taxes have on the allocation of income in Nigeria, the research was subsequently developed.

According to Olufemi et al. (2023), redistribution of income is the use of tax and transfer policies to reduce income inequality. This, however, does not mean that the rich and the poor will become equal; rather, it can reduce the gap between the two by collecting more revenue from the wealthy and less from the less wealthy in order to provide common economic goods. Redistribution of income also has the effect of increasing the consumption capacity of the poor to a level that is more comfortable for them to consume. In response to this, Lustig (2017) says that the introduction of efficient economic measures, such as taxation, would be the only way to reduce or abolish income disparity. These wealthy class of individuals will be accountable for the greater part of payment of the tax revenue, which is a system that is known as progressive tax (Hines, 2015). This economic theory proposes that those who have more wealth or earn a greater income will be subject to a higher level of taxation. To mobilise a nation's internal resources and to create an environment that is conducive to the nation's progress, direct taxation provides the nation with the most effective medium it can utilise. The government exerts its authority over the economy through the employment of taxation as a tool of fiscal policy. There are a number of studies that have been conducted to establish the role of taxes as a tool for generating and redistributing income to the economy in various climates. Some of these studies include the United Kingdom (Meadowcroft, 2007) and Vietnam (Martinez-Vazquez, et al., 2012). Additionally, the study conducted in Nigeria (Obaretin et al., 2017) evaluated the effect of taxation on income redistribution, but it did not specifically focus on direct tax components, which results in a gap in the existing body of literature. In light of this, it is of the utmost importance to conduct research on the impact that direct tax components have on the redistribution of income in the Nigerian economic illustration. The specific objectives of the study hence is to investigate;

- the effect of company income tax on income redistribution in Nigeria,
- the effect of personal income tax on income redistribution in Nigeria,
- the effect of petroleum profit tax on income redistribution in Nigeria;
- the effect of education tax on income redistribution in Nigeria.

**Research Hypotheses**

The hypotheses of the study is stated in null form as given below;

$H_{o1}$:    company income tax has no significant effect on income redistribution,
$H_{o2}$:    personal income tax has no significant effect on income redistribution,
$H_{o3}$:    petroleum profit tax has no significant effect on income redistribution;
$H_{o4}$:    education tax has to significant effect on income redistribution.

The study result will be useful to government and its agencies in policy formulation and sensitize the tax payers on the income redistribution strategy efficiency. The study is structured such that next section reviewed the related literature, followed by data and method section, fourth section contains the analysis and interpretation of data while the fifth section is the conclusion and recommendations.

## SECTION TWO – REVIEW OF RELATED LITERATURE

**2.1 Conceptual Review**

**2.1.1 Income Redistribution**

According to Awe and Olawumi (2012), the act of income redistribution can be defined as the allocation of money within a society, which results in the transfer of wealth from the wealthy to the economically disadvantaged segments of the economy. According to Obaretin et al. (2017), income redistribution is characterised by an unequal allocation of individual and household income among various players in an economy. This includes both individuals and households. One possible explanation for the variances in income, which are sometimes referred to as income disparity, is that there are inequalities in the rates of income among citizens. Religion, gender, social standing, and educational attainment are some of the factors that contribute to economic inequality (Libabatu, 2014). The problem of income inequality can be addressed by the government through the implementation of tactics, which can take the shape of policies which include taxation and public expenditure. These techniques can be used to battle the issue.

.**2.1.2  Direct Tax**

Direct taxes are the type of taxes that are paid directly by an individuals and organisations to the government. The direct taxes considered in this study are company income tax, personal income tax, petroleum profit tax and education tax.

**Company's income tax (CIT)**: is a form of direct tax that is levied in Nigeria and is concerned with the collection of taxes from businesses located within the country that generated profits during the period under consideration. Within each year of the assessment of earnings, any corporation is required to pay a tax that is thirty percent of the whole amount. Specifically, the Companies' revenue Tax Act of 2004, as revised in 2007, is the legislation that governs the taxation of corporate revenue. In a study that was conducted by Libabatu (2014), who investigated the relationship

between taxes and the function that they play in the nation, the researchers came to the conclusion that CIT is an essential source of revenue for the economy.

**Personal income tax (PIT):** is a category of tax that is levied directly on the income of an individual (Okoli, Njoku, and Kaka, 2014). According to this definition, a person is comprised of an individual, a partnership, and an estate that is not divided. Those who are responsible for paying PIT are the ones who are responsible for computing their own tax due, filing their tax return, and finally paying their taxes. According to Egbon and Mgbame (2015), the PIT is a form of tax that is simple to collect and serves as a reliable source of revenue for governments in both developing and developed nations. However, the computation of the PIT is more complicated than that of a flat rate tax because of the differing marginal rates between the two rates. It is also important to note that the personal income tax is a dependable source of revenue for the government to use for development goals. The personal income tax act of 2004 is the legislation that governs the taxation of personal income; in 2011, a portion of this act was changed.

**Petroleum Profit Tax (PPT):** is a category of direct tax that falls under the purview of the PPT Act (CAP P13 LFN 2004). The revenue generated by the petroleum industry is a substantial contributor to the overall revenue of the country, which is then distributed to the various levels of government in order to maximise operational efficiency. According to Appah (2010), the production and sale of crude oil constitutes the principal source of revenue for the petroleum industry in Nigeria. According to Odusola (2006), the PPT is applicable to businesses that are involved in the upstream sector of the oil and gas industry. It is also related to rents, margins, royalties, and profit sharing components that are associated with oil mining, prospecting, and exploratory leases. According to Nwezeaku (2005), the PPT is the most important tax in Nigeria because it accounts for a considerable amount of the country's total revenue. This includes 95% of the gains from foreign currency profits and 70% of the money collected by the government.

**Education tax:** There is yet another type of direct tax that is imposed on all firms that are incorporated in Nigeria. This tax is known as a "tax of 2% of assessable profits" and it is levied on all of these companies. The Tertiary Education Trust Fund (Establishment) Act 2011 is the legislation that serves as the basis for the education tax framework. According to NgEX (2017), this tax is considered to be a social obligation that is placed on businesses in order to ensure that such businesses contribute their own quota to the development of educational institutions inside the country. Numerous researchers, including Naren (2008), Obaretin et al. (2017), and Usman and Bilyaminu (2013), have pushed for the use of direct taxation as a genuine instrument for the purpose of redistributing income within a society. The relationship between direct taxation and income redistribution has been the subject of investigation in several studies.

### 2.1.6 Measure for Income Redistribution

Literature uses the Gini coefficient to measure income redistribution and inequality. The coefficient is obtained from the Lorenz curve, which ranks the population from poorest to richest and shows cumulative population proportion on the horizontal axis and cumulative spending (or income) proportion on the vertical. Income disparity has several desirable qualities, including mean, freedom, population size, symmetry, and Pigou-Dalton Transfer, but its sources are difficult

to analyse (Bakare, 2012). Calculating (A) (the ratio of Lorenz curve and diagonal curve area) divided by the curve's half square (B) yields income difference. Thus, Gini coefficient is A/A+B. In 1912, an Italian statistician created this ratio. Gini coefficient measures total inequality and ranges from 0 to 1. When income is evenly divided, the Lorenz curve's 45-degree line indicates zero Gini coefficient. As the inequality gap grows, so does area A and the Gini coefficient. If a person receives the national income, region B disappears and the Gini is 1. The Lorenz curve depicts the quantitative relationship between income receivers and the percentage of total income they received in a particular year. The Gini-coefficient emphasises income inequality and gap width, which is flawed. The researcher claims that taxes collected more from high-income earners than low-income earners indicate how government may redistribute income and ensure access to infrastructure. Other frequent metrics for income redistribution include the revenue share per quintile, which examines the income share of the poorest or poorest two quintiles. Poverty rate as a percentage of people with a median income below 50% is another measure. These three metrics make cross-country comparisons easy. The absolute poverty rate and the absolute per capita income of the poorest (or poorest two) quintile(s) are other options. Only when balanced (demand basket or buying power) are they equivalent. Child poverty, overall child poverty, and old age poverty are also measured.

## 2.2 Theoretical Review

### 2.2.1 Faculty Theory
Professor Martin Seligman is the one who first made this notion public. According to the faculty theory, the procedure for collecting taxes need to be based on the ability of the payer in relation to the money that they have earned. In his work, Ayanfo (1996) elaborated on this idea in order to provide an explanation for the argument that an individual ought to be taxed depending on the individual's capacity to pay according to the theory. Through the utilisation of explicit value judgement, this theory can be utilised to provide an explanation for the re-distributional effect that money has through the utilisation of taxes. Additionally, taxes can be used to redistribute income from those who have high incomes to those who have low incomes. This distribution of wealth can then be utilised by the government to offer basic amenities to regions that are in need of such services.

## 2.3 Empirical Review
On the basis of the fact that there is a clear connection between income disparity, taxation, and the redistribution of income, Ilaboya and Ohonba (2013) propose that tax policies play a significant part in the accomplishment of this objective. Despite the fact that it has been difficult to collect statistics in Africa, taxes are becoming an increasingly essential factor in the reduction of poverty and inequality in a number of emerging countries.

In their study from 2007, James and Robert looked at the impact of tax structure, income inequality, and economic growth in sixty-five different countries between the years 1970 and 2006. According to their findings, the rates of the corporate income tax (CIT) have a negative link with income disparity, however the personal income tax (PIT) has no bearing on the issue. It was also

discovered that CIT rates that were lower than forty percent were not relevant in terms of lowering income disparities.

A study on fiscal and equitable policies in Central America was carried out by Rodrigo and Ivanna (2010). There was a particular emphasis placed on the role that social expenditure and taxes play in the distribution of resources. There was a regressive effect of taxes on the distributional role of income, according to the findings of the study; however, this effect was not statistically significant. On the other hand, it was discovered that a rise in taxes that were allocated towards social expenditures led to an increase in the income of families with low incomes.

Claus, Martinez-Vazquez, and Vulovic (2012) conducted a second study in which they investigated the influence that taxes plays in influencing government spending. The sample size for this study consisted of a variety of companies. According to the findings of the study, the PIT was both progressive and successful in that it redirected money.

An investigation conducted by Martinez-Vazquez, Vulovic, and Liu (2010) investigated the impact of direct versus indirect taxes on income inequality between the years 1972 and 2005 for 116 nations that were classified as either developed, emerging, or transitionals. As a result of the study, it was discovered that the size of the tax system has an effect on the effect that the tax ratio has on income inequality. It was shown that countries with a limited tax structure had a positive impact on income disparity, but countries with a larger system of taxes had a negative impact on income inequality. The tax mix had a negative impact on the Gini coefficient for the entire sample that was analysed, which resulted in a reduction of income inequality in nations where the ratio of total taxes to GDP was larger than 0.29. On the other hand, the subsample of developed nations did not show any statistically significant implications about the impact of a tax mix on income disparity.

The research conducted by Adigun and Awoeemi (2014) examined the progression of poverty in rural Nigeria from 1996 to 2004 and the degree to which it has changed. According to the findings of the study, which were derived from the Shapley Decomposition Method, the rates of poverty in the rural sector experienced a little decrease over the second study period. The breakdown of changes in poverty into growth and redistribution components reveals that both growth and redistribution have contributed to a reduction in poverty. However, the worsening of income disparity has been a contributing factor in the worsening of poverty in Nigeria at all levels.

In Nigeria, Obaretin et al. (2017) conducted a study that investigated the relationship between taxation and the usage of taxation for the purpose of reallocating income. According to the findings of the study, the various choices to taxation do not have a major influence on income disparity, considering that the GINI is at a level of five percent. Furthermore, it was discovered that the role of taxation in redistributing income in Nigeria has been utilised to its fullest extent, which is a significant finding. There have also been arguments that have been presented, arguing that taxes are not an effective tool for redistribution of income. The alternate argument, on the other hand, advocates for government spending rather than taxation.

According to the findings of a study conducted by Baer and Galvao (2013), the tax burden in Brazil and government expenditure have a reduced distributional effect that favours high-income groups. This finding suggests that a change in fiscal policy regarding tax structure and government expenditure will result in an efficient redistributing of income.

The gap between taxation and income inequality was the subject of an investigation that was conducted by Nyenke and Amadi (2019). According to the findings of the study, the association between income disparity and business income tax is positive. On the other hand, in contrast, the relationship between income inequality and petroleum profit tax and personal income tax is negative.

A study conducted by Kaisa, Mika, and Jukka (2019) investigated the impact of taxes on distribution of revenue and inequality. According to the findings of the study, the implementation of taxes has not necessarily resulted in an increase in the average level of inequality. In nations where inequality is evaluated on the basis of disposable income, however, countries that have implemented taxes have seen an increase in disparity. On the other hand, in countries where inequality is measured on the basis of consumption, there has been no increase in inequality following the implementation of taxes. According to the findings, there is no evidence to suggest that the tax may have led to increased inequalities in wellbeing for countries with low incomes.

## 2.4    Research Gap

Previous studies on income redistribution has not actually measured redistribution with direct taxes revenue. This study has done that by using government expenditure on infrastructural goods to measure redistribution of income. Secondly, prior studies do not break out taxes into its individual elements and examined with income from taxes revenue this study focuses on direct taxes revenue in Nigeria as it affects income redistribution.

## SECTION THREE – DATA AND METHOD

This study used an ex-post facto research design as the data collected from 1990-2020 were obtained secondarily and were not modified by the researchers. This study focusses on the population of direct taxes in Nigeria, namely the petroleum profit tax, personal income tax, company's income tax, and education tax. The study's sample was deliberately selected across a 30-year period, spanning from 1990 to 2020. The rationale behind selecting these levies is their classification as direct taxes. The time series data was obtained from the Central Bank of Nigeria Statistical Bulletin and the Federal Inland Revenue Service (FIRS). It was evaluated using descriptive statistical tests to determine the normality of the dataset. The Augmented Dickey-Fuller (ADF) test was conducted to verify the stationarity of variables, which could be influenced by the time series nature of the data, and to determine if the variables under study are stationary or non-stationary. The Engle and Granger co-integration test was employed to determine the presence of a long-run relationship between the variables. The Variance Inflation Factor (VIF) was utilised to assess the presence of multicollinearity.

## Model Specification

The model of Obaretin, et al (2017), was adapted for the study as enumerated below:

$$GINI_t = \beta_0 + \beta_1 TIT_t + \beta_2 TDT_t + \beta_3 OPN_t + \beta_4 FDI_t + \beta_5 INF_t + \varepsilon_t \qquad - \qquad - \qquad - \qquad 1$$

Where;

TIT = Total indirect tax revenue; TDT= Total direct tax revenue; FDI = Foreign direct investment; OPN= Economic openness; INF= Inflation rate; GINI= Gini coefficient;

The adapted model for this study was modified and stated in its econometric form as given below:

$$INRD_t = \alpha_0 + \alpha_1 CIT_t + \alpha_2 PIT_t + \alpha_3 PPT_t + \alpha_4 ET_t + \alpha_5 INF_t + \alpha_6 FDI_t + \alpha_7 OPN_t + \text{\euro}_t \qquad 2$$

Where:

INRD= Income redistribution; CIT = Companies income tax; PIT = Personal income tax; PPT = Petroleum profit tax; ET = Education tax; FDI = Foreign direct investment; OPN= Economic openness; INF= Inflation rate; t= Time frame; $\alpha_{1\ldots}$ $\alpha_{7\,=}$ unknown coefficients

## Table 1: Operationalization of Variables

| Variables | Acronyms | Measurement | Source |
|---|---|---|---|
| Income Redistribution | IND | Measured using government expenditure on infrastructural goods | Madzinová (2017) |
| Companies income tax | CIT | Measured using total companies income collected by FIRS in Nigeria | Olusanya, Peter, and Oyebo (2012) |
| Personal income tax | PIT | Measured using total personal income collected by FIRS in Nigeria | Manukaji (2015) |
| Petroleum profit tax | PPT | Measured using total petroleum tax paid by petroleum companies in Nigeria | Appah and Ebringa (2012) |
| Education Tax | ED | Measured using values (see appendix 1) derived from CBN statistical bulletin | Olusanya, Peter, and Oyebo (2012) |

Researcher's Compilation (2024)

## SECTION FOUR – DATA ANALYSIS AND INTERPRETATION

### 4.1 Data Analysis

**Table 4.1: Descriptive Statistics**

| Variables | IND | CIT | PIT | PPT | ED | FDI | OPN | INF |
|---|---|---|---|---|---|---|---|---|
| Mean | 281528.9 | 786,043.2 | 41,987.26 | 1933,635.0 | 130,520.2 | 493345.6 | 46.8333 | 11.9956 |
| Maximum | 562753.4 | 1622862.0 | 102612.4 | 3657000.0 | 279358.8 | 5028391 | 113.5 | 33.1 |
| Minimum | 58781.73 | 114800.0 | 4200.0 | 438000.0 | 9700.0 | 264.3 | 28.5 | 4.7 |
| Std. Dev. | 148384.0 | 476,459.4 | 29,597.61 | 890,087.9 | 858,83.53 | 906621.4 | 48.2565 | 18.43776 |
| Skewness | 0.069171 | 0.218147 | 0.395833 | 0.200896 | 0.205582 | 0.85833 | 0.200896 | 0.205582 |
| Kurtosis | 2.219226 | 2.028189 | 2.409105 | 2.175744 | 1.802758 | 0.79105 | 1.175744 | 1.102758 |
| Jarque-Bera | 0.41560 | 0.85108 | 0.731919 | 0.630626 | 1.20183 | 0.931919 | 1.630626 | 1.90183 |
| Probability | 0.789954 | 0.653418 | 0.693531 | 0.729560 | 0.548309 | 0.802531 | 0.829560 | 0.948309 |

Source: Author's computation, 2024

The descriptive statistics in Table 4.1 showed that the dependent variable IND had a positive mean of 281528.9, a minimum of 58781.73, and a maximum of 562753.4. The standard deviation was 148384.0, indicating significant clustering around the mean. Independent variables CIT, PIT, PPT, and TET have mean values of 786043.2, 41987.26, 1933635.0, and 130520.2. All independent variables except TET had significant clustering around the mean in standard deviation.

### 4.2 Linearity of Variable

**Table 4.2: Correlation Analysis**

|  | IND | CIT | PIT | PPT | TET | FDI | OPN | INF |
|---|---|---|---|---|---|---|---|---|
| **IND** | 1.0000 | | | | | | | |
| **CIT** | 0.6737 | 1.0000 | | | | | | |
| **PIT** | 0.6723 | 0.8689 | 1.0000 | | | | | |
| **PPT** | 0.2539 | 0.2353 | 0.1258 | 1.0000 | | | | |
| **TET** | 0.6139 | 0.8786 | 0.6460 | 0.3368 | 1.0000 | | | |
| **FDI** | 0.2790 | 0.4680 | 0.4238 | 0.4782 | 0.5556 | 1.0000 | | |
| **OPN** | -0.4693 | -0.8392 | -0.7652 | -0.1439 | -0.7975 | -0.4516 | 1.0000 | |
| **INF** | -0.0066 | -0.0963 | 0.1549 | -0.3147 | -0.1599 | -0.3985 | -0.1633 | 1.0000 |

Source: Author's computation, 2024

Table 4.2 shows study variables' correlations. Positive and negative associations existed between variables. CIT (0.6737), PIT (0.6723), PPT (0.2539), TET (0.6139), FDI (0.2790), OPN (-0.4693), and INF (-0.0066) all have this connection. The strong variable association suggested multicollinearity in the series. A VIF test was performed to confirm multicollinearity in the series.

## 4.3. Classical Regression Assumption
**Table 4.3: Regression Assumption and Results**

| Assumption/Test | Result | Remark |
|---|---|---|
| Multicollinearity/Variance Inflation Factor | All Centre VIF was below 10 | Fulfilled |
| Normality/Histogram Normality | Jarque-Bera (Prob) not significant at 5% | Fulfilled |
| Heteroskedacity/Bruesch Pagan Godfery | F (4, 13) = 0.9652, p = 0.4590, not significant at 5% | Fulfilled |
| Serial Correlation/ Bruesch Godfery | F (2, 11) = 3.9165, p = 0.0519, not significant at 5% | Fulfilled |
| Model Misspecification/ Ramsey RESET | F (1, 12) = 1.4686, p = 0.2489, not significant at 5% | Fulfilled |

Source: Author's computation, 2024

Table 4.3 shows the study's classical regression assumption and results. The multicollinearity/Variance Inflation Factor assumption was met because all centred VIFs were below 10. Jarque-Bera statistics (Prob) was not significant at 5%, satisfying the normalcy assumption. $F_{(4, 13)} = 0.9652$, $p = 0.4590$, and $F_{(2, 11)} = 3.9165$, $p = 0.0519$, respectively, satisfy the Heteroskedacity and Serial Correlation assumptions. Finally, Model Misspecification/Ramsey RESET assumption was met because $F_{(1, 12)} = 1.4686$, $p = 0.2489$, not significant at 5%.

### 4.3.1 Unit root test
A basic practice in solitary (individual) time series work is to determine if the components are non-fixed (stationary) (display unit roots) and if they are co-integrated in the long run. The Augmented-Dickey-Fuller (ADF) test determined the series unit root.

**Table 4.4: Augmented Dickey Fuller unit root test @ levels and at first difference**

| Unit root tests at levels | | | | |
|---|---|---|---|---|
| Variables | ADF-Test Statistic | 95% Critical ADF Value | Prob | Remarks |
| **IND** | -0.71117 | -2.9639 | 0.8288 | Not Stationary |
| **CIT** | 1.3602 | -2.9810 | 0.9982 | Not Stationary |
| **PIT** | -0.4913 | -3.0810 | 0.8672 | Not Stationary |
| **PPT** | -2.1743 | -2.9640 | 0.2192 | Not Stationary |
| **TET** | 0.3230 | -2.9919 | 0.9746 | Not Stationary |
| **FDI** | -1.2646 | -2.9640 | 0.6326 | Not Stationary |
| **OPN** | -2.2583 | -2.9640 | 0.1913 | Not Stationary |
| **INF** | -2.0701 | -2.9640 | 0.2574 | Not Stationary |
| Unit root test at 1st difference | | | | |

| Variables | ADF-Test Statistic | 95% Critical ADF Value | Prob | Remarks |
|---|---|---|---|---|
| **IND** | -4.7764 | -2.9678 | 0.0006 | Stationary |
| **CIT** | -6.3605 | -2.9862 | 0.0000 | Stationary |
| **PIT** | -5.8154 | -3.0810 | 0.0004 | Stationary |
| **PPT** | -7.9438 | -2.9678 | 0.0000 | Stationary |
| **TET** | -5.5836 | -2.9919 | 0.0001 | Stationary |
| **FDI** | -4.6979 | -2.9719 | 0.0008 | Stationary |
| **OPN** | -5.0773 | -2.9719 | 0.0003 | Stationary |
| **INF** | 4.4420 | -2.9678 | 0.0015 | Stationary |
| **ECM** | -3.9403 | -3.0656 | 0.0096 | Stationary |

**Source:** Authors' computation, 2024

Levels and initial differential outcomes were shown in Table 4.4. At 95% confidence interval, all variables were not stationary. Initially, all variables were stationary 95% confidence interval. The unit root test on these components in first differencing demonstrates that absolute ADF values exceed the 95% critical ADF values.

## 4.4. Cointegration Testing
**Table 4.5: Engel Cointegration**
Date: 05/24/23   Time: 12:43
Series: CIT PIT PPT EDT FDI OPN INF
Sample (adjusted): 2003 2020
Included observations: 18 after adjustments
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=3)

| Dependent | tau-statistic | Prob.* | z-statistic | Prob.* |
|---|---|---|---|---|
| CIT | -4.356872 | 0.3832 | -18.31407 | 0.3485 |
| PIT | -5.625451 | 0.1024 | -22.33150 | 0.0810 |
| PPT | -4.922208 | 0.2245 | -20.73329 | 0.1663 |
| EDT | -3.911409 | 0.5446 | -17.44436 | 0.4286 |
| FDI | -5.116818 | 0.2137 | 19.37140 | 0.9999 |
| OPN | -5.386748 | 0.1349 | -22.93355 | 0.0624 |
| INF | -5.088036 | 0.1882 | -21.40755 | 0.1237 |

Source: Author's computation, 2024

Table 4.8 shows that the Engel-Granger cointegration test found no cointegrating equation in the model. Tau- and Z-statistics showed probability values over the crucial 5%, supporting this. Thus, the study failed to reject the null hypothesis of no cointegration in its model.

**4.5.     Error Correction Model (ECM) Regression Result**
**Table 4.6: ECM Regression Result**

| Explanatory Variables | Cofficient T statistics Prob |
|---|---|
| C | -386120.9<br>(-6.1603)<br>{0.0005} |
| D(CIT) | 0.2318<br>(2.6551)<br>{0.0327}* |
| D(PIT) | 1.0460<br>(1.3980)<br>{0.2048} |
| D(PPT) | 0.0101<br>(0.7044)<br>{0.5039} |
| D(TET) | -0.1928<br>(-0.7656)<br>{0.4689} |
| D(FDI) | 0.2686<br>(1.9188)<br>{0.0965} |
| D(OPN) | 4372.54<br>(4.7772)<br>(0.0020)* |
| D(INF) | 6927.54<br>(2.1496)<br>(0.0687) |
| Error correction coefficient | |
| ECM(-1) | -0.9710<br>(-6.8790)<br>{0.0002} |
| R-squared | 0.9219 |
| Adjusted R-squared | 0.8214 |
| S.E. of regression | 40458.87 |
| F-statistic | 9.1782 |
| Prob(F-statistic) | 0.0040 |

Source: Author's computation, 2024

We estimate an error correction model to incorporate long-term and short-term dynamics. The model's R2 is 92.19% and corrected R2 is 82.14%. This suggests that 82.14% of systematic variance is driven by independent variables in the model, whereas 17.86% is generated by variables not introduced in the model but well accounted for by the regression standard error, SE = 40458.87. An F-stat of 9.1782 (p-value = 0.0040) indicates 5% significance. OPN was statistically significant at 5%, whereas FDI and INF were not. Size of error correction term implies speed of disequilibrium adjustment to long-run equilibrium (Engle and Granger, 1987). The error correction factor has the customary negative sign and is substantial at 5%, therefore we are certain of the model's inter-temporal stability and that short-run changes will merge at long-run gauges at a normal rate of 97% per year.

## Hypothesis One
**Ho1:** Company income tax has no significant effect on income redistribution
Regression analysis indicates that corporation income tax (CIT) positively impacts wealth redistribution in Nigeria ($\beta = 0.2318$, T = 2.6551, p = 0.0327 < 0.05). The study rejected the null hypothesis that corporation income tax does not affect income redistribution in Nigeria. Nyenke and Amadi (2019) found that CIT improves wealth redistribution in Nigeria. in contrast to James and Robert (2007), who showed a negative relationship between income disparity and economic growth after controlling for income redistribution. Rodrigo and Ivanna (2010) and Obaretin et al. (2017) found no link between corporation income tax and redistribution.

## Hypothesis Two:
Ho2: Personal income tax has no significant effect on income redistribution
The analysis indicates that personal income tax (PPT) does not significantly impact income redistribution in Nigeria ($\beta = 1.0460$, T = 1.3980, p = 0.2048 > 0.05). The study failed to reject the null hypothesis that personal income tax (PPT) does not affect income redistribution in Nigeria. This supports James and Robert (2007) and Obaretin et al. (2017) findings that PIT do not affect income disparities. Rodrigo and Ivanna (2010) discovered that PIT improve income redistribution, contradicting the findings. Nyenke and Amadi (2019) discovered PIT negatively affects income redistribution.

## Hypothesis Three:
Ho3: Petroleum profit tax has no significant effect on income redistribution
The third hypothesis examined how PPT affects Nigerian income allocation. The study indicated no significant impact of petroleum profit tax on income redistribution ($\beta = 0.0101$, T = 0.7044, p = 0.5039 > 0.05). At 5%, the association was positive but negligible. This contradicts Nyenke and Amadi (2019), who discovered a negative link between PPT and wealth redistribution in Nigeria.

## Hypothesis Four:
Ho4: Education tax has no significant effect on income redistribution

The regression analysis indicates that school tax does not significantly impact wealth redistribution in Nigeria ($\beta$ = -0.1928, T = -0.7656, p = 0.8891 > 0.05). The study failed to reject the hypothesis that education tax does not affect income redistribution in Nigeria. Obaretin, et al. (2017) found no significant association between higher education tax and wealth redistribution in Nigeria.

## SECTION FIVE – CONCLUSION AND RECOMMENDATION

**Conclusion**

To examine how direct taxes affect income redistribution in Nigeria, we used Error Correction Model analysis on four taxation variables: CIT, PIT, PPT, and ED. From 1990 to 2020, foreign direct investment, trade openness, and inflation controlled the dependent-independent relationship. The empirical results showed that Company Income Tax (CIT) improves income redistribution in Nigeria. Personal income tax, petroleum profit tax, and education tax make little difference in Nigeria's revenue redistribution. Therefore, the analysis recommends that;

- Government should maintain the policy and administration efficiency of company income tax.
- Government and relevant tax authority should set a policy to improve the collection from personal income tax across the federation;
- Government and relevant tax authority should set a policy to improve the collection from petroleum profit tax across the federation;
- The current rate of education tax should be reviewed to promote income redistribution in Nigeria.

## REFERENCES

Agidi, P.E. (2023). Nigeria as the poverty headquarters of the world: Implications for her national development and relationship with external world. *International Journal of Research and Innovation in Social Science (IJRISS), VII* (X), 461-469. DOI: https://dx.doi.org/10.47772/IJRISS.2023.701038.

Akogo, O.U., & Akadakpo, A.A. (2022). Direct tax and income redistribution. *Journal of Accounting and Management, 12*(1), 33 – 44.

Appah, E. (2010). *Accounting for oil and gas business*. Port Harcourt. Ezevin Minting, Printing and Publishing Enterprises

Awe, A. A., & Olawumi, O. R. (2012). Determinants of income distribution in the Nigerian economy: 1977-2005. *International Business and Management, 5*(1), 126-137.

Awoyemi, B. T. (2005). Explaining income inequality in Nigeria: A regression based approach. *Journal of Economics and Rural Development, 4*(6), 45-59.

Baer, W. & Galvao, A. F. (2008). Tax burden, government expenditures and income distribution in Brazil. *The Quarterly Review of Economics and Finance*, *48*(1), 345-358.

Bakare, A. S. (2012). Measuring the income inequality in Nigeria: The Lorenz curve and gini co-efficient approach. *American Journal of Economics, 2*(1), 47-52.

Claus, I, Martinez-Vazquez, J., & Vulovic, V. (2012). Government fiscal policies and redistribution in Asian Countries. *Asian Development Bank Economic Working Paper.*

Daily Post (2024, Aug 23). N150bn presidential jet, N5bn yacht, other lavish spending by Tinubu govt. retrieved from https://dailypost.ng/2024/08/23/n150bn-presidential-jet-n5bn-yacht-oyher-lavish-spendings-by-tinubu-govt.

De Mello, L., & Tiongson, E. R. (2006). Income inequality and redistributive government spending. *Public Finance Review, 34*(3)**,** 282-305.

Egbon, O., & Mgbame, C. O. (2015). What is progressive about Nigerian personal income tax? *JORIND, 13*(1), 228-239.

Engle, R.F., & Granger, C.W.J. (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica, 55*, (2), 251-276.

Hines, J. R. (2015). Direct taxes: An overview. Retrieved from https://www.sciencedirect.com/topics/social-sciences/direct-taxes on 27/05/2020.

Ilaboya, O. J., & Ohonba, N. (2013). Direct versus indirect taxation and income inequality. *European Journal of Accounting Auditing and Finance Research, 1*(1), 1-15

Kaisa A., Mika H., & Jukka P. (2019). The effects of the value-added tax on revenue and inequality. *The Journal of Development Studies, 55*(4), 490-508.

Lustig, N. (2017). Fiscal policy, income redistribution and poverty reduction in low- and middle-income countries. Center for global development working paper, (448)

Madzinova, R. (2022). Impact of government spending on income inequality, Annals of Faculty of Economics. *University of Oradea, Faculty of Economics, 1*(2), 210-220.

Martinez-Vazquez, J., Moreno-Dodson, B., & Vulovic, V. (2012). The impact of tax and expenditure policies on income distribution: Evidence from a large panel of countries. International Center for Public Policy, Working Paper 12-25.

Meadowcroft, J. (2007) Tax, equity and redistribution. *Journal Compilation, Institute of Economic Affairs*. Blackwell Publishing

Naren, P. (2008). Policies for redistribution: The use of taxes and social transfers. Discussion paper, International Institute for Labour Studies, Geneva.

NgEX (2017). Taxes in Nigeria. Retrieved from http://ngex.com/business/legal-taxes/taxes-in-nigeria on 07/09/2019.

Nwezeaku, N. C. (2005). *Taxation in Nigeria: Principles and practice*. Owerri, Springfield Publishers Limited.

Nyenke, C. U., &Amadi, N. N. (2019). Taxation and income inequality in Nigeria. *Advance Journal of Economics and Marketing Research, 4*(3), 104-116.

Nzotta, S. M. (2007). Tax evasion problems in Nigeria: A critique. *The Nigerian Accountant, 40*(2), 40-43.

Obaretin, O., Akhor, S. O., & Oseghale, O. E. (2017). Taxation an effective tool for income redistribution in Nigeria. *Mediterranean Journal of Social Sciences, 8*(4), 197-196.

Odusola, A., (2006). Tax policy reforms in Nigeria. World Institute for Development Economics and Research, Research Paper No. 2006/03. Retrieved from http://www.wider,unu.edu.

Okoli, M. N., Njoku, C. O., & Kaka, G. N. (2014). Taxation and economic growth in Nigeria; A granger causality approach. International *Journal of Research in Management, Science & Technology, 2*(3), 64-80.

Olufemi, G.O., Okoro, O., & Oberatin, A.R. (2023). Effect of Direct Tax on Income Redistribution in Nigeria: An Empirical Analysis. *International Journal of Research Publication and Reviews, 4*(12), 3477-3484.

Olusanya, S. O., Peter, M., & Oyebo, A. F. (2012). Taxation as a fiscal policy instrument for income redistribution among Lagos state civil servants. *IOSR Journal of Humanities and Social Sciences, 5*(X), 60-70.

Omoniyi, B. B. (2017). An examination of the causes of poverty on economic growth in Nigeria. *Africa's Public Service Delivery and Performance Review 6*(1), 175-187.

Rodrigo, C., & Ivanna, V. H. (2010). Equity and fiscal policy: The income distribution effect of taxation and social spending in Central America. *IMF working paper WP/10/112*

Saez, E. (2004). Direct or indirect tax instruments for redistribution: Short-run versus long-run. *Journal of Public Economics*, *58*(2), 503-518.

Stears News (2020, May 27). Inequality in Nigeria is worse than it looks. Retrieved from https://www.stearsng.com/article/inequality-in-nigeria-is-worse-than-it-looks 24/05/2020

The Guardian (2020, May 27). Lingering poverty and consequences. Retrieved from https://guardian.ng/opinion/lingering-poverty-and-consequences/ on 27/05/2020

Ugbede, J. (2020). Nigeria: extreme inequality in numbers. Retrieved from https://www.oxfam.org/en/nigeria-extreme-inequality-numbers on 24/05/2020

Usman, S. K., & Bilyaminu, Y. H. (2013). Taxation and societal development in Nigeria: Tackling Kano's hidden economy. *International Journal of Academic Research in Business and Social Sciences, 3*(3), 113-125.