

DIRECT TAXES, INCOME REDISTRIBUTION GOVERNMENT EXPENDITURES AND POVERTY REDUCTION IN NIGERIA

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Abstract

This study investigated the income redistribution spending, direct taxation, and poverty reduction in Nigeria over a 29-year period, from 1995 to 2023. The objective was to assess how government spending and direct taxation policies affected Nigeria's efforts in reducing poverty and economic disparity. Descriptive statistics, the Autoregressive Distributed Lag (ARDL) bounds test, the Augmented Dickey-Fuller (ADF) unit root test, and diagnostics tests were used to improve the reliability of estimates and draw statistical conclusions at a 5% significant level. According to the study, public spending on education and corporate income taxes have a long-term favorable effect. Petroleum profit tax and public expenditure on education have positive long-run relationship on poverty reduction. Public expenditure on health has an inverse long-run impact on poverty reduction in Nigeria. The study recommends that the government should invest in critical infrastructure like roads, power and security through a fiscal blue print that match revenue to a target capital infrastructure which ensures accountability and industrialization that create jobs and yield economic prosperity thereby reducing or eradicating poverty.

Keywords: Poverty reduction, direct taxes, income redistribution government spending, Nigeria

1. Introduction

Nigeria's economy is expanding, its human resources are plentiful, and it has the potential to help millions of people escape poverty. However, theft, misallocation, and poor resource management are contributing to the rising poverty rate (Ugbede, 2020). Household income has remained unequally distributed rather than rising in a corrective way, particularly in developing nations. Inequality has increased since the Corona Virus first surfaced because income distribution has remained unequal. As a result, unemployment and poverty have increased further (Manuel et al., 2020). Income redistribution is linked to increased poverty, a dramatic drop in real earnings and private per capita spending on social services, and an overall loss in wellbeing (Petach, 2022). The apparent increase in income redistribution in developing nations, particularly Nigeria, can be attributed to several factors. These include the restricted employment opportunities coupled with the wealth of economic opportunities in some urban areas, as well as the high cost of corruption and administration, which account for a significant portion of government spending.

Although income redistribution does not result in a wealth gap, it does increase the spending power of the impoverished to a more comfortable level. The general consensus is that taxes and transfer programs can reduce income disparity. Reduced

income redistribution requires effective economic measures, particularly taxation. Among the negative consequences of more income redistribution on the economy are higher rates of poverty, a precipitous decline in real incomes and private per capita spending, social services, and a general decline in well-being (Petach, 2022). Effective income redistribution has emerged as a key government strategy as a result of these detrimental antecedents.

The Nigerian government has employed a number of fiscal policies to encourage and lessen income redistribution. The levying of direct taxes is one of these strategies. People and organizations are subject to direct taxes based on their income, wealth, and property. Nigeria's tax system consists of a number of direct taxes, such as personal income tax, corporate income tax, and capital gains tax. Direct taxation may have two effects: it may shrink the income distribution and redistribute wealth. According to the idea of optimum taxation, the best tax system should be designed to maximize revenue generation and minimize the distortions that taxes cause (Saez, 2001). This proves that a practical method of reducing income inequality is to use direct taxation to transfer wealth from the rich to the poor.

The extent to which direct taxes aid in income redistribution in Nigeria is unknown, though. Ezu and Okoh (2016) and Edo et al. (2020) claim that taxes have a redistributive effect since they raise money that is utilized to fund social amenities and ensure circumstances that are appropriate for the general public's financial well-being. However, poorly administered taxes can have a detrimental effect on the purchasing power of individuals and enterprises (Edo et al., 2020). These justifications call for an examination of how direct taxes affect Nigeria's income redistribution.

Given that a sizeable section of its population lives below the poverty line, Nigeria confronts enormous hurdles in combating poverty. Nigeria has one of the worst rates of poverty in the world, with a sizable fraction of its population living in poverty, according to the World Bank. Poverty manifests in various forms, including inadequate access to food, shelter, healthcare, and education, hindering socio-economic development and perpetuating cycles of deprivation.

Even though the richest man in Nigeria would need to spend \$1 million every day for the next 42 years to spend all of his money, Ugbede (2020) pointed out that over 112 million people in the country live in poverty. The richest guy in Nigeria might make enough money each year from his fortune to lift two million people out of poverty for a whole year (Ugbede, 2020). This illustrates Nigeria's pitiful degree of income disparity. In light of the foregoing this study is to experimentally examine the likelihood of employing Government expenditure on education, Government expenditure on health and Government expenditure on infrastructures to bring about improvements in income redistribution and poverty reduction in Nigeria. The literature also implies that taxation and income redistribution may be solutions to poverty and inequality because of Nigeria's unequal income distribution.

Nigeria faces persistent socio-economic challenges, particularly in the realms of poverty and income disparity, despite several fiscal initiatives aimed at reducing these issues. Poverty levels remain elevated, with a substantial portion of the population struggling to afford the basic necessities, highlighting potential shortcomings in existing tax and redistribution policies (World Bank, 2021). Income disparity continues to be significant, as wealth is heavily concentrated among a small segment of the population, while the majority experiences limited access to essential services

and economic opportunities (National Bureau of Statistics, 2022). This scenario underscores potential deficiencies within Nigeria's fiscal policies, particularly concerning direct taxation, which is intended to encourage wealth redistribution.

Direct taxes, including personal income and corporate taxes, are generally structured to align with taxpayers' financial capacity and theoretically reduce income inequality. However, Nigeria's direct tax system appears to have a limited impact on wealth redistribution, partly due to weaknesses in design and application (IMF, 2022). Tax rates and exemptions may often favour high-income individuals and large corporations, which reduces the progressive impact of the tax system and leaves low- and middle-income earners underserved (Adekoya et al., 2020). As a result, the tax system's effect on wealth distribution remains insufficient, restricting efforts to narrow the income gap and foster a more inclusive economic framework.

Rampant tax evasion and avoidance further exacerbate revenue shortfalls. Affluent individuals and corporations frequently exploit loopholes within the tax system to reduce their contributions, limiting funds that could otherwise support poverty alleviation (OECD, 2020).

Redistributive expenditures, intended to support low-income groups through social programs, often suffer from misallocation and potential misuse of funds. Bureaucratic delays, corruption, and inefficiencies within the government entities responsible for distribution compromise the impact of these expenditures, leaving underserved communities without adequate support (Transparency International, 2020). When funds fail to reach essential services such as healthcare, education, and social protection, the potential of redistributive expenditures to alleviate poverty is undermined, highlighting significant challenges in fiscal management and accountability (Adekoya et al., 2020).

The broad objective of this study is to examine direct taxes, income redistribution and poverty reduction in Nigeria. Specifically, it examines the impact of Petroleum Profit Tax (PPT); Company Income Tax (CIT); Public Expenditure (PE) on education; public expenditures on infrastructure and public expenditure on Health on poverty reduction in Nigeria. The study covers a 29-year period, spanning from 1995 to 2023. This timeframe provides a basis for an in-depth evaluation of long-term trends and patterns, allowing for a comprehensive analysis of fiscal policies, particularly those related to direct taxation and social spending, and their implications for poverty and income inequality.

2. Literature Review

The chapter focused on the review of conceptual literature, theoretical literature as well as the review of prior empirics.

2.1 Conceptual Review

Poverty Reduction

Scholars, planners, politicians, and the impoverished themselves all have various ideas on what poverty is. According to Adeleke (2012), poverty is a state in which people are severely deprived of necessities such as food, sanitary facilities, education, information, and productive resources. According to the definition given above, the community's comprehension of the notion determines how poverty is measured. Kale (2010) states that the Harmonized Living Standard Survey uses four methods to quantify poverty in the nation. Relative poverty, absolute poverty, dollar per day poverty, and subjective poverty are the results of these four methods.

Poverty is one of the most persistent and significant issues facing the world today. Countries are making every effort to lower it. In addition to causing a high unemployment rate, poverty breeds insecurity since those who are impoverished may pose a threat to society (United Nations, 2019). For example, insurgency in sub-Saharan West African ECOWAS/Nigeria, poverty is a primary cause of insecurity in sub-Saharan West Africa/Nigeria and other regions in the world (Bala & Tar, 2021).

One of the primary goals of the Millennium Development Goals (MDGs) was to reduce global poverty, with the MDGs aiming to cut the percentage of the population below the poverty line in half between 1990 and 2015. Accordingly, poverty increases health risk (Gundersen & Ziliak, 2015). Additionally, people with lower incomes experience higher rates of illness, chronic disease, and disabilities than people with higher incomes. These people also have higher rates of chronic diseases like diabetes, hypertension, and cancer. Concurrently, eradicating poverty is a fundamental objective that forms the basis of the Sustainable Development Goals (SDGs), which were introduced in 2015. There will be no poverty by 2030, the first of its seventeen aims. Thus, monitoring the progress made in eradicating international poverty helps us determine how near we are to fulfilling the sustainable development goal of a better future for all people (United Nations, 2015a). An estimated 1.9 billion people, or 36% of the global population, were believed to be living in extreme poverty in 1990. Maybe there was a major breakthrough in reducing poverty in 2015 global estimates for that year indicates that 735 million people, or 10% of the world's population, were living in extreme poverty.

However, poverty dramatically decreased throughout the MDG era particularly after 2000 demonstrating the effectiveness of concerted international efforts. In addition, three years ahead of plan, in 2012, the target of halving extreme poverty was accomplished (United Nations, 2015). Between 2015 and 2016, the percentage of the world's population living in poverty declined steadily to 10%. The World Bank released global estimates for the SDG era of 2017 that showed 714 million people or 9% of the world's populations were living in extreme poverty. In 2019, the estimate for the global poverty rate was 8.2%, with 690 million people estimated to be living in extreme poverty.

Nigeria has faced challenges in implementing effective poverty reduction policies, despite having numerous poverty alleviation programs such as the National Social Investment Program. Thus, Nigeria has struggled with economic instability, driven by factors such as oil price volatility, inadequate infrastructure, and political instability. Despite being Africa's largest economy, Nigeria faces high unemployment rates and widespread poverty and insecurity. Nigeria continues to face significant challenges due to economic instability, governance and weak social protection systems which is not the best for ECOWAS/Nigeria because poverty is a threat to society and economic development (United Nations, 2019). This is the main reason why conducted this research studying.

One of the world's most enduring issues is poverty, which nations work tirelessly to combat while establishing sustainable development objectives to improve the lot of humanity as a whole. There is no clear definition of poverty; perhaps the best way to describe it is as a state of impoverishment that includes vulnerability and low income, among other things. In this study, there are primarily two conceptual approaches to poverty (Wratten, 1995).

Measuring Poverty Reduction using Gini Coefficient

Based on the Lorenz curve concept, the Gini coefficient is a statistic used to assess the degree of economic inequality in a population. The Lorenz curve, which was first proposed by Lorenz (1905) as a means of analysing the evolution of society wealth disparities, shows the percentage of wealth or income that is possessed by a given population group. This coefficient is calculated from the Lorenz curve; a value of 0 indicates complete equality, whereas a number approaching 1 indicates considerable inequality (Ogbeide & Agu, 2015; Maina, 2017). Its value falls between 0 and 1 (inclusive). These differences can appear when comparing different countries as well as within a same one. For example, according to Ortiz and Cummins (2011), the 2008 Gini coefficient for Sub-Saharan Africa was 0.442, compared to 0.483 for Latin America, 0.354 for Eastern Europe and Central Asia, and 0.309 for High-income countries.

The Gini coefficient, widely acknowledged for its capacity to distil income disparity into a single, comprehensible statistic, provides a succinct overview of income distribution differences within a population (Klasen et al., 2016). Its use in sociology, economics, and public health research has been solidified by its suitability for conducting cross-national comparisons (Pickett & Wilkinson, 2015). It is not without its critics, though. Greselin and Zitikis (2018) point out that specific changes in the distribution of income among various economic classes are not well captured by the coefficient. It makes no distinction between a society in which wealth becomes more concentrated and one in which incomes increase for all members of society equally.

2.2 Empirical Review

Krokeyi and Niyekpemi (2019) investigated the impact of government spending on healthcare and education on the country's economic expansion. The study analyzed time series data from 1981 to 2016 using the Error Correction Model (ECM). Government spending on education and health has a unidirectional causal relationship with real gross domestic product (RGDP) in Nigeria during the period, according to the Granger Causality Test. The Error Correction Model (ECM) result showed that government expenditures on education and health care in Nigeria are statistically significant and have a long-term positive impact on economic growth. The study recommends spend more on education and health care services in order to boost real economic growth.

Appah and Iweias (2023) examined the connection between taxes and income inequality in Nigeria between 1980 and 2020. The study employed correlational and ex post facto research designs. The study's population consisted of Nigerian taxes and the Gini coefficient between 1980 and 2020. Using secondary data, the study applied univariate, bivariate, and multivariate analysis, the study concludes that taxes are vital instruments for reducing poverty in Nigeria.

Okoh et al. (2021) investigate the nexus between direct taxes and poverty reduction in Nigeria, with focus on education tax, corporate income tax, personal income tax, and petroleum profit tax as direct tax variables. Annualized data sets for the period 1990–2019 were analysed using the Fully Modified Least Squares (FMOLS). Findings revealed that, income inequality was decreased in Nigeria as a result of the effects of the petroleum profit tax and personal income tax, while company income tax and the education tax had insignificant effects on income distribution.

Similarly, Anyaduba and Otulugbu (2019) examined the impact of Value Added Tax (VAT), Petroleum Profit Tax (PPT), Custom and Excise Duties (CED), and Company Income Tax (CIT) on poverty reduction in Nigeria from 1990 to 2016. The Error Correction Models (ECMs) and Cointegration techniques were applied. Results revealed that VAT, CIT, CED, and PPT exhibited significant effect on poverty reduction; however, the CED was not significant. They conclude that PPT and CIT has more potentials in reducing inequality if adequately explored.

Obaretin et al. (2017) looked at taxes and how they are used to reduce poverty in Nigeria. Using data covering the period 1981 to 2014, the ordinary least squares method was used for the analysis. The study concludes that, at the 5% level, the different tax options had no significant effect on poverty reduction.

Sari and Qibthiyah (2022) looked into the relationship between income inequality and tax revenue between 2011 and 2019 in Indonesia. Using a fixed-effect approach, the regression result revealed that tax revenue has no significant effect on poverty reduction in Indonesia. This result implies that poverty reduction in Indonesia has not experienced appreciable progress from Indonesia's current national and subnational tax structures and procedures. Depending on the method of taxation, income tax and value-added tax revenues have little effect. However, a clear and convincing relationship has been observed between income inequality and the tax effort. This result implies that a significant percentage of consumer taxes are classified as municipal taxes and, thus, could affect poverty reduction.

2.3 Theoretical Framework

Optimal Tax Theory

In their seminar paper from 1976, Atkinson and Stiglitz introduced the optimal tax theory. The theory of optimum taxation looks at tax structures that aim to optimize individuals' social welfare. The ability of the tax system to redistribute depends on its design (Maina, 2017). The optimal tax theory examines circumstances in which individuals may have straightforward income fluctuations and the government may levy income taxes; however, when the utility function differs between labor and all commodities, indirect taxation need not be used in the appropriate tax design. Pareto optimality is the method by which the optimum tax theory approaches the design and implementation of a tax that, given specific economic constraints, reduces market distortion and inefficiency (Anyaduba & Otubugbu, 2019).

This theory states that the most profitable taxes are imposed on goods or variables with elastic supply and demand. Finding the root source of the problem should be the main goal of taxes on distribution, externalities, or market failures. Therefore, it is preferable to concentrate taxes on sectors where disparities exist, such as earned income or land endowments, in order to solve distribution. The good or activity that generates the externality should be directly taxed or subsidized if externalities exist. According to them, the best taxation strategy places a strong emphasis on analyzing the consequences of direct taxes and considering how they could impact social welfare and administrative expenses.

The traditional idea of optimum taxation is that the tax system should be focused on maximizing social welfare, given a set of constraints. The challenge of the social planner is made easier by the assumption that everyone in society has the same tastes, for example, when it comes to leisure and consumption. Sometimes the notion that all members of the economy are identical strengthens this homogeneity assumption.

Given that the representative consumer would respond to any incentives provided by the tax structure. In certain tax inquiries, it may be useful to simplify by assuming a representative customer. However, as we will see, there are other circumstances in which extrapolating policy findings from a model with a representative consumer might also bring challenges. Particularly in the US, economic inequality has increased significantly in recent years. According to the idea of optimal taxation, this modification represents an expansion of the ability distribution. (Labor economists may argue that the distribution of natural skill has not altered; nevertheless, the distinction is not relevant to the current discussion.) This reality begs the obvious question: In light of this change in the economic landscape, how should the social planner adapt in accordance with optimal tax theory?

Although there is still some confusion surrounding the best way to tax labor income, two significant findings have influenced our intuition regarding the best way to tax products and services. According to Diamond and Mirrlees (1971), there should be no tariffs on any intermediary items.

3. Methods

The study used longitudinal data and an ex-post-facto research design. The total population of the Nigerian economy, which led to a census, serves as the study's sample. Secondary data were employed in the research. World Bank open data, FIRS annual reports, CBN statistical bulletins, and National Bureau of Statistics annual reports were the direct sources of this information. The time series data used in the study covered the years 1995–2023.

Model Specification

The study adapted the model of Obaretin et al. (2017) which is specified as follows:

$$GINIt = \beta_0 + \beta_1TITt + \beta_2TDTt + \beta_3OPNt + \beta_4FDIt + \beta_5INFt + \epsilon t$$

Stating that Gini coefficient is a function of Total indirect tax revenue, Total direct tax revenue, Economic openness, Foreign direct investment and Inflation rate, not excluding Error term.

To fit the variables utilized in this investigation, the model was adjusted. The functional form of the multiple linear regression analysis models that were employed is listed below;

$$PR = f(PPT, CIT, PED, PEINF, PEHLT) \text{ -----}$$

--(eq1)

This can be econometrically express as:

$$PR = \beta_0 + \beta_1PPT + \beta_2CIT + \beta_3PED + \beta_4PEINF + \beta_5PEHLT + \beta_6INFL + \mu \text{ -----}$$

------(2)

Where:

PR = Poverty Reduction

PPT = Petroleum Profit Tax

CIT = Company Income Tax

PED = public expenditure on education

PEINF = public expenditure on infrastructure

PEHLT = public expenditure on health

INFL= Average Inflation Rate per annum.

β_0 = Intercept

β_1 - β_6 = Parameters or regressors or coefficient of the explanatory variables

μ - Error term

$$\beta_0 > 0, \beta_1, \beta_2 > 0 < \beta_3 > 0, \beta_4 > 0, \beta_5 > 0, \beta_5 > 0, \beta_6 > 0$$

Operationalization and Measurement of Variables

Table 1: Measurement of Variables

Item	Types of Variables	Measurement	Apriori Sign	Source
Poverty Reduction (PR)	Dependent variable	Gini Coefficient	Nil	Betul and Osaman (2020)
Petroleum Profit Tax (PPT)	Independent variable	Log of annual aggregate of petroleum profit tax	-	Obaretin et al. (2017)
Company Income Tax (CIT)	Independent variable	Log of annual aggregate of company income tax	-	Babatunde (2016)
Public Expenditures on Education (PED)	Independent variable	Log of total government capital expenditure on education	-	Obadan (2002), Olaniyan (2008)
Public Expenditures on Infrastructure (PEINF)	Independent variable	Log of total government capital expenditure on infrastructure	-	Adenuga (2008)
Public Expenditures on Health (PEHLT)	Independent variable	Log of total government capital expenditure on Health	-	Olaniyan (2008), Olayiwola (2008), Obadan (2002).
Inflation rate (INFL)	Control	Average inflationary rate per annum	+	Olayiwola (2008),

Source: Author’s compilation, 2025

Method of Data Analysis

The Auto-Regressive Distribution Lag (ARDL) econometric technique was used in this study to assess the empirical model and investigate taxes, income redistribution expenditure impact poverty reduction in Nigeria.

4. Results and Discussion

This section of the study is channeled towards reviewing data presentation, analysis and insightful empirical discussions.

Table 2: Descriptive Statistics

	PR	PPT	CIT	PED	PEINF	PEHLT	INFL
Mean	45.06	5.94	5.36	2.08	5.86	1.78	16.45
Median	43.90	6.18	5.28	2.18	6.31	1.96	12.56
Maximum	60.00	6.67	6.27	2.85	6.61	2.64	72.84
Minimum	35.10	4.63	4.09	0.87	3.57	0.32	5.39
Std. Dev.	6.79	0.63	0.69	0.60	0.86	0.72	14.47
Jarque-Bera	1.07	5.12	2.23	2.42	7.83	2.89	115.49
Probability	0.08	0.08	0.03	0.00	0.02	0.04	0.00
Sum	1306.66	172.24	155.47	60.33	169.98	51.69	477.16
Sum Sq. Dev.	1292.59	11.13	13.27	10.16	20.50	14.48	5865.28
Observations	29	29	29	29	29	29	29

Source: Researchers’ Compilation (2025)

The mean and median value of the poverty reduction of 45.06 and 43.90 shows that poverty index is relatively high in Nigeria because higher index implies greater inequalities and high level of poverty. The poverty reduction Jarque-Bera coefficient of 1.07 which is close to zero shows that the poverty reduction distribution is trending towards normal. The petroleum profit tax mean and median values of 5.94 and 6.18 respectively which is used to measure direct taxation shows that the average proportion of direct tax through petroleum profit tax is at a geometric rate of 594% over the period understudy.

The company income tax measure of income direct tax with mean and median values of 5.36 and 5.28 respectively shows that the average proportion of direct tax derived through company income tax is at a geometric expansionary rate of 536% over the period understudy. Public expenditure on education measure on income redistribution with mean and median values of 2.08 and 2.18 respectively shows that the average government expenditure on education appreciated at an average rate of 208%. The kurtosis and Jarque-Bera values of 2.20 and 2.42 replicate a platykurtic distribution with little or no outliers. The positive Jarque-Bera shows a heavily peaked normal distribution. The negative skewness value of -0.58 which falls within the excellent region of -1 to +1 which indicate that the data of public expenditure on education is trending towards symmetry.

The public expenditure on infrastructure that measures income redistribution with an average and median value of 5.86 and 6.31 respectively also shows that average proportion of government expenditure on infrastructure in Nigeria has grown over 586% over the period understudy. The kurtosis value of 3.60 implies a leptokurtic distribution which is asymmetric and the Jarque-Bera value of 7.83 indicates that the data has outliers or extreme values. The positive kurtosis value also indicates a heavily peaked distribution and the negative skewness value of -1.24 falls within the acceptable level of -2 to +2 showing that the data is trending towards a symmetric distribution with more large values. The explanatory variable of public expenditure on health that measures income redistribution with an average and mean values of 1.78 and 1.96 respectively for the period under study shows that the Nigeria government averagely expends on health facilities at a rate of 178% over the period understudy.

Short-run relationship between Taxes, Income redistribution expenditure and Poverty reduction

This is used to show relationship between a non-stationery time series variable that are co-integrated which implies that linear relationship between variables are stationary. ECM is used to capture both short term dynamics and long-term equilibrium adjustment between variables. The parsimonious ECM estimates that take into short-run dynamics are below:

Table 3: Ordinary Least Square Error Correction Model (ECM) short-run relationship Estimation of variables

Dependent Variable: D(PR)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.4299	1.5680	-1.5497	0.1472
D(PR(-1))	0.1887	0.2384	0.7916	0.4440
D(PPT)	2.0830	6.6884	0.3114	0.7608
D(PPT(-1))	-7.1900	6.0938	-1.1799	0.2609
D(CIT)	-3.9543	10.5616	-0.3744	0.7146
D(CIT(-1))	-3.6554	9.3566	-0.3907	0.7029

D(PED)	-17.8279	15.3749	-1.1595	0.0088
D(PED(-1))	13.6601	18.3688	0.7437	0.4714
D(PEINF)	0.6219	2.0019	0.3106	0.7614
D(PEINF(-1))	-1.6784	2.0769	-0.8081	0.4347
D(PEHLT)	29.2931	13.5751	2.1579	0.0419
D(PEHLT(-1))	11.6689	15.9263	0.7327	0.4778
D(INFL)	-0.0316	0.1200	-0.2633	0.7968
D(INFL(-1))	0.0023	0.1181	0.0195	0.9848
ECM(-1)	-1.1339	0.3008	-3.7702	0.0027
R-squared	0.7372	Durbin-Watson stat	1.856698	
Adjusted R-squared	0.4307	S.E. of regression	5.080307	

Source: Researchers’ Computation (2025)

The short-term dynamic link between direct taxation, income redistribution spending, and poverty alleviation in Nigeria was explained by the estimated result shown in Table 4.5 above. The model showed a very high goodness of fit, as seen by the independent variables explaining roughly 73.72% of the total variability in the dependent variable. Therefore, the small value of 5.08, which is close to zero, implies an insignificant standard error, demonstrating that the output from this model is highly significant and accurate. The standard error of regression measures the deviation from the regression line or accuracy of the regression estimates, and the closer the value to zero, the better the estimates. The value of the Durbin-Watson statistic of 1.857 which is close to the benchmark of 2 implies that the model had no serial correlation problem.

One period lag error correction term **ECM(-1)** also known as the speed of adjustment that replicates the speed at which a state of disequilibrium in the model will adjust to equilibrium from short-run to long-run co-integration or relationship. Therefore, the significant p-value of 0.0027 and the coefficient value is -1.1339 which is negative and less than one implies that there is high speed of adjustment of 113% when there is any dis-equilibrium in the model from short-run back to the long-run. Due to this fact, the study reveals a long-run co-integration between direct tax, income redistribution expenditure and poverty reduction in Nigeria.

Long-run relationship between Direct Tax, Income Redistribution and Poverty Reduction

The estimated result presented in table 4.5 below explained the long-run relationship between direct tax, income redistribution expenditure and poverty reduction in Nigeria is used to test the hypothesis since the ARDL bound test reveals an equilibrium long-run relationship between the variables of interest.

**Table 4: ARDL Error Correction Model (ECM) Estimation of variables
ARDL Long Run Form and Bounds Test
Dependent Variable: PR**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PPT	7.548244	4.976095	1.516901	0.1575
CIT	22.60564	10.19595	2.217119	0.0486
PED	44.77012	28.59866	1.565462	0.1458
PEINF	21.54365	8.533086	2.524719	0.0282
PEHLT	-89.19621	30.98954	-2.878269	0.015

INFL	0.344602	0.309641	1.112908	0.289 5
EC = PR - (7.5482*PPT + 22.6056*CIT + 44.7701*PED + 21.5436*PEINF				
-89.1962*PEHLT + 0.3446*INFL)				
R-squared	0.8414	Durbin-Watson stat	2.3831	
Adjusted R-squared	0.7575	Log likelihood	-64.4321	
S.E. of regression	3.3160	F-statistic	10.0217	
Sum squared resid	186.9249	Prob(F-statistic)	0.0000	

Source: Researcher’s Computation (2025).

Discussions and Contribution

The findings from the study reveals that petroleum profit tax exhibited a positive relationship with and an insignificant impact on poverty reduction in Nigeria in the long-run. This positive relationship reveals that the increase in petroleum profit tax result is an appreciation in the Gini coefficient which results in income inequality and poverty index increase, leading to more individuals falling into the poverty line. This finding is at variance with apriori expectation and theoretical anchorage of poverty growth inequality theory. The result from this study also aligns with the study of Appah and Iweias (2023) on taxes and income disparity in Nigeria and also agrees with the findings of the study of Okoh et al. (2021) on direct taxes on income redistribution in Nigeria but at variance with the study of Obehioye and Adebukola (2022) study on direct taxes impact on income redistribution in Nigeria that reveals that petroleum profit tax has a positive and significant impact on poverty reduction in Nigeria.

On the impact, the study also reveals that company income tax revenue has a long-run direct relationship with and a significant impact on poverty reduction in Nigeria. This result is in line with the study of Obehioye and Adebukola. (2022) and at variance with the study of Appah and Iweias (2023) that reveals an insignificant long-run relationship of company income tax and poverty reduction. This finding disagrees with the theory of poverty growth inequality theory that shows that Gini index reduces as company income taxes increases and these findings did not align with apriori expectation.

The study further reveals that public expenditure on education as a means of income redistribution has a direct relationship and insignificant impact on poverty reduction. This implies that as government expend more investment in education results in an increase in Gini coefficient which shows that the poverty index has increased. This result is at variance with Omesi and Appah (2021) study of taxes and income inequality in Nigeria that reveals a negative relationship and significant impact of public expenditure on education on inequality. The findings of this study misalign with apriori expectation and theoretical underpin of poverty growth theory.

The study also reveals that public expenditure on infrastructure as a means of income redistribution has a positive relationship and significant impact on poverty reduction. This implies that investment in infrastructure by the government results in an increase in Gini coefficient which shows that the poverty index has increased. This result is at variance with Omesi and Appah (2021) study of taxes and income inequality in Nigeria that reveals a negative relationship with and significant impact of public expenditure on education on inequality. The findings of this study misalign with apriori expectation and theoretical underpin of poverty growth theory.

The findings of the study also show that public expenditure on health has an inverse relationship and significant impact on poverty reduction in Nigeria in the long-run. This implies that as the government expend more public health result in a decrease in the Gini coefficient which signifies reduction in poverty. The result of this study is in consonance with the study of Omesi and Appah (2021) and it also aligns with appriori expectation and confirms the theory of poverty growth inequality, optimal tax theory and pareto distribution theory.

5. Conclusion

The need for reduction in poverty through adequate income redistribution and direct tax revenue accountability necessitated the study to ensure improve living standard, life expectancy and low mortality. Therefore, this study evaluated the impact of direct tax as measure by petroleum profit tax and company income tax, income redistribution as measured by public expenditure on education, infrastructure and health on poverty reduction as measured by the Gini coefficient. The findings show that company income tax, public expenditure on infrastructure, public expenditure on health significantly impact poverty reduction in Nigeria. Therefore, the study concludes that tax, income redistribution expenditure impact poverty reduction in Nigeria.

Recommendations

Due to the direct long-run relationship between revenue collections through petroleum profit tax and poverty reduction as revealed by the study therefore, deliberate policies on petroleum profit tax reforms that will increase such tax remittance which is directed towards reducing poverty in Nigeria. By implication, the tax revenue will only reduce poverty if channeled towards relevant expenditure channels. The study further recommends that public policy makers should prioritize investment in the health sector in Nigeria through deliberate policies on medical personnel welfare, equipping of health facilities with modern competitive amenities that encourages health tourism in Nigeria and reduce capital flight that result from international health needs.

Limitation and Future Studies

Findings from the study may not be generalizable to other countries due to Nigeria's unique socio-economic context, tax systems, governance structure and institutional frameworks. Further study should consider other poverty reduction measures like head count index, poverty gap index, poverty severity index, Sen index, and the Sen-Shorrocks-Thon's index.

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