



ISSN 2278 – 0211 (Online)

Impacts of Taxation on Economic Development in Nigeria

Ayano, David Ayanniya

Deputy Director, Department of Economic Management,
Centre for Management Development, Lagos, Nigeria

Abstract:

The study investigated the impact of company's income tax revenue, education tax revenue, and petroleum profit tax revenue on health, education and standard of living respectively in Nigeria from 2000 to 2020. The study test the unit roots of the variables by using Augmented Dickey Fuller and found out that all variables involved are stable at level and first difference. The study used Bound Co-integration test and ARDL – Autoregressive Distributed Lag to estimate its three models. The results are as follows: in model 2a with life expectancy at birth as dependent variable, there exist a negative relationship between company income tax revenue/education tax revenue and life expectancy at birth (LEXB), and there exist a positive relationship between petroleum profit tax revenue and life expectancy at birth (LEXB) within the periods of study; while in model 2b with student enrolment at tertiary level as dependent variable, there exists a positive relationship between company income tax revenue and school enrolment at tertiary level (SET), there exists a negative relationship between education tax revenue and school enrolment at tertiary level (SET) within the periods of study, and there exists a positive/significant relationship between petroleum profit tax revenue and school enrolment at tertiary level (SET) within the period of study; finally in model 2c with per capita gross national income as dependent variable, there exist a negative relationship between company income tax revenue in current year and one year lag respectively and per capita gross national income (PCGNI), there exist a positive relationship between education tax revenue and per capita gross national income (proxy for standard of living), and there exist a positive relationship between petroleum profit tax revenue and per capita gross national income (PCGNI) within the periods of study. The study therefore recommends that company income tax revenue, education tax revenue and petroleum profit tax revenue respectively are very useful while formulating and implementing decisions on health, education and standard of living in Nigeria.

Keywords: Life expectancy at Birth, school enrolment at tertiary, per capita gross national income, company income tax revenue, education tax revenue, and petroleum profit tax revenue

1. Introduction

The rate of economic development creates an inequality among the countries of the world. Economic development ensures an increase in output together with a change in technical and institutional arrangement involved in production (Satope and Akanbi, 2014). Countries that are developed economically have an advancement in factors that brings about transformation in culture, social, educational, political and economic standards (Mick, 2007). Belshaw and Livingstone (2002) noted that improvement in economic development provides a livelihood for the majority of the population. In order to achieve a sustainable economic development, government ensures regular inflow of revenue into its treasuries, one of which is taxation which is used by government as an instrument to raise the necessary funds for public expenditure, to redistribute income, to stabilize the economy, to overcome externalities, to influence the allocation of resources, while at the same time should be supportive to the economy (Stoilova and Patonov, 2012). There can be little doubt that the nature of the economy, and its structural characteristics, influence the ability to tax and the types of taxes that can be imposed. The standard economic approach to taxation and development focuses on how economic change influences the evolution of the tax system (Besley and Persson, 2013). This in turn allows tax revenue to grow and new taxes to be introduced, favours investments in the administrative ability to collect taxes, and fuels demand for infrastructure and redistributive taxation and spending among the population (Bräutigam, 2008)

Azubike (2009) is of the view that tax is a major player in every society of the world. The tax system is an opportunity for government to collect additional revenue needed in discharging its pressing obligations. A tax system offers itself as one of the most effective means of mobilizing a nation's internal resources and if lends itself to creating an environment conducive to the promotion of economic growth.

Nzontta (2007) on the other hand, argues that taxes constitute key sources of revenue to the federation account shared by the federal, state and local governments. Appah, et al (2004) assert that tax is a compulsory levy imposed on a subject or upon his property by the government to provide security, social amenities and create conditions for the economic well-being of the society.

Tosuu and Abizadeh (2005) acknowledge that taxes are used as proxy for fiscal policy. They outlined five possible mechanisms by which taxes can affect economic growth. First, taxes can inhibit investment rate through such taxes as

corporate and personal income, capital gain taxes. Second, taxes can slow down growth in labour supply by disposing labour leisure choice in favour of leisure. Third, tax policy can affect on research and development expenditure. Fourth, taxes can lead to a flow of resources to other sectors that may have lower productivity. Finally, high taxes on labour supply can distort the efficient use of human capital high tax burdens even though they have high social productivity.

Taxation according to Emekekwe (2009) is the collection of a share of individual and organization income and wealth by the government under the authority of the law. The Nigerian tax System has undergone significant changes in recent times. The Tax Laws are being reviewed with the aim of repelling obsolete provisions and simplifying the main ones. Under current Nigerian law, tax revenue is enforced by the 3 tiers of Government, which are Federal, State, and Local Government with each having its sphere clearly spelt out in the Taxes and Levies Act, 1998.

The whole essence of tax revenue is to generate revenue to advance the welfare of the people of a nation with focus on promoting economic growth and development of a country through the provision of basic amenities for improved public services via proper administrative system, and structures (Aboyade, 2010). Taxation is one of the major sources for revenue generation in Nigeria of which petroleum carries the highest percentage of revenue generated in Nigeria. Petroleum taxation policy is both employed as a fiscal policy and as well as income generating tool is widely employed by both developing and developed countries. Since petroleum has been discovered in Nigeria it has been the bedrock of economy and is responsible for about 90% of revenue which is the highest revenue generated by government from taxation. As of 2000, oil and gas export accounted for more than 98% of export earnings and about 83% of federal government revenue, as well as generating more than 14% of its GDP as it provides 95% of foreign exchange earnings, and about 65% of budgetary revenues (Central Bank of Nigeria; 2015). The role of oil sector towards the process of national development can be seen in the aspect of; employment generation, foreign exchange earnings, income generation, industrialization, and improvement in other economic variables. While the major investors in the petroleum industry are the multinational oil companies, the government regulate the petroleum operations in Nigeria through the petroleum profit tax act (PPTA) of 2007 amended, with its main fiscal instrument as the petroleum profit tax (PPT), through which petroleum revenue accrue to the government. Odusola (2006) notes that the petroleum profit tax is applicable to upstream operation in the oil industry, and its main focus relates to prospecting and exploration lease, royalties, rents, margins and profit sharing elements associated with oil mining. The fundamental objectives of petroleum taxation are to ensure a fair share of accruing from the extraction of the petroleum resource, while also providing sufficient incentives to encourage investment and optimal economic recovery of the hydrocarbon resources.

Nigeria and other African Countries are today facing series of challenges when it comes to optimizing taxation revenue for economic and social growth while aiming to reach development targets. The most glaring difficult challenge is how to find the optimal balance between a tax regime that is business and investment friendly while at the same time leveraging enough revenue for public service delivery which in turn makes the economy more attractive to investors. Central Bank of Nigeria (2016) reported that Nigeria economy is falling into recession, this is as a result of dwindling oil revenue (Madugba, Ekwe and Okezie, 2016). The economic recovery in 2018 seems unsustainable because the oil price and production are still turbulent. The fall in oil revenue has made government to look for an alternative way to finance its developmental projects. By that government aims to increase the tax base which will help increase tax revenue in the country. It is clear that government expenditures via infrastructural establishment, energy and power generations, education and health facility can lead to creation of an atmosphere conducive for capital formation (CF) and gross domestic investment (GDI) which invariably will raise economic growth and development and reduce poverty (Ogamba, 2003).

The impact of the Nigerian tax system on businesses has been a matter of increasing interest and concern to many persons. Tax policies and the structure of taxation in Nigeria is resulting to multiple taxation on businesses, forcing most businesses to run into losses or collapse. Businesses make numerous decisions daily. Their inability to make the right decisions can result in their failure. Since taxation is a liability businesses have to incur, businesses are faced with the option of managing their tax liabilities in such a way their tax burden is reduced. Their inability to effectively manage taxation brings about negative effects on the financing, investment and dividend decisions of the business.

Multiple taxation and high tax rates are challenges facing businesses in Nigeria today. Tax liabilities pose two issues for a business. First each and every tax required of a business is just another business expense. An increase in tax has the same effect as would raise in cost of goods. Ministries, departments, and agencies (MDAs) suffer from limitations in manpower, money, tools, and machineries to meet the ever increasing needs of individual taxpayers. As a matter of fact, the negative attitude of most tax collectors can be linked to poor remuneration and motivation. Also, it has been noted that that staff are not provided with regular training to keep them ahead of developments in tax related matters. This makes the administration of taxes in terms of coverage and assessment very weak. This necessitates the essence of the study on the effect of taxation on economic growth of Nigeria.

In addition, the attitude of Nigerians towards taxation is worrisome as many prefer not to pay tax. As a result of the unwillingness to pay tax as well as evading tax, the economy therefore continues to lose huge amount of revenue. If this lost revenue is plowed back into the economy and well utilized - this can change the fortune of the nation.

This study broadly examined the impact of taxation on Economic Development in Nigeria. Specifically, the study attempted to:

- Examine the impact of company's income tax revenue, education tax revenue, and petroleum profit tax revenue on health in Nigeria
- Determine the impact of company's income tax revenue, education tax revenue, and petroleum profit tax revenue on education in Nigeria

- Investigate the impact of company's income tax revenue, education tax revenue, and petroleum profit tax revenue on standard of living in Nigeria.

This study reviewed relevant literatures after the introduction, the study stated the methodology, followed by the data analysis and interpretation. Finally, the study discussed findings, concludes and made policy recommendations.

2. Literature Review

This section reviewed relevant literatures as it relates to impact of taxation on Economic Development in Nigeria.

2.1. Conceptual Review

2.1.1. Taxation

Appah (2004) conceptualized taxation as a compulsory levy which is payable by economic units and subjects to the government with or without any corresponding entitlement to receive a definite and direct quidpro quo from the government. Chigbu and Njoku (2015) argued that taxation is intended to raise the necessary funds for public expenditure, redistribute income, stabilize the economy, overcome externalities and as well to influence the allocation of resources, while at the same time should be supportive to the economic growth (Stoilova and Patonov, 2012). Harelimana (2018) noted that taxation are all types of involuntary levies, from income to capital gains to estate taxes collected by a levying authority, usually a government. Anyafo (1996) defined taxation as a compulsory payment by individuals and organizations to the relevant inland or internal revenue authorities at the federal, state and local government levels. Taxation is a fiscal policy in terms of inhibiting investment rate and labour supply (Tosun and Abizadeh, 2005).

Moore (2008) viewed taxation as one of the few objective measures of the power and legitimacy of the state; this is because it provides a primary platform for political negotiations amongst the country's stakeholders. This implies that the revenue derived from administering taxes depends on the complex interactions between economic, political and institutional factors (Besley and Persson, 2013)

Based on the above, taxation can be referred to as the process of administering a compulsory levy backed by law on the subject, his or her activities and property by the government so as to provide for socio-economic amenities needed by the society.

2.1.2. Economic Development

Economic development and economic growth are two distinct economic terms which are often misuse for one another. Harelimana (2018) refers to economic development as the process by which Gross National Product (GNP) per capital of a country increases qualitatively and quantitatively over a very long period of time. According to Satope and Akanbi (2014) economic development involves an increase in output together with a change in technical and institutional arrangement involved in production. They further argued that economic growth is a subcomponent of economic development because a nation cannot achieve economic development without having achieved economic growth. Mick (2007) noted that economic development is the combination of economic growth and factors, which may bring about general cultural, social, educational, political and economic transformation. Wyngaard (2006) stated that economic development is heterodox, because it is a complex phenomenon that involves a variety of social and economic processes due to the fact that it happens in different ways in different countries and regions of the world.

Manuel (2004) disclosed that economic development is the sustained increase in income of all members of society so as to be free from material want. This view relates with Belshaw and Livingstone (2002) that opined economic development as the progress in providing livelihood on a sustainable basis, access to education and basic healthcare for the majority of the population. Malizia and Feser (2000) noted that both economic growth and economic development are complements, because one makes the other possible. They further stated that growth is an increase in output and expands the economy, whereas economic development entails a structural change that must lead to more equal distribution of income and wealth. United Nations Development Programme (1992) disclosed that economic development should at least create a conducive environment for people, individually and collectively, to develop their full potential and to have a reasonable chance of leading a productive and creative life according to their needs and interests.

Despite the complexity in the concept of economic development literature have it that, increased living standards, improved health and wellbeing for all, and the achievement of whatever is regarded as a general good for the society as a whole (Thomas, 2000); Human Development Index which is of combinations of a measure of income, a health indicator and an access to knowledge indicator (Belshaw and Livingstone, 2002); Inequality-adjusted Human Development Index (IHDI) which adjusts HDI for inequality in distribution of each dimension across the population (Alkire and Foster, 2010); Physical Quality of Life Index (PQLI) which discloses the wide range of indicators such as health, education, water conditions, nutrition and sanitation ; Multidimensional Poverty Index (MPI) which identifies multiple deprivations at the individual level in health, education and standard of living (Santos and Alkire, 2010); Per Capital Real Income (PCRI) which deals with income based on population, are measures of countries' economic development.

2.2. Human Development Index

Human Development Index (HDI) was first introduced and launched in the first Human Development report by the UNDP in 1990 (HDR; 1990). It was pioneered by the well know Pakistani economist Mahbub-ulhaq. The Human Development Index (HDI) is the summary composite measures of income, education and health. The main objective behind HDI is to measure and calculate the three dimensions and components of development and well-being (Health, education, living standard). The HDI has set a minimum and maximum score for all three dimensions which are called goals posts,

and then shows where each country stands in relation to the goalposts. The HDI simplifies the comparison of countries in terms of different dimension in to one single number. The value of HDI can vary between 0 and 1. (0) shows the worst performance whereas, (1) greater achievement and better performances in Human development. It is introduced as alternative to the conventional and traditional measures and calculation of national development; such as level of income and economic growth. The human development concept has been revised throughout each release; particularly it was considerably revisited and revised in 2010 for better calculation and measurement of Human Development Index. Despite considerable changes in HDI's indicators, goal posts and sub-indices in 2010, but still it remains a composite index that measures human wellbeing and Development. The new HDI concept has been slightly revised based on present needs and context. The main indicators which were used in the 2010 version are in the following:

Till 2010 the HDI had been calculated and measured based on simple arithmetic average mean of normalized indices of health, education and income. The 2010 report brought and introduced considerable changes in to HDI that previously were not reflected in the reports.

Previously Health was measured by life expectancy at birth; this measure has not been changed, it is still the same. Knowledge (education) was previously measured by a combination of adult literacy rate and school enrollment rates for primary schooling throughout university years. This measure is now calculated by combining the expected years of schooling for a school age child with the mean years of prior schooling for adults aged 25 and older. Standard of living previously was measured by GDP per capita adjusted for PPP. Income is now measured by PPP- adjusted per capita Gross National income (GNI).

There are solid reasons for revising the indicators. For example, adult literacy which was used in previous HDI is considered to be an insufficient calculation for getting a full picture of education level in a country; it is because adult literacy is a binary variable – literate or illiterate with no graduation is indicated (Alkire;2010). By including average years of schooling and expected years of schooling, one can better capture the level of education.

There were some criticisms in regard to Gross Domestic Product as well. GDP is defined as monetary value of goods and services produced in a country irrespective of how much retained. But on the other hand Gross National Income which is newly introduced for measurement of HDI is defined as the income attained by residents of a country, including international flows of money such as remittances minus income generated in the country but repatriated abroad.

Previously, the calculation of HDI was based on arithmetic mean of indicators, but the new version is calculated based on geometric mean of dimension indices. Geometric mean is preferred rather than arithmetic mean, because it considers differences in achievement across dimensions. The geometric mean reduces the possibility of substitutability between dimensions; means that a low achievement in one dimension is not anymore linearly compensated for by high achievement in another dimension.

2.3. Theoretical Review

According to Bhartia (2009), a tax revenue theory may be derived on the assumption that there need not be any relationship between tax paid and benefits received from state activities. We shall accordingly look at some of such theories as discussed below.

2.3.1. Socio-Political Theory

This theory of tax revenue states that social and political objectives should be the major factors in selecting taxes. The theory advocated that a tax system should not be designed to serve individuals, but should be used to cure the ills of society as a whole.

2.3.2. Benefit Received Theory

This theory is based on the assumption that there is basically an exchange relationship between taxpayers and the state because the state provides certain goods and services to the members of the society, therefore, members of the society should contribute to the cost of these supplies in proportion to the benefits received (Bhartia, 2009). Anyanfo (1996), supports this postulation by saying that taxes should be allocated on the basis of benefits received from government expenditure.

2.3.3. Faculty Theory

According to Anyanfo (1996), this theory states that one should be taxed according to the ability to pay. It is simply an attempt to maximize an explicit value judgment about the distributive effects of taxes. Bhartia (2009), shares this same view by arguing that a citizen is to pay tax just because he can, and his relative share in the total tax burden is to be determined by his relative paying capacity.

2.3.4. Expediency Theory

This theory asserts that every tax proposal must pass the test of practicality. It must be the only consideration weighted by the authorities in choosing a tax proposal. Economic and social objectives of the state and the effects of a tax system should be treated as irrelevant (Bhartia, 2009). Anyafo (1996) and Bhartia (2009) explained that the expediency theory is based on a link between tax liability and state activities. It assumes that the state should charge the members of the society for the services provided by it. This reasoning justifies imposition of taxes for financing state activities by inferences, which provides a basis, for apportioning the tax burden between members of the society. This proposition has a reality embedded

2.4. Empirical Review

Timah and Chukwu (2021) investigated the relationship between corporate tax and employees' wages, dividend, and corporate social responsibility. Descriptive research design was adopted, and data on selected manufacturing companies were obtained from the published annual financial statements of the companies. Data analysis was conducted using Ordinary Least Square, with the aid of E-views software. The findings revealed that there was a significant relationship between corporate tax and employee wages, and also between corporate tax and dividend payment. Further, there was a significant, positive relationship between corporate tax and the corporate social responsibility engagements of the selected companies. The implication of these consistent findings is that tax payment motivates greater hard work, which translates into better amount of wages, more dividends, and more investment in corporate social responsibility.

Oladele (2021), examined the impact of tax compliance on economic development in Nigeria. The specific objective examined if tax compliance impact human capital development and per capital income in Nigeria. In trying to achieve this objective, a quantitative research design was adopted while regression was adopted for the data analysis. The results of the study indicate that the tax compliance have positive impact on economic development in a time series data of Nigeria's Economy during 2003 – 2019. The linearity test revealed that linear relationship exists between tax compliance and standard of living in Nigeria.

Uche and Ugonabo (2021), ascertained the effect of Value Added Tax on Economic Development in Nigeria from 1994-2018. Pearson coefficient of correlation and simple regression analysis were applied for the test of the hypotheses formulated with aid of E-Views 9.0 statistical software. Findings showed that Value Added Tax has a positive and statistically significant relationship with economic development (proxy by Gross Domestic Product and Total Government Revenue) at 5% significant level. Based on these findings, the study recommends among others that Government should therefore put in place measures to enhance productivity so as to increase the contribution of VAT to economic growth and development in Nigeria.

Abiola, Adegbe and Ogundajo (2021) opines that economic growth drivers aimed at stimulating and stabilizing the economies of the countries to engender sustainable growth. Studies have shown that Nigeria has been plagued with stunted and faltering economic growth over the years. Tax and other relevant macroeconomic policies are implemented by the government to smoothen out economic fluctuations but this has not been fully harnessed. A causal-effect study was conducted between tax revenue, gross fixed capital formation and economic growth using a 38-year time series data from 1981 to 2018 derived from CBN statistical bulletin. It was found that tax revenue (TR) had significant positive effect on Gross Domestic Product and Gross Fixed Capital Formation (GFCF) significantly controls the relationship between TR and GDP. It is evidenced that the country relied heavily on taxes as major source of revenue. The study recommended that government should widen its tax net, creates expansionary measures to enhance its tax revenue in order to boost its GDP. The government should also create an enabling environment for economy diversifications in order to increase revenue generated via other means than taxes in order to spur economic growth and avoid over-reliance on taxes.

Jimoh, Adegioriola and Adeyemo (2020) investigated the impact of tax revenue on economic growth in Nigeria (1990 – 2016). Annual time series data were sourced from Federal Ministry of Finance, Federal Inland Revenue Service, Central Bank of Nigeria and National Bureau of Statistics. The data were tested for stationarity using Augmented Dickey Fuller (ADF) test while the co-integration was conducted using Johansen's test. The estimation technique employed for the time series data was Error Correction Model (ECM). The results show that, there is long run equilibrium relationship between the key variables. ECM has the expected sign which is negative. This shows that short-run disequilibrium can be brought back to equilibrium in the long-run. The result showed Petroleum Profit Tax, Company Income Tax and Value Added Tax have positive and significant impact on Gross Domestic Product. Personal Income Tax has negative and not significant impact on Gross Domestic Product. Tax Elasticity has a negative but significant impact on Gross Domestic Product. The study therefore recommends that government should double its effort in generation of more revenue from taxes other than rely on foreign exchange from crude oil since petroleum profit tax, company income tax and personal income tax improve economic growth in Nigeria. Government should endeavour to provide infrastructural amenities to every part of the country as this will boost the level of tax compliance and will encourage citizens to pay taxes in Nigeria.

Yadawananda and Achal (2020), examined the long-run and short-run relationship between tax structure and state-level growth performance in India for the period 1991–2016. For verification of the relationship between taxation and economic growth the panel regression method was used. With the use of 14 Indian states data, Panel Pool mean group estimation indicates that income tax and commodity-service tax has negative effects whilst property and capital transaction tax have a significant positive effect on state economic growth. This study finds 'U' shape relationship between tax structure and growth performance. Based on the analysis, they concluded that for faster growth of Indian states, policymakers should give more focus on property taxes along with the reduction in income taxes.

Ofoegbu and Akwu, Oliver (2016) examined the effect of tax revenue on the economic development of Nigerian, and to ascertain whether there is any difference in using HDI and GDP in establishing the relationship. The approach adopted in this study was that of using annual time series data for the period 2005 - 2014 to estimate a linear model of tax revenue and human development index using ordinary least square (OLS) regression technique. Findings show a positively and significantly relationship between tax revenue and economic development. The result also reveals that measuring the effect of tax revenue on economic development using HDI gives lower relationship than measuring the relationship with GDP thus suggesting that using gross domestic product (GDP) gives a painted picture of the relationship between tax revenue and economic development in Nigeria. The researcher, therefore, conclude that tax revenue can be an instrument of economic development in Nigeria. Development of any tax policy on tax revenue for economic development should better be based on human development index rather than GDP. This study provides a useful insight for the

government, stakeholders and policy makers into the importance of tax revenue for economic development as a result; income derived from tax should be judiciously used to encourage citizens to continue to pay tax.

Chigbu and Njoku (2015) studied taxation and Nigerian economy with the use of cointegration test. The study showed that even though that long run relationships exist between the variables, there is no significant effect of taxation on the economy of the country.

Adudu and Simon (2015) studied tax policy on economic growth in Nigeria with use of Granger causality cointegrations framework and disclosed that efficient tax reforms are necessary conditions for enhanced sustainable economic growth.

Chibu and Njoku (2015), investigated the impact of taxation on the Nigerian economy for the period 1994 -2012. The variables used in the model were subjected to Augmented Dickey Fuller Unit Root test, which revealed that the variables were stationary. The co-integration test also revealed that the variables are co-integrated and that long run relationship existed between the variables. The results of the statistical analysis revealed that positive relationship also existed between the explanatory variables (Custom and Excise Duties, Company Income Tax, and Petroleum Profit Tax) and the dependent Variables (Gross Domestic Product, and Unemployment). The study therefore, recommended total restructuring of the tax system in the country and the provision of basic amenities (good roads, steady power supply, internal security, etc.) which will encourage individuals and corporate organizations to honor their tax obligations in Nigeria.

Fjeldstad (2013) reviewed taxation and development with focus on experiences of donor support to strengthen tax systems in developing countries. The study revealed that the challenge for many developing countries is not only to increase the tax to GDP ratio but to tax a larger number of citizens and enterprises more consensually and to encourage constructive state-citizen engagement around taxation.

Stoilova and Patonov (2012) studied taxation and economic growth of European Union countries with the means of the regression analysis. They found out that direct taxes are more efficient in supporting economic growth in EU countries.

Babalola and Aminu (2011), also investigated the impact of taxation on economic growth in Nigeria over the period 1977- 2009. They examined the Unit roots of the series using the Augmented Dickey – Fuller technique after which the co-integration test was conducted using the Engle – Granger Approach. Error correction models were estimated to take care of short run dynamics. The overall results indicated that productive expenditure did positively impacted on economic growth during the period of coverage and a long-run relationship exists between them as confirmed by the co-integration test.

Ogbonna and Ebimobowei (2011), conducted a study on the impact of petroleum revenue on the economy of Nigeria for the period 1970 to 2009. The study showed that a strong correlation existed between petroleum revenue and GDP. This was determined from the regression results that showed an $R=0.839$, R^2 of 0.705, F-value of 90.630 and a corresponding significant value of 0.000 and a t-value of less than 0.05 significant level. They concluded that oil based revenue if invested efficiently in the economy will to a large extent make material difference on GDP. From the findings of Ogbonna and Ebimobowei (2011), it can be deduced that PPT has a positive impact on Nigeria's economy but it'll be good to further investigate the roles other taxes play on the economy's GDP both individually and as a lump sum which is one of the objectives this study aims to achieve.

Thom (2018) studied impact of tax incentive series on economic development, with the use of panel data analysis the study showed that there is no significant effect of sales and lodging tax waivers on any of four different economic indicators. Also, transferable tax credits was shown to have had a small, sustained effect on motion picture employment levels but no effect on wages, while refundable tax credits had no employment effect and only a temporary wage effect.

Using 16 Africa countries, Onakoya, Afintinni and Ogundajo (2017) investigated the impact of taxation on economic growth. Using generalized least square, the study indicated that tax revenue is significant on economic growth in Africa. Using 32 countries in sub-Saharan Africa,

2.5. Summary of Literature

The literatures reviewed includes Timah and Chukwu (2021) investigated the relationship between corporate taxation and the welfare of stakeholders such as employees, investors and host communities. Oladele (2021) examined the impact of tax compliance on economic development in Nigeria, Uche and Ugonabo (2021) ascertained the effect of Value Added Tax on Economic Development in Nigeria from 1994-2018. Yadawananda and Achal (2020) examines the long-run and short-run relationship between tax structure and state-level growth performance in India for the period 1991–2016. Abiola, Adegbe and Ogundajo (2021) opines that economic growth drivers aimed at stimulating and stabilizing the economies of the countries to engender sustainable growth, Jimoh, Adegioriola and Adeyemo (2020) investigated the impact of tax revenue on economic growth in Nigeria (1990 – 2016). Ofoegbu and Akwu, Oliver (2016) examined the effect of tax revenue on the economic development of Nigerian, and to ascertain whether there is any difference in using HDI and GDP in establishing the relationship. Chibu and Njoku (2015), investigated the impact of taxation on the Nigerian economy for the period 1994 -2012. Ogbonna and Ebimobowei (2011), conducted a study on the impact of petroleum revenue on the economy of Nigeria for the period 1970 to 2009. Thom (2018) studied impact of tax incentive series on economic development. Chigbu and Njoku (2015) studied taxation and Nigerian economy with the use of cointegration test. Adudu and Simon (2015) studied tax policy on economic growth in Nigeria with use of Granger causality cointegrations framework and disclosed that efficient tax reforms are necessary conditions for enhanced sustainable economic growth.

2.6. Contribution of the Study

In comparison to previous studies, this study differently focused on the examination of impacts of company income tax revenue, education tax revenue, and petroleum profit tax revenue on the economic development using proxies for disaggregated form of human development index - health, education, and standard of living in Nigeria with the use of time series data spanned from 2000 to 2020. The estimation methods employed varies between ordinary least square and Autoregressive Distributive Lag (ARDL) depend on the outcome of the unit root tests of the three models of the study based on the disaggregated forms of human development index.

3. Research Methodology

3.1. Research Design

The study adopted the descriptive survey research design. This involves the collection of data for the purpose of describing and interpreting the existing situation. The data will reflect the impact of taxation on Economic Development in Nigeria. The proxy for economic development is human development index (HDI), which further disaggregated into health, education, and standard of living. While three categories of taxations included as independent variables, among which are: Petroleum Profits Tax Revenue; Companies Income Tax Revenue and Education Tax Revenue.

3.2. Model Specification

The model for this study was specified based on expediency theory which enables us to assess the extent to which the tax system conforms to a scenario where the link between tax liability and economic activities are linked. Also, the study hinged on the work of Uche and Ugonabo (2021) with a modification on the variables used in their model.

Functional form of the model:

$$HDI = f(PPTR, CITR, EDTR) \dots\dots\dots (1)$$

Econometric form of the model:

$$HDI = \beta_0 + \beta_1 PPTR + \beta_2 CITR + \beta_3 EDTR + \mu \dots\dots\dots (2)$$

The HDI equation (2) can be disaggregated as follows:

Life expectancy at birth as a proxy for Health:

$$LEXB = \beta_0 + \beta_1 PPTR + \beta_2 CITR + \beta_3 EDTR + \mu \dots\dots\dots (2a)$$

Students' Enrolment Tertiary as a proxy for Education:

$$SET = \beta_0 + \beta_1 PPTR + \beta_2 CITR + \beta_3 EDTR + \mu \dots\dots\dots (2b)$$

Per Capita Gross National Income as a proxy for Standard of Living:

$$PCGNI = \beta_0 + \beta_1 PPTR + \beta_2 CITR + \beta_3 EDTR + \mu \dots\dots\dots (2c)$$

Where:

HDI = Human Development Index

LEXB = Life Expectancy at Birth (in unit)

SET = School Enrolment Tertiary (% Gross)

PCGNI = per capita gross national income (Thousand)

PPTR = Petroleum Profits Tax Revenue (N'Billion)

CITR = Companies Income Tax Revenue (N'Billion)

EDTR = Education Tax Revenue (N'Billion)

β_0 = constant coefficient

$\beta_1, \beta_2,$ and $\beta_3,$ = Coefficient of the independent variables of PPTR, CITR, and EDTR respectively.

3.3. Apriori Expectations

	PPTR	CITR	EDTR
LEXB	+	+	+
SET	+	+	+
PCGNI	+	+	+

Table 1: Apriori Expectations

Source: Author's Assumptions Based on Previous Empirical Review

3.4. Description of Research Variables

The research work variables are described as follows:

3.4.1. Dependent Variable

3.4.1.1. Human Development Index

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living.

Previously Health was measured by life expectancy at birth; this measure has not been changed, it is still the same. Knowledge (education) was previously measured by a combination of adult literacy rate and school enrollment rates for primary schooling throughout university years. This measure is now calculated by combining the expected years of

schooling for a school age child with the mean years of prior schooling for adults aged 25 and older. Standard of living previously was measured by GDP per capita adjusted for PPP. Standard of living is now measured by PPP- adjusted per capita Gross National income (GNI).

3.4.2. Independent Variables

3.4.2.1. Petroleum Profit Tax

Petroleum Profits Tax (PPT) is the taxation imposed on the profits from the petroleum companies in the course of petroleum operations in an accounting period.

3.4.2.2. Company Income Tax

An assessment levied by a government on the profits of a company. The rate of corporate income tax paid by a business varies between countries, although since corporations are legal entities distinct from their owners and operators, they are typically taxed as if they were people.

3.4.2.3. Education Tax Revenue

Education Tax Revenue is a tax chargeable on all companies registered in Nigeria at chargeable profits as a contribution to the Education Tax Fund.

3.5. Sources of Data and Method of Collection

This study employed secondary data with Company Income Tax Revenue, Education Tax Revenue and Petroleum Profit Tax Revenue obtained from Database of Federal Inland Revenue Service, Nigeria. While data on the Human Development Index variables as disaggregated into Life Expectancy at Birth, Students' Enrolment at Tertiary levels, and per Capita Gross National Income were obtained from World Development Indicators (WDI) – a publication of World Bank. The omitted time series data for student enrolment tertiary, education tax revenue and company income tax revenue were computed by the author, using moving average method.

3.6. Estimation Techniques

Unit Root Test conducted as the pre Co-integration test and used to determine the order of integration of a variable that is how many times it has to be differenced or not to become stationary. It is to check for the presence of a unit root in the variable i.e., whether the variable is stationary or not. The null hypothesis is that there is no unit root. This test is carried out using the Augmented Dickey Fuller (ADF) technique of estimation. The rule is that if the ADF test statistic is greater than the 5 percent critical value we accept the null hypothesis i.e. the variable is stationary but if the ADF test statistic is less than the 5 percent critical value i.e. the variable is non-stationary we reject the null hypothesis and go ahead to difference once. If the variable does not become stationary at first difference we difference twice. However it is expected that the variable becomes stationary at first difference. Thus, the relevant estimation techniques will be used based on the order of integration of all the variables as obtained through unit root test.

4. Data Analysis, Interpretation and Discussion

4.1. Descriptive Statistic

Table 1 indicates that the company income tax revenue in Nigeria between year 2000 and 2020 has its mean value to be N936.5719 billion, while its median value was N772.9090 billion. The maximum value of the company income tax revenue stayed at N1604.699 Billion in the year 2019, while its minimum value was maintained at N654.4482 billion in the year 2011. Thus, the current regime recorded the highest company income tax revenue owing to a lot of tax policies and strategies as well as recent information technology that enhanced tax assessment and online payment that put in place by the regime of immediate past chairman of the Federal Internal Revenue Service's in person of Mr. Fowler who has deployed a lot of experiences with his team in order to improve company income tax revenue in Nigeria.

Education tax revenue has its mean value as N185.9546 billion while the median value stood at N174.9334 billion. The maximum value of the education tax revenue stood at N279.3587 billion in the year 2013 during the ruling of immediate past president of Nigeria in person of President Goodluck Ebele Jonathan whose regime emphasized more on education, and facilitated establishment of more new Federal Universities and other tertiary institutions as well as private universities. Thus, the foregoing enhanced increase in education tax revenues generation in Nigeria.

Petroleum profit tax revenue recorded its mean value as N2907.148 billion while its median value stood at N2467.581. The maximum value of petroleum profit tax revenue stood at N6530.600 billion in the year 2008 despite the world economy downturn recorded during the period which led many countries of the world including United State of America to economy recession.

Life expectancy at birth in Nigeria on average stood at 50.62971 within the period of study, while the median value maintained at 50.89600 within the same period of study. The maximum value of life expectancy at birth stood at 54.33200 in the year 2018 in Nigeria, while the minimum value of life expectancy at birth of 46.26700 recorded in the year 2000 in Nigeria. Thus the foregoing indicated that Nigerians have low life expectancy compared with some Nations of the world such as USA (LEXB=78.7900 as at 2019), Australia (LEXB = 82.900 as at 2019), India (LEXB 69.660 as at 2019), Cameroon (LEXB=59.0000 as at 2019), Burkina Faso (LEXB = 62 as at 2019), Congo Republic (LEXB = 65 as at 2019), (LEXB Canada (LEXB = 82.0500 as at 2019), UK (LEXB=79.300, between 2018 and 2020) and France (LEXB = 82.58 as at

2019) – according to the World Development Indicators (2020). Thus, the foregoing implies a less measures of good health recorded among Nigerians compared to the health conditions of the stated countries. Canada, Australia and France have a better health condition than USA and UK. While India, Burkina Faso, Cameroon, and Congo Republic have health conditions better than that of Nigeria.

School enrolment at tertiary level on average stood at 9.998409 percent gross in Nigeria within the period of study. The median number of school enrolment at tertiary level maintained at 9.967445 percent gross. The maximum number of school enrolment at tertiary level stood at 10.49106 percent gross in the year 2005 in Nigeria. While the minimum number of the school enrolment at tertiary level maintained at 9.572000 in the year 2010. Thus, foregoing is a reflection of compliance in Nigeria to improve eight United Nations' Millennium Development Goals started from 2000 and ended in 2015, which gave birth to National Economic Empowerment and Development Strategy (NEEDS), State Economic Empowerment and Development Strategy (SEEDS), and Local Economic Empowerment and Development Strategy (LEEDS) in Nigeria during the period.

Per capita gross national income on average stood at N4, 411.18 in Nigeria within the period of study. While median amount for per capita gross national income maintained at N4, 861.65. The maximum value of per capita gross national income stood at N5,527.09 in the year 2015, while the minimum amount stood at N2,450.54 in the year 2000. Thus, Nigeria recorded high standard of living in 2015 compared with the year 2000 considering the difference in per capital gross national income.

4.2. Test for Correlation among Independent Variables

From Table 2, the maximum value of correlation coefficient among the independent variables was 0.4921, which is less than 0.9 specified by Hair, Black, Babin and Anderson (2006) and concluded that correlation below this value is free from multi-collinearity. Thus, the foregoing mentioned literature qualified the independent variables to be freed from multi-collinearity.

4.3. Unit Root Test

Table 3 showed the unit root computations for variables involved in the study, where life expectancy at birth and education tax revenues are stabilized at level; while per capita gross national income, company income tax and petroleum profit tax revenues are stabilized at first difference. Finally, school enrolment at tertiary level stabilized at second difference. Thus, the foregoing unit root results suggest that:

Model (2a) with combinations of order of integration of (0,1,0, and 1) should employ ARDL as its method of model estimation.

Model (2b) with combinations of order of integration of (0,1,0 and 1) should employ ARDL as its method of model estimation.

Finally, Model (2c) with order of integration of (1,1,0 and 1) should employ ARDL as its method of model estimation.

4.4. Estimation of Model (2a)

4.4.1. Bound Co-integration Test

Since all variables are stationary at level and first difference we conduct bound co-integration test in order to know if there is a long run relation among the variables.

Table 4 showed that F-statistic is less than lower and upper bound critical values at 5% and 1% respectively, therefore we can state that there is no long run relationship but there exist short run relationship among the variables within the model.

4.4.1.1. Optimal Lag

Table 5 indicated that the maximum lag for the model (2a) is 1, owing to the fact that high numbers of lag selection criterion supported lag 1, which is showed by (*).

4.4.1.2. Criteria Graph

Figure 1 showed that ARDL (1,0,0,0) has the minimum Akaike information criteria and it is the selected model for estimation.

Table 6 showed the dynamics and short run relationship among the variables. The R-square is 0.997078 and adjusted R –square is 0.996035, the foregoing results showed that 99% of the explanatory variables explained the dependent variable – LEXB. While the F-statistic value is 955.5502 at 1% level of probability. The Durbin-Watson value is 1.712813 (approximately 2), which showed that the equation is not spurious and devoid of serial correlation.

4.4.1.2.1. Company Income Tax Revenue (CITR)

The coefficient of company income tax revenue is (-0.000627), significant at 1% level of probability. Thus, 100% increase in company income tax revenue leads on average to 0.0627% decrease in life expectancy at birth (LEXB) coefficient (proxy for health). Thus, there exist a negative relationship between company income tax revenue and life expectancy at birth (LEXB) within the periods of study. The foregoing result implies that increase in company income tax revenue reduced life expectancy at birth (LEXB) in Nigeria. The finding suggests that government should be sensitive on

policy formulation towards increase in company income tax revenue because of its significant and negative effect on the health of the stakeholders of the companies.

4.4.1.2.2. Education Tax Revenue (EDTR)

The coefficient of education tax revenue is (-0.000400), but not significant. Thus, 100% increase in education tax revenue leads on average to 0.0400% decrease in life expectancy at birth (LEXB) coefficient (proxy for health). Thus, there exist a negative relationship between education tax revenue and life expectancy at birth (LEXB) within the periods of study. The foregoing result implies that increase in education tax revenue reduced life expectancy at birth (LEXB) in Nigeria. The finding suggests that government should be sensitive on policy formulation towards increase in education tax revenue because of its negative effect on the health of the stakeholders of the educational institutions.

4.4.1.2.3. Petroleum Profit Tax Revenue (PPTR)

The coefficient of petroleum profit tax revenue is 0.0000189, but not significant. Thus, 100% increase in petroleum profit tax revenue leads on average to 0.00189% increase in life expectancy at birth (LEXB) coefficient (proxy for health). Thus, there exist a positive relationship between petroleum profit tax revenue and life expectancy at birth (LEXB) within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increase life expectancy at birth (LEXB) in Nigeria. The finding suggests that government should use petroleum profit tax revenue increase as a means of improving health status of the general populace in Nigeria by using the revenue generated through this source on provision of modern health facilities that will improve reproductive, physical and mental health of the populace.

4.4.1.2.4. Residual Diagnostic

Table 7 showed the correlograms of Q statistic which can be used to check autoregressive conditional heteroskedasticity (ARCH) in the residuals. We confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

Table 8 indicated the correlograms of the squared residuals which can be used to check autoregressive conditional heteroskedasticity (ARCH) in the residuals. We confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

Figure 2 displayed a histogram and descriptive statistics of the residuals, including the Jarque-Bera statistic for testing normality. If the residuals are normally distributed, the histogram should be bell-shaped and the Jarque-Bera statistic should not be significant. Thus, the residuals of this model are closed to bell shaped and not normally distributed since the probability of Jarque-Bera statistic is significant.

Table 9 showed that there is no serial correlation among the variables in model (2a) since the probability value of F-statistics is considerably in excess of 0.05 (i.e. 5%).

Table 10 showed the heteroskedasticity test for model (2a), which indicates that there is evidence of the presence of heteroscedacity among the variables since the probability value of F-statistics is considerably below 0.05 (i.e. 5%).

4.5. Estimation of Model (2b)

4.5.1. Bound Co-integration Test

Since all variables are stationary at level and first difference we conduct bound co-integration test in order to know if there is a long run relation among the variables.

Table 11 showed that F-statistic is greater than lower and upper bound critical values at 5% and 1% respectively, therefore we can state that there is long run relationship among the variables within the model.

4.5.1.1. Optimal Lag

Table 12 showed that the maximum lag for the model is 1, owing to the fact that high numbers of lag selection criterion supported lag 1, which is indicated by (*).

4.5.1.2. Criteria Graph

Figure 3 showed that ARDL (1,0,0,1) has the minimum Akaike information criteria and it is the selected model for estimation.

Table 13 showed the dynamics and short run relationship among the variables within the model (2b). The R-square is 0.363233 and adjusted R-square is 0.069341, the foregoing results showed that 36% of the explanatory variables explained the dependent variable – School Enrolment in Tertiary level (SET). While the F-statistic value is 1.235939. The Durbin-Watson value is 2.010367, which showed that the equation is not spurious and devoid of serial correlation.

4.5.1.3. Company Income Tax Revenue (CITR)

The coefficient of company income tax revenue is 0.000321, and insignificant. Thus, 100% increase in company income tax revenue leads on average to 0.03% increase in school enrolment at tertiary level (SET) (proxy for education). Thus, there exists a positive relationship between company income tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in company income tax revenue increases school enrolment at tertiary level in Nigeria. The finding suggests that government should embark on policy formulation towards

increase in company income tax revenue because of its significant and positive effect on the education of Nigeria citizens, if the revenue generated could be expended on improving educational facilities and infrastructures that will support increase student enrollment.

4.5.1.4. Education Tax Revenue (EDTR)

The coefficient of education tax revenue is (-0.001492)), but not significant. Thus, 100% increase in education tax revenue leads on average to 0.15% decrease in school enrolment at tertiary level (SET) (proxy for education). Thus, there exists a negative relationship between education tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in education tax revenue reduced school enrolment at tertiary level in Nigeria. The finding suggests that government should be sensitive on policy formulation towards increase in education tax revenue because of its negative effect on the education sector of the Nigeria economy.

4.5.1.5. Petroleum Profit Tax Revenue (PPTR)

The coefficient of petroleum profit tax revenue is 0.0000162 at current year while it is 0.0000709 at one year lag, but not significant. Thus, 100% increase in petroleum profit tax revenue leads on average to 0.002% increase in school enrolment at tertiary level (proxy for education) at current year and 0.007% increase in school enrolment at tertiary level (proxy for education) at one year lag. Thus, there exists a positive relationship between petroleum profit tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increases school enrolment at tertiary level in Nigeria. The finding suggests that government should use petroleum profit tax revenue increase as a means of improving education sector in Nigeria by using the revenue generated through this source on establishment of schools, improve teachers and lecturers remunerations as well as provision of modern education facilities, laboratories and equipment.

4.5.2. Coefficient Diagnostic

Table 14 revealed that co-integration coefficient is - 1.266884 which confirm that the speed of adjustment between short run and long run equations is 126 with the expected negative value and significant at 1% probability level. The R-square and adjusted R-square are 0.709077 and 0.654529 respectively. Thus, the foregoing value of adjusted R-square indicated that 71% of the explanatory variables explained the dependent variable. The value of F-statistic is 12.99915, significant at 1% level of probability. The value of Durbin Watson is 2.010367 which indicated no serial correlation and that the equation is not spurious.

Table 15 showed the long run relationship of the variables which represent the equilibrium state of the variables as follows:

4.5.2.1. Company Income Tax Revenue (CITR)

The coefficient of company income tax revenue is 0.000253, and insignificant. Thus, 100% increase in company income tax revenue leads on average to 0.03% increase in school enrolment at tertiary level (SET) (proxy for education). Thus, there exists a positive relationship between company income tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in company income tax revenue increases school enrolment at tertiary level in Nigeria. The finding suggests that government should embark on policy formulation towards increase in company income tax revenue because of its significant and positive effect on the education of Nigeria citizens, if the revenue generated could be expended on improving educational facilities and infrastructures that will support increase student enrollment.

4.5.2.2. Education Tax Revenue (EDTR)

The coefficient of education tax revenue is (-0.001178)), but not significant. Thus, 100% increase in education tax revenue leads on average to 0.12% decrease in school enrolment at tertiary level (SET) (proxy for education). Thus, there exists a negative relationship between education tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in education tax revenue reduced school enrolment at tertiary level in Nigeria. The finding suggests that government should be sensitive on policy formulation towards increase in education tax revenue because of its negative effect on the education sector of the Nigeria economy.

4.5.2.3. Petroleum Profit Tax Revenue (PPTR)

The coefficient of petroleum profit tax revenue is 0.0000688 and significant at 5% level of probability. Thus, 100% increase in petroleum profit tax revenue leads on average to 0.007% increase in school enrolment at tertiary level (proxy for education). Thus, there exists a positive relationship between petroleum profit tax revenue and school enrolment at tertiary level within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increases school enrolment at tertiary level in Nigeria. The finding suggests that government should use petroleum profit tax revenue increase as a means of improving education sector in Nigeria by using the revenue generated through this source on establishment of schools, improve teachers and lecturers remunerations as well as provision of modern education facilities, laboratories and equipment.

4.5.2.3.1. Residual Diagnostic

Table 16 showed the correlograms of Q statistic which can be used to check autoregressive conditional heteroskedasticity (ARCH) in the residuals. We confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

Table 17 showed the correlogram of the residual square and we confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

The view in Figure 4 displays a histogram and descriptive statistics of the residuals, including the Jarque-Bera statistic for testing normality. If the residuals are normally distributed, the histogram should be bell-shaped and the Jarque-Bera statistic should not be significant. Thus, the residuals of this model are closed to bell shaped and not normally distributed since the probability of Jarque-Bera statistic is significant at 5%.

Table 18 above showed serial correlation LM test and that there is no evidence of the presence of serial correlation since the p-values of F-statistics are considerably in excess of 0.05 (i.e. 5%).

Table 19 showed the heteroskedasticity and that there is no evidence of the presence of heteroscedacity since the p-values of F-statistics are considerably in excess of 0.05 (i.e. 5%).

4.5.2.3.2. Stability Diagnostic

4.5.2.3.2.1. Stability Test – Used Cusum Test After Recursive Estimate

It can be seen from Figure 5 that the plot of cusum stays within the critical 5% bounds that confirms the long-run relationships among variables and thus showed the stability of coefficients.

It can be seen from Figure 6 that the plot of cusum of square stays within the critical 5% bounds that confirms the long-run relationships among variables and thus showed the stability of coefficients.

4.6. Estimation of Model (2c)

4.6.1. Bound Co-integration Test

Since all variables are stationary at level and first difference we conduct bound co-integration test in order to know if there is a long run relation among the variables.

Table 20 showed that F-statistic is less than lower and upper bound critical values at 5% and 1% respectively, therefore we can state that there is no long run relationship but there exist short run relationship among the variables within the model.

4.6.1.1. Optimal Lag

Table .21 identified that the maximum lag for the model is 1, owing to the fact that high numbers of lag selection criterion supported lag 1, which is indicated by (*).

4.6.1.2. Criteria Graph

Figure 6 showed that ARDL (1,1,1,0) has the minimum Akaike information criteria and it is the selected model for estimation.

Table 22 showed the dynamics and short run relationship among the variables. The R-square is 0.968566 and adjusted R –square is 0.950229, the foregoing results showed that 95% of the explanatory variables explained the dependent variable – PCGNI. While the F-statistic value is 52.82111 at 1% level of probability. The Durbin-Watson value is 2.662539, which showed that the equation is not spurious and devoid of serial correlation.

4.6.1.2.1. Company Income Tax Revenue (CITR)

The coefficient of company income tax revenue is (-0.055416) at the current year, but not significant. Thus, 100% increase in company income tax revenue leads on average to 6% decrease in per capita gross national income (proxy for standard of living). Thus, there exist a negative relationship between company income tax revenue in the current year and per capita gross national income (PCGNI) within the periods of study. While the coefficient of company income tax revenue is (-0.821267) at one year lag, but not significant. Thus, 100% increase in company income tax revenue at one year lag leads on average to 82% decrease in per capita gross national income (proxy for standard of living). Thus, there exist a negative relationship between company income tax revenue in one year lag and per capita gross national income (PCGNI) within the periods of study. The foregoing result implies that increase in company income tax revenue reduces per capita gross national income (PCGNI) in Nigeria. The finding suggests that Nigeria government should be sensitive to policy formulation on increase in company income tax revenue because of its negative effect on the standard of living of her citizens.

4.6.1.2.2. Education Tax Revenue (EDTR)

The coefficient of education tax revenue is 0.316898 in current year and 3.041142 in one year lag respectively, but not significant. Thus, 100% increase in education tax revenue in current year leads on average to 32% increase per capita gross national income (proxy for standard of living). While, 100% increase in education tax revenue in one year lag leads on average to 304% increase per capita gross national income (proxy for standard of living). Thus, there exist a positive

relationship between education tax revenue and per capita gross national income within the periods of study. The foregoing result implies that increase in education tax revenue increases per capita gross national income in Nigeria. The finding suggests that Nigeria government should encourage policy formulation on increase in education tax revenue because of its positive effect on the standard of living of her citizens.

4.6.1.2.3. Petroleum Profit Tax Revenue (PPTR)

The coefficient of petroleum profit tax revenue is 0.05446, but not significant. Thus, 100% increase in petroleum profit tax revenue leads on average to 5.4% increase in per capita gross national income (proxy for standard of living). Thus, there exist a positive relationship between petroleum profit tax revenue and per capita gross national income (PCGNI) within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increase per capita gross national income (PCGNI) in Nigeria. The finding suggests that Nigeria government should use petroleum profit tax revenue increase as a means of improving standard of living of the general populace in Nigeria by using the revenue generated through this source on welfare of the populace.

4.6.1.2.3.1. Residual Diagnostic

Table 23 showed the correlograms of Q statistic which can be used to check autoregressive conditional heteroskedasticity (ARCH) in the residuals. We confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

Table 24 showed the correlogram of the residual square and we confirmed that in the estimated equation/model there is ARCH in the residuals, the autocorrelations and partial autocorrelations are not zero at all lags and the Q-statistics are significant.

This view in Figure 7 displays a histogram and descriptive statistics of the residuals, including the Jarque-Bera statistic for testing normality. If the residuals are normally distributed, the histogram should be bell-shaped and the Jarque-Bera statistic should not be significant. Thus, the residuals of this model are not bell shaped and not normally distributed since the probability of Jarque-Bera statistic is significant at 1%.

Table 25 above showed serial correlation LM test and that there is no evidence of the presence of serial correlation since the p-values of F-statistics are considerably in excess of 0.05 (i.e. 5%).

Table 26 showed the heteroskedasticity and that there is no evidence of the presence of heteroscedacity since the p-values of F-statistics are considerably in excess of 0.05 (i.e. 5%).

5. Summary of Findings, Discussion, Conclusion and Policy Recommendations

5.1. Summary of Findings and Discussion

There exist a negative relationship between company income tax revenue/education tax revenue and life expectancy at birth (LEXB) within the periods of study. The foregoing result implies that increase in company income tax revenue and education tax revenue reduced life expectancy at birth (LEXB) - proxy for health in Nigeria. This result is contrary to the work of Jimoh, Adegoriola and Adeyemo (2020); Ofoegbu and Akwu, Oliver (2016); Chibu and Njoku (2015), which found a positive relationship between tax revenue and economic development. This is contrary to apriori expectation.

There exist a positive relationship between petroleum profit tax revenue and life expectancy at birth (LEXB) within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increase life expectancy at birth (LEXB) in Nigeria. This result agreed to the work of Ogbonna and Ebimobowei (2011), that deduced that petroleum profit tax has a positive impact on Nigeria's economy. This agreed to apriori expectation.

There exists a positive relationship between company income tax revenue and school enrolment at tertiary level (SET) within the periods of study. The foregoing result implies that increase in company income tax revenue increases school enrolment at tertiary level in Nigeria. Thus, the foregoing result posits that increase company income tax revenue enhances education sector development in Nigeria. Also, the result agreed with the work of Oladele (2021) which indicated that the tax compliance have positive impact on economic development. This agreed to apriori expectation.

There exists a negative relationship between education tax revenue and school enrolment at tertiary level (SET) within the periods of study. The foregoing result implies that increase in education tax revenue reduced school enrolment at tertiary level in Nigeria. Thus, government needs to be sensitive to increase education tax revenue as a result of its negative impact on the education sector of Nigeria Economy. This is contrary to apriori expectation.

There exists a positive/significant relationship between petroleum profit tax revenue and school enrolment at tertiary level (SET) within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increases school enrolment at tertiary level in Nigeria. Thus, increase in petroleum profit tax revenue enhances education sector performance in Nigeria and government should use the proceeds from this source to enhance provisions of education infrastructures. This agreed to apriori expectation.

There exist a negative relationship between company income tax revenue in current year and one year lag respectively and per capita gross national income (PCGNI) within the periods of study. The foregoing result implies that increase in company income tax revenue reduces per capita gross national income (PCGNI) – proxy for standard of living in Nigeria. Thus, the foregoing result disagreed with the work of Oladele (2021) on the impact of tax compliance on economic development in Nigeria and which concluded that linear relationship exists between tax compliance and standard of living in Nigeria. This is contrary to apriori expectation.

There exist a positive relationship between education tax revenue and per capita gross national income (proxy for standard of living) within the periods of study. The foregoing result implies that increase in education tax revenue increases per capita gross national income in Nigeria. This finding complied with the work of Oladele (2021) on the impact of tax compliance on economic development in Nigeria and which concluded that linear relationship exists between tax compliance and standard of living in Nigeria. This agreed to apriori expectation.

There exist a positive relationship between petroleum profit tax revenue and per capita gross national income (PCGNI) within the periods of study. The foregoing result implies that increase in petroleum profit tax revenue increase per capita gross national income (PCGNI) in Nigeria. This finding agreed to the work of Ogbonna and Ebimobowei (2011), that deduced that petroleum profit tax has a positive impact on Nigeria's economy. This agreed to apriori expectation

6. Conclusion

In an attempt to find the impacts of tax revenues, specifically company income tax revenue, education tax revenue and petroleum profit tax on life expectancy at birth (proxy for health), we concluded from the findings that company income tax revenue has negative impact, education tax revenue has positive impact while petroleum profit tax revenue has positive impact on health of the citizens.

By considering the impacts of company income tax revenue, education tax revenue and petroleum profit tax on school enrollment at tertiary level (proxy for education), we concluded from the findings that that company income tax revenue has positive impact; education tax revenue has negative impact while petroleum profit tax revenue has positive and significant impact on education in Nigeria.

In addition, in an attempt to investigate the effect of tax revenues, specifically company income tax revenue, education tax revenue and petroleum profit tax on per capita gross national product (proxy for standard of living), we concluded from the findings that company income tax revenue has negative effect, education tax revenue has positive effect while petroleum profit tax revenue has positive effect on standard of living of the populace.

7. Policy Recommendations

The following are policy recommendations which emanated from the study:

- That government should be careful in increasing the company income tax and education tax revenue s because of their negative effects on the life expectancy at birth – proxy for health.
- That government and policy makers should use increase petroleum profit tax revenue to support health sector development.
- That government and policy makers should use increase in company income tax revenue to drive education sector development in Nigeria.
- That government and policy makers should exercise caution in increasing education tax revenue because of it negative effects on education sector of the Nigeria economy.
- That government and policy makers should use increase in petroleum tax revenue to drive performance of the education sector in Nigeria because of its positive and significant effect.
- That government and policy makers should be careful in using increase in company income tax revenue to improve standard of living in Nigeria because of its negative effect.
- That government and policy makers should use education tax revenue and petroleum tax revenue to drive increase in standard of living in Nigeria.

8. References

- i. Abiola, O.F. Adegbe, F. and Ogundajo, O. G. (2021). Tax revenue, capital formation, and economic growth in Nigeria. *Research in World Economy*. 12(1), 101-112.
- ii. Adudu, S.A. and Simon, O.M. (2015). The impact of tax policy on economic growth in Nigeria. *Journal of Economics and Sustainable Development*, 6(8), 124-129.
- iii. Alkire, S. and Foster, J. (2010). *Designing the inequality-adjusted human development index (HDI)*. OPHI Working Paper No. 37.
- iv. Anyanfo, A.M.O. (1996), 'Public Finance in a Developing Economy: The Nigerian Case', Department of Banking and Finance, University of Nigeria, Enugu Campus. Enugu.
- v. Appah, E. (2004). *Principles and Practice of Nigerian Taxation*, Ezevin Mint Printers and Publishers, Port Harcourt.
- vi. Azubike, J.U.B. (2009). *Challenges of tax authorities, tax payers in the management of tax reform processes*. Joanne Educational Publishers, Onitsha.
- vii. Babalola and Aminu (2011). *Fiscal Policy and Economic Growth Relationship in Nigeria*.
- viii. Belshaw, D. and Livingstone, I. (2002). *Renewing development in sub-Saharan Africa: policy, performance and prospects*. London: Routledge.
- ix. Besley, T. and Persson, T. (2013). Taxation and development. *Handbook of Public Economics*, 5(2), 51-109.
- x. Bhartia, H.L., (2009). *Public Finance*. 14th Edn. Vikas Publishing House PVT Ltd, New Delhi.
- xi. Bräutigam, D. A. (2008). *Introduction: Taxation and state-building in developing countries*. In D. A. Bräutigam, O.- H. Fjeldstad, and M. Moore (Eds.), *Taxation and state-building in developing countries: Capacity and consent* (pp. 1–33). Cambridge and New York, NY: Cambridge University Press.
- xii. Central Bank of Nigeria Statistical Bulletin (2015). cbn.gov.ng. Assessed on 5/8/2021
- xiii. Central Bank of Nigeria Statistical Bulletin (2016). cbn.gov.ng. Assessed on 5/3/2018.

- xiv. Chibu and Njoku (2015). Annual Report 2015 – Corporate Activities of Standard Alliances Insurance Plc. *Economic Review*, 40(15), 21 – 40.
- xv. Chigbu, E.E. and Njoku, C.O. (2015). Taxation and the Nigerian Economy: (1994-2012). *Management Studies and Economic Systems (MSES)*, 2 (2), 111-128.
- xvi. Emekekwe, P. (2009). Corporate Financial Management, Enugu. African Bureau of Education Sciences.
- xvii. Fjeldstad, O. (2013). *Taxation and development: A review of donor support to strengthen tax systems in developing countries*, WIDER Working Paper, No. 2013/010, ISBN 978-92-9230-587-1, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki.
- xviii. Hair, J. F., Black, W. C., Babin B. J. R. E. and Anderson R. E. (2006). Multivariate data analysis seventh edition. Pearson New International Edition, 739p.
- xix. Harelimana, J.B. (2018). The role of taxation on resilient economy and development of Rwanda. *Journal finance marketing*, 2(1), 28-39.
- xx. HDR (1990). Human Development Index (HDI), Human Development Report, 1990.
- xxi. Jimoh, B.A., Adegioriola, A.E., and Adeyemo, T., (2020). Empirical analysis of impact of tax revenue on economic growth in Nigeria. *Bingham Journal of Economics and Allied Studies (BJEAS)* 3(1), 1-12
- xxii. Madugba, J.U., Ekwe, M. C. and Okezie, S. O. (2016). Evaluation of the contribution of oil revenue on economic development in Nigeria. *International Journal of Economics and Finance*, 8(6), 1916-9728.
- xxiii. Malizia, E. E. and Feser, E. J. (2000). *Understanding Economic Development*. London: Rutgers
- xxiv. Manuel, T.A. (2004). *Africa's economic renaissance: development and interdependence*. MP Minister of Finance Republic of South Africa. Paper delivered at the University of Sussex. 2 December 2004.
- xxv. Mick, M. (2007). How does taxation affect the quality of governance? *Tax Notes International*. 2(1), 79-98.
- xxvi. Moore, M. (2008). *Between coercion and contract: competing narratives around taxation and governance*. In D. Braütigam, O.-H. Fjeldstad and M. Moore (eds), *Taxation and State-building in Developing Countries: Capacity and Consent*. Cambridge: Cambridge University Press.
- xxvii. Nzotta, S.M., (2007). Tax evasion problems in Nigeria: A critique. *Niger. Account*, 40(2), 40-43.
- xxviii. Odusola, A., (2006). *Tax policy reforms in Nigeria*. Research paper No. 2006/03 United Nations University. World Institute for Development Economics Research. OECD (1995), *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, OECD, Paris.
- xxix. Ofoegbu, G.N., Akwu, D.O., and Oliver, O., (2016). Empirical analysis of effect of tax revenue on economic development of Nigeria. *International Journal of Asian Social Science*, 6(10), 604-613.
- xxx. Ogamba, E. N. (2003). *The impact of globalization on foreign capital flows in Nigeria*. Published Doctoral Dissertation, University of Nigeria, Nsukka.
- xxxi. Ogbonna, G.N. and Appah, E. (2012). Impact of Tax Reforms and Economic Growth of Nigeria: A Time Series Analysis. *Current Research Journal of Social Sciences*, 4(1), 62-68
- xxxii. Oladele, R. (2021). Impact of tax compliance on standard of living in Nigeria. *The Journal of Accounting and Management*. 11(1), 237-250.
- xxxiii. Santos, M.E. and Alkire, S. (2010). *MPI: Construction and analysis*. Training Material for Producing National Human Development Reports. 1-35.
- xxxiv. Satope, B.F. and Akanbi, B. (2014). Effect of business on economic development in Nigeria. *Journal of Business Management and Economics*, 5(4), 91-96.
- xxxv. Stoilova, D. and Patonov, N. (2012). *An empirical evidence for the impact of taxation on economy growth in the European Union Book of Proceedings – Tourism and Management Studies International Conference Algarve*, 3, 1031-1039.
- xxxvi. Thom, M. (2018). Lights, Camera, but No Action? Tax and Economic Development Lessons from State Motion Picture Incentive Programs. *American Review of Public Administration*, 48(1) 33–51.
- xxxvii. Thomas, A. (2000). *Poverty and Development Into The 21st Century*, in: Tim Allen and Alan Thomas (eds.). Glasgow: Oxford University Press.
- xxxviii. Timah, B. P., and Chukwu, G. J. (2021). Corporate taxation and stakeholders' welfare of selected manufacturing companies in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 11(2), 13–26.
- xxxix. Tosun, M.S. and Abizadeh S. (2005). 'Economic growth and tax components: An analysis of tax change in OECD' *Applied Economics*, 37(2), 2251- 2263.
- xl. Uche, E.P., and Ugonabo, C.U., (2021). The effect of value added tax on economic development in Nigeria (1994-2018). *IOSR Journal of Humanities and Social Science (IOSR-JHSS)* 26(5), 21-30.
- xli. UNDP, (1992). *United Nation Development Programmes* (UNDP) Publication. Washington DC: UNDP.
- xl. Wyngaard, A.T. (2006). *An introduction to economic development in the Western Cape*. Department of economic development and tourism.
- xl. Yadawananda, N., and Achal, K.G., (2020). Tax structure and economic growth: a study of selected Indian states. *Journal of Economic structure*, 9(38), 1-12.

Appendix

	CITR	EDTR	PPTR	LEXB	SET	PCGNI
Mean	936.5719	185.9546	2907.148	50.62971	9.998409	4411.178
Median	772.9090	174.9334	2467.581	50.89600	9.967445	4861.650
Maximum	1604.699	279.3587	6530.600	54.33200	10.49106	5527.086
Minimum	654.4482	130.1227	1157.808	46.26700	9.572000	2450.536
Std. Dev.	263.4269	35.25876	1557.831	2.759390	0.185066	1037.136
Skewness	1.103944	1.030526	0.838317	-0.180215	0.326219	-0.765619
Kurtosis	3.018198	4.330200	2.658037	1.641611	4.646126	2.175011
Jarque-Bera	4.265717	5.265194	2.562036	1.728240	2.743481	2.647136
Probability	0.118498	0.071892	0.277754	0.421422	0.253665	0.266184
Sum	19668.01	3905.047	61050.12	1063.224	209.9666	92634.75
Sum Sq. Dev.	1387875.	24863.60	48536753	152.2847	0.684988	21513021
Observations	21	21	21	21	21	21

Table 2: Taxes and Development Variables
Source: Author's Computation from E-View 10 (2021)

	CITR	EDTR	PPTR
CITR	1	0.4920908940129686	-0.4326193592264009
EDTR	0.4920908940129686	1	-0.09766230866746904
PPTR	-0.4326193592264009	-0.09766230866746904	1

Table 3: Correlation Coefficients Analysis
Source: Author's Computation from E-View 10

Variables	At leve	1st Difference	2nd Difference	Integral of Order
LEXB	-4.476442 (-3.710482)	-	-	I (0)
SET	-5.612738 (-3.733200)	-	-	I (0)
PCGNI	-0.306033 (-3.673616)	-5.734653*** (-3.673616)	-	I (1)
CITR	-2.661457 (-3.658446)	-5.295958*** (-3.710482)	-	I (1)
EDTR	-4.400278*** (-3.710482)	-	-	I (0)
PPTR	-1.609900 (-3.673616)	-7.7211479*** (-3.673616)	-	I (1)

Table 4: Augmented Dickey Fuller Test (Trend and Intercept)
Source: Author's Computation from E-view 10 (2021)

(*** Represent 1% Probability Level, While Values in Bracket Represent T-Statistic at 5% Level)

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	2.912714	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Table 5: ARDL F-bound Test for Model (2a)
Source: Author's computation from E-view 10 (2021)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-446.5573	NA	4.34e+14	45.05573	45.25487	45.09460
1	-377.4533	103.6560*	2.24e+12*	39.74533*	40.74106*	39.93971*

Table 6: Optimal Lag Selection Criteria for Model (2a)
Source: Author's Computation from E-view 10 (2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LEXB(-1)	1.085321	0.161376	6.725410	0.0000
CITR	-0.000714	0.000290	-2.464230	0.0273
EDTR	-0.000115	0.001288	-0.089201	0.9302
PPTR	1.89E-05	2.82E-05	0.671620	0.5128
C	-3.010263	7.443609	-0.404409	0.6920
@TREND	-0.025156	0.076107	-0.330531	0.7459
R-squared	0.997078	Mean dependent var		50.84785
Adjusted R-squared	0.996035	S.D. dependent var		2.638777
S.E. of regression	0.166162	Akaike info criterion		-0.508379
Sum squared resid	0.386538	Schwarz criterion		-0.209659
Log likelihood	11.08379	Hannan-Quinn criter.		-0.450066
F-statistic	955.5502	Durbin-Watson stat		1.712813
Prob(F-statistic)	0.000000			

Table 7: ARDL Result – Model (2a) with Dependent Variable LEXB

Selected Model: ARDL (1, 0, 0, 0)

Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. * .	. * .	1	0.117	0.117	0.3155	0.574
. * .	. * .	2	-0.107	-0.122	0.5931	0.743
. .	. .	3	0.032	0.062	0.6196	0.892
*** .	*** .	4	-0.369	-0.407	4.3619	0.359
. ** .	. ** .	5	-0.339	-0.264	7.7376	0.171
. ** .	. *** .	6	-0.239	-0.381	9.5331	0.146
. .	. * .	7	-0.041	-0.128	9.5902	0.213
. ** .	. .	8	0.235	0.001	11.621	0.169
. * .	. * .	9	0.181	-0.069	12.928	0.166
. * .	. * .	10	0.163	-0.123	14.101	0.168
. * .	. * .	11	0.159	-0.099	15.344	0.167
. .	. * .	12	-0.037	-0.094	15.420	0.219

Table 8: Correlogram Q Statistic for Model (2a)

Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. .	. .	1	0.025	0.025	0.0143	0.905
. .	. .	2	-0.000	-0.001	0.0143	0.993
. .	. .	3	-0.017	-0.017	0.0222	0.999
. ** .	. ** .	4	0.310	0.311	2.6671	0.615
. .	. .	5	0.026	0.010	2.6875	0.748
. * .	. * .	6	-0.089	-0.100	2.9366	0.817
. .	. .	7	-0.034	-0.018	2.9765	0.887
. * .	. .	8	0.082	-0.010	3.2248	0.919
. * .	. * .	9	-0.103	-0.134	3.6495	0.933
. * .	. .	10	-0.096	-0.041	4.0587	0.945
. * .	. * .	11	-0.097	-0.075	4.5203	0.952
. * .	. * .	12	-0.093	-0.141	4.9925	0.958

Table 9: Correlogram of Residual Squared for Model (2a)

Source: Author's Computation from E-View 10 (2021)

F-statistic	0.509514	Prob. F(2,12)	0.6132
Obs*R-squared	1.565444	Prob. Chi-Square(2)	0.4572

Table 10: Breusch-Godfrey Serial Correlation LM Test for Model (2a)

Source: Author's Computation from E-View 10 (2021)

F-statistic	4.945635	Prob. F(5,14)	0.0081
Obs*R-squared	12.77012	Prob. Chi-Square(5)	0.0256
Scaled explained SS	11.23312	Prob. Chi-Square(5)	0.0469

Table 11: Heteroskedasticity Test (Breusch-Pagan-Godfrey)

Source: Author's Computation from E-View 10 (2021)

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	7.112720	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Table 12: ARDL F-Bound Test for Model (2b)
Source: Author's Computation from E-View 10 (2021)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-401.5335	NA	4.81e+12	40.55335	40.75250*	40.59223
1	-381.8279	29.55841*	3.47e+12*	40.18279*	41.17852	40.37717*

Table 13: Optimal Lag Selection Criteria for Model (2b)
Source: Author's Computation from E-View 10 (2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
SET(-1)	-0.266884	0.250472	-1.065524	0.3060
CITR	0.000321	0.000343	0.935577	0.3665
EDTR	-0.001492	0.001353	-1.102954	0.2900
PPTR	1.62E-05	3.86E-05	0.420205	0.6812
PPTR(-1)	7.09E-05	3.74E-05	1.898841	0.0800
C	12.46953	2.416954	5.159190	0.0002
@TREND	-0.007738	0.013151	-0.588379	0.5664
R-squared	0.363233	Mean dependent var		10.00406
Adjusted R-squared	0.069341	S.D. dependent var		0.188008
S.E. of regression	0.181373	Akaike info criterion		-0.307304
Sum squared resid	0.427650	Schwarz criterion		0.041202
Log likelihood	10.07304	Hannan-Quinn criter.		-0.239272
F-statistic	1.235939	Durbin-Watson stat		2.010367
Prob(F-statistic)	0.349866			

Table 14: Regression Result for Model (2b) with Dependent Variable – SET
Selected Model: ARDL(1, 0, 0,1)

Source: Author's Computation from E-View 10 (2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.46953	2.099794	5.938451	0.0000
@TREND	-0.007738	0.006476	-1.194849	0.2535
D(PPTR)	1.62E-05	3.09E-05	0.525835	0.6079
CointEq(-1)*	-1.266884	0.214092	-5.917472	0.0001
R-squared	0.709077	Mean dependent var		0.004238
Adjusted R-squared	0.654529	S.D. dependent var		0.278150
S.E. of regression	0.163487	Akaike info criterion		-0.607304
Sum squared resid	0.427650	Schwarz criterion		-0.408158
Log likelihood	10.07304	Hannan-Quinn criter.		-0.568429
F-statistic	12.99915	Durbin-Watson stat		2.010367
Prob(F-statistic)	0.000147			

Table 15: ARDL Error Correction Regression of Model (2b)
Source: Author's Computation from E-View 10 (2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CITR	0.000253	0.000270	0.938779	0.3650
EDTR	-0.001178	0.001117	-1.053977	0.3111
PPTR	6.88E-05	2.83E-05	2.433600	0.0301
EC = SET - (0.0003*CITR - 0.0012*EDTR + 0.0001*PPTR)				

Table 16: Long Run Coefficient with Dependent Variable – SET (Model 2b)
Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. . .	. . .	1	-0.025	-0.025	0.0142	0.905
.* . .	.* . .	2	-0.326	-0.326	2.6044	0.272
. . .	. . .	3	0.176	0.176	3.4080	0.333
. . .	. . .	4	-0.042	-0.169	3.4571	0.484
*** . .	*** . .	5	-0.402	-0.332	8.2004	0.146
. . .	. . .	6	-0.042	-0.165	8.2554	0.220
. . .	. . .	7	0.150	-0.087	9.0126	0.252
. . .	. . .	8	-0.012	0.000	9.0180	0.341
. . .	. . .	9	0.029	-0.011	9.0512	0.433
. . .	. . .	10	-0.090	-0.340	9.4052	0.494
. . .	. . .	11	0.036	-0.059	9.4692	0.579
. . .	. . .	12	0.049	-0.103	9.6011	0.651

Table 17: Correlogram Q Statistic for Model (2b)
Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. . .	. . .	1	-0.115	-0.115	0.3088	0.578
. . .	. . .	2	-0.051	-0.066	0.3733	0.830
. . .	. . .	3	-0.098	-0.114	0.6212	0.892
. . .	. . .	4	-0.192	-0.229	1.6393	0.802
. . .	. . .	5	0.454	0.414	7.6843	0.175
. . .	. . .	6	-0.060	-0.013	7.7973	0.253
. . .	. . .	7	-0.059	-0.080	7.9158	0.340
. . .	. . .	8	-0.108	-0.081	8.3414	0.401
. . .	. . .	9	-0.125	0.013	8.9616	0.441
. . .	. . .	10	-0.052	-0.365	9.0793	0.525
. . .	. . .	11	-0.019	-0.079	9.0977	0.613
. . .	. . .	12	-0.034	-0.052	9.1617	0.689

Table 18: Correlogram of Residual Squared for Model (2b)
Source: Author's Computation from E-View 10 (2021)

F-statistic	0.920481	Prob. F(2,11)	0.4269
Obs*R-squared	2.867326	Prob. Chi-Square(2)	0.2384

Table 19: Breusch-Godfrey - Serial Correlation LM Test for Model (2b)
Source: Author's Computation from E-View 10 (2021)

F-statistic	1.156768	Prob. F(6,13)	0.3853
Obs*R-squared	6.961281	Prob. Chi-Square(6)	0.3244
Scaled explained SS	7.081543	Prob. Chi-Square(6)	0.3134

Table 20: Heteroskedasticity – Breuch-Pagan-Godfery Test (Model 2b)
Source: Author's Computation from E-View 10 (2021)

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1.729927	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Table 21: ARDL F-Bound Test for Model (2c)
Source: Author's Computation from E-View 10 (2021)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-568.1067	NA	8.25e+19	57.21067	57.40982	57.24955
1	-523.4552	66.97725*	4.91e+18*	54.34552*	55.34126*	54.53990*

Table 22: Optimal Lag Selection Criteria for Model (2c)
Source: Author's Computation from E-View 10 (2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PCGNI(-1)	0.568038	0.216693	2.621398	0.0223
CITR	-0.055416	0.431147	-0.128531	0.8999
CITR(-1)	-0.821267	0.479511	-1.712717	0.1125
EDTR	0.316898	1.609761	0.196860	0.8472
EDTR(-1)	3.041142	1.893091	1.606443	0.1342
PPTR	0.055446	0.038617	1.435787	0.1766
C	1170.361	828.3253	1.412925	0.1831
@TREND	84.43823	54.01299	1.563295	0.1440
R-squared	0.968566	Mean dependent var		4509.211
Adjusted R-squared	0.950229	S.D. dependent var		959.0757
S.E. of regression	213.9643	Akaike info criterion		13.85867
Sum squared resid	549368.9	Schwarz criterion		14.25696
Log likelihood	-130.5867	Hannan-Quinn criter.		13.93642
F-statistic	52.82111	Durbin-Watson stat		2.662539
Prob(F-statistic)	0.000000			

Table 23: ARDL Result – Model (2c), Dependent Variable PCGNI (Standard of Living)

Selected Model: ARDL (1, 1, 1, 0) With Lag Length 1

Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. ** .	. ** .	1	-0.334	-0.334	2.5795	0.108
. .	. * .	2	0.042	-0.078	2.6222	0.270
. * .	. * .	3	-0.132	-0.162	3.0761	0.380
. * .	. ** .	4	-0.194	-0.339	4.1099	0.391
. .	. * .	5	0.063	-0.191	4.2253	0.517
. * .	. * .	6	0.159	0.074	5.0208	0.541
. * .	. * .	7	-0.126	-0.160	5.5549	0.593
. * .	. *** .	8	-0.106	-0.381	5.9657	0.651
. * .	. * .	9	0.119	-0.076	6.5325	0.686
. * .	. * .	10	-0.080	-0.081	6.8158	0.743
. ** .	. * .	11	0.287	0.106	10.853	0.456
. .	. .	12	-0.046	0.029	10.970	0.531

Table 24: Correlogram Q Statistic for Model 2c

Source: Author's Computation from E-View 10 (2021)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. .	. .	1	0.069	0.069	0.1103	0.740
. * .	. * .	2	0.204	0.200	1.1249	0.570
. * .	. * .	3	-0.135	-0.168	1.5990	0.660
. .	. .	4	0.012	-0.008	1.6028	0.808
. * .	. * .	5	-0.131	-0.075	2.1097	0.834
. .	. * .	6	-0.060	-0.071	2.2215	0.898
. .	. .	7	-0.063	-0.011	2.3566	0.938
. * .	. * .	8	-0.086	-0.092	2.6302	0.955
. .	. .	9	-0.017	-0.007	2.6423	0.977
. * .	. .	10	-0.066	-0.054	2.8359	0.985
. ** .	. ** .	11	0.234	0.231	5.5133	0.904
. * .	. * .	12	-0.112	-0.160	6.1996	0.906

Table 25: Correlogram of Residual Squared for Model 2c

Source: Author's Computation from E-View 10 (2021)

F-statistic	1.232986	Prob. F(2,10)	0.3322
Obs*R-squared	3.956326	Prob. Chi-Square(2)	0.1383

Table 26: Serial Correlation LM Test for Model (2c)

Source: Author's Computation from E-View 10 (2021)

F-statistic	0.432760	Prob. F(7,12)	0.8635
Obs*R-squared	4.031213	Prob. Chi-Square(7)	0.7762
Scaled explained SS	2.572828	Prob. Chi-Square(7)	0.9215

Table 27: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Source: Author's Computation from E-View 10 (2021)

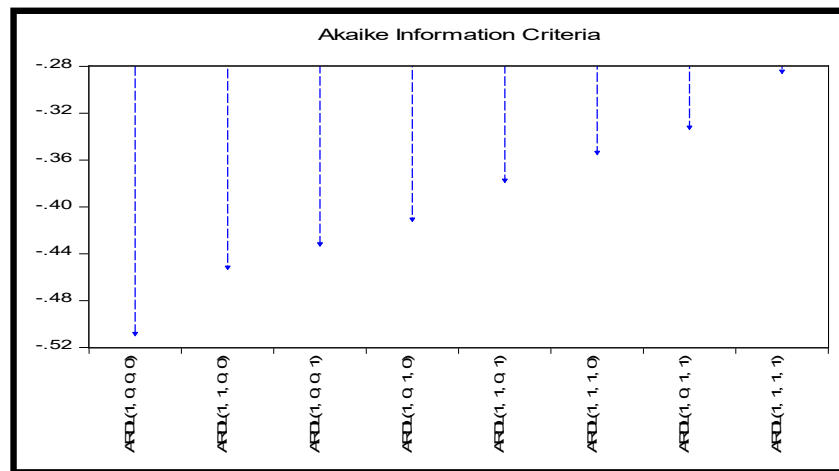


Figure 1: Criteria Graph for Model (2a)
Source: Author's Computation from E-View 10 (2021)

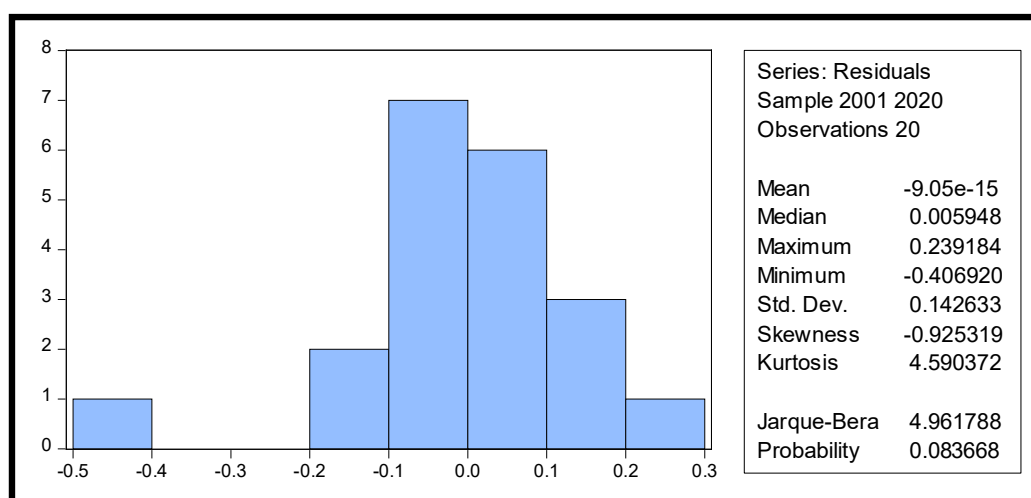


Figure 2: Histogram for Model (2a)
Source: Author's Computation from E-View 10 (2021)

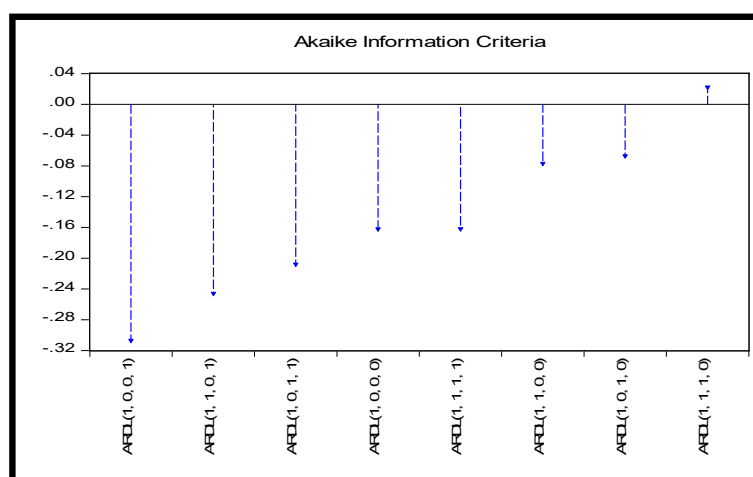


Figure 3: Criteria Graph for Model (2b)
Source: Author's Computation from E-View 10 (2021)

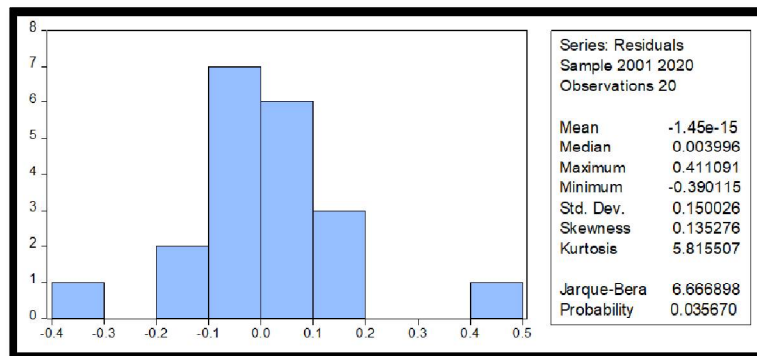


Figure 4: Histogram for Model (2b)
Source: Author's Computation from E-View 10 (2021)

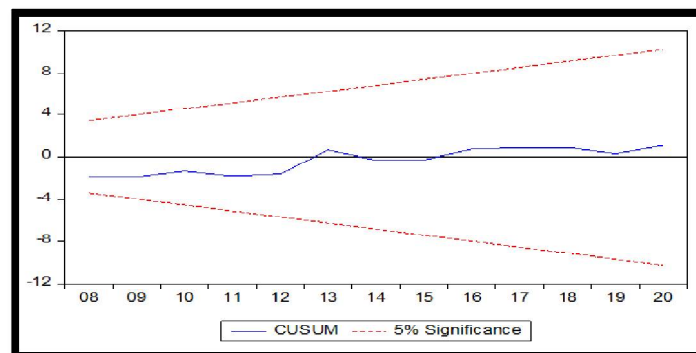


Figure 5: Cusum for Model (2b)
Source: Author's Computation from E-View 10 (2021)

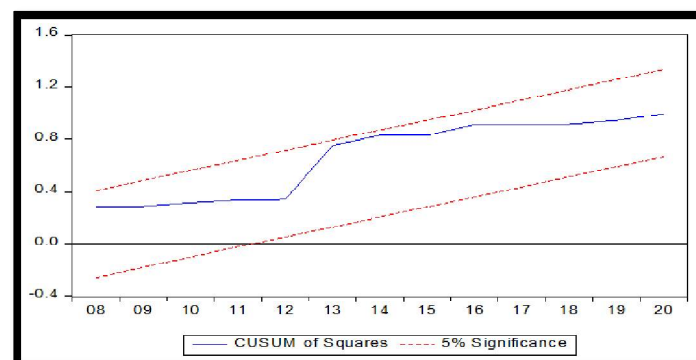


Figure 6: Cusum of Square for Model (2b)
Source: Author's Computation from E-View 10 (2021)

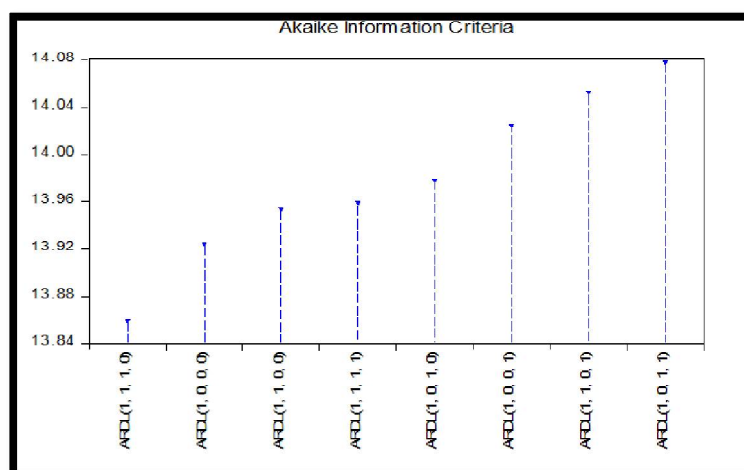


Figure.6: Criteria Graph for Model (2c)
Source: Author's Computation from E-View 10 (2021)

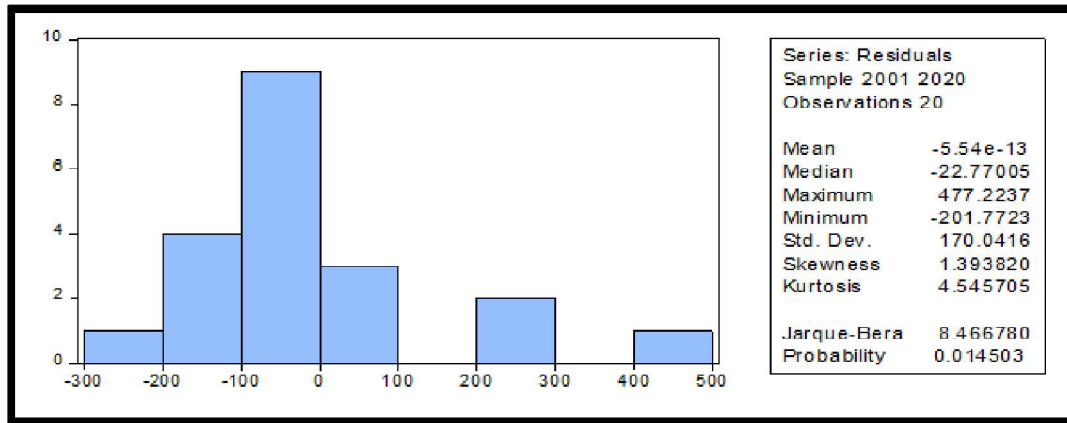


Figure 7: Histogram for Model 2c
Source: Author's Computation from E-View 10 (2021)