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EFFECT OF INDIRECT TAXATION ON ECONOMIC SUSTAINABILITY IN NIGERIA 2002-2022

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Abstract

The research investigated effect indirect taxes economic sustainability in Nigeria with focus on Nigerian economy. The study's specific objectives were to determine the effect of value added tax on real gross domestic product and evaluate the effect of custom and excise duties on real gross domestic product in Nigeria; The ex-post facto design method was used in this study while secondary data were used were gathered from various governmental agencies such as Federal Inland Revenue Service (IFRS) 2022 Statistics Report, the World Bank, UNDP, and OECD Stat. covering a period of 21years (2002-2022). Multiple regression models were employed via the Ordinary Least Square (OLS) method and it was found that value added tax, custom and excise duties have significant effect on Real Gross Domestic Product in Nigeria as p-value of 0.00 < 0.05. the study concludes that Nigeria's real gross domestic product was significantly impacted by indirect taxation from 2002 to 2022. The study recommends that the values of indirect taxes which has contributed to the Nigerian economy should also be raised.

Introduction

Background of the Study

The role of government in any contemporary economy is multifaceted, encompassing responsibilities that range from conventional activities such as taxation and expenditure on public goods to providing services for regulation and oversight of the entire economy. Taxation stands out as one of the primary sources of funding for federal, state, and municipal governments in a diversified economy. It is a crucial fiscal policy tool available to governments to increase revenue and promote economic growth and development (George-Anokwuru, 2023; Egiyi, 2022). Taxation involves the imposition of unavoidable charges on businesses and individuals, administered by a government body, to finance government operations. This includes various means such as public debt, currency creation, asset sales, and drawing down on cash reserves with the central bank (Oyebisi et al., 2017).

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Taxes are traditionally divided into two main categories: direct and indirect taxes. Direct taxes, such as individual income tax, petroleum profit tax, corporate income tax, and educational tax, are tailored to the specific characteristics of the taxpayer and are therefore more susceptible to subjective judgement and practices like tax evasion and avoidance (Ukpabi, 2019). On the other hand, indirect taxes, such as value-added tax (VAT), customs duties, and excise duties, are imposed on transactions regardless of the circumstances of the buyer or seller and are considered more efficient due to the difficulty in evading these taxes (George-Anokwuru, Olisa, & Obayori, 2020).

In Nigeria, indirect taxes have historically been a significant source of government revenue. For instance, in 2002, taxes accounted for around 25.5% of total government revenue, with a considerable portion derived from indirect sources like customs duties, import and export taxes, and VAT. Up to 15% of government revenue, used to fund specific developmental expenditures, comes from indirect taxes, a figure that is still expandable (Ukpabi, 2019). Over the years, the contribution of VAT and customs and excise duties to Nigeria's revenue has shown a consistent upward trend. For example, VAT and customs/excise duty returns increased significantly from 2016 to 2019, highlighting their growing importance in the nation's revenue structure (CBN, 2016, 2017, 2018, & 2019).

Despite these contributions, the Nigerian economy's heavy reliance on oil revenues, which account for two-thirds of state income but only about 9% of GDP, presents a significant challenge. This dependency has resulted in a boom-and-bust cycle driven by fluctuating oil prices, as seen during the global oil price decline and the COVID-19 pandemic (IMF, 2020). The monocultural nature of Nigeria's economy has led to significant reductions in national revenue during periods of oil price instability. Furthermore, the lack of political will to establish a robust and efficient tax system has exacerbated these challenges, particularly in indirect taxes like VAT and customs and excise duties (Omodero, 2020).

Numerous studies have indicated a positive correlation between indirect taxes and economic growth (Bleaney & Gemmel, 1999; Bird, 2003; Arisoy & Unlukaplan, 2010; Oyebisi et al., 2017; Ezu & Jeff-Anyeneh, 2021). These findings underscore the potential of indirect taxes in enhancing Nigeria's economic sustainability. Given the aforementioned challenges and the significant role of indirect taxes, this study aims to investigate the effect of indirect taxation on Nigeria's economic sustainability over the period from 2002 to 2022.

1.2 Statement of the Problem

The mono-product character of the Nigerian economy has caused a number of issues, including the GDP of Nigeria's sliding growth rate. Due to this, Nigeria is unable to realise its goals for the total growth of its economy. Due to Nigeria's overreliance on crude oil and the volatility of its price and demand, Vision 2020, the country's national development plan, has not succeeded in realising its goal. By achieving a GDP of roughly $900 billion and ensuring that it increases by at least 10% year until the year 2020, the Vision 2020 programme aspires to put Nigeria among the top 20 economies in the world. However, this goal was not met. Nigeria's GDP has not been able to reach this growth pace, nor is it even close to reaching the requisite GDP amount based on such a plan.

This deficiency has made it clear that other economic variables must be identified and developed if they are to have the potential of following the national income growth rate quickly. Indirect taxes are one of these factors. There is no denying that indirect taxes have had a significant positive influence on the government's revenue. According to the National Bureau of Statistics (2014), Nigeria earned N830 billion from value-added tax and N890 billion from customs and excise charges in 2016. Tax revenue's potential to contribute to economic growth has been considerably constrained by the Federal Inland Revenue Service Board's inability to guarantee complete adherence to tax laws by businesses and individuals and bring all functioning entities within the tax net.

Tax cheating has reduced the amount of money the Nigerian government receives from taxation, which undoubtedly has an impact on government spending and inflation. Furthermore, as observed by (Leyira, Chukwuma, and Asian 2012), the nation's current tax administration system is hindered in its ability to generate income by issues such a lack of data, an ineffective monitoring and enforcement system, and corrupt practises. All of these have made Nigeria's economy less resilient, contributing to the country's present recession and the consequent consequence of businesses ceasing operations, which lowers tax revenues for the government. However, if the increase in revenue has resulted in supporting the economy, then more needs to be done.

1.3 Objectives of the Study

This study's overarching goal is to determine the effect indirect taxes economic sustainability in Nigeria, while its particular goals are to;

i. Determine the effect of value added tax on real gross domestic product in Nigeria.
ii. Evaluate the effect of custom and excise duties on real gross domestic product in Nigeria.

1.4 Research questions

Stemming from the above problem stated, this research seeks to find answers to the above questions:

i. What is the effect of value added tax on real gross domestic product in Nigeria?
ii. How does custom and excise duties affect real gross domestic product in Nigeria.

1.5 Research Hypotheses

In this research work, the following hypotheses stated in the null form will be tested.

H_{01}: Value added tax has no significant effect on real gross domestic product in Nigeria.

H_{02}: Custom and excise duties have no significant effect on real gross domestic product in Nigeria.

Literature Review

2.1 Conceptual Review

2.1.1 Indirect Taxes

These taxes are imposed on individuals or groups who are not intended to absorb the cost or impact but who will transfer it to others. They are typically imposed on goods and services where the final payers and consumers bear the incidence rather than the producer or first payer (Egbuhuzor & Tomquin, 2021). That is, in the majority of circumstances, any indirect tax imposed on a market is paid in full or in part by consumers. In contrast to affluent nations like the USA, where the majority of government revenue is received from direct taxation, developing nations like Nigeria derive the majority of their income from indirect taxation.

When a manufacturer or service provider is subject to an indirect tax, the fee is transmitted to each individual client who uses the manufacturer's goods or services (Fakunmoju, 2022). They are sometimes referred to as consumption taxes, outlay taxes, and expenditure taxes. The ability of the person to pay taxes is evaluated indirectly, as the name suggests. The case for indirect taxes is made on the grounds that they are simple to administer, challenging to evade, highly productive, effective at deterring the use of harmful products, encourage capital formation, safeguard domestic and emerging industries, and serve as a useful tool for discriminating in consumer behavior (George-Anokwuru, 2022).

Indirect taxes may be particular or ad valorem, claims Tom-Ekine (2013). They are referred to as specific when they are imposed at a rate per unit of quantity that is separate from the price. Ad valorem, on the other hand, is when the tax amount is planned in accordance with the worth of the thing being taxed. Value Added Tax (VAT), excise and customs taxes, stamp duties, and capital gains taxes are a few examples of indirect taxes.

2.1.2 Value Added Tax (VAT)

Value added tax, often known as consumption tax, is the amount that the government levies on any commodity or service that is occasionally purchased. It can only be paid when products or services are consumed, and the

final consumer must bear its burden (Egbuhuzor & Tomquin, 2021). According to Omodero (2020), VAT is an indirect consumption tax applied on all goods and services produced or provided domestically.

When applied to chain processes with value added, VAT is sometimes known as the Goods and Services Tax (GST) (Owino, 2019). Olasupo and Oseni (2017) claims that the goals of VAT in Nigeria are to (i) increase the tax base by including people who are typically ineligible for direct taxation; (ii) enhance the government's revenue profile; and (iii) promote rewards by easing the burden of direct taxes and promoting consumption tax. The VAT earnings are divided among the three tiers of government in accordance with an agreed-upon ratio. It was to be federally collected, and a uniform rate of 5% was set on all impacted items. Currently, a new VAT rate of 7% went into effect in February 2020 after the new finance bill was passed into law in January 2020 (Egbuhuzor & Tomquin, 2021).

2.1.3 Custom and Excise Duty (CED)

Customs duties, which are paid by importers of specific commodities, are a significant source of income for the federal government. Customs duties also shield domestic industry from competition from foreign industries. Excise taxes, on the other hand, are fees levied by the government on particular goods produced in a nation at varying rates in an effort to earn money and deter the production and consumption of things like alcohol and cigarettes that are thought to be damaging to people's health. Excise taxes are levied on the production of domestic goods, whereas custom taxes are applied on imported goods (Egbuhuzor & Tomquin, 2021).

An indirect tax that dates back to the nineteenth century is CED. Custom duties are the names for import and export taxes (Chigbu & Njoku, 2015). An indirect tax is a tax on a spending or outlay that can be moved (either wholly or partially) to another party (George-Anokwuru, et al (2020). Customs taxes are the most lucrative indirect tax. Customs and excise duties are combined since the Nigerian Customs Services is responsible for both of their administration (Ukpabi, 2019). Export duty, as defined by Akhor and Ekundayo (2016), is a levy on products that Nigeria exports to other nations. The country's custom services are in charge of managing excise duties, an ad-valorem tax on the production of manufactured goods (Ekeocha, 2010).

2.1.4 Economic Sustainability

Economic growth is the long-term, steady rise in a nation's economic capacity, per capita national output, and net national product. The fundamental drivers of economic growth are these increases (Egbuhuzor & Tomquin, 2021). The practise of fostering long-term economic growth while minimizing its negative effects on the community's environment, culture, or social fabric is what is generally meant by the term "economic sustainability" (Lynne, 2022). It describes actions that promote long-term economic growth without having a negative effect on the community's social, environmental, and cultural facets. Conserving natural and financial resources is a practice that leads to long-term financial stability. A system that is sustainable can last for a very long time and have little harm.

Creating a balance between economic growth and the advancement of favorable change for the environment and people is the main objective of economic sustainability. It is significant because, if a company relies on finite resources for production, marketing, or arousing investor or customer interest, it will be extremely difficult for it to experience long-term growth or success (Safdie, 2022).

2.1.5 Real Gross Domestic Product

Market value of all final goods and services inside an economy or nation is referred to as GDP. An increase in a nation's gross domestic product (GDP) is typically an indicator of economic expansion (Nwala & Ogboji, 2020). In general, the GDP is a measure of a nation's economic health that assesses the value of its products. In other words, the goods and services produced over a certain time period constitute the entire monetary worth of a nation's GDP. According to Kimberly (2017), looking at the GDP is the most important method for evaluating

economic growth. Consideration is given to the nation's overall economic output. It includes all goods and services created in the nation by businesses for export. It makes little difference whether it is sold domestically or abroad (Salaudeen, Yauri & Muhammad, 2020).

Real gross domestic product (RGDP) is a measure of an economy's total output adjusted for inflation that reflects the value of all goods and services generated during a specific year. Base-year prices are used to express real GDP. It is a measurement of a nation's overall economic production that takes price fluctuations into account. RGDP just measures actual output growth; it does not account for inflation or deflation or take into account changes in prices (Orji et al., 2023). According to Saad and Suryati (2014), the RGDP is a macroeconomic indicator of the value of economic output modified for price fluctuations. Real gross domestic product frequently reflects the output of an economy more accurately than nominal GDP. Real GDP gives analysts a deeper understanding of how a country's total national output is changing from year to year by removing the distortion brought on by inflation, deflation, or changes in currency rates (Clemon, 2023).

2.2 Theoretical Framework

2.2.1 Social Contract Theory

Thomas Hobbes proposed this hypothesis. The theory of morality and governance makes an effort to establish a philosophical explanation for the state's existence as well as justification for political duty. According to the theory, the government is the result of a contract when it manages taxes on behalf of the society that elected them. It provides a logical framework for balancing the demands of governmental authority with the rights and responsibilities of the general populace.

According to the social contract theory, the Nigerian state and its resources should be managed in accordance with a common shared principle of fairness; the revenue should be wisely employed for the economic growth of the majority of the population. A hypothetical or contractual agreement between society and the state has been described as the basis for the theory known as social contract theory. The idea is based on the postulations of numerous philosophers, including (Hobbes, 2005), each of whom has argued and described the social contract theory in a different way. Without the social contract, according to Hobbes (2005), the world and society would appear less vivid and more hopeless, indicating that the social contract is significant and plays a significant influence in moral behaviour.

2.3 Empirical Review

In Nigeria from 1994 to 2019, George-Anokwuru (2023) looked into the impact of indirect taxes on inclusive growth. The primary analytical tools were co-integration and ECM methods. According to the regression analysis, value-added tax and inclusive growth (measured by the human development index) in Nigeria have a positive but insignificant link. During the analysed period, inclusive growth in Nigeria has a negative and significant association with excise and customs taxes.

Adegbie et al. (2023) examined Nigeria's economic diversification, tax collections, and sustainable growth. Ex-post facto research methodology was used. The study's 30 year time frame was from 1990 to 2020. After performing unit root tests for stationarity, descriptive and inferential statistical tools were employed to analyse the data in order to prevent generating inaccurate and unreliable regression estimations. The study discovered that the GDP growth rate had a favourable and considerable impact on long-term expansion. The research also showed that infrastructure spending contributed to sustainable growth in a positive but negligible way. According to the study's findings, diversification helped Nigeria achieve sustainable growth.

Fakunmoju (2022) investigated the impact of indirect taxes on the macroeconomic stability of Nigeria between 1995 and 2020 using real GDP data. It used the Autoregressive Distributed Lag method of analysis. The results showed that the short-run model suggested that CED, Interest Rate, and Exchange Rate were the three main short-

run determinants of Nigeria's economic growth, whereas VAT was not. Long-term estimations revealed that while EXR has a detrimental impact on macroeconomic stability, VAT, CED, and INT show positive signals, indicating they positively influence RGDP.

The impact of Value-Added Tax (VAT) on revenue collection and economic growth in Nigeria from 1994 to 2018 was examined by Odu (2022). In the study, time-series data were used to run the regression. According to the study, VAT significantly affects total tax revenue with a two-year lag and gradually begins to account for changes in total tax revenue. The research demonstrates that VAT significantly and adversely affects GDP with a one-year lag.

In Nigeria, Emudainohwo and Ndu (2022) used the ARDL Bounds Test and Cointegration Approach to examine the impact of tax income on economic growth. The Central Bank of Nigeria's quarterly secondary data and tax statistics data were split into two time periods for analysis: the pre-electronic tax period (2011Q1 to 2015Q3) and the post-electronic tax period (2015Q4 to 2020Q4). According to the report, revenues from capital gains and value-added taxes did not considerably change throughout the same time period. Value added tax, petroleum profit tax, and capital gain tax have a negligible long-term impact on economic growth in post-e-tax, whereas corporate income tax, education trust fund, and stamp duty have a negligible long-term impact on it.

The impact of the Nigerian stamp duty tax on economic growth was studied by Aniefor (2022). The study was conducted using an ex-post facto research design from 2000 to 2020. STATA 16 is the statistical application utilised to carry out the regression. The outcome showed that Nigeria's economic growth is negatively but significantly impacted by stamp duty. As a result, the analysis comes to the surprise conclusion that Nigeria's economic progress during the era was slowed by increasing stamp duty tax income.

Orits, Edirin, and Abel (2022) concentrated on an empirical causality analysis of transaction taxes, firm income taxes, and other non-oil tax components of government revenue using Nigeria as a case study. There were several analyses used, including least square, auto regressive regression, the chow test, the granger causality test, and unit root tests. The results showed that while income tax and stamp duty revenue greatly increased federally generated revenue, the government's non-oil tax collection during the time was not significantly impacted by tax policies or their subsequent revisions.

The impact of stamp duty revenue on the total amount of federal taxes collected in Nigeria was evaluated by Onwuka and Orji (2021). The study spans the years 2000 to 2018. An ordinary least squares regression analysis was carried out using STATA 13 software. The results show that the amount of stamp duty collected in Nigeria does not significantly affect total government revenue collection. The study also demonstrates how stamp duty collection has a major impact on economic growth in Nigeria.

Ezu and Jeff-Anyeneh (2021) looked at how indirect taxes affected Nigeria's economic growth. An ex-post facto research design was used in the study. Using a statistical method for granger causality, the hypotheses were examined. According to the report, value added tax significantly affects Nigeria's gross domestic product.

From 2003 to 2018, Egbuhuzor and Tomquin (2021) investigated the impact of indirect taxes on economic growth in Nigeria. With the aid of the statistical programme e-views10, the suggested null hypotheses were tested using descriptive statistics and multiple regressions. Value-added tax has a negative and negligible impact on the gross domestic product, according to the study. It also showed that the value-added tax had a favourable and considerable impact on the human development index. Additionally, it showed a small but favourable impact of excise and customs taxes on GDP. The study also found a small but beneficial impact of excise and customs taxes on the human development index.

In Nigeria, the impact of indirect tax revenue on the development of the country's infrastructure was examined by Orisanaiye, Adegbie, and Salawu in 2020. With the help of descriptive and inferential statistics and the

Autoregressive Distributed Lag (ARDL) model method to cointegration, this study used an ex post facto research design for the 1994Q1–2018Q4 period. The study also showed that the development of Nigeria's infrastructure is significantly influenced by factors such as total capital expenditure, customs and excise levies, inflation rate, and exchange rate. The study came to the conclusion that Nigeria's infrastructure development is influenced by indirect tax revenue.

Omodero (2020) used a range of econometric techniques from 2005 to 2019 to assess the negative effects of indirect taxation on consumption in Nigeria. The results indicate that whereas CED has a significant positive impact on usage, VAT has a small but favourable impact on consumption.

Ngu (2020) assessed how the capital gains tax affected Nigeria's overall tax receipts and economic expansion. The ex-post facto research design was used to accomplish this goal. From 2005 to 2018, E-views were used to implement and analyse the simple regression technique. The results show a negligible positive correlation between Nigeria's capital gains tax and total tax revenue/economic growth. According to the study's findings, Nigeria's economic growth and total tax collection have not been considerably impacted by capital gains tax.

METHODOLOGY

3.1 Research Design

Ex-post facto research is employed to analyse secondary data because there isn't an experiment involved; rather, it intended to examine an event that has already happened. The use is justified by the fact that the necessary data were not altered but rather obtained from secondary sources.

3.2 Area of Study

Nigeria is the subject of the study. The Nigerian economy was chosen since it is simple to get the data required for the study.

3.3 Population of the Study

The population of the study includes Nigeria for a period of twenty one years (2002-2022), as indicated by the Real Gross Domestic Product. This is so since the topic at hand touches on the entire indirect taxation system.

3.4 Sources of Data

Secondary data is the data source for this study. Data that has been gathered for objectives other than those of our specific research project is referred to as secondary data. The Federal Inland Revenue Service (IFRS) 2022 Statistics Report, the World Bank, UNDP, and OECD Stat are among the sources of the data.

3.5 Method of Data Collection

Secondary data were used in order to produce an accurate and unbiased study. The following factors make the information from these secondary sources relevant for this study: Secondary data have been frequently employed in earlier studies and have provided positive results. They have already been validated by experts and other regulatory authorities before they were released.

3.6 Sample and Sampling Technique

The sample size spans the years 2002 through 2022, a twenty-one-year period. The sample size served as the study's population.

3.7 Data Analysis Techniques

For this investigation, multiple regression models were employed. Based on the traditional regression model, commonly known as the Ordinary Least Square (OLS) method, the researcher decided to use regression analysis. The method was chosen due of its ease of computing. The coefficient of correlation was used to assess the degree of correlation between the dependent and independent variables. With the help of the e-view 8, regression analysis was used to assess the hypotheses at a significance level of 5%.

3.8 Procedure for Data Analysis

Both descriptive and inferential statistics are used during the data analysis process. The Unit Root Test, Co-integration Test, Autocorrelation Test, Heteroscedasticity Test, Test of Correlogram Q-statistics, Test of Model Fitness are some more tests that were performed on data, among others. F-test was employed to assess the regression equation's overall significance. The two independent estimates of variance are compared. If the F-statistic is significant at the 5% threshold of significance, the regression equation is suitable.

3.9 Model Specification

In this study, the model definition would be used to measure indirect taxation and economic sustainability. As a result, this model predicts that:

Model 1

RGDP = f (VAT)

$RGDP = \beta 0 + \beta_1 VAT + U_t$ . . . 1

Model 2

RGDP = f (CED)

$RGDP = \beta 0 + \beta_1 CED + U_t$ . . . 2

General Model

RGDP = f (VAT and CED)

$RGDP = \beta 0 + \beta_1 VAT + \beta_2 CED + U_t$ . . 3

$Log\ (RGDP)_t = \beta_0 + \beta_1 Log(T\ VAT)_t + \beta_2 Log(CED)_t + U_t$

Where,

RGDP = Real Gross Domestic Product

VAT = Value Added Tax

CED = Custom and Excise Duties

β_0 =Constant

$\beta_1, \beta_2, \beta_3$ =Regression coefficients or Coefficients of the independent Variables.

U_t =Stochastic error associated with the models

Log =Natural Logarithm of the variable under study

The estimated numerical values of multi-regression coefficients were assessed with the probability of the t-test statistics for statistical significance at the 5% level. In Nigeria's indirect taxation and economic sustainability forecast, the R-square and modified R-square is used to analyze the strength of variables.

Decision Rule

Data will be tested at 5% level of significance; therefore, decisions on the hypotheses will be based on the following criteria:

Reject H_0 and Accept H_1; if p-value < or = 0.05 level of significance

Accept H_1 and Reject H_0; if p-value > 0.05 level of significance

3.10 Apriori expectation

The table below provides a summary of the variable being considered and the parameter manifestation of a priori indications. These standards will protect this table.

When $\beta > 0$ = confirm.

When $\beta < 0$ = not confirm.

Table 2: Apriori expectation

Variables	Expected signs	Estimate	Remark
Value Added Tax (VAT)	+	$\beta > 0$	Confirm
Custom and Excise Duties (CED)	+	$\beta > 0$	Confirm

3.11 Limitations of the Study

This study's sole objective is to determine how indirect taxation affects Nigeria's ability to sustain its economy over a 21-year period, from 2002 to 2022. The study also encounters challenges as a result of statistical data discrepancies between the CBN Statistical Bulletin, Federal Inland Revenue Service (IFRS), World Bank and UNDP, and OECD Stat due to these organisations providing various statistics in the same year. A further drawback in this study was the difficulty in accessing the relevant statistical data.

Data Presentation and Analysis

4.1 Data Presentation

The section shows the Natural Logarithm Real Gross Domestic Product (RGDP), Value Added Tax (VAT), Custom and Excise Duties (CED).

Table 3: Showing Natural Logarithm of the variable under study

YRS	LRDGP	LVAT	LCED
2002	9.339934	11.59543	5.450180
2003	9.504353	11.82335	5.180097
2004	9.794698	11.97980	5.486455
2005	10.03823	12.09010	5.450180
2006	10.31108	12.30863	5.180097
2007	10.44344	12.57626	5.486455
2008	10.58513	12.90346	5.324229
2009	10.66925	13.08445	5.408628
2010	10.90801	13.24439	5.367316
2011	11.05058	13.39871	6.082904
2012	11.18044	13.47380	6.178214
2013	11.29094	13.59572	6.273518
2014	11.39688	13.59607	6.368822
2015	11.45259	13.55068	6.082675
2016	11.52771	13.62701	6.800949
2017	11.64142	13.78747	6.082675
2018	11.75773	7.010347	6.785316
2019	11.87903	7.081693	6.913230
2020	11.93377	7.333788	6.997672
2021	12.06409	7.380985	9.071078
2022	12.69210	7.595900	9.449357

Source: Compiled by the author using e-views

4.2 Data Analysis

While attempting to identify the key characteristics of the data, this section of the study gives a general overview of the data set.

Table 4: Shows the descriptive statistics of the variables under study

	RGDP	VAT	CED
Mean	85872.31	385354.9	1435.249
Median	71713.94	289600.0	438.2000
Maximum	325168.0	972348.4	12700.00
Minimum	11383.66	1108.039	177.7000
Std. Dev.	72968.01	336369.6	3157.340
Skewness	1.724393	0.278390	2.915203
Kurtosis	6.471161	1.561155	9.991442
Jarque-Bera	20.95020	2.082743	72.51467
Probability	0.000028	0.352970	0.000000
Sum	1803318.	8092454.	30140.24
Sum Sq. Dev.	1.06E+11	2.26E+12	1.99E+08
Observations	21	21	21

Source: e-view Output, 2023

Table 5: Contribution of Indirect taxation revenue to RGDP

	VAT	CED	TOTAL TAX
Average Contribution to RGDP	4.49%	0.02%	4.51%

Source: Researcher's Study, 2023

Table 6: Descriptive analysis of the Natural Logarithm of the variables under study

	LRDGP	LVAT	LCED
Skewness	-0.264864	-1.025889	1.607676
Kurtosis	2.323142	2.326089	5.001055
Jarque-Bera	0.646405	4.080957	12.54988
Probability	0.723827	0.129967	0.001883
Sum	231.4614	243.0380	131.4200
Sum Sq. Dev.	15.82099	129.4072	26.96463
Observations	21	21	21

Source: e-view Output, 2023

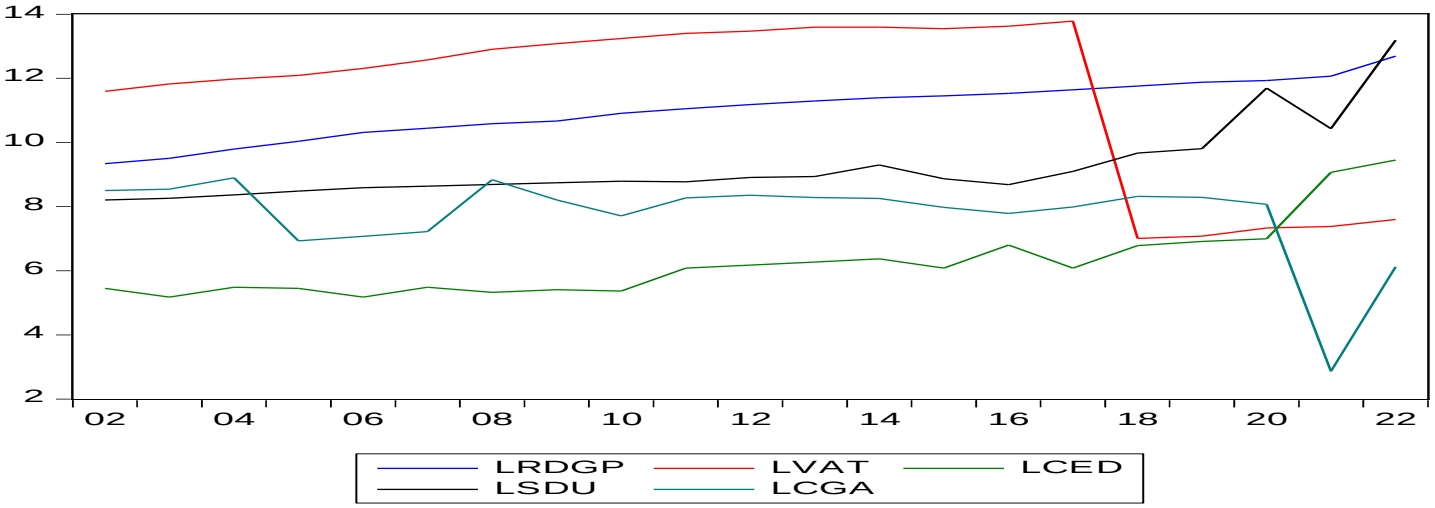
Discussion of Results

Table 3 shows the summary statistics of all the variables under study in their raw form. Specifically, the mean values of the Value Added Tax (VAT), Custom and Excise Duties (CED), stood at about ₦385354.9b, and ₦1435.249b, respectively as shown in table 4. Also, the mean of Real Gross Domestic Product (RGDP) stood at about ₦85872.31b. This shows the average values of indirect taxation revenue and RGDP of Nigeria for the 21 years under study. These average values were used in the determination of the contribution of each form of indirect tax revenue to RGDP shown on Table 4. Their respective minimum and maximum values are equally shown indicating variations over the years for the respective series; this is further shown in the trends of RGDP and each of the independent variables provided. The standard deviation values indicate the dispersion or spread in the data series. It shows the higher the value, the higher the deviation of the series from its mean and the lower the value, the lower the deviation of the series from the mean. The variable with a higher degree of dispersion from the mean is the Real Gross Domestic Product (RGDP), this further explains its variations over the years under study. Table 5 shows that on the average, VAT contributed about 4.49% to RGDP; while CED contributed about 0.02% to RGDP; and the total tax revenue from indirect taxation contributed about 4.51% to RGDP during the forty years under study.

The skewness, kurtosis and Jarque berra statistics of all variables shown on Table 6 fully indicate the true nature of the data series since the probability value of Jarque berra statistics of 0.646405, 4.080957, and 12.54988, for RGDP, VAT and CED respectively, all the series are shown to be more than the acceptable 0.05. The normality of the series of RGDP, VAT and CED with p-values is 0.723827, 0.129967 and 0.001883, respectively. Based on the probability values for Jarque Berra statistics in the descriptive table 6 all the series are normally distributed. Thus, the regression model is estimated using the transformed series as one of the assumption of ordinary least square regression is normality of series which have been met.

4.2.1 Trend Analysis

Figure 1: Trend Analysis in Graphical Format



Source: e-view output, 2023

The graph above shows a trend analysis for the following variables from 2002 to 2022: LRGDP, LVAT and LCED. The graph above shows that LRGDP constantly maintains an upward trend while LVAT initially increases at a very low level. While LCED maintain an upward trend, and then later fluctuate.

4.2.2 Unit Root Test

In order to examine (whether) the variables are stationary or not, the variables were individually subjected to unit root test using the Augmented-Dickey Fuller (ADF) test. The unit root test was conducted at constant and trend and the result of the test are reported at the 5% confidence level.

Table 7: Augmented Dickey Fuller Unit Root Test Intercept

Series	ADF t-Statistic	1% Level	5% Level	10% Level	Probability	Order of Integration
LRGDP	-0.374812	-3.808546	-3.020686	-2.650413	0.8961	1(1)
LVAT	-0.877660	-3.808546	-3.020686	-2.650413	0.7738	1(1)
LCED	2.257036	-3.831511	-3.029970	-2.655194	0.9998	1(1)

Source: Authors' computation from e-views result output. 2023

H_o: There is a unit root (series is non-stationary).

Prob. value < or = 5% (0.05), reject Ho

From table 7 above, it can be seen that a unit root test is conducted for the variables in the study for Nigeria Economy (LRGDP, LVAT, and LCED) using the Augmented Dickey-Fuller tests and the results are presented in the table 6 above. The variables in table 6 are all not stationary at first since the p-value is greater than 5% (0.05) level of significance. Even though the variables are presented as I (0) they are actually I (1) since there first difference has been accounted for in the calculation.

4.2.3 Stability Test

H_o: parameters stable (desirable)

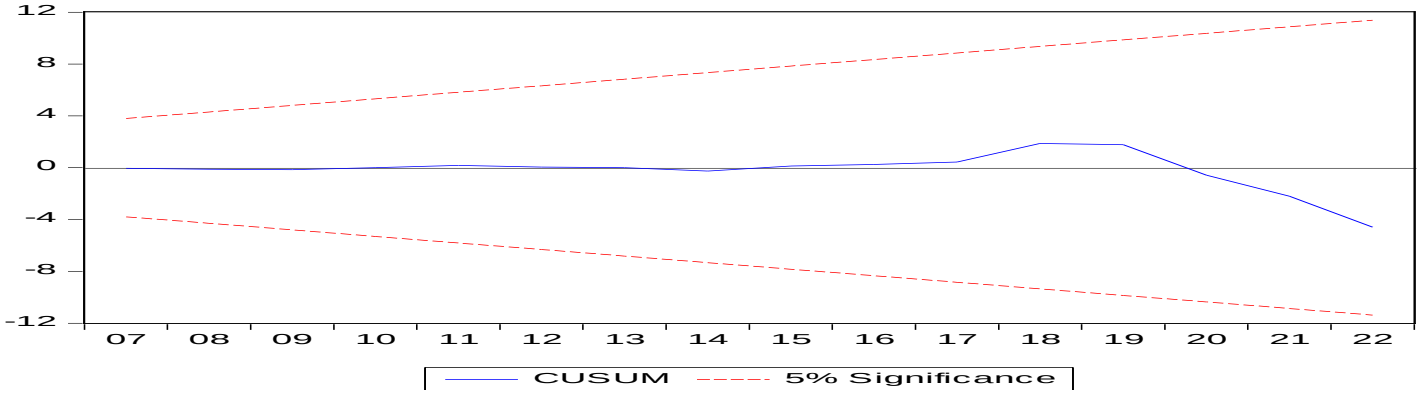
H_A: parameters stable (not desirable)

Decision rule

If we find blue line between/within the redlines we accept Ho (desirable) and reject H_A (Not desirable)

If blue line cross redlines we reject H_0 (desirable) and accept H_A (which is Not desirable)

Figure 2: Cusum and Cusum of Squares Test- Stability Diagnostics



Source: Authors' computation from e-view result output. 2023

From the above Cusum and Cusum of Squares Test- Stability Diagnostics the blue line is between/within redlines. We therefore accept the null hypothesis (H_o) and reject alternative hypothesis (H_A) meaning that parameters is stable (desirable).

4.2.4 Test for Normality

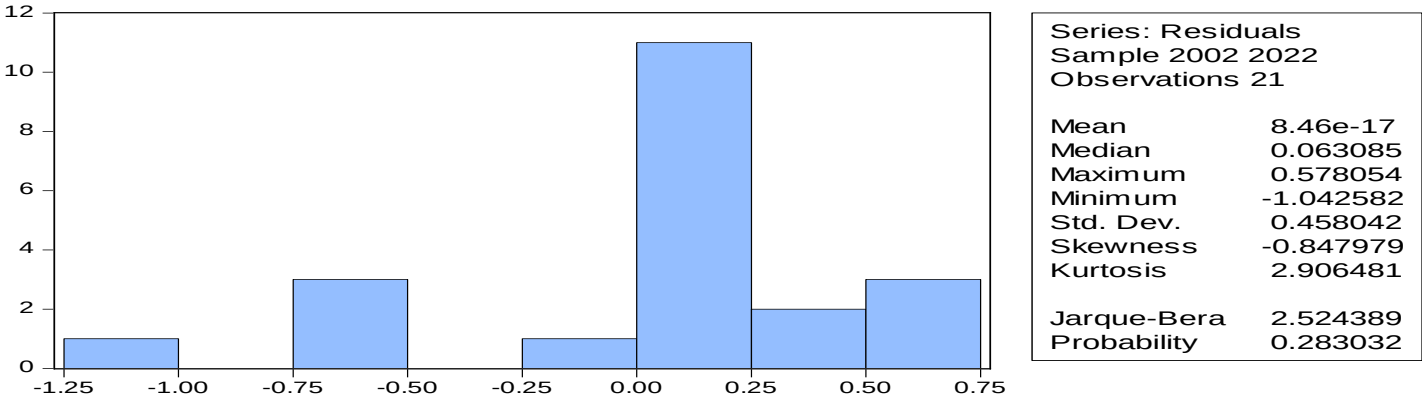
Normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed.

Decision

H_o: Normal distribution is accepted if the p-value is higher than 5% level of significance

H_A: Not normal distribution accepted if the p-value is less than 0.05 level of significance

Figure 3: Results of test of normality



Source: Authors' computation from e-view result output. 2023

From the result above, the Jarque-Bera is 2.524389 statistics of the series is more than the acceptable 0.05, with respective p-value higher than 0.05. The p-value 0.283>0.05 level of significance, the null hypothesis is accepted and alternative hypotheses is rejected. This implies that we accept null hypothesis meaning that the data is normally distributed.

4.2.5 Multi-colinearity Test

Multicollinearity is a statistical concept where several independent variables in a model are correlated. Two variables are considered to be perfectly collinear if their correlation coefficient is +/- 1.0.

Decision

If the result of Multi-colinearity/ Variance Inflation Factors (VIF) value is less than or equal to 10; it means no severe Multicollinearity exists in the mode.

Table 8: Results of test of Multicolinearity/ Variance Inflation Factors (VIF)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LVAT	0.004290	48.12720	2.116826
LCED	0.058735	190.2341	6.039047
C	4.890150	391.5798	NA

Source: Authors' computation using e-view. 2023

From the result in table 8 above, the centered VIF of LVAT and LCED values of 2.116826 and 6.039047 are less than 10; it implies there is no severe multicollinearity in the mode. This means that the analysis can proceed.

4.2.6 Heteroscedasticity Test

In simple terms, heteroscedasticity is any set of data that isn't homoscedastic. More technically, it refers to data with unequal variability across a set of second, predictor variables.

Ho: There is no Heteroscedasticity, if Prob. Chi-Square < 5% level of significance

H_A: There is Heteroscedasticity, if Prob. Chi-Square > 5% level of significance

Table 9: Results of test of Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.973542	Prob. F(4,16)	0.4492
Obs*R-squared	4.110628	Prob. Chi-Square(4)	0.3912
Scaled explained SS	2.274636	Prob. Chi-Square(4)	0.6854

Source: Authors' computation using e-view. 2023

The result above shows that the prob. chi-square 0.3912 > 0.05 level of significance. It implies that the null hypothesis is accepted and alternative hypothesis is rejected. This means that the data set has Heteroscedasticity. This is evidence of good regression.

4.2.7 Test of Correlogram Q-statistics.

Ho: There is no serial correlation

H_A: There is serial correlation

Decision: Prob. Value > or = 5% (0.05), accept H_o

Table 10: Correlogram Q-statistics test result.

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. |**** |	. |**** |	1	0.562	0.562	7.6334	0.006
. |**. |	. | . |	2	0.341	0.036	10.590	0.005
. | . |	.**| . |	3	0.034	-0.250	10.622	0.014
. | . |	. | . |	4	-0.056	0.010	10.712	0.030
. *| . |	. | . |	5	-0.069	0.060	10.854	0.054
. *| . |	. *| . |	6	-0.076	-0.070	11.043	0.087
. *| . |	. *| . |	7	-0.110	-0.102	11.458	0.120
. | . |	. |* . |	8	-0.041	0.112	11.520	0.174
. | . |	. |* . |	9	0.064	0.138	11.686	0.232
. | . |	.**| . |	10	-0.004	-0.228	11.687	0.307
. *| . |	. *| . |	11	-0.066	-0.109	11.898	0.371
. *| . |	. | . |	12	-0.170	-0.001	13.446	0.337

Source: Computed by the researcher applying e-view. 2023

Since some of the probability values in table 10 above are less than 5% (0.05) level of significance, the null hypothesis is rejected and there is serial correlation. It indicates that serial correlation is present in the model.

4.2.8 Autocorrelation Test

Autocorrelation analysis measures the relationship of the observations between the different points in time, and thus seeks for a pattern or trend over the time series. A common method of testing for autocorrelation is the Durbin-Watson test.

Null hypothesis: There is no autocorrelation

Alternative hypothesis: There is autocorrelation

Table 11: Results of Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	6.592100	Prob. F(2,14)	0.0096
Obs*R-squared	10.18489	Prob. Chi-Square(2)	0.0061

Source: Authors' computation using e-views 2023.

The result of Serial Correlation LM Test in table 11 above showed that the prob. value chi-square 0.0061 < 0.05 level of significance. It implies that the null hypothesis is rejected and alternative hypothesis is accepted which shows there is autocorrelation in regression model. Hence the data is significant.

Table 12: Results of test of Autocorrelation using Durbin-Watson stat

R-squared	0.484995	Mean dependent var	1.66E-15
Adjusted R-squared	0.264279	S.D. dependent var	0.458042
S.E. of regression	0.392882	Akaike info criterion	1.230588
Sum squared resid	2.160990	Schwarz criterion	1.578762
Log likelihood	-5.921169	Hannan-Quinn criter.	1.306150
F-statistic	2.197367	Durbin-Watson stat	1.210371
Prob(F-statistic)	0.105518		

Source: Authors' computation using e-views 2023.

The Durbin-Watson statistic will always have a value ranging between 0 and 4. A value of 2.0 indicates there is no autocorrelation detected in the sample. Values from 0 to less than 2 point to positive autocorrelation and values from 2 to 4 mean negative autocorrelation. Since the Durbin-Watson stat in the above table 11 is 1.210371 which less than 2, it shows there is a positive autocorrelation.

4.3 Test of hypotheses

H_0: Value added tax, Custom and excise duties, Stamp duties and Capital gain tax have no significant effect on Real Gross Domestic Product in Nigeria.

Decision Rule: If the p-value < 0.05 level of significance, null hypothesis is rejected and the alternative hypothesis accepted. On the other hand, p-value > 0.05 level of significance, null hypothesis is accepted and the alternative hypothesis rejected.

Table 13: Multi Regression Estimate Results

Dependent Variable: LRGDP

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LVAT	0.080884	0.065497	1.234917	0.2347
LCED	0.664931	0.242353	2.743650	0.0144
C	2.739580	2.211368	1.238862	0.2333

R-squared	0.734779	Mean dependent var	11.02197
Adjusted R-squared	0.668474	S.D. dependent var	0.889410
S.E. of regression	0.512107	Akaike info criterion	1.703690
Sum squared resid	4.196055	Schwarz criterion	1.952386
Log likelihood	-12.88874	Hannan-Quinn criter.	1.757663
F-statistic	11.08178	Durbin-Watson stat	0.490858
Prob(F-statistic)	0.000168		

Source: e-view output. 2023

Multiple regression estimates

$\text{Log (RGDP)}_t = \beta 0 + \beta_1 \text{Log (VAT)}_t + \beta_2 \text{Log (CED)}_t + U_t$.

$\text{Log (RGDP)}_t = 2.739580 + 0.080884 \text{Log (VAT)}_t + 0.664931 \text{Log (CED)}_t + U_t$.

The regression estimate of model shows that VAT measured by Log (VAT) and CED measured by Log (CED), have a positive correlation between with Real Gross Domestic Product (RGDP) measured by Log (RGDP). This is so because the measured VAT and CED values meet the a priori expectations, the coefficients' signs are $\beta_1 = 0.080884 > 0$, and $\beta_2 = 0.664931 > 0$, respectively.

Discussion of Results

Based on the magnitude of the independent variable's coefficient (β_1, β_2,), a 1% increase or decrease VAT and CED will lead to a 8.09%, and 66.49%, effect on the RGDP respectively as shown in Table 12. According to value of the R-squared, VAT and CED account for 74.58% of RGDP, whereas other factors not included in this model account for the remaining 25.42%. In this way, the model's greater ability to explain itself is demonstrated. It was calculated that the coefficient of determination, which measures the independent variable's control power over the dependent, was 0.668474, based on the Adjusted R-Squared (R^2) instrument used in the study. VAT and CED have significant impact on RGDP and variations as a result of the Adjusted R-Squared result. This translates to 66.85% of the variations experienced with RGDP are influenced by VAT and CED. Being so far below average, this makes a significant difference.

There is no autocorrelation problem in the model, as indicated by the Durbin-Watson Statistic of 0.490858, and the model is credible and reliable because it falls within the acceptable range. A positive serial autocorrelation can be inferred from the fact that the regression result's constant is 2.739580. Adding to this is the fact that the regression result is statistically significant because it's p-value 0.000168 is less than 0.05, the level of significance used in this study. Based on this result the study accepted the alternative hypotheses and rejected the null hypotheses, and hence concludes that: value added tax, custom and excise duties, Stamp duties and capital gain tax have significant effect on Real Gross Domestic Product in Nigeria.

5.1 Summary of Findings

The findings emanating from this study are as follow:

i. Descriptive statistics of the variables indicate that all the series are normally distributed since the probability value of Jargue-berra statistics are more than the acceptable 0.05.
ii. A trend analysis shows that LRGDP constantly maintains an upward trend while LVAT initially increases at a very low level. While LCED maintain an upward and downward trend, and then later fluctuate.
iii. LRGDP, LVAT and LCED are all not stationary at first since the p-value is greater than 5% (0.05) level of significance.
iv. Cusum and Cusum of Squares Test-Stability Diagnostics are stable since their blue line is between/within redlines.
v. The data is normally distributed since Jarque-Bera is 2.524389 statistics > acceptable 0.05 and the p-value 0.283> 0.05 level of significance.
vi. There is no presence of Multicolinearity since the variance inflation factors (VIF) with LVAT and LCED are less than 10 respectively.
vii. There is presence of Heteroscedasticity in the data since prob. chi-square 0.3912 > 0.05 level of significance.
viii. There is present serial correlation in the model since some of the probability values are less than 5% (0.05) level of significance.
ix. There is autocorrelation in regression model since the prob. Value chi-square 0.0061 <0.05 level of significance

x. There is a positive Autocorrelation since the Durbin-Watson stat. is 1.210371 which is less than 2.
xi. Finally, the empirical findings based on the objectives of the study shows that value added tax, custom and excise duties have significant effect on Real Gross Domestic Product in Nigeria since p-value of 0.00 < 0.05, this means that the model is statically significant.

5.2 Conclusion

The study looked at how disaggregated taxes, which are indirect taxes, affected the viability of the Nigerian economy from 2002 to 2022. Using graphical analysis, the trend of the indirect tax components and RGDP is looked at. Moreover, ordinary least squares regression is used to assess the relative influence of indirect tax on Nigeria's economic sustainability. The study concludes that value added tax, custom and excise charges have a considerable impact on real gross domestic product in Nigeria based on the empirical data.

5.3 Recommendations

Based on the results, several recommendations are made.

i. The value of VAT, which has contributed significantly to the Nigerian economy since its introduction in 1994, should also be raised, especially for non-essential commodities. As a result, it does not negatively impact the welfare of the impoverished while benefiting those who are more likely to buy expensive consumer products. Therefore, those with high incomes are subject to VAT, which will afterwards stimulate Nigeria's economy.

ii. To increase revenue from customs and excise duties, the government, through its agency Nigerian Custom Service, should computerize all of its tax collecting procedures and implement an adequate internal control system.

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