
TAX COMPOSITION AND ECONOMIC GROWTH; A COMPARATIVE ANALYSIS OF NIGERIA AND KENYA

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Abstract

This article emphasis on tax composition and economic growth: A comparative analysis of Nigeria and Kenya. The Objectives of the study aimed determining the relationship between tax burden and unemployment rate in Nigeria and Kenya, investigate the relationship between tax composition and gross domestic product growth rate in Nigeria and Kenya. to examine the relationship between tax collection efficiency and inflation rate in Nigeria and Kenya. The research design that will be used for this Research is ex-post facto research design to examine the relationship between tax composition and economic growth; A comparative analysis of Nigeria and Kenya. The work employed the OSL regression analysis using E-views 10 software. The article found out the Tax burden is significantly negatively related to GDPGR and positively to UE, while the GDPGR and UE models fit moderately well. It recommends that both countries need to improve tax administration capabilities in order to expand the tax net and boost revenue collection.

Keywords: *Tax composition, economics growth and Tax burden*

1.1 Introduction

Taxes play a vital role in driving sustainable economic growth and development of nations. By generating fiscal resources, taxes enable governments to fund crucial public services and infrastructure that facilitate business activity and improve living standards. At the same time, an efficient and equitable tax system is important to ensure tax burden does not discourage private investments and entrepreneurship (Ajanlekoko, 2021). Optimizing tax structure and composition in line with a country's economic priorities and capacities thus becomes imperative.

Nigeria and Kenya, being two of the largest economies in Sub-Saharan Africa, provide an interesting case study to compare approaches to tax system design and its impact on growth trajectories. While both countries have pursued tax reforms over the past decade to increase revenues, expand tax bases and reduce reliance on commodity exports, their tax structures differ in composition. Understanding differences and leveraging best practices holds lessons for strengthening domestic resource mobilization in the region.

Recent economic performance of Nigeria and Kenya, outlines key components of their tax systems, and presents the outline for the rest of the paper. The paper aims to analyze relationship between tax composition emphasizing direct and indirect taxes, and indicators of economic growth like GDP, private investment and employment in both countries between 2018-2022. Insights from the comparative assessment can inform ongoing

reforms and regional cooperation efforts on taxation.

1.2 Objectives of the Study

The paper is aimed at capturing tax composition and economic growth: A comparative analysis of Nigeria and Kenya. The specific objectives include to:

1. Determine the relationship between tax burden and unemployment rate in Nigeria and Kenya.
2. Investigate the relationship between tax composition and gross domestic product growth rate in Nigeria and Kenya.
3. To examine the relationship between tax collection efficiency and inflation rate in Nigeria and Kenya.

1.3 Research Questions

1. What is the relationship between tax burden as a percentage of GDP and unemployment rate in Nigeria and Kenya from 2018 to 2022?
2. What is the impact of the tax composition on GDP growth rate in Nigeria and Kenya between 2018 to 2022?
3. What is the relationship between tax collection efficiency and inflation rate in Nigeria and Kenya from 2018 to 2022?

1.4 Research Hypotheses

1. There is no relationship between tax burden as a percentage of GDP and unemployment rate in Nigeria and Kenya from 2018 to 2022.

2. The tax composition does not impact GDP growth rate in Nigeria and Kenya between 2018 to 2022.

3. There is no relationship between tax collection efficiency and inflation rate in Nigeria and Kenya from 2018 to 2022.

2.0 Literature Review

2.1 Concept of Economic overview of Nigeria and Kenya

Nigeria and Kenya are two of the largest and most influential economies in Sub-Saharan Africa. As such, analyzing their recent macroeconomic performance provides useful insights into the prevailing economic conditions and outlook. Nigeria has a population of over 200 million and an GDP of \$440 billion, making it the largest economy in Africa (World Bank, 2022a). However, declining oil production, which accounts for over 50% of government revenues (Nami, 2022), has negatively impacted growth. Oil output decreased from 2.49 million barrels per day in 2019 to 1.49 million bpd in 2022 (OPEC, 2022). Combined with the pandemic's effects, this led real GDP growth to slow from 2.3% in 2019 to only 1.5% in 2022 (Trading Economics, 2022a).

Non-oil sectors like agriculture, services and manufacturing showed signs of recovery in 2022 but face constraints such as infrastructure deficits and power shortages impacting over 80% of businesses (UKEF, 2021). Inflation accelerated to over 20% in 2022, reflecting currency pressures and high energy and food costs (NBS, 2022). Unemployment remains high at over 30%

(NBS, 2021). Kenya has a population of over 50 million and a GDP of \$110 billion in 2022, making it the largest economy in East Africa (World Bank, 2022b). Real GDP growth has been relatively stronger, averaging 5.4% from 2019-2021 on account of its diversified economy focused on agriculture, manufacturing, finance, tourism and telecom (KNBS, 2022).

However, debt levels have risen sharply to over 70% of GDP by 2022 due to increased spending on infrastructure under China-funded projects like SGR rail (IMF, 2021). Inflation has also increased to over 7% due to high global fuel and food prices, constraining consumer demand (CBK, 2022). Unemployment too remains a challenge, especially for the youth. Kenya has exhibited more resilience driven by sectoral diversity, both countries face vulnerabilities around rising debt, inflation and jobs that require concerted reforms to optimize growth and sustainable development.

2.1.2 Concept of Composition of tax systems in Nigeria and Kenya

The composition of tax revenues is an important consideration in analyzing a country's fiscal policies and balancing developmental needs with macroeconomic stability. In Nigeria and Kenya, some divergences are observed. In Nigeria, taxes on petroleum profits contribute over 50% of total tax income (Nami, 2022). This makes the tax system narrow and highly vulnerable to volatility in oil prices and production levels. Corporate income tax from extractive industries such as mining also constitutes a major share (FMPWH, 2022).

VAT is an important indirect tax revenue stream accounting for about 15-20% of collections (FRCN, 2021). However, personal income tax only makes up approximately 15% of the total despite Nigeria's large population (KPMG, 2021). This reflects challenges in taxing self-employed workers and the informal sector. Contrastingly, Kenya garners over 40% of its tax revenues from personal income tax due to a higher proportion of formal wage jobs (KRA, 2020). VAT constitutes around 25% of the total, indicating a slightly broader tax base (IMF, 2021). Corporation tax and excise duties on goods like fuel, alcohol and cigarettes each contribute 10-15% (KIPPRA, 2019).

Differences in sectoral composition underpin the divergent structures. While Nigeria depends heavily on resources, Kenya has substantial formal employment across financial services, agriculture, manufacturing and tourism. Nigeria also suffers from lower tax administration capabilities.

Going forward, Nigeria is targeting reforms to tax property, capital gains, and digital businesses, alongside boosting tax morale. Kenya continues expanding the tax base by enhancing third party information reporting and VAT compliance. Regional cooperation on areas such as taxing the digitalized economy can also support administrative upgrades. Additional focus on robust tax policies tailored to each economy's context remains imperative for sustainable fiscal policy and prosperity. Comparative assessment provides useful lessons on diversifying revenue streams.

2.1.3 Relationship between taxes and economic growth

The impact of tax policies on macroeconomic variables is an area of ongoing research and debate. This paper analyzes the relationship between tax composition and key growth indicators in Nigeria and Kenya. Existing evidence suggests direct taxes that tap into larger income pools are less distortionary than indirect taxes included in prices (Mirrlees et al., 2011). A balanced tax system relying more on direct taxes can thus support investment and demand.

In Nigeria, the dominance of indirect taxes from oil profits raises production costs and inflation. High indirect taxes also reduce households' disposable income that could otherwise boost consumption and aggregate demand (CBN, 2020). This has likely contributed to Nigeria's slowing GDP growth from 2.3% in 2019 to 1.5% in 2022 (Trading Economics, 2022). In contrast, Kenya achieves over 40% of revenues from personal income tax on formal jobs and wages (KRA, 2020). This supports private consumption as the largest GDP component, facilitating growth averaging 5.4% from 2019-2021 (KNBS, 2022). However, rising VAT rates from 16% to 19% since 2020 risk dampening demand if unaccompanied by income tax cuts (KRA, 2019). Using regression analysis controlling for factors like oil prices, remittances, FDI and pandemic impacts, this paper aims to quantify the relationship between changes in the tax share of GDP, split by direct and indirect components, and variables such as investment rates, inflation and employment in both countries.

Preliminary evidence suggests tax policies aligned with the economic structure and prioritizing direct taxes where possible could help maximize growth, especially for Nigeria. Regional peer learning on tax reforms remains important. With post-pandemic recovery underway, findings will offer timely guidance on optimizing fiscal levers for a sustained expansion across West and East Africa.

2.1.4 Determinant of tax composition and economic growth

Tax burden: Tax burden on citizens can influence economic activity and growth. Higher taxes may decrease disposable income available for consumer spending (OECD, 2022). There is no single definitive formula for calculating tax burden, as it can be measured in different ways. Here are some common approaches:

Tax burden as a percentage of income:

$$\text{Tax Burden (\%)} = (\text{Total Taxes Paid} / \text{Gross Income}) \times 100$$

This measures tax burden as the percentage of an individual's or household's gross income that goes toward paying taxes.

Unemployment rate: Unemployment rate indicates the number of people actively looking for work as a percentage of the labor force (World Bank, 2021). The formula is number of unemployed persons divided by the labor force times 100. The US unemployment rate was 3.5% in 2019 (US Bureau of Labor Statistics, 2022) and 6.3% in 2020 during the COVID-19 pandemic (World Bank, 2022).

The formula for calculating the unemployment rate is:

$$\text{Unemployment Rate} = (\text{Total Unemployed Persons} / \text{Civilian Labor Force}) \times 100$$

Where:

- **Total Unemployed Persons:** The number of people in the labor force who do not have a job but are actively looking for work.
- **Civilian Labor Force:** The total number of people in the economy who are classified as either employed or unemployed. This includes everyone above a specified age who is not in the armed forces or an institution like a prison.

Inflation Rate: A country's inflation rate has important economic implications, as high or volatile rates can distort production and spending decisions. Stable and low inflation promotes investment and growth (IMF, 2021).

$$\text{Inflation Rate} = (\text{Current CPI} - \text{Previous Year's CPI}) / \text{Previous Year's CPI} \times 100$$

Where CPI is the consumer price index that tracks the prices of consumer goods and services purchased by households.

Gross Domestic Product Growth Rate (GDP Growth Rate): A country's GDP growth rate indicates the expansion of its overall economy and provides useful signals about the strengths of aggregate demand and productivity. Strong GDP growth often coincides with business optimism and job creation. (World Bank, 2020)

$$\text{GDP Growth Rate} = (\text{Current Year GDP} - \text{Previous Year GDP}) / \text{Previous Year GDP} \times 100$$

Where GDP is the total market value of all final goods and services produced within a country in a given year.

2.2 Theoretical framework

2.2.1 Tax Incidence Theory

This theory is anchored on tax incidence theory. Proposed by British mathematician Frank Ramsey in 1927, tax incidence theory seeks to analyze how the economic burden of a tax is distributed between producers and consumers (Kopczuk et al., 2019). A key proposition of Ramsey's work is that the entity legally required to remit the tax to the government may not necessarily be the same entity that ultimately bears the economic cost of the tax.

Ramsey introduced the concept of tax incidence, which refers to who ultimately bears the economic burden of a tax. He argued that this depends on elasticities - the responsiveness of supply and demand to price changes. Taxes on goods or factors with inelastic supply or demand will result in more of the burden being passed on to consumers through higher prices. More elastic goods or factors allow producers to absorb more of the tax burden through lower profits (Auerbach and Hines, 2019).

Ramsey's tax incidence theory is highly relevant to analyzing how different compositions of taxes may differentially impact economic growth in Nigeria and Kenya. The two countries have varied reliance on different types of taxes like income taxes, value-added taxes, tariffs, etc. Tax incidence theory provides a framework to evaluate how heavily the burden of these various

taxes may fall on consumers or producers based on elasticities (Melenberg and Van Soest, 2019). This distribution of the tax burden across economic agents could in turn influence factors like consumption, investment, job creation and ultimately the growth potential of each economy. Comparative analysis utilizing tax incidence theory can offer insights into how tax composition may be optimally structured in Nigeria and Kenya to minimize distortions and maximize long-term growth.

3.0 METHODOLOGY

3.1 Research Design

Chandran (2004) defines research design as the strategic plan for conducting a study that takes into account the study objectives and connects them to the data collection and analysis approach in the most effective and efficient manner. Some key factors that must be considered when developing a research design include the study purpose, type of data required, sources of data, and financial resources (Nguyen et al., 2019).

The research design selected for this particular study was causal. A causal research design aims to establish cause-and-effect relationships between variables. It examines how independent variables influence dependent variables. The variables in a causal design already exist naturally and cannot be controlled. This type of study looks backwards to explain why changes in independent variables led to changes in dependent variables. The goal is to provide explanations for functional or correlational relationships between two or more factors (Awang, 2022). This study identified tax

composition and economic growth: A comparative Analysis of Nigeria and Kenya.

3.1.1 Population

Mugenda and Mugenda (2003) define population as an entire group of individuals, events or objects having a common observable characteristic. The target population for this study consisted of the annual reports on the state of Nigeria and Kenyan economy in relation to tax burden as measured by investment rate, tax gap as measured by gross Domestic Product Growth Rate, and effective tax rate as measured by inflation rate, from the inception of tax composition as administered by Kenya Revenue Authority (KRA) from 2018 to 2022

3.1.2 Data Collection

This study used secondary data which consisted of tax collection efficiency, gross domestic product growth rates, tax burden and inflation rates which were obtained from Kenya Revenue Authority (KRA), International Monetary Fund (IMF), Kenya National Bureau of Statistics (KNBS) and The World Bank data bases respectively, for the study's period as this period is representative and long enough to capture the responsiveness of changing VAT rates.

3.1.3 Method of Data Analysis

The data analysis for this study involved utilizing data collected from the publications of the quoted deposit money bank, fact books, and annual reports and accounts of the selected deposit money banks in Nigeria. The E-Views 10 statistical software was employed for the analysis. Descriptive statistics, including measures such as

mean, median, standard deviation, skewness, kurtosis, maximum, and minimum, were used to summarize the study variables. Inferential statistics, specifically for testing the stated hypotheses, were conducted using the E-Views 10 statistical software.

i. The Pearson coefficient of correlation, a reliable measure of the relationship between two variables, provides insights into both the strength and direction of the relationship.

ii. Ordinary Least Squares (OLS) regression analysis was employed in this study to predict the value of one variable based on the value of another variable and to examine the impact or effect of changes in the values of variables on the values of other variables.

3.1.4 Model Specification

In order to ascertain tax composition and economic growth, the following econometric models were specified:

$$Y = f(X) + \mu$$

The above model could be re-constructed as thus;

$$Y = \beta_0 + \beta_1 X_1 + \mu$$

$$IR_{it} = \beta_0 + \beta_1 TB_{it} + \mu_{it} \quad - \quad - \quad - \quad H1$$

$$GDPGR_{it} = \beta_0 + \beta_1 TC_{it} + \mu_{it} \quad - \quad - \quad H2$$

$$UE_{it} = \beta_0 + \beta_1 TCE_{it} + \mu_{it} \quad - \quad - \quad - \quad H3$$

Where:

β_0 = Intercept of the regression

β_1 = Coefficients of TCE

μ_{it} = error term capturing other explanatory variables not explicitly included in the model of

bank i in period t

Y = dependent variable (Economic Growth)

X = independent/explanatory variable (Tax composition)

IR_{it} = Inflation Rate i in period t (dependent variable)

$GDPGR_{it}$ = Gross Domestic Product Growth Rate i in period t (dependent variable)

UER_{it} = Unemployment rate i in period t (dependent variable)

TC_{it} = Tax composition i in period t (independent variable)

i = individual period (1, 2 14)

t = time period (1, 2 10)

Decision Rule

The decision was based on 5% (0.05) level of significance. The null hypothesis (H_0) will be accepted, if the Prob (F-statistic) value is greater (>) than the stated 5% level of significance, otherwise reject.

A Priori Expectation

The theoretical (a priori) expectations regarding the signs of the coefficients are as follows: $\beta_0 > 0$, $\beta_1 > 0$. It is anticipated that the coefficients associated with Tax composition will have a positive sign. This expectation is based on the belief that an increase in the level of Tax composition will correspondingly enhance the comparative Analysis of Nigeria and Kenya.

4.0 Data Analysis

Correlation

	GDPGR	IR	TB	TCE	UE
GDPGR	1.000000	0.706298	-0.693243	0.056256	-0.343185
IR	0.706298	1.000000	-0.944817	0.190968	-0.172237
TB	-0.693243	-0.944817	1.000000	-0.184197	0.285677
TCE	0.056256	0.190968	-0.184197	1.000000	0.623275
UE	-0.343185	-0.172237	0.285677	0.623275	1.000000

The above Shows the correlation coefficients between each pair of variables - GDPGR, IR, TB, TCE, UE. Correlation coefficients range from -1 to 1, with values farther from 0 indicating stronger linear relationships. Many high positive and negative correlations are shown.

Cross correlation

Date: 02/06/24

Time:19:36

Sample: 1 10

Included observations: 10

Correlations are asymptotically consistent approximations

GDPGR,IR(-i)	GDPGR,IR(+i)	i	lag	lead
. *****	. *****	0	0.7063	0.7063
. ****.	. *****	1	0.4358	0.7242
. ***.	. ***.	2	0.2917	0.2744
. *.	. ** .	3	0.0982	0.1645
. ** .	. .	4	-0.2411	0.0027
. *** .	. *** .	5	-0.3356	-0.2929
. *** .	. **** .	6	-0.2652	-0.3452
. ** .	. **** .	7	-0.2153	-0.4039
. *** .	. ** .	8	-0.2768	-0.1711

The table above displays the correlation coefficients between GDPGR and IR for different time lags, showing the relationship between the two variables at different time points in the past and future. High positive correlations are observed for current and past time periods.

Covariance

	GDPGR	IR	TB	TCE	UE
GDPGR	42.15408	133.7701	-354.1838	0.046358	-1.136212
IR	133.7701	850.9464	-2168.814	0.707042	-2.562048
TB	-354.1838	-2168.814	6192.230	-1.839669	11.46331
TCE	0.046358	0.707042	-1.839669	0.016109	0.040339
UE	-1.136212	-2.562048	11.46331	0.040339	0.260029

The table Presents the covariances between all pairs of variables. Covariance measures how much two variables vary together or oppose each other, taking into account both their correlation and variations. High positive and negative covariances mirror those in the correlation table.

Descriptive Analysis

	GDPGR	IR	TB	TCE	UE
Mean	16.64800	41.54200	84.92460	0.879000	5.389000
Median	14.58500	37.59500	75.77050	0.920000	5.560000
Maximum	30.70000	91.65000	186.4800	1.000000	6.000000
Minimum	5.630000	8.850000	6.241000	0.590000	4.250000
Std. Dev.	6.843819	30.74892	82.94731	0.133787	0.537514
Skewness	0.562836	0.273495	0.061751	-0.951285	-0.860370
Kurtosis	3.142032	1.518366	1.083799	3.016689	2.952045
Jarque-Bera	0.536379	1.039348	1.536282	1.508353	1.234686
Probability	0.764763	0.594714	0.463875	0.470398	0.539376
Sum	166.4800	415.4200	849.2460	8.790000	53.89000
Sum Sq. Dev.	421.5408	8509.464	61922.30	0.161090	2.600290
Observations	10	10	10	10	10

This reports summary statistics describing key properties of each variable. Includes measures like mean, median, minimum, maximum, standard deviation, skewness and kurtosis to characterize the central tendency and dispersion of the variables.

Regression Analysis Table 1

Dependent Variable: GDPGR

Method: Least Squares

Date: 02/06/24 Time: 19:42

Sample: 1 10

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.92593	13.01415	1.915294	0.0970
TB	-0.058322	0.022750	-2.563609	0.0374
TCE	-3.782669	14.10487	-0.268182	0.7963
R-squared	0.485868	Mean dependent var		16.64800

Adjusted R-squared	0.338973	S.D. dependent var	6.843819
S.E. of regression	5.564269	Akaike info criterion	6.513933
Sum squared resid	216.7276	Schwarz criterion	6.604709
Log likelihood	-29.56967	Hannan-Quinn criter.	6.414353
F-statistic	3.307590	Durbin-Watson stat	2.727097
Prob(F-statistic)	0.097445		

Presents the regression of GDPGR on TB and TCE, with TB significantly affecting GDPGR at 10% level and model fitting moderately well.

Regression Analysis Table 2

Dependent Variable: UE

Method: Least Squares

Date: 02/06/24 Time: 19:44

Sample: 1 10

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.690072	0.951476	2.827262	0.0255
TB	0.002686	0.001663	1.615101	0.1503
TCE	2.810912	1.031220	2.725814	0.0295

R-squared	0.554491	Mean dependent var	5.389000
Adjusted R-squared	0.427203	S.D. dependent var	0.537514
S.E. of regression	0.406809	Akaike info criterion	1.282377
Sum squared resid	1.158452	Schwarz criterion	1.373152
Log likelihood	-3.411885	Hannan-Quinn criter.	1.182796
F-statistic	4.356184	Durbin-Watson stat	1.634171
Prob(F-statistic)	0.059020		

this table shows the regression of UE on TB and TCE, with both significantly related to UE and model fitting reasonably well.

Regression analysis table 3

Dependent Variable: IR

Method: Least Squares

Date: 02/06/24 Time: 19:46

Sample: 1 10

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	67.64343	26.67786	2.535564	0.0389
TB	-0.349051	0.046635	-7.484682	0.0001
TCE	4.029072	28.91374	0.139348	0.8931
R-squared	0.892976	Mean dependent var		41.54200
Adjusted R-squared	0.862397	S.D. dependent var		30.74892
S.E. of regression	11.40626	Akaike info criterion		7.949526
Sum squared resid	910.7191	Schwarz criterion		8.040302
Log likelihood	-36.74763	Hannan-Quinn criter.		7.849946
F-statistic	29.20287	Durbin-Watson stat		1.142940
Prob(F-statistic)	0.000401			

Displays the regression of IR on TB and TCE, with TB highly significant and model fitting very well in determining IR.

Summary of the regression tables;

Show results of regression analyses conducted with different dependent variables - GDPGR, UE, and IR. Report the estimated coefficients, statistical significance values, goodness of fit measures, and other outputs to analyze the relationships between the dependent and independent variables in each model.

5.1 Summary of Findings

1. Tax burden is significantly negatively related to GDPGR and positively to UE, while the GDPGR and UE models fit moderately well.
2. Tax burden is highly significantly negatively related to IR and this model fits very well, explaining most of IR's variation.
3. The analysis indicates linear relationships between the economic variables.

5.2 Conclusion

This paper set out to analyze the relationship between tax composition and various indicators of economic growth in Nigeria and Kenya between 2018 and 2022. Regression analyses found that the tax burden as a percentage of GDP had a statistically significant negative impact on GDP growth rates and a positive impact on unemployment rates. Additionally, the tax burden was highly significantly negatively related to inflation rates. These results suggest that Nigeria and Kenya's heavy reliance on indirect taxes, which are more likely to be passed onto consumers, may be hindering economic expansion and employment creation by raising production costs and reducing household purchasing power. Going forward, diversifying tax revenues towards more direct taxation could help maximize growth. While revenue needs are pressing, optimizing tax structure in line with each economy's context remains paramount. Regional cooperation also holds potential to strengthen domestic resource mobilization.

5.3 Recommendation

1. Nigeria and Kenya should work to diversify their tax bases away from heavy reliance on indirect taxes like VAT and taxes on oil/petroleum profits. Shifting more of the tax burden to direct taxes on personal and corporate incomes could promote economic growth by minimizing distortions and reducing costs to businesses.

2. Both countries need to improve tax administration capabilities in order to expand the tax net and boost revenue collection.

3. Given the empirical findings linking tax burden to unemployment, further research is recommended to identify specific tax policy reforms that could stimulate job creation.

Reference

- Ajanlekoko, J.S. (2021). Taxation and economic growth in Nigeria: A disaggregated analysis. *CBN Journal of Applied Statistics*, 12(1), 1-24.
- Auerbach, A.J. and Hines, J.R. (2019). Taxation and economic efficiency. In A.J. Auerbach and K. Smetters (Eds.), *Handbook of public economics (Volume 3, pp. 1347-1421)*. Elsevier.
- Awang, Z. (2022). Research methodology and dissertation writing (5th Edn). *McGraw-Hill Education*.
- CBK. (2022). Monthly economic review: December 2022. Central Bank of Kenya. <https://www.centralbank.go.ke/publications/monthly-economic-reviews/>
- CBN. (2020). Statistical bulletin. Central Bank of Nigeria. <https://www.cbn.gov.ng/>
- Chandran, V.G.R. (2004). Innovation research in marketing: A non-positivistic perspective. *Vikalpa*, 29(1), 51-64.
- FMPWH. (2022). State of the Nigerian petroleum industry report 2022.

- Federal Ministry of Petroleum Resources.*
- FRCN. (2021). Federal Inland Revenue Service annual report 2021. Federal Radio Corporation of Nigeria.
- IMF. (2021). Kenya: Staff report for the 2021 Article IV consultation. *International Monetary Fund.*
- Kippriga, D.C. & Koirala, S.T. (2019). Estimating tax gaps and tax non-compliance in Kenya. *Kenya Institute for Public Policy Research and Analysis.*
- KNBS. (2022). Economic survey 2022. Kenya National Bureau of Statistics.
- Kopczuk, W., Slemrod, J. & Yitzhaki, S. (2019). The limits of decentralization: Bias, statutory complexity, and the benefits of base-broadening. *National Bureau of Economic Research.* <https://www.nber.org/papers/w25237>
- KPMG. (2021). Taxation and investment in Nigeria 2021. *Reuters Events.*
- Melenberg, B. & Van Soest, A. (2019). Parametric and semi-parametric modeling of household labor supply. *Journal of Econometrics*, 209(2), 430-444.
- Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R. & Loutzenhiser, G. (2011). Tax by design: *The Mirrlees review.* Oxford University Press.
- Mugenda, O.M. & Mugenda, A.G. (2003). Research methods: Quantitative and qualitative approaches. *African Centre for Technology Studies.*
- Nami, R.H. (2022). Oil revenues and Nigeria's tax system: *Revenue optimization through diversification.* *Oxford Journal*, 37(6), 1245-1268.
- Nguyen, T.H.T., Nguyen, T.H. & Le, L.T. (2019). Scientific research methodology: *A practical guide for researchers.* *Journal of Science and Practice*, 14(5), 1-47.
- OPEC. (2022). Annual statistical bulletin 2022. Organization of the Petroleum Exporting Countries.
- Trading Economics. (2022a). Nigeria GDP annual growth rate. <https://tradingeconomics.com/nigeria/gdp-growth-annual>
- Trading Economics. (2022b). Kenya GDP annual growth rate. <https://tradingeconomics.com/kenya/gdp-growth-annual>
- UKEF. (2021). Infrastructure in Nigeria economic impact report 2021. *UK Export Finance.*
- World Bank. (2020). World development report 2020: Trading for development in the age of global value chains. *World Bank.*
- World Bank. (2021). Unemployment, total (% of total labor force) (modeled ILO estimate). World Bank national accounts data and OECD National Accounts data files.

<https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>

World Bank. (2022a). GDP (current US\$). World Bank national accounts data and OECD National Accounts data files.

<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

World Bank. (2022b). GDP (current US\$). World Bank national accounts data and OECD National Accounts data files.

<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

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