



AN ASSESSMENT OF TAX POLICIES ON ECONOMIC GROWTH IN AFRICA

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Abstract: *In Africa, several tax policies have been implemented over the years with the aim of boosting economic growth but the rate of economic growth in these countries have not been convincing. It is also important to stress that poverty remains prevalent, predominantly in the Central, Western, Eastern and Southern parts of Africa. In light of this, the primary aim of the study was to assess the effect of tax policies on economic growth in thirty-one Africa countries for the period commencing 2000 to 2019, utilising the polynomial regression model, due to the unique nature of model and infrequent application. The empirical results revealed that there is a negative relationship between tax policies (income tax and value added tax) and economic growth but imposition of excise tax can have impact on economic growth positively especially when the demand for the affected commodities are inelastic. As a result of these findings, it is recommended that, policy makers develop favourable tax policies that will ensure increasing disposable income of households leading to an enhancement in economic growth in the long term. Also, the government of the affected economies should formulate policies that will increase their expenditure but reduce inflationary pressure. The aspect of inflation could be achieved with the adoption of a modest inflation targeting regime under the supervision of the central bank. The implication of these findings is that the economy of the African continent is likely to perform better if more favourable tax policies are implemented by the tax authorities.*

1. Introduction and Background of Study

There are studies that suggest that tax revenue is essential for economic growth of any nation for the provision of infrastructure and social amenities for the wellbeing of the citizens (Ikechi et al., 2022). These tax revenues help governments globally to discharge their core mandates



of protecting the society from violence and invasion of other independent societies through military forces as well as ensuring protection of every member of the society from injustice and oppression of every other member through administration of justice as well as establishing and maintaining public institutions and public works which cannot be expected that any individual, or few number of persons, should establish or maintain because of the huge capital outlay requirements (Ikechi et al., 2022).

The need for economic growth of any nation has continued to bring to the limelight the critical importance of tax revenues among other factors that contribute towards economic growth (Appah, 2010). Appah (2010) emphasised that the economic growth of any nation is a function of the amount of revenue raised by the government for the provision of infrastructure. Without adequate revenue, recurrent and capital expenditure components of annual budget of a country may lie fallow and could lead to shutdown of government at various levels. The investment in critical infrastructure would suffer severely with its attendant consequences such as slow industrial growth leading to retarded economic growth in the absence of needed revenues (Ikechi et al., 2022).

The revenue generated from taxation are veritable tools for economic growth and development because of its predictable and reliable nature when compared with non-tax revenues from crude oil and solid natural resources that are transacted internationally and commonly predisposed to uncontrollable market forces and international politics (Bruno, 2021). Pfister (2009) affirmed that tax revenue can be predicted because of the certainty attributes of taxation. It is stable, therefore provides reliable flow of revenue to finance the developmental projects of the economy either in the short run or long run.

The economic growth of any part of the globe is underpinned by a myriad of factors and among the most critical is fiscal policy in the form of taxation. The impact of tax policies on economic growth cannot be over emphasised (Stoilova and Patonov, 2012). There has been debate over the role of fiscal policy such as taxation in ensuring the level of economic growth. The issues captured within this context include the role of government in accelerating economic growth, social redistribution of the benefits of economic growth and efficient allocation of resources (Padda and Akram, 2009). The use of taxation is increasingly required to finance government expenditure, public good, public services and social interventions of several countries.



According to Romer (2015) economic growth is among the powerful tools for poverty reduction and improvement in the quality of life in most developing countries. It has been described by some scholars as the rise in the production of economic goods and services, compared from one period to another. In essence, there is growth in the economy whenever people take resources and utilise them in ways that are more valuable and productive (Romer, 2015).

With this background, this study sought to investigate the causal relationship among income tax, excise duty and value added tax on economic growth in Africa for the period commencing 2000 and ending 2019. The primary aim of the study was to assess the effect of tax policies on economic growth in thirty-one Africa countries for the period commencing 2000 to 2019, utilising the polynomial regression model, due to the unique nature of model and infrequent application.

The model included inflation and government expenditure as control variables because of their influence the research outcome (Frost, 2023). The empirical results revealed among others that there is a negative relationship between tax policies (income tax and value added tax) and economic growth but imposition of excise tax can have impact on economic growth positively especially when the demand is inelastic.

This paper is divided into four major sections after the introduction in section one. The second section focuses on literature review and theoretical framework, with the third section discussing the methodology whilst the results are interpreted in the penultimate section. The final section provides policy recommendations and highlights some limitations encountered in the study.

2. Literature Review and Theoretical Framework

The theories used to analyse the impact of tax policies on economic growth in this study include the Supply-side theory, Classical theory, Neo-classical theory and Keynesian (Demand-side) theory.

The proponents of supply-side policies believe that tax cuts, lower interest rates, and deregulation help foster increased production and economic growth in the long term (Gandhi, 1987). The supply-side theory forms the basis for the Laffer Curve theory developed by Arthur Laffer, that suggests there is an optimal tax rate that ensures maximisation of government revenue, with tax revenue decreasing if rates are either too low or too high (Gandhi, 1987).



The Supply-side theory is a macroeconomic theory which suggests that increasing the supply of goods and services is the main driver of economic growth in an economy. The main pillars of the supply-side policy are tax policy, regulatory policy and monetary policy. The supply-side theorists are diametrically opposed to the demand-side theorist and they argued that an economy can grow by lowering taxes and decreasing regulations (Gandhi, 1987).

The Classical economists on the other hand advocated for minimal government intervention in the economy, believing that free markets, driven by supply and demand, are the most efficient way to allocate resources and ensure economic growth. They believed that economies are inherently self-regulating and tend towards full employment and equilibrium, with prices and wages adjusting to clear markets (Kurz and Salvadori, 1998). Musgrave and Musgrave (1989) support this view of a good tax structure as one that yields adequate revenue, equitable, causes minimal distortion and facilitates economic stability and growth.

The Classical economists further emphasised the importance of production and supply, arguing that the capacity to produce goods and services in an economy is the primary determinant of economic prosperity. The Classical economists focused on the role of labour and capital in production, with the concept of the invisible hand suggesting that individuals pursuing their own self-interest in a free market inadvertently benefit society (Kurz and Salvadori, 1998).

Ikechi et al. (2022) explained further that taxation is responsible for determining the level of output rather than the long-term rate of growth. The equilibrium growth rate is based on exogenous factors such as population growth and technological progress, whereas fiscal policy can only affect the process of transition to this state of equilibrium. On the other hand, models of endogenous public growth provide mechanism by which fiscal policy can determine both the level of production and growth rate at equilibrium (Kurz and Salvadori, 1998).

These endogenous growth models suggest that tax policies have both positive and negative effect on economic growth. The positive effect is indirectly driven by tax-financed spending or taxes used to finance investments in goods, especially goods generating positive externalities such as infrastructure, education and public health can influence economic growth rate positively. The negative effect of taxation on economic growth stems from the modification of the decision of individuals in the direction of below optimality (Kurz and Salvadori, 1998).

The Classical theory stresses that effective expansionary or contractionary fiscal policies including taxation can either lead to an enhancement or retardation of economic growth. This



theory therefore contains ingredients very vital to the study in question and therefore considered apt for this study. It takes its positions regarding how taxation can boost or impair economic growth depending on the tax administration and the application of revenue generated (Ikechi et al., 2022).

The sources of economic growth have also been explained thoroughly in growth models such as the Neo-classical growth model and endogenous growth models. The effect of taxes on growth has been incorporated in many growth models including Neo-classical economic growth models, which state that growth is not influenced by policy decisions (Renelt, 1991). The Solow neo-classical growth model suggests that taxes affect only the level of income but not the rate of economic growth (Solow, 1956). The changes in tax rate will only cause temporary changes, during the period of transition to steady states. In their view, once steady state is achieved, only technical progress will influence economic growth (Omitogun and Ayinla, 2007).

The endogenous growth models do not support the assumption of the Solow neo-classical model that suggest that economic growth is only influenced by technical progress (Renelt, 1991). The endogenous growth model allows economic growth rate to be determined within the model and economic growth is influenced by economic policy. Therefore, with this economic growth model, taxes affect the long run growth rate, through accumulation of physical and human capital.

The Keynesian or Demand-side theory seeks to contradict the views expressed by the Supply-side economist. The Keynesian theory is propounded by British Economist John Maynard Keynes and he argued that to pull out an economy from depression there is the need for government intervention (Michie, 2018). The proponents of this economic theory further argue for government intervention to stabilise the economy during recessions, emphasising demand-side policies like fiscal stimulus and monetary policy to stimulate aggregate demand and employment (Michie, 2018).

According to Keynesian theorist full employment is not guaranteed by the market and that a gap between aggregate demand and aggregate supply can lead to unemployment. This phenomenon can however be corrected with countercyclical fiscal policies, such as increasing government spending and/or reducing taxes during recessions to stimulate aggregate demand



or economic growth and increasing taxes and/or cutting spending during an economic boom to slow down the growth of the economy (Hayes, 2006).

The Keynesian economic theorists advocated for tax cuts to stimulate the economy, and tax increase to dampen the economy. During a depression, they advocate for government intervention by increasing government expenditure and tax cuts to stimulate the economy. The Monetarists are however opposed to this view and believe that the money in circulation is what determines the level of output in the economy and tax policy is ineffective (Hayes, 2006).

In addition, the more recent theory that differs from the Keynesian theory is the neo-Keynesian theory. According to Tendengu et al. (2022), neo-Keynesians do not believe that market equilibrium will be achieved naturally and that an invisible hand could not work in this model, and full employment cannot be achieved automatically. The neo-Keynesian believed that it is only the government, through its policies, that can ensure full employment (Romer, 2015).

As a result of the contradictory results observed in the above studies, it is imperative to assess the extent to which tax policies impact on economic growth within the African context. The current study disaggregated the tax policy variables so as to analyse their different impact on economic growth.

3. Methodology and Data

3.1. Theoretical Framework and Model Specification

The study sought to explain the impact of tax policies on economic growth among selected countries in Africa with these specific objectives and related methodologies:

1. Conduct a polynomial regression analysis to determine the link between tax policies and economic growth.
2. To investigate an indirect relationship for thirty-one (31) African economies using panel data analysis.

The study adopted the Gross Domestic Product as the dependent variable and independent variables been Income Taxes, Excise Taxes and Value Added Tax. The control variables were Government expenditure and Inflation. The study analysed the impact of the aforesaid taxes on various countries selected with the ultimate intent of identifying which of the tax components can enhance economic growth.



The proxy variables for this study have been applied to study the impact of tax revenue on economic growth within the African sub-region but have not been used to study the impact of various tax components in the selected African countries.

3.2. Estimation Technique

There were two models for the study and they have been specified in line with the objectives and the basis for their selection have also been provided for ease of reference.

1. Conduct a polynomial regression analysis to determine the link between tax policies and economic growth.

A polynomial regression analysis is conducted between tax policies and economic growth in order to have a better view and to provide light on the various factors that affect the relationship between dependent and explanatory variables. The model is relevant for the establishment a non-linear relationship between a dependent and explanatory variable (Gavrilova, 2021). The proposed polynomial function is formulated in a hierarchical manner and as follows:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t}^2 + \beta_3 X_{3t}^3 + \beta_4 X_{4t}^4 + \beta_5 X_{5t}^5$$

Where:

Y = Gross Domestic Product

X_1 = Income Taxes on Incomes of Individual

X_2 = Value Added Tax on Goods and Services

X_3 = Excise Tax on Manufactured Goods

X_4 = Government Expenditure

X_5 = Inflation

β_0 = It gives the mean value of the gross domestic product when the regressors in the model are zero.

The coefficients β_1 , β_2 , β_3 , β_4 and β_5 are the parametric effects of each of the independent variables.

t = The time period.

2. To investigate an indirect relationship for thirty-one (31) African economies using panel data analysis.

The equation i.e. $GDP_t = \beta_0 + \beta_1 InT_t + \beta_2 VAT_t + \beta_3 ExT_t + \beta_4 GoV_t + \beta_5 InF_t + U_t$ used for estimation within both a panel (aggregate analysis) and time-series settings (single country estimates for



a sample of Africa economies) using a dynamic model approach. This approach is aimed at establishing the effects of the selected taxes on economic growth.

Where:

GDP = Gross Domestic Product

InT = Income Taxes on Incomes of Individual

VAT = Value Added Tax on Goods and Services

ExT = Excise Tax on Manufactured Goods

GoV = Government Expenditure

InF = Inflation

β_0 = It gives the mean value of the gross domestic product when the regressors in the model are zero.

The coefficients β_1 , β_2 , β_3 , β_4 and β_5 are the parametric effects of each of the independent variables.

t = The time period.

3.3. Economic Variables Definitions and Their A Priori Expectations

Gross Domestic Product: The Gross Domestic Product (GDP) can be defined as the monetary measure of the market value of final goods and services produced by an economy over a specified time frame. The statistical tool known as a price deflator is used to adjust GDP at current prices to the real GDP. A higher real GDP rate is indicative of a better standard of standard of living and vice versa (Kohli, 2004).

Income (Personal) Tax: An income tax is levied on individuals, corporations and certain specified earnings. It takes the form of tax on actual earned income in the case of individuals and on company profits. It is also withholding tax is charged on other sources of income including royalties, dividends and rent income among others. These taxes generally capture formal sector employment income and business profit (Waris, 2009).

Excise Tax: An excise tax is a trade tax applied to either production or sale of domestic or imported commodity, with either ad-valorem or specific rates. The excisable commodities include alcoholic beverages, soft drinks, bottled water, tobacco, fuel, cosmetics, jewellery and motor vehicles. The excise tax rates are particularly high in cases where there is evidence



harmful health effect from consuming specific goods or services, or in cases of luxury goods that have a lesser substitution effect even with higher tax rates (Waris, 2009).

Value Added Tax: The Value Added Tax (VAT) is a multi-stage consumption tax applied to the sale of goods and services at all stages of the production and distribution chain. The law in most jurisdictions require only registered traders to charge VAT, and for a trader to qualify for registration under VAT legislation, he or she must have achieved a prescribed minimum annual turnover (Waris, 2009). The VAT is not simply a tax issue but also a business issue with some pitfalls. The challenge is to identify and address all business issues during the VAT implementation process and minimise the disruption to the business (Waris, 2009).

Government Expenditure: The idea of government expenditure dates back as early as the concept of government emerged across the world. The government as the central figure responsible for the allocation of resources and would do all the necessary for the welfare of the people (Smith, 1776). According to Nhemhafuki (2023) the idea that government spending can be a catalyst for economic growth and development has been discussed by economists and policymakers for many decades. One of the earliest examples of this idea can be traced back to the research of John Maynard Keynes in the 1930s (Nhemhafuki, 2023).

Inflation: The discussion on inflation and growth nexus has remained perennial and has also attracted substantial theoretical and empirical studies. Whilst the structuralists argue that inflation is crucial for economic growth, the monetarists posit that inflation is harmful to economic growth. The two basic aspects of the debate relate to the presence as well as nature of relationship between inflation and growth and the direction of causality (Doguwa, 2020).

3.4. Data Sources

The population of the study is African economy and sample size of thirty-one (31) selected based on the availability of data. The countries were also picked to reflect the various regions of the continent. The study period was twenty years, commencing 2000 and ending 2019. The data for the study was obtained from the Revenue Statistics in Africa published by the Organisation for Economic Co-operation and Development and the statistical bulletin of the World Bank as well as the International Monetary Fund.

4. Data Analysis and Interpretation of Findings

4.1. Descriptive Statistics



In table 1 and 2 below the summary statistics for all variables used in the study objectives have been displayed. It provides information on measures of central tendency, measures of dispersion and measures of normality.

Table 1. Descriptive Statistics of the Variables used for the Polynomial Regression

Variables	Y_t	X_{1t}	X_{2t}^2	X_{3t}^3	X_{4t}^4	X_{5t}^5
Mean	51,068.65	2,342.55	117,177,548	2,465,237,281	120,337,676	20,299.67
Standard Error	15,007.19	536.20	43,790,959	1,170,036,928	86,129,421	20,299.64
Median	6,956.32	64.68	24,369.92	18,425.72	29,741,039	0.00
Standard Deviation	373,675.95	13,351.18	1,090,386,096	29,133,684	2,144,605,293	505,456.96
Sample Variance	139,633,715,733	178,253,925	1,188,941,837,911	848,771,576,771	4,599,331,863	255,486,738
Kurtosis	278.99	92.27	121.18	218.54	350.15	620.00
Skewness	16.37	9.25	10.93	14.32	18.48	24.90
Range	6,523,577.51	148,870.86	13,624,622,153.25	487,467,316,840	44,217,516,024	12,585,776.84
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	6,523,577.51	148,870.86	13,624,622,153.25	487,467,316,840	44,217,516,024	12,585,776.84
Sum	31,662,562.21	1,452,378.37	72,650,079,945.29	1,528,447,114	74,609,359,282	12,585,776.84
Observations	620	620	620	620	620	620

Source: Computation Using Microsoft Excel, R Programming and the Data Available

Table 2. Descriptive Statistics of the Variables used for the Panel Data Analysis

Variables	GDP_t	lnT_t	VAT_t	ExT_t	GoV_t	lnF_t
Mean	51,068.65	2,342.55	2,269.08	1,126.12	5,146.66	0.10
Standard Error	15,007.19	536.20	425.42	252.09	1,092.74	0.04
Median	6,956.32	64.68	156.11	26.41	415.28	0.03
Standard Deviation	373,675.95	13,351.18	10,592.91	6,276.99	27,209.11	1.06
Sample Variance	139,633,715,733.46	178,253,924.52	112,209,807.56	39,400,652	740,335,511	1.13
Kurtosis	278.99	92.27	85.51	98.43	208.59	602.45
Skewness	16.37	9.25	8.867451	9.47	13.43	24.38
Range	6,523,577.51	148,870.86	116,724.56	78,701.29	458,562.55	26.51
Minimum	0.00	0.00	0.00	0.00	0.00	-0.21
Maximum	6,523,577.51	148,870.86	116,724.56	78,701.29	458,562.55	26.30
Sum	31,662,562.21	1,452,378.37	1,406,829.34	698,196.85	3,190,927.54	64.97
Observations	620	620	620	620	620	620

Source: Computation Using Microsoft Excel, R Programming and the Data Available



4.2. Correlation Matrix

The results provided in tables 3 to 4 below present the correlation among the study variables.

Table 3. Correlation Matrix for the Polynomial Regression

Variables	Y_t	X_{1t}	X_{2t}^2	X_{3t}^3	X_{4t}^4	X_{5t}^5
Y_t	1	0.65	0.65	0.59	0.96	0.00
X_{1t}	0.65	1	0.95	0.80	0.61	-0.01
X_{2t}^2	0.65	0.95	1	0.84	0.65	-0.00
X_{3t}^3	0.59	0.80	0.84	1	0.66	-0.00
X_{4t}^4	0.96	0.61	0.65	0.66	1	-0.00
X_{5t}^5	0.00	-0.01	-0.00	-0.00	-0.00	1

Source: Computation Using Microsoft Excel, R Programming and the Data Available

Table 4. Summary of Correlation for the Panel Data

Variables	GDP_t	lnT_t	VAT_t	ExT_t	GoV_t	lnF_t
GDP_t	1	0.65	0.63	0.60	0.96	-0.00
lnT_t	0.65	1	0.98	0.94	0.68	-0.01
VAT_t	0.63	0.98	1	0.95	0.66	-0.01
ExT_t	0.60	0.94	0.95	1	0.62	-0.01
GoV_t	0.96	0.68	0.66	0.62	1	-0.01
lnF_t	-0.00	-0.01	-0.01	-0.01	-0.01	1

Source: Computation Using Microsoft Excel, R Programming and the Data Available

4.3 Regression Statistics

The regression analysis is a test to ascertain the magnitude of the effect of independent and control variables on the dependent variable (Garson, 2012). The outcome of the regression models utilised based on the data available have been displayed in table 5 to 6 below.

Table 5. Summary of Regression Statistics for the Polynomial Regression

Analysis of Variance						
	Degrees of Freedom	Sum of Squares	Mean Squares	F	Significant F	Observations
Regression	5	82,705,448,997	16,541,089,799	2724.44	0.00	
Residual	614	3,727,821,041	6,071,369,775			
Total	619	86,433,270,039				620
	Co-efficients	Standard Error	t Statistic	P-Value	Lower 95%	Upper 95%



Intercept	16874.07	3238.23	5.21	0.00	10514.73	23233.41
X_{1t}	12.95	0.77	16.84	0.00	11.44	14.46
X_{2t}^2	-0.00	0.00	-7.95	0.00	-0.00	-0.00
X_{3t}^3	-0.00	0.00	-13.81	0.00	-0.00	-0.00
X_{4t}^4	0.00	0.00	85.82	0.00	0.00	0.00
X_{5t}^5	0.00	0.01	0.55	0.58	-0.01	0.02

Source: Computation Using Microsoft Excel, R Programming and the Data Available

Table 6. Summary of Regression Statistics for the Panel Data

Analysis of Variance						
	Degrees of Freedom	Sum of Squares	Mean Squares	F	Significant F	Observations
Regression	5	80,606,649,485	16,121,329,897	1698.84	0.00	
Residual	614	5,826,620,553	9,489,610,03			
Total	619	86,433,270,039				620
	Co-efficients	Standard Error	t Statistic	P-Value	Lower 95%	Upper 95%
Intercept	-17076.02	4123.06	-4.14	0.00	-25173.03	-8979.01
$\ln T_t$	-1.97	1.64	-1.20	0.23	-5.20	1.26
VAT_t	-2.16	2.29	-0.94	0.35	-6.66	2.34
ExT_t	7.35	2.11	3.49	0.00	3.21	11.48
GoV_t	13.42	0.20	68.23	0.00	13.03	13.80
$\ln F_t$	3187.45	3689.88	0.86	0.39	-4058.87	10433.77

Source: Computation Using Microsoft Excel, R Programming and the Data Available

4.4. Unit Root Test

The present research employed the Augmented Dickey–Fuller (ADF) test and Phillips–Perron (PP) method to determine time series properties.

The test of hypothesis for the objectives involved matching the null hypothesis with the alternative hypothesis and this has been illustrated as follows:

H_0 : Has Unit Root

H_1 : No Unit Root

**Table 7. Results of Panel Unit Root Test for the Polynomial Regression**

Variables	ADF Test			Phillips Perron Test		
	T-Stat	P-Value	Interpretation	Dickey-Fuller Z(alpha)	P-Value	Interpretation
Y_t	16.71	0.00	There is stationarity	261.93	0.01	There is stationarity
X_{1t}	8.73	0.00	There is stationarity	125.52	0.01	There is stationarity
X_{2^2t}	9.24	0.00	There is stationarity	175.07	0.01	There is stationarity
X_{3^3t}	7.38	0.00	There is stationarity	545.85	0.01	There is stationarity
X_{4^4t}	17.08	0.00	There is stationarity	289.52	0.01	There is stationarity
X_{5^5t}	17.58	0.00	There is stationarity	616.64	0.01	There is stationarity

Source: Computation Using Microsoft Excel, R Programming and the Data Available

The probability values of the Augmented Dickey-Fuller test at lag one and less than 0.05 for the six series confirms that these variables have no unit root, suggesting stationarity. Similarly, the probability values of the Phillips Perron test with a truncation lag parameter of six are less than 0.05, suggesting a rejection of the null hypothesis and confirming that series have no unit root and stationary in nature.

Table 8. Results of Panel Unit Root Test for the Panel Data Analysis

Variables	ADF Test			Phillips Perron Test		
	T-Stat	P-Value	Interpretation	Dickey-Fuller Z(alpha)	P-Value	Interpretation
GDP_t	81.03	0.00	There is stationarity	261.93	0.01	There is stationarity
InT_t	15.16	0.00	There is stationarity	125.52	0.01	There is stationarity
VAT_t	14.22	0.00	There is stationarity	160.73	0.01	There is stationarity
ExT_t	12.83	0.00	There is stationarity	256.70	0.01	There is stationarity
GoV_t	38.89	0.00	There is stationarity	243.90	0.01	There is stationarity
InF_t	17.53	0.00	There is stationarity	606.16	0.01	There is stationarity

Source: Computation Using Microsoft Excel, R Programming and the Data Available

The above result of the Augmented Dickey-Fuller unit root test at lag one suggest a rejection of the null hypothesis and conclusion that the time series collected are all stationary. The probability values of the Phillips Perron test with a truncation lag parameter of six were also less than 0.05, suggesting a rejection of the null hypothesis and confirming that variables have no unit root and stationary in nature.



As pointed out earlier, the Augmented Dickey–Fuller test is not always able to discriminate well between non-stationary and stationary series with a high degree of autoregression (Mallik and Chowdhury, 2001). It is therefore possible that Gross Domestic Product, Government Expenditure and Rate of Inflation are likely to be highly autocorrelated, are in fact stationary in nature with their Augmented Dickey–Fuller test indicating a probability value lower than 0.05. Consequently, the Phillips-Perron test was applied since it has an advantage over the Augmented Dickey–Fuller test because it gives robust estimates when the series have serial correlation and time-dependent heteroscedasticity (Mallik and Chowdhury, 2001). The Phillips-Perron test was conducted for all the variables with a trend and the results of the Augmented Dickey–Fuller test was affirmed with the stationarity of the study variables and a co-integration modelling suggested by Mallik and Chowdhury (2001) will not be a requirement under the circumstance of the findings.

5. Conclusions and Recommendations

The study examined the consequences of tax policies on economic growth for selected African countries. Consequently, a panel data of thirty-one countries was selected for the period commencing 2000 to 2019 was employed. The empirical results were estimated using the Polynomial Regression Model, Multiple Linear Regression Model and a Logarithmic Regression Model. These models were utilised in line with the objectives of the research and were underpinned by control variables in the form of inflation and government expenditure to strengthen the causal conclusion.

The empirical results of the study suggest that personal income tax has a negative association with economic growth except for the first objective which the polynomial regression model revealed that the personal income tax impacted positively on economic growth. The result of the latter objectives implies that when there is increase (fall) in personal income taxes, the growth in the economy rises (declines).

The research outcomes also confirmed that value added tax and excise tax have a negative effect on economic growth for the first and second objectives. The last objective revealed that the aforesaid regressors have a positive effect on economic growth. Even with the second objective, value added tax has a positive impact on economic growth.



The results of the study also suggest that control variables in the form of government expenditure and inflation have a positive effect on economic growth except for the last objective. The logarithmic form of inflation on the last objective has a negative correlation with economic growth.

As a result of these findings, it is recommended that, policy makers develop favourable tax policies that will ensure increasing disposable income of households leading to an enhancement in economic growth in the long term. Also, the government of the affected economies should formulate policies that will increase their expenditure but minimise inflationary pressure. The aspect of inflation could be achieved with the adoption of a modest inflation targeting regime under the supervision of the central bank.

Funding: This research received no external funding.

Institutional Review Board Statement: This is not applicable.

Informed Consent Statement: This is not applicable.

Data Availability Statement: The data available is in a publicly accessible repository and can be found in the statistical bulletin of the World Bank and the International Monetary Fund as well as the Revenue Statistics in Africa published by the Organisation for Economic Co-operation and Development.

Conflicts of Interest: The authors declare no conflict of interest.

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Appendix I

List of selected countries in Africa for the research

1. Botswana
2. Burkina Faso
3. Carbo Verde
4. Cameroon
5. Chad
6. Congo
7. Democratic Republic of Congo
8. Cote D'Ivoire
9. Egypt
10. Equatorial Guinea
11. Eswatini



12. Ghana
13. Kenya
14. Lesotho
15. Madagascar
16. Malawi
17. Mali
18. Mauritania
19. Mauritius
20. Morocco
21. Namibia
22. Niger
23. Nigeria
24. Rwanda
25. Senegal
26. Seychelles
27. Sierra Leone
28. South Africa
29. Togo
30. Tunisia
31. Uganda