

Evaluating the Relationship Between Taxation and Economic Growth in Zambia

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Abstract

From inception, taxation has been the main source of Government revenue across the globe, in the past 30 years, the Zambian government has been raising revenue through taxes despite the Country failing to raise enough revenue to finance the national budget. In many developing countries including Zambia, the prominent source of tax revenue is direct tax despite this tax type being identified as a threat to the growth of Small and Medium Enterprises (SMEs). This study sought to evaluate the effect of taxation on the economic growth of Zambia following various policy changes aimed at achieving middle income status as enshrined in the Vision 2030. The study used multiple regression analysis to analyse time series data. The Augmented Dicker Fuller (ADF), Auto Regressive Distributed Lag (ARDL) and Error Correction Models (ECM) were employed to test the stationarity of data in order to establish both the short-run and the long-run relationship between taxation and economic growth. The study revealed that despite various tax types giving varying results on how they affect economic growth both in the short-run and long-run, they have a positive effect on the growth of the Zambian economy. It is recommended that the Zambian Government improves efficiency in the collection of taxes by further digitalising their systems and embark on tax payer education programs in the quest to increase tax compliance. Further, there is need to reduce on tax exemptions or incentives as this narrows the tax base and introduce systems that will make tax payments easier for tax payers. Lastly, there is need to improve audit capacity by increasing the number of inspectors across the country, this increase poised to improve efficiency in the collection of the tax revenues.

Keywords: Real GDP, Direct taxes, Indirect taxes, Trade taxes and Extraction royalty

1. Introduction

The Zambian tax administration has been evolving since independence, prior to 1994, tax administration was the responsibility of the Customs and Excise department of the Ministry of Finance which changed in 1994 after the establishment of the Zambia Revenue Authority (ZRA), a Government tax administration organization. This body was established by an Act of Parliament Chapter 321 of the laws of Zambia and the tax authority administers all the taxes while the Ministry of Finance formulates tax policy. This was done as part of various tax policy initiatives introduced to restructure Zambia's financial management (ZRA, 2021).

Over the three decades, the Zambian tax system has experienced a lot of changes on both the policy and administration fronts as much of the challenges usually come from the mining sector, this is because the mining sector has since independence, been the key driver of the Zambian economy. However, to address the problems that the mining industry faced in the 1990s, major changes were introduced during the Structural Adjustment Programme (SAP). According to Nalishebo and Halwampa (2014), the SAP started in the early 1990s and was completed in the early 2000s after a long delay. Prior to this, Zambia was losing about a million dollars a day, which translated into 10% of Zambia's GDP as alleged financial deficit. The initiative led Zambia to introduce lower taxes or tariffs on mining companies which resulted in the introduction of 0.06% mineral tariffs on the total value. Other measures include twenty-five percent business (corporate) income tax and no or reduced import duty on many items.

Further, Zambia has been thriving on reducing reliance on mining as it has been the driver of the Zambia economy since inception, the deliberate policies introduced to promote diversification include among others, the introduction of Multi-Facility Economic Zones (MFEZ), Value Added Tax (VAT) exemption and zero-rating

orders to promote local manufacturers and reduction in income tax rates in the tourism, agriculture and manufacturing sectors in order to stimulate the growth of these sectors.

However, it is important to note that despite the above policies to diversify the economy, it has been noted that, in terms of annual gross revenue collected, ZRA (2021) reported that, the mining sector has continued to be the largest tax contributor accounting for at least 36% of annual gross tax collection followed by wholesale and retail trade; repair of motor vehicles and motorcycles and an aggregate of other sectors contributing on average 13% and 10% respectively to the total annual tax revenue as depicted by Figure 1 below.

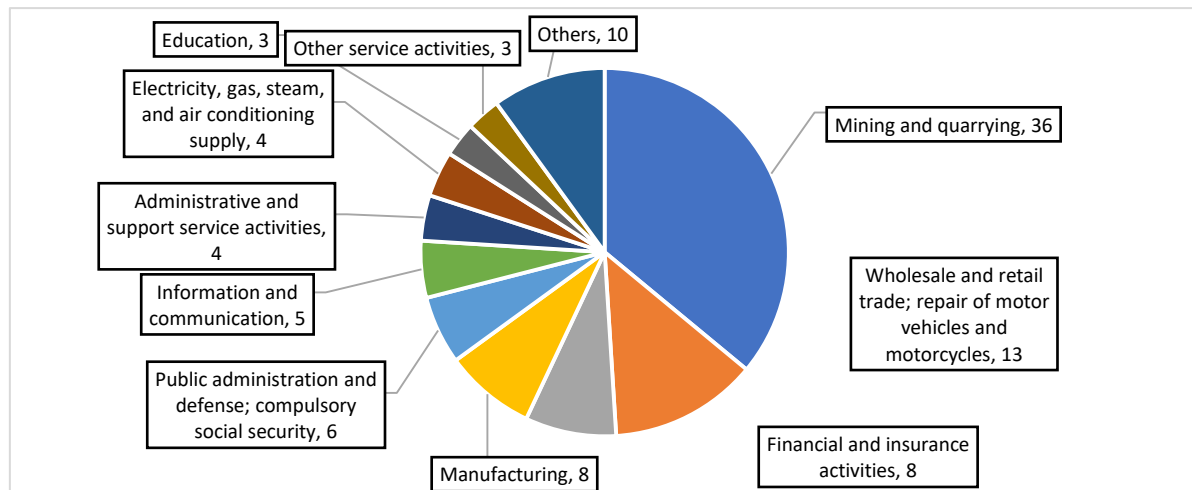


Figure 1. Gross tax revenue contributions by sector (Average % of Tax Revenue)

Further, in as much as Zambia has been pursuing the diversification agenda, the country has been on a trajectory aimed at increasing tax revenue in order to finance its institutions due to the expansionary fiscal policy the country has been implementing. The implementation of the expansionary fiscal policy could be attributed to the massive infrastructure projects being undertaken in all the ten provinces of the country. This prompted the Government through ZRA, to improve its tax revenue collection strategies through modernization and institutional restructuring. Thus, the initiative to modernise tax collection strategies led to a stable increase in tax revenue collections as depicted in Figure 2 below.

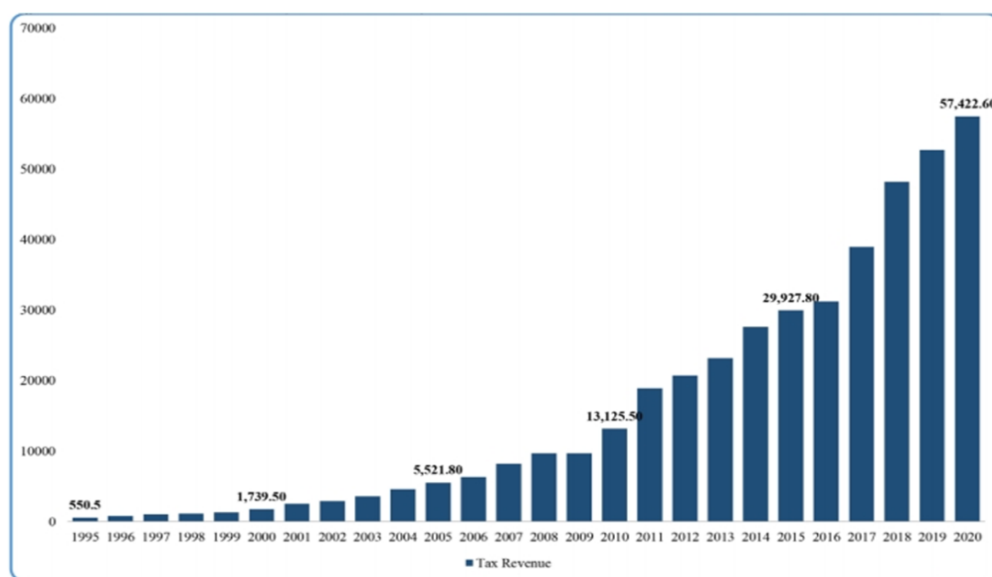


Figure 2. Gross tax revenue contributions by sector (Average % of Tax Revenue)

Additionally, it is important to note that despite the increase recorded in growth in terms of tax revenue overtime, Zambia's average tax – GDP ratio has been 15.43% overtime, which is below the world average tax – GDP ratio of 33.5% reported in the 2020 OECD revenue statistics report. Since 1990, tax revenue to GDP ratio has been volatile for the years 1990 to 2019, with the average being 15.43%, highest at 17.2% in 2019 and lowest being 11.9% in 2009. Figure 1 shows the tax revenue – GDP ratios for all tax types that includes inter alia the aggregate tax revenue and revenues from Direct taxes, Indirect taxes, Trade taxes and Extraction royalties.

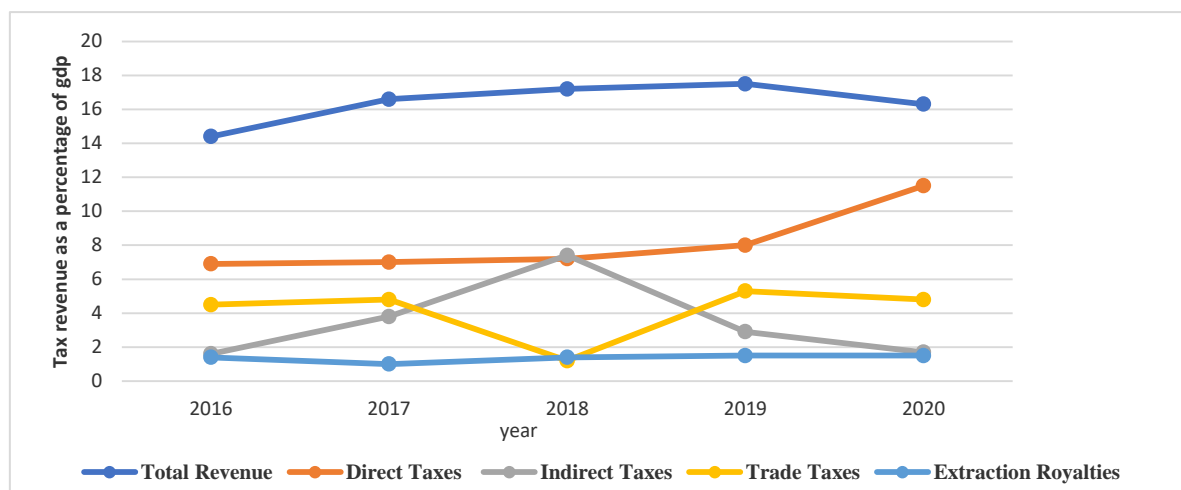


Figure 3. Revenues by tax type as percentages of GDP

Figure 3 above shows that during the period 2016-2020, total tax revenue ranged from 14.4% (lowest) in 2016 to 17.2% (highest) in 2019 as the lowest percentage recorded. The tax type that contributed the most in terms of tax revenue was Direct taxes followed by Trade taxes while Trade taxes and Extraction royalties proved to be very volatile due to changes in policy, as such their contribution in ensuring increased tax revenue – GDP ratio proved to be lower. In terms of Direct taxes, the lowest contribution was recorded in the year 2016 and this was 6.9% while the highest percentage was 11.5% recorded in 2020. Secondly, indirect taxes ratio to GDP ranged from 1.6% in 2016 to 7.4% in 2018. Thirdly, Trade taxes to GDP ratio ranged from 1.2% in 2018 to 5.3% in 2019. Lastly, Extraction royalties ratio to GDP ranged from 1% in 2016 to 1.5% in 2019 and 2020.

Despite several efforts to ensure a tax revenue to GDP ratio that is above 19%, the Country has always been below target. On economic growth, Zambia has been recording a decrease in the GDP growth rate for the past 5 years, thus the growth rate declined by 0.27% in 2016, 0.53% in 2017, 2.59% in 2018 and 4.46% in 2019 despite tax revenue increasing over the years. This study therefore, seeks to evaluate the relationship between taxes and GDP.

Research Objectives

The primary objective of this study is to evaluate the impact of taxes on Zambia's economic growth.

Specific Objectives

- i. To evaluate the effect of Direct taxes on economic growth.
- ii. To assess the relationship between Indirect taxes and economic growth.
- iii. To measure the effect of Trade taxes on economic growth.
- iv. To estimate the relationship between Extraction royalty (Mineral Royalty) and economic growth.

2. Literature Review

Research on taxation has attracted considerable attention across the globe, empirically, several studies have been conducted on the impact of taxes on economic growth, although not much has been done in narrowing it down to establish the effect of specific tax types ie direct taxes, trade taxes, extraction royalty and indirect taxes on economic growth (AAZ, 2021).

In the quest to establish the impact of taxation on economic growth, a study by Anyanwu (1997) sought to evaluate on the impact of tax on Nigeria's GDP / Economic Growth (1981-1996) and concluded that in the same

way, trade taxes and indirect taxes have a positive and positive impact on GDP. Further, Income tax and tax on petroleum came out to have a positive and significant impact on the country's GDP. This study has the same view as Anyawu (1997) that Corporate Income Tax (CIT) is a direct tax that has a great impact on the growth of the country's economy which is reflected in the Gross Domestic Product (GDP).

According to the World Bank Economic Brief of 2016 on Zambia, it was reported that for the country to achieve its goal of becoming a prosperous middle income Country by 2030, it would require high inflow of domestic revenue (tax and non-tax). In addition, the report suggested that the Zambian Government needed to improve its tax policy and administration by developing a tax policy that will enable it to increase tax revenue to fund its expansionary fiscal policy, launching taxpayer-focused public awareness campaigns, establishing and developing an effective local tax system that widens the tax base. The World Bank (2016) further, called for increased efforts to improve transparency in monitoring the country's mineral value chain as these have moderate effects on economic growth rates following major tax changes. The highlights by the World Bank in the same report are similar to the findings of Engen and Skinner (1996) who in their study on the relationship between tax and economic growth in the United States of America and postulated that for Countries to realise the desired tax revenue potential, they have to streamline tax policy and administration controls. On this basis, there is therefore, enough evidence to prove that taxes contribute to economic growth. This conclusion, although adapted from the developed Countries, also applies to developing countries including Zambia.

Further on the relationship between taxation and economic growth, a study Nalishebo and Halwampa (2014) concluded that, just like any developing country, Zambia's economic growth has greatly been affected by tax evasion as many tax payers are purported to be in the black market and the informal sector. Based on the conclusions by the World Bank, Action Aid Zambia and the Nalishebo and Halwampa (2014), the Zambian Government, through the Zambia Revenue Authority needs to begin expanding assessments to include self employed individuals. Pay As You Earn (PAYE) tax, which is the cheapest and easiest tax to collect because it is collected at source thus if applied correctly, this would result in increased tax revenue base to grow the economy. In line with the findings of the studies above, Tosun and Abizadeh (2005) concluded that selected taxes positively affect GDP per capita through the multiplier process. On the contrary, their study showed that while half the personal and property taxes are positively related to economic growth, the other share of income and taxes on goods and services showed a comparable decreasing effect on economic growth.

Lastly, Arnold et al. (2011) highlighted that the reduction of certain taxes such as corporate taxes and the level of personal income taxes would not help to restore the economy but would still help the economy grow. In contrast to corporate and personal income taxes, some tax changes (ie increased rates) on consumption are worse for economic growth. Thus, on the other hand, reducing taxes such as sales and property taxes will not do much to accelerate economic growth and growth.

In view of the above studies, it can be concluded that one of the tax changes that poised to have a positive impact on both growth and economic recovery, is a reduction in income taxes for low-income earners, SMEs and consumption because through this practice, aggregate demand will be increased thus leading to increased economic growth rates and reduction in inequality.

3. Conceptual Framework

This section gives the conceptual framework on which the study hinges, it gives the interrelationships or linkages between concepts or constructs in the quest to address the research problem by providn a framework on which the study can address the research problem at hand.

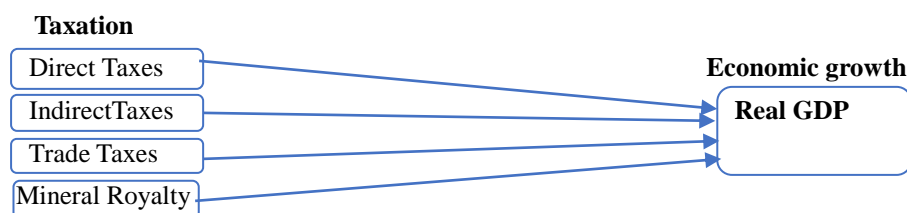


Figure 4. Conceptual framework

Figure 4 above shows the conceptual framework, the study has direct taxes, indirect taxes, trade taxes and mineral royalty as independent variables while the dependent variable in this study is Real GDP growth rate.

4. Research Methodology

4.1 Research Design

The study took a quantitative approach as it sought to evaluate the relationship between taxation and economic growth using time series data covering the years 1995 – 2020. An analysis of the time-series properties of variables used in macroeconomic research is particularly important when examining the causal relationship between variables that exhibit a common trend (Granger, 1986; Granger, 1987; Johansen, 1991).

4.2 Data

The study involved the use of annual time series data on Direct taxes (sum of Corporate Income Tax [CIT], Personal Income Tax [PIT] & Withholding Tax [WHT]), Indirect taxes (Local VAT, Excise duty and Insurance Premium Levy [IPL]), Trade taxes (sum of Import VAT, Customs duty and export duty) and Extraction royalty (Mineral Royalty) and real GDP in Zambia for the period 1995 to 2020 used in the study. Data was obtained from the Ministry of Finance and National Planning (MOFNP), Zambia Revenue Authority (ZRA), Zambia Statistics Agency (ZSA) and the World Bank statistics portal. Further, the study used gretl for descriptive statistics and the plotting from various charts in the study while E-Views was used for econometric analysis.

Table 1. Variables with their proxies, expected signs and source of data

Variables	Proxy	Expected Sign	Source
Dependent variable			
Economic Growth	Real GDP		ZSA
Independent variables			
Direct taxes	Direct tax revenue (sum of CIT, PIT & WHT)	Positive (+)	ZRA/MOFNP
Indirect Taxes	Indirect tax revenue (Local VAT, Excise duty and IPL)	Positive (+)	ZRA/MOFNP
Trade taxes	Trade tax revenue (Customs duty, import VAT, export duty)	Positive (+)	ZRA/MOFNP
Extraction royalty (Mineral royalty)	Mineral royalty revenue	Positive (+)	ZRA/MOFNP

4.3 Definition and Justification of the Selected Variables

This section gives the justification of the variables selected in evaluating the effect of taxation on economic growth. Starts by giving justification on the dependent variable and then gives the justification on the selected independent variables.

4.3.1 Dependent Variable

This section gives the justification of the dependent variable selected to measure economic growth. The study used the real GDP as a proxy to measure economic growth.

4.3.1.1 Economic Growth (Real GDP)

The importance of GDP in measuring economic performance of a country cannot be overemphasized. This is on the premise that it defines the Kwacha or Dollar of all the final goods and services produced within the geographical boundary of a country annually. Therefore, the study used the real GDP to measure Economic Growth.

4.3.2 Independent Variables

This section gives the justification of the independent variables selected in measuring tax; thus, this includes direct taxes, indirect taxes, trade taxes and mineral royalty.

4.3.2.1 Direct Taxes

Direct taxes are taxes that a person or organization pays directly to the organization that imposed them mainly government institutions. Examples include corporate income tax, personal income tax, property transfer tax and withholding taxes, all of which are paid by each taxpayer to the government. This study used tax revenues collected from direct taxes and these included inter alia CIT, PIT and WHT.

4.3.2.2 Indirect Taxes

Indirect taxes are taxes that are collected by an entity in the supply chain (usually a producer or retailer) and paid to government, but are usually passed on the final consumer as part of the purchase price. To measure indirect taxes, the study used tax revenues collected from indirect taxes and these included inter alia local VAT, Insurance Premium Levy and excise duty.

4.3.2.3 Trade Taxes

Trade taxes are taxes that are closely related to local consumption taxes, which apply to residents who have purchased or sell items outside their jurisdiction. To measure trade taxes, the study used tax revenues collected from trade taxes and these included inter alia import VAT, Customs duty and Export duty.

4.3.2.4 Extraction (Mineral) Royalty

Extraction (Mineral) royalty is basically a fee that is imposed by local, state or federal governments on either the amount of minerals extracted at a mine or the revenue or profit generated by the minerals sold from a mine. A royalty can be imposed either as a gross or net value. To measure mineral royalty, the study used tax revenues collected from mineral royalty on various on precious metals mined in Zambia.

4.4 Empirical Model and Methodology of the Study

This section gives the empirical model and methodology that guided the data collection, analysis, presentation and interpretation of the study, it starts by giving the empirical model of the study then goes on to give the econometric methodology that guided the study.

4.4.1 Model of the Study

In order to evaluate the effect of taxation on economic growth, a model of Direct taxes, Indirect taxes, Trade taxes and Mineral royalty was used to evaluate their impact on Zambia's Real GDP both in the short-run and the long-run. The model below expresses the relationship between taxation and economic growth. The model is therefore, stated as follows:

$$RGDP = f(DT, IT, TT, MR)$$

The equation is transformed into linear function as follows:

$$RGDP_t = \beta_0 + \beta_1 DTR_t + \beta_2 ITR_t + \beta_3 TTR_t + \beta_4 MRR_t + \varepsilon_t$$

Where,

RGDP_t = Real Gross Domestic Product at time t

DTR_t = Direct Tax Revenue at time t

ITR_t = Indirect Revenue at time t

TTR_t = Trade Tax Revenue at time t

MRR_t = Mineral Royalty Revenue at time t

B₀ = the slope or the constant of the model

B₁ – B₄ = coefficient of the explanatory variables in the model

ε_t = error term at time t

4.4.2 Unit Root Test for stationarity (ADF)

Most of economic data tend to have unit roots ie are not usually stationary at level and this tends to result in spurious regression results. In the quest to curtail the problem of spurious regression results as the data under consideration is time series, stationarity tests were conducted using the Argumented Dicky Fuller (ADF) test. When there is a unit root in the data, the corresponding time series are considered nonstationary. The ADF test procedure was presented by the following equation:

$$\Delta X_t = \alpha_0 + \alpha_1 t + \beta X_{t-1} + \sum_{n=1}^p \delta_n \Delta X_{t-n} + U_t$$

Where ΔX_t denotes first difference of the time series data while p represent the lag order and t is representing time. In the ADF result, we reject the null hypothesis that variable(x) is nonstationary ($H_0: \beta = 0$) if β is significantly negative.

If the model is found non stationary at level, it is usually converted to first difference in order to achieve their stationarity and the null hypothesis is tested at 5% level of significance. This is on the premise that the assumptions of ARDL bound test requires that all variables should be stationary at I(0) and I(1). Therefore, before applying the bound test, the level of stationarity of the data is usually checked. This is on the premise that there is need to confirm that variables are not I(2) to avoid the spurious results. If the variables are integrated of order I(2) bound test approach is usually bound to fail.

4.4.3 ARDL Model Specification

Following the unit root test, there is usually need to establish both short-run and long-run relationships among

variables under consideration. In this regard, the bound test is applied within the framework of Autoregressive Distributed lag (ARDL) model as proposed by Pesaran et al. (2001). This is in order to establish the cointegration among variables under consideration both in the short-run and the long-run. Further, it is important to note that to apply the bound test procedure, the following ARDL will be estimated to find the cointegration relationship between economic growth and taxation (Direct taxes, Indirect taxes, Trade taxes and Mineral royalty), we specify the following model:

$$\Delta \log RGD P_t = C + \alpha_1 \Delta \log RGD P_{t-1} + \alpha_2 \Delta \log DTR_t + \alpha_3 \Delta \log ITR_t + \alpha_4 \Delta \log TTR_t + \alpha_5 \Delta \log MRR_t + \sum_{p=1}^p \alpha_{1p} \Delta \log GDP_{t-1} + \sum_{q=1}^q \alpha_{2q} \log DTR_{t-1} + \sum_{r=1}^r \alpha_{3r} \log ITR_{t-1} + \sum_{s=1}^s \alpha_{4s} \log TTR_{t-1} + \sum_{w=1}^w \alpha_{5w} \log MRR_{t-1} + \mu_t$$

The initial step of ARDL approach is estimate the equation above by using the Ordinary Least Square (OLS) method. The second step is identifying the presence of cointegration among the variables by restricting all the estimated coefficients of the lagged variable equal to zero. Null hypothesis is that: No Cointegration exists ($H_0 = \alpha_{1i} = \alpha_{2i} = \alpha_{3i} = \alpha_{4i}$) while, alternative hypothesis is cointegration exists ($H_1 = \alpha_{1i} \neq \alpha_{2i} \neq \alpha_{3i} \neq \alpha_{4i}$).

4.4.4 Wald Test Coefficient Restriction

In order to ensure that get the correct long-run relationship among variables under consideration, the Wald test for coefficient restriction was used to restrict variables in the model. By performing the Wald test measurement, we obtain the F-values used to assess the long-term relationship between relationship among variables in the model. According to Pearson et al. (2001), the calculated F-value numbers are compared with the significant bond value. If the F-values are greater than the binding value, which is the most important, the null hypothesis is then rejected then there is no cointegration. But if the F-values are less than the minimum value of the lower bond, we fail to reject the null-hypothesis of no cointegration. However, if the F-values are between the upper and lower bond values, more information about the combination of variables is required.

4.4.5 ECM

The ECM was introduced by Engle and Granger (1987) in order to provide causal factors that may influence the variables. The negative sign of ECM and statistically significant confirmed that long-run relationship can be achieved among the variables included in the model. This method has proven to be the used to confirm co-integration among the variables. According to Bannerjee et al. (1998), the Error correction model (ECM) among the co-integrated variables explains change in dependent variables due to independent variable. The divergence in dependent variable shows short period of time to long-run equilibrium relationship.

Now co-integration relationship exists between the variables, the next steps is estimating the equation below via ARDL technique by choosing the order of the model using Akaike Information Criteria (AIC) to achieve the short-run and long-run dynamics parameters and Error correction from the equation given below:

$$\Delta \log RGD P_t = C_0 + \sum_{k=1}^k \alpha_{1k} \log \Delta DTR_{t-1} + \sum_{k=1}^k \alpha_{2k} \log \Delta ITR_{t-1} + \sum_{k=1}^k \alpha_{3k} \log \Delta TTR_{t-1} + \sum_{k=1}^k \alpha_{4k} \log \Delta MRR_{t-1} + \sum_{k=1}^k \delta_k \Delta D1_{t-1} + \sum_{k=1}^k \gamma_k \Delta D2_{t-1} + ECM_{t-1} + \varepsilon_t$$

4.4.6 Diagnostic Tests

Diagnostic tests such as Ramsey's RESET, Normality (Jaurque-Bera test), Breusch-Godfrey Serial correlation LM TEST, ARCH TEST, Breusch-Godfrey Heteroscedacity TEST were conducted to confirm the validity of the data used for the variables in the model.

5. Results

5.1 Time – Series Data Characteristics

This section gives the descriptive statistics of the variables used in this study. Table 2 shows the mean, standard deviation, coefficient of skewness and kurtosis of the variables under consideration.

Table 2. Time data characteristics

Variable	N	Mean	SD	Skewness	Min	Max	Kurtosis
Real GDP	26	1275.0073	300.392	.169	909.5	1678.18	-1.770
Real GDP growth rate (%)	26	5.072	2.9015	-.670	-2.8	10.3	1.085
Direct taxes	26	7,356.893	8,063.35	1.27	163.3	29,236.0	.977
Indirect taxes	26	2,775.277	3,185.61	1.44	70.3	10,135.4	.741
Trade Taxes	26	4,912.464	4,864.15	.817	203.5	14,647.2	-.627
Extraction Royalty	26	1,144.343	1,628.24	1.32	2.5	5,348.2	.535
Valid N (listwise)	26						

From the results in Table 2, the highest real GDP growth rate recorded since the year 1995 was 10.3% while the lowest recorded was -2.8%. Secondly, the study found that the means for the variables Real GDP, Real GDP growth rate, Direct taxes, Indirect taxes, Trade taxes and extraction royalty (mineral royalty) are greater than their standard deviations.

5.2 Time Series Data Plots

This section gives the time series data plots for real GDP growth rate, Real GDP, Direct taxes, Indirect taxes, Trade taxes and Extraction royalty (mineral royalty). Figure 5 shows the time series data plots.

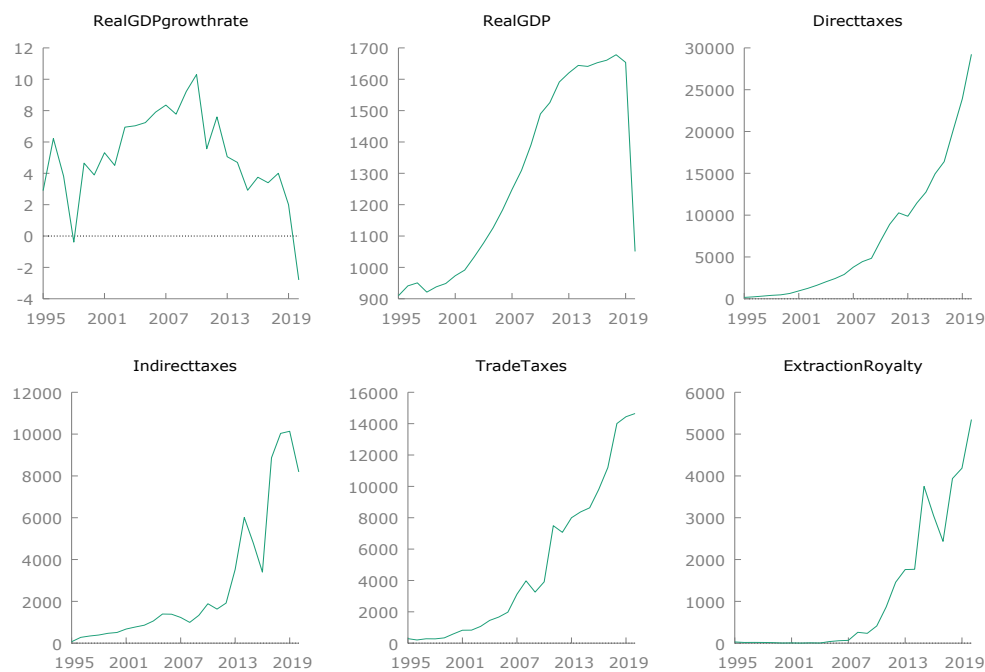


Figure 5. Time series data plots

The time series plots in Figure 5 for all the variables look stationary at level with an upward trend for all variables except Real GDP and Real GDP growth rate. The upward trend could indicate an increase (growth) in all the variables. There seems to be a trend in the differences with all the variables moving from zero going upwards. Thus, the unit root test can now be performed.

5.3 Unit Root Test Results

Before establishing the short-run and long-run relationship among variables, the study conducted unit root test to ensure that a right model needed to determine the effect of taxation on economic growth is picked. This study used the Augmented Dicky Fuller (ADF) to conduct the unit root tests as follows:

$H_0: \delta = 0$ or $(\rho = 1)$ [non-stationary or there is a unit root]

$H_1: \delta < 0$ or $(\rho < 1)$ [stationary or there is no unit root]

Table 3. Unit root test results

Variable Name	Order of integration	At no intercept and no trend	With intercept but no trend	With trend and intercept
LogRealGDP	I(1)	0.9986	0.9986	0.0000***
LogDirectTaxes	I(0)	0.9894	0.0174**	0.7594
Logindirecttaxes	I(0)	0.9965	0.7742	0.0023***
Logtradetaxes	I(1)	0.2352	0.0013***	0.0025***
LogExtractionRoyalty	I(0)	0.9789	0.7836	0.0079***

The results in table 3 above show that variables LogDirectTaxes, LogIndirecttaxes, and LogExtractionroyalty are all integrated of order zero (0) whereas LogTradetaxes and RealGDP are integrated of order one (1). The results

above show that variables under consideration are integrated of different orders ie I(0) and I(1), therefore, the ARDL model was selected as the appropriate one.

5.4 Short-Run Results

This section gives the results obtained in the quest to evaluate the effect of taxation on economic growth in the short-run.

Table 4. Short-run results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG_REALGDP(-1)	25.30441	6.765082	3.740444	0.0057
LOG_REALGDP(-2)	-21.91176	6.742855	-3.249626	0.0117
LOG_DIRECTAXES	-0.365611	0.073202	-4.994532	0.0011
LOG_DIRECTAXES(-1)	0.228273	0.104451	2.185465	0.0603
LOG_DIRECTAXES(-2)	-0.169458	0.091343	-1.855188	0.1007
LOG_EXTRACTIONROYALT	-0.039972	0.009738	-4.104555	0.0034
LOG_EXTRACTIONROYALT(-1)	-0.028523	0.010723	-2.659921	0.0288
LOG_INDIRECTAXES	0.036783	0.029478	1.247811	0.2474
LOG_INDIRECTAXES(-1)	0.053383	0.028152	1.896267	0.0945
LOG_INDIRECTAXES(-2)	0.080117	0.028113	2.849779	0.0215
LOG_TRADETAXES	0.018196	0.044375	0.410043	0.6925
LOG_TRADETAXES(-1)	-0.029670	0.043610	-0.680347	0.5155
LOG_TRADETAXES(-2)	-0.072302	0.037204	-1.943371	0.0879
C	-14.37939	1.709576	-8.411085	0.0000
R-squared	0.996958	Mean dependent var		7.148213
Adjusted R-squared	0.991253	S.D. dependent var		0.230354
S.E. of regression	0.021544	Akaike info criterion		-4.602710
Sum squared resid	0.003713	Schwarz criterion		-3.817341
Log likelihood	71.23252	Hannan-Quinn criter.		-4.394351
F-statistic	174.7633	Durbin-Watson stat		2.489503
Prob(F-statistic)	0.000000			

Note. p-values and any subsequent tests do not account for model selection.

The one period and two periods lag of real GDP is significant at 5% level of significance. In the short-run, Direct taxes is significant at 5% level of significance and that it negatively affects real GDP. Furthermore, extraction royalty is also significant and negatively impacts economic growth while indirect taxes and trade taxes were found to be insignificant at 5% level of significance.

5.5 Error Correction Model

The importance of conducting the error correction model in time series data cannot be overemphasized. In the course of the study, the ECM model was run and gave a negative sign of ECM and statistically significant confirmed that long-run relationship can be achieved among the variables included in the model. Table 5 gives the ECM regression results.

Table 5. Error correction model results

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOG_REALGDP(-1))	21.91176	1.182237	18.53414	0.0000
D(LOG_DIRECTAXES)	-0.365611	0.040549	-9.016553	0.0000
D(LOG_DIRECTAXES(-1))	0.169458	0.036475	4.645805	0.0017
D(LOG_EXTRACTIONROYALT)	-0.039972	0.005199	-7.688393	0.0001
D(LOG_INDIRECTAXES)	0.036783	0.011829	3.109530	0.0145
D(LOG_INDIRECTAXES(-1))	-0.080117	0.015013	-5.336415	0.0007
D(LOG_TRADETAXES)	0.018196	0.021490	0.846715	0.4218
D(LOG_TRADETAXES(-1))	0.072302	0.019026	3.800215	0.0052
CointEq(-1)*	-2.392654	0.142761	16.75980	0.0000

R-squared	0.984015	Mean dependent var	0.004603
Adjusted R-squared	0.973738	S.D. dependent var	0.100495
S.E. of regression	0.016286	Akaike info criterion	-5.102710
Sum squared residual	0.003713	Schwarz criterion	-4.611854
Log likelihood	71.23252	Hannan-Quinn criter.	-4.972486
Durbin-Watson stat	2.489503		

* p-value incompatible with t-Bounds distribution.

The results above show the error correction term which is negative and significant at 5% level of significance. This indicates that the model is stable and reverts back to equilibrium if there is a shock.

5.6 Discussion of the Findings

This section gives a discussion of the findings on the effect of taxation (direct taxes, indirect taxes, trade taxes and extraction (mineral) royalty on economic growth in long-run and the short-run. Section 5.6.1 gives the effect of taxation on economic growth in the short-run while section 5.6.2 gives the findings on the effect of taxation on economic growth in the long-run.

5.6.1 Short-Run

The study sought to establish the effect of taxation on economic growth in the short-run, the study found that direct taxes negatively affect economic growth in the short-run implying that every increase in direct taxes leads to a reduction in economic growth. The findings of this study argue with Anyawu (1997) who conducted a study on the effect of taxation on economic growth and found that direct taxes tend to have a significant positive effect on economic growth. The findings of this study also argue with the findings of Tosun & Abizadeh (2005) who also conducted a study on the effect of income taxes on GDP per capita and found that, income taxes ie personal income, corporate income and property taxes have a significant positive impact on GDP per capita.

Secondly, the study found that extraction royalty came out to be significantly and negatively affecting economic growth in the short-run implying that every increase in royalties leads to a reduction in economic growth. The findings of this study argue with the findings of Farganas and Roberts (2004) who conducted a study to establish the effect of taxation on economic growth and found that mineral taxation positively affects economic growth as the mining sector has proven to be the key economic driver in most developing nations. The findings of this study also argue with the findings of Engen and Skinner (1996) who sought to establish the relationship between taxation and economic growth in the United States of America and found that tax has an effect on economic growth. This is on the premise that most government revenue is drawn from taxation as such most of developmental and investment projects of countries depend on tax revenue.

Lastly, the study found that indirect taxes and trade taxes came out to be insignificant. This implies that their increase or decrease does not positively or negatively affect economic growth in the short-run. The findings of this study agree with the findings of Arnold et al. (2011) who highlighted that tax cuts are effective in the short-run by increasing spending as this positively leads to a growth in GDP. The findings of this study are also in line with the findings of Benos (2009) who also found that tax indirect taxes and trade taxes negatively affect economic growth as they reduce consumer expenditure in the short-run thus this negatively affects investment in the economy.

5.6.2 Long-Run

The study sought to establish the effect of taxation on economic growth in the long-run, the study found that direct taxes positively affect economic growth in the long-run implying that every increase in direct taxes leads to an increase in economic growth. The findings of this study agree with Anyawu (1997) who conducted a study on the effect of taxation on economic growth and found that direct taxes tend to have a significant positive effect on economic growth. The findings of this study also agree with the findings of Tosun and Abizadeh (2005) who also conducted a study on the effect of income taxes on GDP per capita and found that actually, income taxes that included personal income, corporate income and property taxes have a significant positive impact on GDP per capita.

Secondly, the study found that extraction royalty came out to be significantly and positively affecting economic growth implying that every increase in royalties leads to an increase in real GDP. The findings of this study agree with the findings of Farganas and Roberts (2004) who conducted a study to establish the effect of taxation on economic growth and found that mineral taxation positively affects economic growth as the mining sector has proven to be the key economic driver in most developing nations. The findings of this study also agree with the

findings of argue with the findings Engen and Skinner (1996) who sought to establish the relationship between taxation and economic growth in the United States of America and found that tax has an effect on economic growth.

Thirdly, the study found that indirect taxes came out to be significantly and positively affecting economic growth implying that every increase in indirect taxes leads to an increase in economic growth. The findings of this study argue with the findings of Arnold et al. (2011) who highlighted that tax cuts are effective in the short-run by increasing spending as this positively leads to a growth in GDP. The findings of this study also argue with the findings of Benos (2009) who also found that tax indirect taxes and trade taxes negatively affect economic growth as they reduce consumer expenditure in the short-run thus this negatively affects investment in the economy

Lastly, the study found that trade taxes came out to be significantly and negatively affecting economic growth. The findings of this study argue with Anyawu (1997) who conducted a study on the effect of taxation on economic growth and found that indirect taxes tend to have a significant positive effect on economic growth. The findings of this study also argue with the findings of Chigbu et al. (2012) who also conducted a study on the effect of indirect taxes on GDP growth and found that actually, VAT and excise duty among other indirect taxes have a significant positive impact on GDP growth.

6. Conclusion

The study sought to evaluate the effect of taxation economic growth. The taxes under consideration include direct taxes (CIT, PIT and WHT), extraction royalty (mineral royalty) and trade taxes (import VAT, customs duty and export duty). Based on the findings, the study concludes as follows;

Findings in this study show that in the short-run, direct taxes (CIT, PIT and WHT) have a negative effect on economic growth in the short-run. This could be attributed to the fact that CIT tax is mostly applied after all expenses have been deducted from the revenue realized by a company. This implies that if the company does not make profit for the period, it does not pay tax and this has been the challenge the country has been facing especially in the taxation of mining companies. Secondly, the negative contribution of direct taxes to GDP in the short-run could be attribute to the fact that the country has been having challenges in the administration of WHT as the country does not have proper systems in place to administer collection of withholding tax. Lastly, the negative contribution of direct taxes to GDP could also be attributed to the fact that PAYE targets tax payers in the formal sector despite the fact that Zambia's economy is informal. On the other hand, results show that direct taxes (CIT, PIT and WHT) have a positive effect economic growth in the long-run. This could be attributed to the fact that ZRA has been improving its operations in order to improve revenue collection. Among other strategies undertaken include among others, development of the tax-online system, increased tax payer education and capacity building of staff and institutional restructuring.

In the quest to evaluate the effect of indirect taxes on economic growth, research findings show that in the short-run, indirect taxes (local VAT, Excise tax and IPL) have no effect on economic growth. This could be attributed to the refund aspect of the VAT as ZRA owes a number companies reasonable sums of money in VAT refunds, thus instead of tax revenue being used in other avenues to provide essential services, it is channeled towards reducing the backlog of VAT refunds.

Secondly, this could be attributed to the fact that the uptake of insurance in Zambia has been low, according to the Insurers Association of Zambia, the insurance sector has been experiencing a low insurance penetration rate with the highest being 5% recorded in 2020 which increased from 2.7% recorded in 2015. Lastly, lack of uniformity in excise taxes pauses distortions and challenges in the collection of the aforesaid tax.

Thirdly, the mining sector carries a much larger share of the tax budget, demonstrating a historical dependence on copper mining in Zambia. Efforts should be made to increase the tax base in order to avoid overburdening the few taxpayers with raising the much-needed revenue.

Additionally, just like any developing Country, the Zambian tax system has revenue leakages and challenges that should be attended to in order to improve its performance. The challenges in the Zambian Tax system include lack of information, weak monitoring techniques, inadequate funding towards tax collection efforts, political interference and tax exemptions or incentives. Tax revenue in Zambia is lost due to evasion, avoidance, contestation, non-payment, the hidden economy, and other means such as the failure to tax the digital economy.

The Zambian budget has over the years been running in deficits with the debt stock closing at 10.4% of GDP in the year 2021. This shows the need for enhanced domestic resource mobilization to reduce the budget deficit and ensure public service delivery. The analysis has revealed that social sector spending was been crowded out by the

country's commitment to debt service in the past few years leading to increasing levels of poverty and inequality. The tax system has a mix of progressive and regressive taxes, but overall, the system is progressive. However, caution must be exercised in developing a healthy mix of direct and indirect taxes to avoid making the tax system regressive, as this would exacerbate the plight of the marginalized.

7. Recommendations

In the quest to evaluate the effect of taxation on economic growth, the study found that direct taxes, trade taxes and extraction royalty (mineral royalty) have an effect on economic growth in the long-run. In view of the above findings above, the study makes the following recommendations;

The study found that in the long-run, direct taxes have an effect on economic growth, firstly, it is recommended that government ensures prudent utilization of tax revenue to provide public goods and services for citizens such as a good road network, improved health and education facilities and promotion of entrepreneurship in order to curtail the huge unemployment challenge the country has been facing.

Secondly, the country has been implementing strategies to promote industrialization through the Zambia Development Act of 2006 which has seen an increase in tax incentives for prospective investors, it is recommended that these tax incentives be streamlined to increase revenue from income taxes among other tax types. Other interventions, however, must be made to ensure that SMEs thrive by increasing funding to the Ministry of Small and Medium Enterprise Development to ensure capital availability for SMEs and introduce entrepreneurship in the education curriculum starting from primary school. This is because much of the attention to investment in terms of tax incentives, has been targeted at large multinational Corporations instead of focusing on developing local SMEs in the quest to turn them into multinational Corporations ie Trade Kings and Zambeef among others.

Thirdly, it is recommended that ZRA strengthens its tax payer education so as to have taxpayers who are aware of the importance of paying tax especially withholding and turn over taxes and further strengthen tax laws and build capacity among staff in transfer pricing in order to ensure that revenue leakages are reduced especially among multinational corporations and mining firms.

Further, there is need to broaden the tax base by formalising the informal sector as the informal sector ie in Kamwala, COMESA market and Soweto markets among others across the Country account for the majority of the businesses in the country. However, the formalisation should not impose further costs on the the tax payers due to the need to meet a number of requirements for their businesses to be formalised.

Additionally, there is need for ZRA to further digitalise its systems so as to enable them to integrate their systems with the systems of their tax payers so as to improve efficiency in revenue collection due to increased compliance and increase the severity of penalties for noncompliance with various taxes to improve compliance to various tax requirements. This is on the premise that a digitalized system makes it easier for tax inspectors to conduct their monitoring and assessment activities digitally thereby increasing compliance levels among tax payers.

Lastly, there is need for ZRA to build capacity especially in transfer pricing and international taxation and improve incentives for their tax collection agents so as to improve effectiveness and efficiency in the administration of tax.

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