

# The Interplay between Economic Freedom and Tax Revenue Performance: Panel Evidence from SADC

Baneng Naape

Department of Economics, University of the Witwatersrand, Johannesburg, South Africa

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## ABSTRACT

This study aims to scrutinize the interplay between economic freedom and tax revenue performance in 14 SADC countries. The study makes use of dynamic panel data spanning from 2000 – 2017 with 238 year-country observations. The econometric modeling applied includes Generalized Methods of Moments and Cross-country Correlations. The dynamic panel estimation results indicate that both conventional and unconventional determinants of tax revenue mobilization are statistically significant in explaining variations in tax revenue performance. In contrast to earlier studies, the researcher found that economic freedom exhibits a negative impact on tax revenue mobilization. These findings can be based on the assumption that African countries are characterized by agrarian activities which take place in the informal sector and are thus difficult to regulate and tax. As a result, the benefits of economic freedom cannot be fully realized. The policy implication is for African countries to invest substantially in the manufacturing sector to increase tax revenue and eliminate the substantial informal sector. Further to this, governments in SADC countries should focus more on reducing red tape and unnecessary bureaucracy to enhance the ease of doing business and realize the full benefits of economic freedom.

## ABSTRAK

Penelitian ini bertujuan untuk meneliti interaksi antara kebebasan ekonomi dan kinerja penerimaan pajak di 14 negara SADC. Studi ini menggunakan data panel dinamis periode pada 2000 – 2017 dengan pengamatan 238-year country observation. Pemodelan ekonometrika yang diterapkan meliputi Generalized Methods of Moments and Cross-country Correlations. Hasil estimasi panel dinamis menunjukkan bahwa baik determinan konvensional maupun nonkonvensional dari mobilisasi penerimaan pajak secara statistik signifikan untuk menjelaskan variasi kinerja penerimaan pajak. Berbeda dengan penelitian sebelumnya, studi ini menemukan bahwa kebebasan ekonomi menunjukkan dampak negatif pada mobilisasi penerimaan pajak. Temuan ini didasarkan pada asumsi bahwa negara-negara Afrika bercirikan kegiatan agraris yang berlangsung di sektor informal sehingga sulit diatur dan dikenakan pajak. Akibatnya, manfaat kebebasan ekonomi tidak dapat sepenuhnya terwujud. Implikasi kebijakan adalah bagi negara-negara Afrika untuk berinvestasi secara substansial di sektor manufaktur untuk meningkatkan pendapatan pajak dan menghilangkan sektor informal yang substansial. Lebih jauh lagi, pemerintah di negara-negara SADC harus lebih fokus pada pengurangan birokrasi dan birokrasi yang tidak perlu untuk meningkatkan kemudahan berbisnis dan mewujudkan manfaat penuh dari kebebasan ekonomi.

## 1. INTRODUCTION

The role of quality institutions in the economy has sparked recent debates in economic literature and policy making. Quality institutions do not only serve as non-conventional determinants of growth, but also as a pre-condition for growth and development. Nations that have historically invested in building quality institutions are believed to realize higher

levels of per capita GDP today than their counterparts. Erdal (2004) states that freedom, whether political, economic or civil, is what makes up good institutions, hence the recent focus on economic freedom. From a tax revenue standpoint, quality institutions affect tax collections through their contributions to tax evasion, weak administration and improper tax exemptions

\* Corresponding author, email address: Banengnaape@gmail.com

(Davoodi & Grigorian, 2007). To this end, tax yields in developing countries remain undermined by sluggish global growth and mounting trade tensions. Disposable incomes are gradually declining while unemployment rates are skyrocketing in the midst of technologically led production processes.

As the demand for labour decreases, the tax base narrows resulting in lower tax yields. Lower tax yields negatively affect the budget stance as government expenditure (in real terms) usually outpaces tax revenue, the result being a budget shortfall. To finance the budget shortfall, governments have no choice but to opt for deficit financing. The opportunity cost of deficit financing, however, is compromised future consumption as the bulk of the Gross Domestic Product (GDP) is absorbed in servicing the debt. An alternative to this is to narrow the budget shortfall in one of two ways; either by reducing government spending or increasing tax revenue or a combination of both. Worthy to say, the former has severe consequences on resource allocation and on the government's ability to affect service delivery. The latter on the other hand, can be achieved by expanding the tax base or increasing tax rates. Increasing the tax rate, however, can discourage taxed economic activities. While several authors (i.e., Attiya & Umaina, 2012; Karagöz, 2013; Castro & Camarillo, 2014; Khwaja & Iyer, 2014; Ade et al, 2018; Alamirew & Leykun, 2020) have studied the conventional determinants of tax revenue, few studies (i.e., Alabede, 2015) have expanded the conventional tax effort model to incorporate relevant economic freedom variables to

determine if countries with higher degrees of economic freedom have realized higher tax yields than those with lower degrees of economic freedom.

Thus, to bridge the gap, the researcher investigates the interplay between economic freedom and tax yields for 14 Southern African Development Community (SADC) member countries using the new composite index of economic freedom by the Fraser Institute. The economic freedom index is measured in five broad areas namely: Size of Government; Expenditure, Taxes and Enterprises; Legal Structure and the Security of Property Rights; Access to Sound Money; Freedom to Trade Internationally, and Regulation of Credit, Labour and Business. The tax-to-GDP ratio for SADC countries stood at 28.90 per cent in 2008, before declining somewhat to 24.10 per cent a decade later.

On average, the tax-to-GDP ratio for SADC countries amounted to 25.8 per cent in the last decade. It is also evident in Table 1 that as the fiscal balance widens, so does the debt-to-GDP ratio. For example, the fiscal balance as a fraction of GDP increased from -1.20 per cent in 2008 to -4.20 per cent in 2016 while the debt-to-GDP rose from 30.40 per cent to 52.80 per cent over the same period. The inflation rate on the other hand, which is known to exhibit a negative effect on economic growth (see Bittencourt et al, 2014; Eggoh & Khan, 2014; Ndoricimpa, 2017), continues to erode the growth of the SADC region economy. The inflation rate ranged between 5.30 per cent and 13.40 per cent during the period under review.

**Table 1.** Selected Macroeconomic indicators for SADC

Year	Annual GDP growth	Government Revenue (%GDP)	Inflation rate	Fiscal Balance (%GDP)	Debt (%GDP)
2008	5.10%	28.90%	13.40%	-1.20%	30.40%
2009	0.20%	25.60%	10.80%	-4.30%	36.50%
2010	4.50%	26.60%	7.00%	-2.70%	34.10%
2011	4.20%	27.80%	7.50%	-1.10%	34.90%
2012	4.50%	27.60%	8.70%	-1.80%	35.70%
2013	4.00%	26.80%	6.40%	-1.60%	38.50%
2014	3.50%	25.90%	5.30%	-2.40%	41.70%
2015	2.20%	24.50%	5.40%	-3.60%	48.00%
2016	1.50%	23.10%	9.20%	-4.20%	52.80%
2017	2.10%	23.00%	10.10%	-4.30%	52.40%
2018	-	24.10%	7.10%	-3.10%	56.10%
Average	3.18%	25.81%	8.26%	-2.75%	41.92%

*Source: SADC statistics Yearbook (2019)*

Annual GDP growth has been somewhat sluggish post the 2008 financial crisis. The lacklustre economic performance has undermined job creation, tax performance and the ability of the SADC community to service debt. Thus, in attempt to address the low tax yields experienced by SADC member countries, we estimate the unconventional determinants of tax revenue. This is crucial given the widening budget deficits and deepening debt levels in SADC member countries. Through increased tax yields, nations will be able to narrow their fiscal deficits, stabilise debt and avoid the need for deficit financing. The rest of the study is organised as follows: Section 1 provided an introduction to the study and objectives. Section 2 provides a discussion of the literature review supporting the economic freedom and tax performance theory. Section 3 unpacks the underpinning methodology of the study while Section 4 is a discussion of findings. Section 5 concludes the study in short, followed by policy implications.

## **2. THEORETICAL FRAMEWORK AND HYPOTHESES**

### **Conventional Determinants of Tax Revenue**

Most studies on tax revenue performance (i.e., Attiya & Umama, 2012; Karagöz, 2013; Castro & Camarillo, 2014; Khwaja & Iyer, 2014; Ade et al, 2018; Alamirew & Leykun, 2020) have focused on the conventional determinants of tax revenue performance. GDP per capita to begin with, which measures a country's level of income and to some extent, development, has been empirically proven to be highly and positively correlated with tax revenue as the bulk of the tax revenue is derived from income taxes. Thus, policy makers have focused on increasing household incomes through the transition from traditional, low productive sectors to modern productive sectors. The growth of the population has also been a variable of focus in the tax revenue literature. The impact of population growth on tax revenue performance is two-fold; firstly, if the greater share of the population consists of the working-age population, then population growth would exhibit a positive impact on tax revenue performance through the income tax channel as a result of a broader tax base.

However, if the greater share of the population is the age-dependent population, population growth would possess a negative effect on tax revenue performance. Similarly, trade openness, as one of the conventional determinants of tax revenue, affects tax revenue mobilisation in two ways; firstly, trade openness entails the partial or complete removal of

trade barriers, including both non-tariff and tariff barriers. As trade taxes are lowered, so is the revenue collected from trade taxes. Thus, trade openness would have a negative impact on tax revenue mobilisation in this regard. On the other hand, trade openness can exhibit a positive impact on tax revenue mobilisation through increased incomes. This is because, open economies are known to grow faster, resulting in increased taxed economic activities such as output, investment, trade and labour.

Nonetheless, different economic sectors affect revenue mobilisation differently. For example, the agricultural sector is empirically known to be negatively correlated with tax revenue mobilisation. To put this in context, the government often provides subsidies to the agricultural sector to booster agricultural value chains and export promotion. In addition, the government hardly taxes the agricultural sector as this is politically infeasible given the low prices of agricultural products. The manufacturing and services sectors on the contrary, are known to possess a positive effect on revenue mobilisation. Attiya et al (2012) have empirically indicated that inflation has a negative impact on revenue mobilization through the consumption and investment channels while quality institutions positively impact tax revenue performance through increased efficiency in tax administration.

### **Unconventional Determinants of Tax Revenue**

It is clear that conventional factors alone are not sufficient in explaining variations in tax revenue performance. Therefore, policy makers and academics are beginning to investigate and resort to unconventional determinants of tax revenue performance. In this study, the primary focus is on the role of economic freedom. The Heritage Foundation (2021) defines economic freedom as "the absence of government coercion or constraint on the production, distribution or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself". The overall economic freedom index measures the degree of a country's openness and business friendliness. It has been argued (see Smith, 1979) that there more a country exercises economic liberty; there more likely it will achieve economic prosperity, which translate into economic growth.

Economic liberty brings about innovation, entrepreneurial progress and productive capacity. As individuals are free to engage in taxed economic activities such as labour, investment and trade, more

revenues can be collected, hence the assumption that there is a link between tax revenue and economic freedom. More interestingly, one of the sub-indexes of the economic freedom index is trade freedom, which relates to the economic intuition that open economies grow faster. Trade freedom in this regard, as Hussain and Haque (2016) define it, refers to the absence of trade tariffs and non-tariff barriers wherein individuals are free create trade relations and exchange goods and services without government interference. The openness of the economy will trigger capital inflows and the exchange of technologies, which will, in turn, bring about efficiencies in production and ultimately export-led growth.

A second sub-index is fiscal freedom, which measures the tax burden. Higher tax rates result in lower disposable incomes, which reduce citizenry's ability to consume and invest. To counter this, citizens often borrow from financial institutions to make up for lost income. This exacerbates their financial burden and compromises future consumption. A third sub-index is business freedom, which measures the ability to establish, operate, expand and close a business. The degree of government regulation is crucial in this sub-index, as this can either deter or foster competition and innovation in the market. In other words, there needs to be a balanced mix between regulation and competition for business to flourish. The other sub-index is investment freedom. According to this sub-index, individuals must be able to move funds across different units internally and across the borders without government interference. A similar sub-index is financial freedom, which measures bank efficiency and independence from government regulation.

### **Empirical Literature**

It is sufficient to note at the forefront, that few studies have examined the relationship between economic freedom and tax performance. A most recent and relevant study by Alabede (2015) found that economic freedom positively influences tax performance in the Sub-Saharan Africa region. The study employed annual panel data from 42 Sub-Saharan countries. By means of the Feasible Generalised Least Square (FGLS) econometric technique, the study found that property right freedom, business freedom, freedom from corruption, investment freedom, financial freedom, labour freedom as well as the composite economic freedom exerted positive significant impact on tax revenue.

Another recent study by Boukbech et al (2019) revisited the determinants of tax revenue in a sample of 29 lower middle-income countries. The study found that GDP per capita and agriculture share of GDP are positively and significantly correlated with tax revenue. In contrast, population growth was found to be negatively correlated with tax revenue albeit not significant. Furthermore, their estimation of tax effort indicated that public aid and foreign debt are negatively correlated with tax effort. Masiya et al (2015) investigated the significant determinants of tax revenue in Malawi using monthly data spanning from 2003 to 2012. By means of Ordinary Least Squares (OLS) technique, the study found that GDP per capita and broad money supply, have a positive and statistically significant impact on tax revenue. Castro and Camarillo (2014) examined the impact of structural, economic, social and institutional factors on revenue mobilisation in OECD countries using dynamic and static panel data methods. The study found that conventional macroeconomic variables including GDP per capita, industrial sector and civil liberties possess a positive and statistically significant impact on revenue mobilisation. On the contrary, the agricultural value added and share of foreign direct investment in gross capital formation possess a negative yet statistically significant impact on revenue mobilisation.

A study by Gobachew et al (2018) likewise investigated the determinants of tax revenue in Ethiopia using annual time series data for the period 1990 to 2015. The data was statistically analysed using the OLS econometric technique. The results indicated that GDP per capita, trade openness and industry share of GDP have a statistically significant and positive impact on tax revenue. Other macroeconomic variables including inflation and agriculture share of GDP, were found to be negatively correlated with tax revenue. Rodriguez (2018) revisited the determinants of tax revenue in a study covering 138 countries over the period 1976 to 2015. Similar to Castro and Camarillo (2014), the study employed both static and dynamic panel data econometric techniques. The findings indicated that agriculture share of GDP and natural resource rents significantly influence taxation. In addition, government quality was found to be positively related to the tax burden.

### 3. RESEARCH METHOD

#### Data Description

The study used an annual panel data collected from reliable secondary servers including the World Bank's World Development Indicators (WDI) and the Heritage Foundation's index of economic freedom. The data spanned from 2000 to 2017, making a total of 238 observations. The primary reason for the chosen study period is data availability.

#### Empirical Model

Following Alabede (2015), the researcher estimated two sets of equations; the first equation comprising of conventional determinants of tax revenue mobilisation and the second equation comprising of the unconventional determinants of tax revenue mobilisation. The second equation incorporates the role of economic freedom in tax revenue performance. The conventional tax revenue model is expressed as:

$$REV_{it} = \beta_0 + \beta_5 \sum_{i=1}^n \gamma_{it} + \mu_{it} \quad (1)$$

Where REV denotes tax revenue performance as measured by the tax-to-GDP ratio and  $\gamma$  is a vector of the conventional determinants of tax revenue including GDP per capita, agriculture share of GDP, trade openness as measured by the ratio of exports-to-import to GDP, population growth and inflation rate. The notation  $\beta$  represents coefficients to be estimated and  $\mu_{it}$  is the idiosyncratic error term. The expanded conventional tax revenue model that incorporates economic freedom is expressed as:

$$REV_{it} = \beta_0 + \beta_5 \sum_{i=1}^n \gamma_{it} + \beta_7 \sum_{i=1}^n \delta_{it} + \mu_{it} \quad (2)$$

In which case  $\delta$  denotes the unconventional determinants of tax revenue mobilisation, proxied by the index of economic freedom. This includes property rights freedom, business freedom, labour freedom, financial freedom, freedom to invest, government integrity and the composite index of economic freedom. The subscript  $i$  denotes countries while represents the time. Thus,  $i = 1, \dots, 14$  and  $t = 2000, \dots, 2017$

#### Estimation Techniques

The study followed the traditional approach to econometric modelling which includes testing variables for stationarity. It is worth noting, however, that stationarity is not an issue of great concern when utilizing dynamic panel data models. The IPS stationarity test by Im, Pesaran and Shin

(2003) was applied. The test was chosen given its common use as there is no homogenously better stationarity test. To estimate equations (1) and (2), this study utilized the optimal Generalized Methods of Moments (GMM) by Arellano and Bond, (1991), Arellano & Bover (1995), and Blundell & Bond (2000).

The choice of econometric technique was informed by the characteristics of the data and variables. To put this in context, the inclusion of tax revenue and agriculture share of GDP in the model possess the threat of endogeneity. This is because, the government utilizes tax revenue to provide subsidies to the agricultural sector while in turn, revenues generated in the agricultural sector form part of government revenue. This causes dual causality or simultaneity, the result being endogeneity. Further to this, the combination of individual heterogeneity and the lagged dependent variables lead to serially correlated errors and consequently result in biased and inconsistent estimators (Nickell, 1981; Quazi et al, 2014). Thus, to overcome this, the researcher opted for the modern approach by employing an instrumental variable technique. A simplified dynamic panel model can be expressed as:

$$y_{it} = \phi y_{it-1} + \omega \gamma_{it} + \mu_{it} \quad (3)$$

Where  $\phi$  and  $\omega$  are scalars and  $\mu_{it}$  is the individual effect. The empirical estimation can be numerically written as:

$$REV_{it} = \beta_0 + \beta_1 REV_{it-1} + \sum_{j=5}^q \beta_j \gamma_{ijt} + \sum_{j=7}^p \beta_j \delta_{ijt} + \mu_{it} \quad (4)$$

In which case  $REV_{it-1}$  is the lagged dependent variable. The next step was to present findings, discussed in the next section.

### 4. DATA ANALYSIS AND DISCUSSION

This section details findings from the econometric modelling applied. This includes all econometric tests that were performed to achieve the objective of the study, which is to establish the link between tax revenue performance and economic freedom.

#### Descriptive Statistics

Table 2 presents the statistical characteristics of the variables. The results demonstrate that the average tax revenue for all countries represent about 19 percent of GDP. As Alabede (2015) indicated, this percent falls short of the 20 percent recommended by the United Nations. Nonetheless, trade openness,

on average, has a share of 69 percent in GDP, which indicates that variable has a meaningful role to play in our study. On the contrary, population growth

and inflation have lower shares in GDP on average, amounting to 2 percent and 9 percent, respectively.

**Table 2.** Descriptive statistics

Variable	Mean	SD	Min	Max	Jarque-Bera
Tax Rev (TAX_REV)	18.94	7.58	8.99	39.26	9.97
GDP Per cap (LnGDP)	3.65	0.41	3.02	4.31	10.01
Agriculture (AGR)	8.85	8.52	1.99	30.43	49.01
Population (POP)	1.99	1.16	-0.49	3.71	8.63
Trade open (TOP)	68.46	27.69	25.68	152.63	30.88
Inflation (CPI)	8.47	5.96	-2.41	32.38	130.07
Prop Freedom (PROP)	43.23	17.05	5.00	75.00	1.99
Lab Freedom (LAB)	57.13	11.23	23.70	78.50	3.41
Invest Freedom (INVEST)	51.73	19.11	0.00	90.00	5.87
Integ Freedom (INTEGR)	36.13	12.61	12.80	64.00	6.95
Finan Freedom (FIN)	51.06	13.85	10.00	70.00	35.61
Buss Freedom (BUSS)	59.09	13.79	26.80	83.30	6.10
Overall Index (OVIN)	58.27	10.64	21.40	77.00	21.94

Interestingly, the average values of economic freedom variables range between 43 percent and 59 percent, higher than all conventional factors of tax revenue performance (with the exception of trade openness). The overall economic freedom index in particular, has an average share of 58 percent, which falls slightly short of the 59.6 percent of the average global economic freedom index in 2012. In addition, the standard deviations of non-conventional factors of tax revenue performance are relatively higher than those of conventional factors. For example, the standard deviations for non-conventional factors range between 11 and 19, implying that the data

points are spread out.

### Cross-Country Correlations

The cross-country correlations are detailed in Table 3. A correlation matrix is crucial for understanding the relationship between two or more variables. The researcher began by regressing the dependant variable with the conventional determinants of tax revenue performance. The results indicate that tax revenue is positively correlated with trade openness and GDP per capita. On the contrary, a negative correlation is established between tax revenue and population growth.

**Table 3.** Cross-correlation matrix

Variable	TAX_REV	TOP	POP	LnGDP	CPI	AGR
TAX_REV	1.00					
TOP	0.71*	1.00				
POP	-0.59*	-0.49*	1.00			
LnGDP	0.29*	0.010	-0.35*	1.00		
CPI	0.07	0.17**	0.27*	-0.07	1.00	
AGR	-0.43*	-0.34*	0.41*	-0.58*	0.03	1.00

Note: asterisks in parenthesis (\*, \*\*, \*\*\*) denotes significance levels (1%, 5%, 10%)

The next step was to regress tax revenue with the non-conventional determinants. The findings are presented in Table 4 below. Interestingly, tax revenue was found to be positively correlated with all economic freedom variables (with the exception

of investment freedom). On the downside however, a weak positive correlation (0.02) was established between tax revenue and the overall economic freedom index.

**Table 4.** Correlation matrix

Variable	TAX_REV	INTEG	INVEST	LAB	PROP	BUSS	FIN	OVIN
TAX_REV	1.00							
INTEGR	0.42*	1.00						
INVEST	-0.16***	0.66*	1.00					
LAB	0.32*	0.75*	0.62*	1.00				
PROP	0.29*	0.83*	0.74*	0.74*	1.00			
BUSS	0.27*	0.69*	0.63*	0.51*	0.71*	1.00		
FIN	0.15	0.76*	0.84*	0.68*	0.81*	0.73*	1.00	
OVIN	0.02	0.743*	0.91*	0.63*	0.84*	0.79*	0.92*	1.00

Note: asterisks in parenthesis (\*, \*\*, \*\*\*) denotes significance levels (1%, 5%, 10%)

The results in table 4 further indicate that government integrity and labour freedom, among others, are highly correlated with tax revenue.

### Stationarity Analysis

The variables were assessed for stationarity by means of the IPS unit root test. The results are presented Table 5. From the stationarity tests presented in Table 5, the researcher find that trade openness, agriculture share in GDP, GDP per capita, financial freedom and property freedom are not stationary in their level form but rather after first differencing. The rest of the variables are however found to be stationary in their level form.

It presents the analysis of the related results, theories, and hypotheses (if any) based on the writer's reasoning. Data analysis and discussion should be

presented in brief but clear and it is not dominated by table presentation. The tables which are presented should not be the rough output but in the processed and brief summary (Rathbun, West & Hausken 2003). Tables and pictures are presented consistently in the center and the titles are above for the tables and below for the pictures. It presents the analysis of the related results, theories, and hypotheses (if any) based on the writer's reasoning (Simpson 1997). Data analysis and discussion should be presented in brief but clear and it is not dominated by table presentation. The tables which are presented should not be the rough output but in the processed and brief summary (Porteous 2007). Tables and pictures are presented consistently in the center and the titles are above for the tables and below for the pictures (Albanese 2009).

**Table 5.** Stationarity test

Variables	In Level	In 1 <sup>st</sup> difference	IPS test statistic
Tax Rev	I(0)		-3.12*
TOP	I(1)	I(0)	-10.55*
AGR	I(1)	I(0)	-11.61*
CPI	I(0)		-9.18*
LnGDP	I(1)	I(0)	-7.24*
POP	I(0)		-1.77**
BUSS	I(1)	I(0)	-11.51*
FINAN	I(0)		-4.18*
INTEG	I(0)		-3.72*
INVEST	I(0)		-1.48***
LAB	I(0)		-1.36***
PROP	I(1)	I(0)	-8.93*
OVERALL	I(0)		-2.58**

Note: asterisks in parenthesis (\*, \*\*, \*\*\*) denotes significance levels (1%, 5%, 10%)

### GMM Estimation

The last leg of the study was to estimate the coefficient for both conventional and non-conventional

determinants of tax revenue. This was achieved by means of the GMM econometric technique. The results are presented in Table 6.

Table 6. Panel GMM estimations

Variable	1	2	3	4	5	6	7	8
LnGDP	3.32*	4.83*	1.64	4.07*	5.27*	4.17*	5.35*	5.29*
TOP	0.14*	0.13*	0.14*	0.13*	0.19*	0.14*	0.15*	0.13*
AGR	-0.04	-0.01	-0.06	-0.08	0.12	-0.04	-0.01	-0.03
CPI	0.01	0.01	0.02	0.01	-0.11	0.01	0.01	-0.01
POP	-1.44*	-1.61*	-1.06**	-1.68*	-1.91*	-1.70*	-1.43*	-1.64*
INVEST		-0.08*						
INTEG			0.09***					
BUSS				-0.08***				
LAB					-0.13**			
PROP						-0.06***		
FINAN							-0.09**	
OVERALL								-0.16*
C	-0.09	-0.44	2.29	3.14	-2.52	-0.09	-3.28	3.12
Adj R <sup>2</sup>	0.61	0.64	0.61	0.61	0.69	0.62	0.62	0.64
Instruments	7	8	8	8	8	8	8	8

Note: asterisks in parenthesis (\*, \*\*, \*\*\*) denotes significance levels (1%, 5%, 10%)

GDP per capita, to begin with, has a positive and statistically significant impact on tax revenue mobilisation across all specifications. The rationale is that the bulk of tax revenue is collected from income taxes which represent both personal income taxes and company income taxes. Thus, GDP per capita, which represents household incomes in this regard, is expected to have a positive impact on tax revenue mobilisation (Castro & Camarillo, 2014). As household income increases, so does the ability of tax authorities to mobilise tax revenue. Similarly, trade openness is found to have a positive and statistically significant impact on tax revenue mobilisation in all specifications. Economic wisdom has it that, open economies grow faster through capital inflows, exchange of technical-know-how and efficient use and distribution of resources. In this regard, an increase in trade openness would have a positive impact on tax revenue mobilisation (Gnangnon & Brun, 2019). In contrast, agriculture share in GDP is found to exhibit a weakly negative and statistically insignificant impact on tax revenue mobilisation. This signifies the difficulties involved in taxing the agricultural sector (Castro & Camarillo, 2014). To put this in context, agricultural activities usually take place in the informal economy, which makes it difficult for tax authorities to record. Also, governments are usually reluctant to tax the agricultural sector as it is politically infeasible. Instead, governments provide production subsidies to the agricultural sector.

Nonetheless, population growth is found to exhibit a negative and statistically significant effect on

tax revenue mobilisation as expected. Typically, the relationship between tax revenue mobilisation and population growth is twofold: when a greater share of the population is made up of the age-dependency population, tax revenue mobilisation becomes undermined (Ball & Creedy, 2014). On the one hand, when the share of the productive population is greater, tax revenue mobilisation is fostered. The reasoning is that the productive population is most likely to be involved in productive economic activities, for which tax revenue can be derived.

All coefficients of economic freedom have negative signs (with the exception of government integrity) and are statistically significant in explaining variations in tax revenue mobilisation. This is contrary to Alabede (2018) and Cung (2019) which proves that the degree of economic freedom increases the tax ratio. This finding implies that economic freedom in SADC member countries undermines tax revenue mobilisation. The economic intuition behind this is that African countries are characterised by massive agrarian activities, most which take place in the informal sector. As a result, increases in agricultural activities would bring about declines in tax revenue collection given the larger informal sector. Also, as production increases, the government has to provide more subsidies to farmers.

## 5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study was aimed at scrutinizing the nexus between economic freedom and tax revenue performance in SADC countries. This objective was

achieved by applying the GMM econometric modelling on dynamic panel data. We find a strong correlation between tax revenue and its conventional determinants and a weak correlation between tax revenue and economic freedom variables. Furthermore, conventional determinants of tax revenue including household incomes, population growth and trade openness are statistically significant in explaining variations in tax revenue. Trade openness and household incomes exhibit a positive effect on tax revenue mobilisation while population on the contrary, exhibits a negative effect. Also, the researcher find that all economic freedom variables are statistically significant in explaining changes in tax revenue yet most of them exhibit a negative effect.

Given the findings of the study, the policy implication is for African countries to invest substantially in the manufacturing sector to increase their tax revenue. African countries are currently characterised by agrarian activities and subsistence farming, which undermines tax revenue mobilisation as most agrarian activities take place in the informal sector. Thus, industrialization should be at the forefront of policy making. This will ensure that individuals who are based in traditionally low paying jobs are up-scaled to modern higher paying jobs, thus contributing more tax revenue. Further to this, governments in SADC countries should focus more on reducing red tape and unnecessary bureaucracy to enhance the ease of doing business and realize the full benefits of economic freedom.

## DISCLOSURE

There is no conflict of interest between the author(s). Also, the author(s) did not receive any funding towards the research work carried out.

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