

REVENUE PRODUCTIVITY OF THE TAX SYSTEM IN LESOTHO

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Abstract

Fiscal policy is the only macroeconomic policy tool at the disposal of Lesotho government because the country gave up its monetary policy, trade policy and exchange rate policy upon joining SACU and CMA. The study evaluates the revenue productivity of Lesotho's overall tax system as well as of the major components of tax revenue, income tax and value added tax, using annual time-series data for the period 1992-2015. The buoyancy of the tax system is measured using both the traditional regression approach as well as the dummy variable approach. The results indicate that overall, the Lesotho tax system and its major components are elastic and buoyant as the coefficient of log (GDP) is statistically significant and greater than unity in all the regressions. The results also indicate that delays in the implementation of tax policies announced in the budget speeches negatively affect tax revenue. The introduction of the Lesotho Revenue Authority (LRA) in 2003 seems to have marginally improved the efficiency of the tax system in general. Other tax reforms do not seem to have significantly improved on the revenue productivity of the system as they were focused more on equity. One conclusion from the study is that the tax revenue in Lesotho grows due to increases in income rather than improvement in government effort in tax collection. Although the equity focus of the tax policy is commendable, there is a need to focus on revenue productivity as well such that future reforms are geared towards improving the efficiency in tax collection.

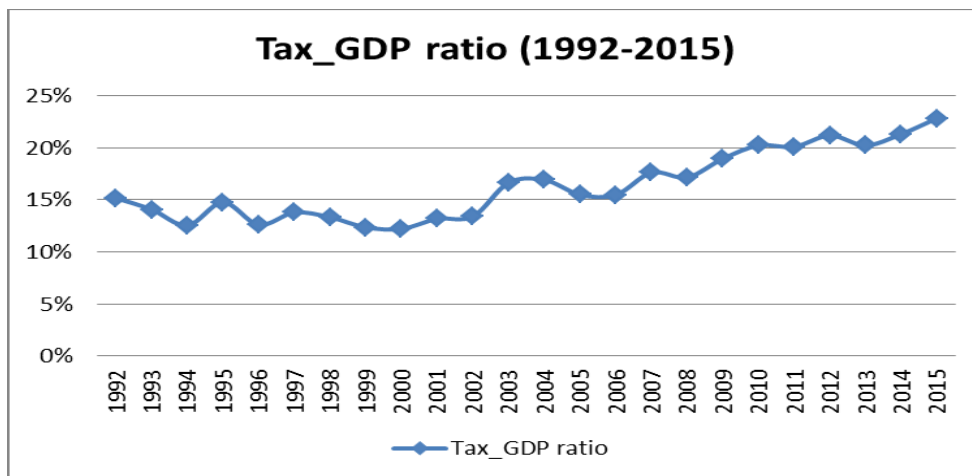
1. Introduction

Notwithstanding the considerable debate concerning which services should be provided by the state, there is a general consensus that raising the level of government expenditure, especially for public investment in key areas of the economy, tends to be an important ingredient in the development process. The importance of taxation lies in its ability to generate sufficient revenue to meet expanding requirements of the public sector. Taxation is also used to regulate the economy by influencing vital economic variables, employment, income and wealth distribution, and in some cases the pattern of consumption.

Tax revenue mobilization plays an important role especially in developing countries where it is a major source of domestic revenue for financing critical public expenditures needed for growth. In most cases, it is deemed to be a better source of revenue mobilization than other sources such as deficit financing and money creation. However, most developing countries find it difficult to raise enough tax revenues¹.

Figure 1 shows that the ratio of tax revenue to GDP in Lesotho between 1992 and 2002 was constant and averaged 13%. Following the introduction of the Lesotho Revenue Authority in 2003, there is an upward trend in the ratio.

Figure 1: Ratio of Tax Revenue to GDP, 1992-2015



Source: Central Bank of Lesotho

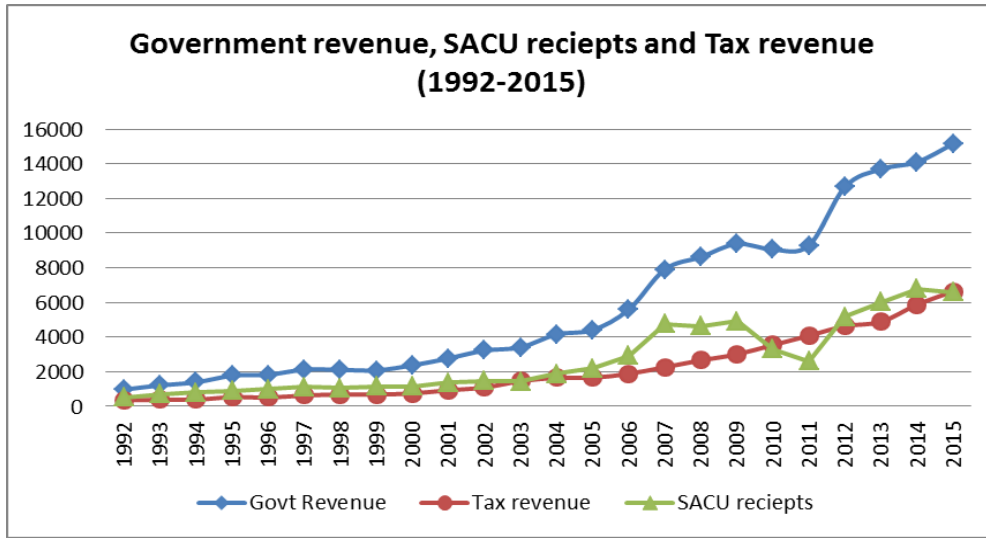
¹ The reasons for this vary between countries but it can be concluded that in developing countries tax policy focuses on what is possible rather than the pursuit of the optimal.

The ability of a tax system to generate revenue has a bearing on the services that can be provided by a government. Hence, for taxation to be an effective resource mobilisation tool the tax system needs to be productive or elastic. The productivity of a tax system may be measured using two concepts: tax elasticity, and tax buoyancy. Tax revenue may change due to a number of factors such as, changes in tax rates, tax base, as well as efficiency of tax assessment and collection. Tax elasticity measures the responsiveness of tax revenue to changes in income while tax buoyancy considers the responsiveness of tax revenue to changes in income as well as to changes in discretionary measures such as tax rates and tax bases. It is desirable that the income elasticity and buoyancy of a tax system should be equal or greater than unity (Bonga et al, 2015). The distinction between tax elasticity and buoyancy is valuable when evaluating whether future revenues will sufficiently meet the resource needs without changing the rates or bases of existing taxes (Timsina, 2006)

Many developing countries still face difficulties in raising adequate tax revenue with many of these countries suffering from an over-dependence on a small number of sources of tax revenue such as export taxes on mineral products which are vulnerable to external factors,. In an attempt to curb this problem, many developing countries undertook tax reforms during the 1980s. However, according to Osoro, (1993) most of those reforms were on tax structure with the general aim of revenue adequacy, equity and fairness, simplicity and economic efficiency, rather than on tax administration. Since independence, Lesotho's tax system has also undergone several tax reforms.

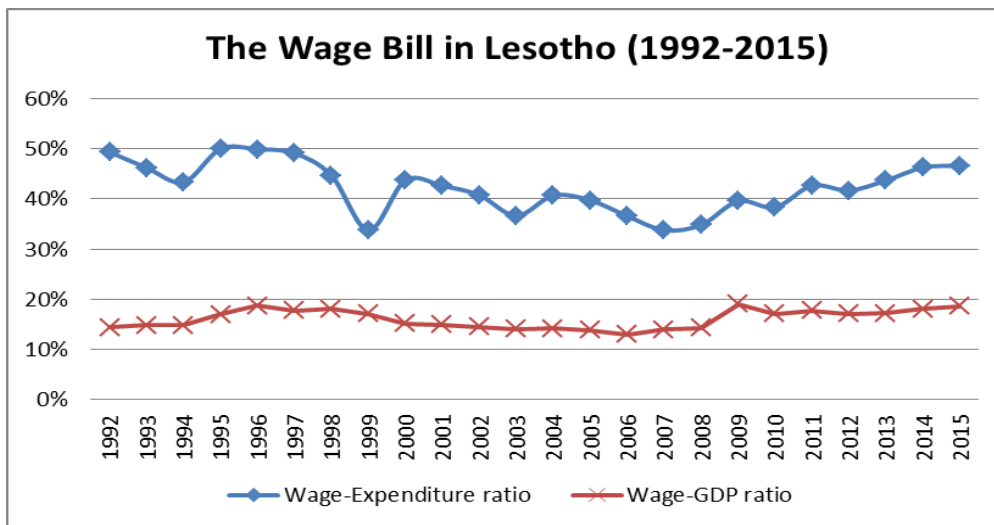
The efficiency of the of the taxation system is very important in Lesotho, because as a member of CMA and SACU, the country has no control over its monetary policy and depends heavily on SACU revenues which are exogenously determined (see Figure 2) hence fiscal policy is the only macroeconomic tool for influencing the economy. Recent declines and uncertainties in SACU receipts coupled with escalating public expenditures, mostly driven by the high wage bill (see Figure 3), have plagued the fiscal stance of the nation and have necessitated an interrogation of alternative means of internal revenue mobilization.

Figure 2: Government Revenue, SACU Receipts and Tax Revenue (1992-2015)



Source: Central Bank of Lesotho

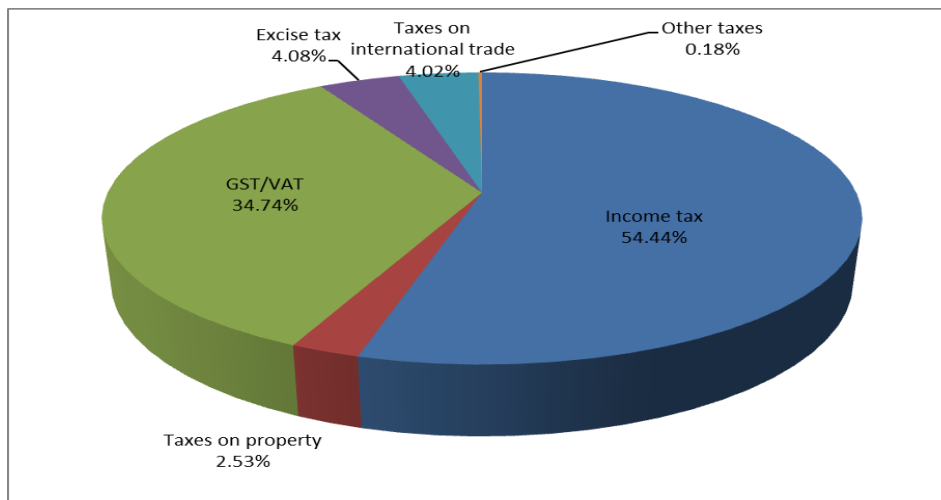
Figure 3: Share of the Wage Bill in Lesotho (1992-2015)



Source: World Development Indicators

Figure 4 which presents information on the components of Lesotho’s tax system shows that over half of the tax revenue is raised from income tax and about a third from VAT.

Figure 4: Tax revenue performance (period averages): 1992-2016



Source: Central Bank of Lesotho

Given the importance of taxation to the Lesotho economy, studies on the productivity of the tax system are essential. Based on the foregoing discussion, the main objective of this study is to measure the elasticity and buoyancy of Lesotho's overall tax system to ascertain whether it is revenue productive. Short-run and long-run elasticities and buoyancy will be estimated for tax revenue and its main components of income tax, value added tax (VAT) for the period 1992 to 2016.

2. OVERVIEW OF TAX REFORM IN LESOTHO

Tax reform is necessitated by a deficiency of the existing tax system to meet the stated goals. It usually addresses four main concerns: why it is done, when it should be done, where it should be done and how it should be done. Lesotho's tax reform dates back to shortly after independence, in the late 1960s. However, the major tax reforms commenced in the 1990s. Most of the reforms were undertaken on the income tax structure with the main objective of collecting more revenue in order to reduce financial imbalances in the economy. Other objectives that are addressed by these reforms include simplicity as well as equity. These changes resulted in reduced number of tax brackets and increased chargeable income.

Tax reform shortly after independence

In 1968 the basic and graded tax was replaced by a graduated personal tax. The minimum rate of tax was raised by approximately 35%, to R4.50 per annum. The graduated tax had two tiers, with

the minimum rate of R4.50 applied on incomes up to R500 per annum, and the tax increased cumulatively by 50% per completed R100 of income on any incomes in excess of R500. An individual paid whichever was greater between graduated personal tax and income tax.

Tax reform in the 1980s

In 1982, the Department of Sales Tax was established and a general sales tax (GST) was introduced at the rate of 5%, and later increased to 6% in 1984. Also tax on alcohol was increased from 17.5% to 22% with effect from 1 April 1988. All these reforms were aimed at revenue generation.

Tax reform in the 1990s

In the 1990s, several reforms were undertaken mostly on income tax, with just one reform on sales tax. However these reforms were biased towards the structure of the tax structure, and ignored tax administration. In 1990, abatements relating to dependents were abolished and medical allowances were terminated in order to increase revenue and to reduce tax evasion and avoidance (Selialia, 1993). Abatements are non-taxable incomes allowed to tax payers based on marital status, with married allowances being greater than single allowances. During the period 1990-1993, every time there was a change in the tax rate structure, the abatements allowances were also increased.

In 1991, sales tax rate was increased to 10%. During the same period, the income tax system had five brackets, with the lowest bracket taxed at 15% and the highest bracket taxed at 53%, with an average marginal tax rate of 35%. In 1992, the highest tax bracket was reduced from 53% to 48% resulting in the average marginal tax rate falling to 33%.

In 1993, the tax brackets were reduced from five to three, with the lowest income taxed at 25% and the highest rate at 40%. Thus, the reduction in the number of tax brackets was accompanied by an increase in the lowest tax rate from 15% to 25%. In 1996, the three-band structure of 25%, 35% and 40% was replaced with a two-band structure of 25% and 35%, with the lowest income bracket charged at 25% and the balance of chargeable income taxed at 35%. During the same period, the abatements system was replaced with single personal tax credit system. The tax credit can be defined as a reduction in tax liability or a tax saving or a negative tax. The difference between the tax credit and abatements is that the former is applicable to all tax payers at a fixed amount regardless of income level and marital status. The tax credit was set at M2 640 per annum per taxpayer. The introduction of the tax credit meant that a taxpayer had to earn more

than M10 560 per annum to be eligible to pay income tax. Corporate tax rates were reduced from 40% to 35% with the aim of encouraging businesses as well as bringing corporate tax in line with regional tax rates.

Tax reform in the 2000s

In an attempt to strengthen tax administration, the government of Lesotho established Lesotho Revenue Authority (LRA) in 2003 and introduced Value Added Tax (VAT) to General Sales Tax (GST). The purpose of the VAT was to stop the abuse of tax exemptions certificates and to close the loopholes that suppliers were using to evade tax. It was hoped that these measures would widen the tax base and improve efficiency and equity.

In 2006, corporate tax rates were reduced from 35% to 25% with the objective of encouraging private sector growth, and improving competitiveness with South Africa, with both actions hoped to increase corporate tax revenue. In addition, the tax on manufacturing industries was lowered from 15% to 10% to attract investors and provide support for manufacturing industries. An upfront VAT refund scheme to cover all exporters was proposed as well as a zero percent company tax on income generated from exporting manufactured goods to countries outside the SACU region.

In 2007 tax credit was increased from M2 911 to M3 500 mainly to help low income groups. Further income tax reform included a reduction of the lower tax rate from 25% to 22% and the increase of the threshold from M35 064 to M37 378. The threshold where people start paying tax was also raised from M11 643 per annum to M14 000. In 2009 personal income tax was linked to inflation, and the tax credit was increased from M4 500 to M5 000.

In 2012, the tax credit was adjusted to M 5 755 as a response to the difficulties endured by income earners due to the global economic crisis, implying that income less than M26 160 per annum attracted no tax. In 2014, in addition to increasing the tax credit and the thresholds by an inflation rate of 6%, both the lower and the upper personal income tax rates were also reduced from 22% to 20% and 35% to 30% respectively. The tax credit and the threshold were adjusted to avoid tax brackets creep. The tax credit was increased to M6 100 implying that the lowest taxable income was increased to M27 730 while the threshold for higher earners was adjusted to M51 690. During this same period, other tax reforms that took place include: the so called sin taxes on liquor and cigarettes; taxation of vehicles based on their gas emission were harmonized

at SACU level; the minimum turnover threshold that businesses have to register for VAT was increased from M500, 000 to M850, 000, providing relief for some small businesses.

3. LITERATURE REVIEW

Tax elasticity and tax buoyancy are measures of the effectiveness of a country's tax strategy. A tax buoyancy value of less than one suggests ineffective discretionary changes while a value greater than one implies that the discretionary policy changes are improving the tax system. Income elasticity of a tax is a product of the tax-to-base and base-to-income elasticities. Thus the composition and changes in the tax base as well, as the factors that determine that base are important determinants of income elasticity of tax. Buoyancies and elasticities can be calculated for the entire tax regime or for individual components of the tax system. Generally, regressive and specific taxes tend to contribute to low tax elasticities and buoyancies.

The concept of revenue productivity of a tax in terms of buoyancy and elasticity was first introduced by Sahota (1961) using the data for India. Sahota and subsequent studies such as Nambiar and Rao (1972); Rajkumar and Chdambaram (1972); and Howard (1992) found large variations in tax elasticities and buoyancies in both advanced and developing countries (Fauzia, 2001; Mukarram, 2001; Cotton, 2012). Studies on revenue productivity of tax systems in Africa by researchers, notably, Osoro (1993), Moyi and Muriithi (2003), Kusi (1998), Chipeta (1998) and Ariyo (1997) provided inconclusive results because of data constraints. Various models have been used to estimate the tax buoyancy and elasticity. Some studies used the dummy variable model, others the proportional adjustment (PA) technique, while others only estimated elasticities due to lack of sufficient data on changes in tax policies which are needed to compute buoyancies. A summary of some key empirical studies from Africa is highlighted in **Table 1**.

Table 1: Summary of the key empirical studies using data from African countries

Author (s)	Data coverage	Model	Estimation technique	Key findings
Osoro (1993)	Tanzania, 1969-1990	Proportional adjustment	OLS and decomposition	Tax reforms did not increase the revenue productivity of the tax system and tax elasticities are inelastic for the major taxes and the general tax system.
Kusi (1998)	Ghana, 1960-1993	Proportional adjustment		Tax reform positively contributed to revenue productivity growth and tax elasticities are elastic for the major taxes.
Bothhole and Agiobenebo (2006)	Botswana, 1982-2001	Singer dummy variable model	vector error correction model (VECM),	Income elastic and buoyant tax system. Mineral tax revenue is buoyant and elastic with respect to mining GDP; non-mineral income tax is buoyant and elastic with respect to exports; customs and excise duties are neither buoyant nor elastic.
Muriithi and Moyi (2003)	Kenya, 1973-1999	Proportional Adjustment		Tax reforms had positive impact on the overall tax structure and on the individual tax handles.
Ehdaie (1990)	Malawi and Mauritius, 1965-1985	Dynamic simultaneous-equation econometric model	3Stage Least Squares	Discretionary measures are highly significant

Kargbo and Egwaikhide, 2012	Sierra Leone, 1977 -2009	Singer dummy variable model	Engle-Granger Two-Step cointegration approach	Discretionary tax measures are effective in tax revenue productivity and the general tax system is inelastic. Tax buoyancy estimates were more elastic than tax elasticity estimates. Short-run elasticities are lower than the static long-run elasticities.
Bayu, 2015	Ethiopia, 1974-2010	Traditional model	Cointegration approach	Gross, direct and domestic indirect tax revenues are non-buoyant both in short run and in the long run. Foreign trade tax are non-buoyant in the short run but buoyant in the long-run
Bonga, Dhorogwaendepi, Mawire-Van Strien, 2015	Zimbabwe, 2000-2013	<i>Traditional and Singer Dummy Variable models</i>	Cointegration approach	The general tax system is buoyant and elastic.

4. METHODOLOGY

Data sources and description

The study uses annual data from 1992 to 2015. The data on tax revenue was obtained from the Central Bank of Lesotho while the data on various measures of GDP was obtained from World Bank Indicators database.

Conceptual framework

By the traditional definition of a tax system, tax elasticity and buoyancy are determined by the tax base, tax rate and tax structure. The concept of tax elasticity is therefore defined as the percentage increase in the tax revenue resulting from endogenous changes in the tax base caused by a percentage rise in Gross Domestic Product (GDP). The income elasticity of a tax can be broken down into tax-to-base and base-to-income elasticities, with the elasticity of a tax being the product of the two components. The composition of the tax base can change significantly over relatively long periods, especially in a developing country. Singer (1968) introduced the concept of ‘tax buoyancy’ by incorporating the dummy variable and thereby altering the

traditional approach to capture the exogenous influences resulting from tax legislation on the tax base, tax rate and / or tax structure. This study draws particularly from both approaches to measure elasticity and buoyancy of the Lesotho tax system for the period 1992-2015.

Model Specification

The empirical analysis in this study starts with the multiplicative functional form of a tax revenue model represented in equation (1):

$$T_t = e^\alpha Y_t^\beta e^{\varepsilon_t} \quad (1)$$

where T_t is the total tax revenue, Y_t is the tax base proxied by real GDP, α is a constant term and β is the coefficient of income and ε_t is the error term. The total tax revenue comprises income tax, taxes on goods and services (customs and excise duties, VAT/Sales tax), corporate profit tax and other taxes. The nature of Lesotho's tax revenue sources is such that SACU revenues account for the large share of the total government receipts. Our data allows us to estimate the revenue productivity of a tax system through the buoyancy and the elasticity of a tax system.

The tax buoyancy is estimated using the double log-linear form of equation (1) represented by equation (2):

$$\ln T_t = \alpha + \beta \ln Y_t + \varepsilon_t \quad (2)$$

Where; $\ln T_t$ is the log of total tax revenue; $\ln Y_t$ is the log of real GDP and the log of real GDP per capita; β is the buoyancy coefficient in year t

Equation (2) is modified based on Ariyo (1997), by including one year lag of GDP to account for any delays in tax policy implementation in period t that may affect tax base to obtain equation (3).

$$\ln T_t = \alpha + \beta_1 \ln Y_t + \beta_2 \ln Y_{t-1} + \varepsilon_t \quad (3)$$

Where; Y_{t-1} is the previous year's income; and β_2 is the buoyancy coefficient for the previous year.

One limitation of the preceding approach is that it does not account for changes in tax policy and in the institutional framework. To overcome this limitation, this study extends the analysis by

introducing the dummy variable for each year in which there was an exogenous tax policy change, as proposed by Singer (1968)². Introducing these dummy variables gives equation (4).

$$\ln T_t = \sum_{i=1}^k \alpha_i D_i + \beta_1 \ln Y_t + \beta_2 \ln Y_{t-1} + \varepsilon_t \quad (4)$$

Where D_i are the intercept dummy variables taking the value of 1 for the years in which there were discretionary policy changes and 0 otherwise. α_i are the coefficients of intercept dummies of which k is the number of dummies for changes in tax policy. β_1 is aggregate tax elasticity in the current period while β_2 is the tax elasticity in the previous period. Both coefficients measure the percentage increases in the tax revenue resulting from the endogenous changes in the base caused by a one percent rise in GDP.

From equation (4), the log of total tax revenue estimates the productivity (both the buoyancy and the elasticity) of the tax system in Lesotho.

5. RESULTS

Stationarity Tests

The next step in our analysis is to establish the stationarity of the variables in question prior to estimating the economic relationships. Table 2 presents the results for the Augmented - Dicky Fuller (ADF) and Phillips-Perron (PP) Tests for all the variables used in this study. If the calculated test statistic is greater than the critical values, then we reject the null hypothesis of a unit root and alternatively if the test statistics is less than the critical values, we do not reject the null hypothesis.

These results suggest that all the variables are stationary in levels with and without the trend term. Hence we conclude that all the variables are integrated of order 0, that is, they are I (0). Hence there is no need to further transform the data.

² Chand and Wolf (1973), Khan (1973) and Artus (1974) also used the same methodology.

Table 2: Unit root tests (1992-2015)

VARIABLE	ADF		PP	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
Log(Total Tax)	0.356**	-3.426*	0.611**	-3.414*
Log (Income Tax)	-0.307**	-2.865**	-0.300**	-2.901**
Log (PAYE)	-0.142**	-2.555**	0.099**	-3.677*
Log (VAT)	-1.143**	-3.707*	-1.227**	-2.547**
log(GDP)	-1.746**	-3.100**	-2.928**	-3.048**
CRITICAL VALUES				
1%	-3.750	-4.380	-3.750	-4.380
5%	-3.000	-3.600	-3.000	-3.600

Note: ** significance level at 1% , * significance level at 5%

The next step was to test for the stationarity of the corresponding residuals in regressing drawing from the two step cointegration test proposed by Engel and Granger (1987). We estimate Log (GDP) on Log (Total Tax), Log (Income Tax), Log (PAYE) and Log (VAT) using OLS and test the stationarity of the corresponding residuals. The test statistics for the residuals are greater than the critical values at 1%, suggesting that the four equations for total tax, income tax, PAYE and VAT with nominal GDP are stationary. Thus we conclude that measures of tax revenue have the long run relationship with GDP.

Basic regression: Tax elasticity

Given the above conclusions, we can proceed to use OLS to measure the tax elasticity of Lesotho's tax system by estimating equation (1) and equation (2). The results are presented in Table 3.

Overall, the Lesotho tax system and its major components (income and VAT) are elastic as the coefficient of log GDP is statistically significant and is greater than unity in all the regressions. VAT is the main driver of tax revenue as it is more elastic than PAYE. On the other hand, income tax which includes PAYE and corporate taxes has higher elasticity than VAT indicating that the government can collect more revenue from the private sector through the corporate taxes.

As already mentioned, lags in tax administration due to delays in the implementation of tax policies announced in budget speeches negatively affect tax revenue. This is particularly important for income tax which has a highly statistically significant coefficient of lagged GDP.

Table 3: OLS regression results on tax elasticity in Lesotho (1992 -2015)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (GDP)	1.221*** (0.033)	1.246*** (0.029)	1.245*** (0.019)	1.239*** (0.019)	1.140*** (0.018)	1.143*** (0.023)	1.231*** (0.043)	1.258*** (0.046)
Log (GDP -1)		-0.244 (0.405)		-0.975** (0.394)		0.055 (0.527)		-0.245 (0.458)
Constant	-3.845*** (0.317)	-4.059*** (0.283)	-4.687*** (0.168)	-4.526*** (0.202)	-4.191*** (0.159)	-4.225*** (0.237)	-5.008*** (0.416)	-5.240*** (0.446)
Observations	24	23	24	23	24	23	24	23
Adj. R-squared	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98
F-Statistic	1334.4***	894.5***	4351.8***	2984.9***	4136.8***	1545.2***	808.1***	375.3***

Notes: Columns 1 and 2 present the results for the total tax revenue productivity. Columns 2 and 4 presents the results for the income tax revenue productivity. Columns 5 and 6 present the results for PAYE while columns 7 and 8 presents the results for the VAT revenue productivity. The dependent variable is computed at the annual level. All regressions are estimated with product and month fixed effects. Robust standard errors are in parenthesis below the estimated coefficients. *** p<0.01, ** p<0.05, * p<0.1

5.3. Dummy variable regression: measuring tax buoyancy

As discussed in section 2, Lesotho has gone through a number of tax policy reforms. These reforms have had an impact on the revenue productivity of the country's tax system. **Table 4** presents the results of the buoyancy of the Lesotho tax system.

Table 4: OLS regression results on tax buoyancy in Lesotho (1992-2015)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (GDP)	1.210*** (0.040)	1.252*** (0.032)	1.221*** (0.035)	1.248*** (0.031)	1.233*** (0.027)	1.256*** (0.020)	1.227*** (0.048)	1.253*** (0.053)
Log (GDP -1)		-0.107 (0.716)		-0.168 (0.434)		-0.535 (0.463)		-0.292 (0.538)
Dummy (Tax-rate)	0.008 (0.090)	-0.109** (0.038)			-0.070 (0.055)	-0.132*** (0.011)		
Dummy (Tax-bracket)	0.029 (0.083)	0.112 (0.073)			-0.043 (0.042)	0.025 (0.026)		
Dummy (Tax-structure)	-0.020 (0.079)	0.020 (0.062)			0.147*** (0.026)	0.145*** (0.038)		
Dummy (Tax-credit)	0.055 (0.048)	0.066 (0.059)			0.074 (0.043)	0.052 (0.041)		
Dummy (LRA)			0.047* (0.024)	0.053* (0.027)				
Dummy (VAT2003)							0.010 (0.033)	0.011 (0.040)
Dummy (VAT2014)							0.055 (0.041)	0.044 (0.049)
Constant	-3.756*** (0.368)	-4.134*** (0.294)	-3.848*** (0.328)	-4.084*** (0.297)	-4.584*** (0.243)	-4.738*** (0.197)	-4.968*** (0.456)	-5.193*** (0.527)

Observations	24	23	24	23	24	23	24	23
Adj. R-squared	0.98	0.99	0.99	0.99	0.98	0.98	0.97	0.97
F-Statistic	413.2***	596.2***			1248.1***	3356.5***		

Notes: Columns 1 and 2 present the results for the total tax revenue productivity. Columns 2 and 4 present the results for the income tax revenue productivity. Columns 5 and 6 present the results for PAYE while columns 7 and 8 present the results for the VAT revenue productivity. The dependent variable is computed at the annual level. All regressions are estimated with product and month fixed effects. Robust standard errors are in parenthesis below the estimated coefficients. *** p<0.01, ** p<0.05, * p<0.1

Information in Table 4 shows that in general, the system is buoyant as revealed by the statistically significant coefficients of GDP which are more than unity. The introduction of the Lesotho Revenue Authority (LRA) in 2003 seems to have improved the efficiency of the tax system in general. With the inclusion of other reforms, the lags in policy implementation become insignificant. Tax credit is also not statistically significant except in the F-Statistics (indicating its importance in the model). This result confirms the view that tax credit is a policy intended for equity of the tax system and not revenue productivity. The results also reveal that the transition from General Sales Tax to Value Added Tax does not seem to have improved revenue productivity for the economy. Similarly, the expansion of the turnover threshold is not significant since it was meant to relieve small companies and not for tax revenue productivity. This confirms the conclusion that policy reforms on VAT have not been revenue productive over the period of analysis.

In general, when we account for tax reforms, the introduction of LRA appears to have improved the overall productivity of the Lesotho tax system although marginally. However, the tax reforms thus far seem to be inclined towards equity and not efficiency objective of the tax system. Therefore tax revenue in Lesotho grows due to an increase in income and not due to government effort in tax collection.

Further analysis

We estimated tax elasticity and buoyancy across longer periods with the argument that measures of tax buoyancy are likely to vary significantly from year to year, which is not very helpful (Jonathan Haughton, 1998). It is thus more useful to measure buoyancy over a longer period - perhaps five years at a time.

6. POLICY IMPLICATIONS

This study estimated the revenue productivity of the Lesotho tax system. Based on the results, there is potential for VAT to raise more revenue for the government. However, future reforms will have to be targeted towards encouraging investment in the private sector that has more impact on economic growth. Although the equity focus of the tax policy is commendable, there is need to shift focus toward revenue productivity such that future reforms are geared towards encouraging the efficiency in tax collection.

References

- Adari, M.M. (1997). Value Added Tax in Kenya. M.A. Research Paper, University of Nairobi.
- Artus, K.K. (1974). Tax Revenue Forecasting: A Methodological Study with Application to Turkey. *Studies in Domestic Finance*, no. 5 Washington, D.C.: IBRD.
- Bayu, T. (2015). Analysis of Tax Buoyancy and Its Determinants in Ethiopia (Cointegration Approach). *Journal of Economics and Sustainable Development*, 6(3), 182-194.
- Bonga, W.G., N.L. Dhoro-Gwaendepi, and F. Mawire-Van Strien (2015). Tax Elasticity, Buoyancy and Stability in Zimbabwe. *IOSR Journal of Economics and Finance*, Vol 6(1), pp. 21-29.
- Bothole T.D. and Agiobenebo T. J., (2006). The Elasticity and Buoyancy of Botswana Tax System and their Determinants. *ICFAI Journal of Financial Economics*, Vol. 4(4), pp. 48-62.
- Chand, S.K, and B. Wolf (1973). The Elasticity and Bouyancy of the Tax System of Peru, 1960-71: an Empirical Analysis. IMF, unpublished.
- Cotton, J.J. (2012). *The Buoyancy and Elasticity of Non-oil Tax Revenues in Trinidad and Tobago (1990-2009)*, Working paper, WP 06/2012.
- Ehdaie, J. (1990). An Econometric Method for Estimating the Tax Elasticity and the Impact on Revenues of Discretionary Tax Measures. World Bank Working Papers, No. 334.
- Howard, M. (1992). Public Finance in Small Open Economies: The Caribbean Experience, Praega Publishers, CT.
- Kargbo, B. I. B. and Egwaikhide, F. O. (2012). Tax elasticity in Sierra Leone: a time series approach. *International Journal of Economics and Financial Issues*, Vol. 2(4), pp. 432.
- Khan, M.Z. (1973). Responsiveness of Tax Yields to Increase in National Income. *Pakistan Development Review*, Vol. XII, no. 4.
- Leuthold, J. and T. N'Guessan. (1986). Tax Buoyancy and Elasticity in Developing Economy" Bureau of Economic and Business Research. Faculty Working Paper No. 1272, Urban Champain: University of Illinois.
- Milambo, M. (2001). Elasticity and Buoyancy of the Zambia Tax System, Unpublished M.A. Paper, University of Nairobi.
- Mukarram, F. (2001). Elasticity and Buoyancy of Major Taxes in Pakistan. *Pakistan Economic and Social Review*. Vol. 39 (1), pp. 75-86.

- Muriithi M.K. and E. D. Moyi, (2003). Tax Reforms and Revenue Mobilization in Kenya, AERC Research Paper 131, Nairobi: AERC.
- Musgrave, R.A. and Musgrave, P.B. (1984). Public Finance in Theory and Practice, 4th edition. Singapore: McGraw-Hill Book Company.
- Mwega, F.M. (1986). The Incidence of Taxes and Transfers in Kenya: A General Equilibrium Analysis. *East African Economic Review*, Vol 2, pp 6- 3.
- Nambiar, K.V. and Govinda R. M. (1972). Tax Performance of States. *Economic and Political Weekly*, pp. 1036-1038.
- Okech, T. C and Mburu P. G., (2011). Analysis of Responsiveness of Tax Revenue to Changes in National Income in Kenya between 1986-2009. *International Journal of Business and Social Science*, Vol. 2, No. 21, Special Issue, November
- Osoro, N.E. (1992). Revenue Productivity of the Tax System in Tanzania, 1979-1989. *Journal of African Economies*, Vol. 1(3), pp. 395-415.
- Osoro, N.E. (1993). Revenue Productivity Implications of Tax Reform in Tanzania. African Economic Research Consortium Research Paper No. 20.
- Osoro, N.E. (1995). Tax Reforms in Tanzania: Motivations, Directions and Implications. African Economic Research Consortium Research Paper No. 38.
- Rajkumar, P.V. and S. Chidambaram (1972). A Study of the Sensitivity of the Select Taxes in Tamil Nadu. *Southern Economic Review*, Vol. 1 (4), pp. 348-356.
- Sahota, G.S. (1961). Indian Tax Structure and Economic Development. Asia Publishing House, Bombay, pp. 7-9
- Selialia F.L. (1993) Personal income tax in Lesotho: its impact on the economy. Central Bank of Lesotho
- Singer, N. M. (1968). The Use of Dummy Variable in Establishing the Income Elasticity of State Income Tax Revenue. *National Tax Journal*, 21, pp200-204.
- Timsina N. (2006) Tax elasticity and buoyancy in Nepal: A Revisit. URL: Vol19_art2.pdf.com

Appendix

Table 1: Relative Shares of Main Taxes in Total Tax Revenue in Lesotho

Year	PAYE	Property Taxes	GST/VAT	Excise Taxes	Taxes on Trade	Other Taxes	SACU receipts
1992	11.165	2.814	12.717	4.021	0.000	0.128	53.220
1993	10.040	2.100	11.680	2.591	0.011	0.095	57.179
1994	9.524	0.004	10.398	2.255	0.000	0.209	58.594
1995	9.654	2.672	9.742	2.813	0.002	0.177	50.157
1996	11.678	1.542	7.177	2.208	0.003	0.140	53.566
1997	11.542	0.000	10.541	1.919	0.004	0.088	53.268
1998	12.629	1.636	10.989	1.838	0.003	0.071	50.592
1999	13.477	2.100	11.193	1.386	0.004	0.062	55.010
2000	12.167	0.000	11.219	1.107	0.004	0.077	48.153
2001	13.659	1.788	10.393	1.240	0.003	0.113	49.049
2002	12.857	1.356	10.965	1.688	0.002	0.109	45.306
2003	15.241	1.450	14.096	1.472	0.001	0.212	42.008
2004	13.665	0.000	15.621	1.270	0.144	0.073	44.825
2005	13.509	0.000	14.432	1.701	0.519	0.065	50.006
2006	11.706	1.049	12.835	1.336	0.748	0.101	52.308
2007	9.002	0.841	10.385	1.384	1.231	0.092	60.264
2008	9.758	0.865	10.966	0.978	1.362	0.111	53.739
2009	8.779	0.000	10.751	1.363	0.911	0.069	52.381
2010	12.075	1.057	13.349	1.253	2.084	0.020	36.633
2011	14.905	1.135	13.851	1.766	3.825	0.270	28.028
2012	11.734	1.143	12.813	1.528	0.999	0.004	40.735
2013	11.158	1.265	12.308	0.959	2.175	0.041	44.034
2014	11.758	0.679	14.558	1.402	3.306	0.009	48.136
2015	11.661	0.917	14.334	1.709	1.565	0.009	43.411
2016	11.305	0.924	14.684	1.857	1.661	0.008	42.512
Average	0.118	0.011	0.121	0.017	0.008	0.001	0.485

Note: the table presents the percentage share of individual tax revenue to total government tax revenue between 1992 and 2016