Fiscal Policy Stance and Public Expenditure in Kenya

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Abstract: *This paper investigates the relationship between fiscal policy stance and public expenditure in Kenya from 1964 to 2015 using a Vector Error Correction Model. The results indicate that there is a negative relationship between fiscal policy stance and public expenditure. The findings further indicate that fiscal policy and public expenditure are cointegrated using the Johansen test and the bound test but there is no short-run causality between the variables as indicated by the Wald test statistics. This means that fiscal policy stance does not have a strong direct effect on public expenditure as supported by the theory of fiscal policy that policy makers could have a lower incentive to pursue public interests as compared to their personal interests.*

Keywords: Fiscal policy stance, public expenditure, economy

Introduction

There are numerous studies that have been undertaken on public expenditure especially on the determinants of public expenditure, the relationship between economic growth and public expenditure and even the nexus between macroeconomic factors and public expenditure. However, the topical issue of fiscal policy stance and public expenditure has not been investigated conclusively except by a study such as Stancik and Valila (2012). It is of concern to examine the effect of fiscal policy stance on public expenditure especially in a developing country such as Kenya because it would aid in responding to the question of the extent to which governments would redistribute or reallocate public resources effectively. Furthermore, the theory of fiscal policy states that fiscal policy should aim to redistribute and reallocate resources apart from aiming to stabilize an economy.

Fiscal policy is a government discretionary measure that influences the direction of the economy by making changes in the level and composition of public spending and funding. It is a tool that governments use in controlling the level of public expenditure as argued by Tanzi (2006) and Perotti (2007) since fiscal policy aims at redistributing and reallocating economic resources while enhancing stabilization in an economy. Fiscal policy stance can be termed as contractionary or tight when there is an increasing fiscal surplus or a decreasing fiscal deficit over a time period. On the other hand, fiscal policy stance can be expansionary or loose when the

fiscal balance is in deficit and the level of deficit is increasing or the extent of surplus is decreasing compared to other time periods (Pailwar, 2008). Dornbusch et al. (2004) state that one of the main policy tools the government can use to enhance economic growth at a reasonable rate with low inflation is fiscal policy. It is a policy tool that is utilized in shortening recessions and regulating booms by changes in the level and composition of public spending and funding.

Alesina and Tabellini (2005) and Blanchard (2010) argue that fiscal policy in developed economies has mainly been counter-cyclical whereas in developing economies it has been pro-cyclical which is regarded as a suboptimal policy due to political agency problems. Perotti (2007) also concurs with the argument that counter-cyclical fiscal policy, that is an expansionary fiscal stance when the economy is at a boom, would be optimal as compared to pro-cyclical policy since it would enhance macroeconomic stability. However, Canuto (2009) and Svante (2010) have dissenting views where they argue that pro-cyclical policies are preferable especially when economies are facing an economic turmoil.

The relationship between fiscal policy stance and public expenditure has not been extensively examined. However, Stancik and Valila (2012) while examining the effect of fiscal policy stance on public expenditure found that changes in fiscal policy stance affects the composition of public spending, with fiscal tightening increasing the relative share of investment and loosening consumption expenditure. Also Kirchgassner (2001) and Brownbridge and Canagarajah (2008) have examined fiscal policy stance and public expenditure and the findings generally indicated that fiscal policy should focus on controlling the level of public spending and further allocate more resources to the education and health sectors. This paper aims to examine the relationship between fiscal policy stance and public expenditure in Kenya. Also the relationship between fiscal policy stance and recurrent expenditure in Kenya and also fiscal policy stance and development expenditure in Kenya is examined. This paper is divided into the following sections: introduction, literature review, research methodology, data analysis and conclusion.

Literature Review

This paper is anchored on two main theories which include; the theory of fiscal policy and Wagner's law of increasing state activities. The theory of fiscal policy as asserted by studies done by Musgrave (1959) and Johansen (1965) states that the goals of fiscal policy extend beyond stabilization since fiscal tools can also be used for redistributing income and for reallocating resources. It is viewed that policymakers have an objective of promoting the social welfare of the citizens which is dependent on several indicators depending on the government in power (Tanzi, 2006). Hence this theory asserts that fiscal policy can influence the increase or decrease in public spending depending on priorities at hand but it does not explicitly state whether it supports pro-cyclical or countercyclical measures. However, the theory of fiscal policy has fundamental weaknesses. First, there is a deep suspicion of governments and scepticism that policymakers and bureaucrats can be separated from their personal interests and incentives in the pursuit of the public interest and second the theory will have higher validity if better institutions and better institutional arrangements are in place (Tanzi, 2006). Hence, this theory tends to be a normative theory in the sense that it tends to state what should be done instead of what usually happens in regard to fiscal policy.

Wagner's Law argues that there is a long run propensity for government expenditure to grow relative to national income. Wagner (1863) based the Law of increasing state activities on the German economic context and observed that all types of governments exhibited increasing public expenditure irrespective of their sizes or intentions. Wagner's law has not presented the hypothesis in a mathematical form. Nevertheless, Musgrave (1959) argues that Wagner's focus was on the size of the public sector in the total economy but states that it is not fruitful to seek an explanation for the total expenditure. Wagner's contribution to public expenditure theories is particularly significant when we consider that before Wagner made the observations, the prevailing view was the notion that as a country grows richer, government activities would have a tendency to decline (Henrekson, 1993).

Fiscal policy has mainly been pro-cyclical or counter-cyclical depending on the prevailing economic condition in a country or region. It is notable that pro-cyclical fiscal policies have been common to developing countries whereas developed countries have been adopting counter-cyclical policies (Perotti, 2007; UNCTAD, 2010). These mixed findings could be attributed to developing nations' history of insufficient borrowing capacity, political economy factors, policy conditions imposed by the international financial institutions and existence of fiscal rules designed to attain debt sustainability (Alesina and Tabellini, 2005). On the other hand, counter-cyclical policy measures have been recommended because they enhance macroeconomic stability. Perotti (2007) emphasizes that counter-cyclical fiscal policy would be optimal if certain conditions hold such as; all credit markets are perfect for all agents such as individuals, firms and government and that firms and individuals are credit constrained.

However, with regard to fiscal policy and public expenditure, there are insufficient studies reviewing this relationship but the effects of fiscal policy on economic growth or a descriptive analysis of the impact of fiscal policy have extensively been examined. However, studies done by Stancik and Valila (2012) using panel data analysis examined the effect of changes in fiscal stance on the composition of public expenditure. The findings indicate that contractionary fiscal policy stance increases the level of development expenditure while loosening recurrent expenditure.

On the relationship between budget deficit and public expenditure, most studies report a positive relationship. Beetsma et al. (2008) using a panel vector-regression approach examined the effects of increases in public expenditure on trade balances and budget deficits in 14 European Union countries from 1970 to 2004. The findings indicate that a 1% GDP increase in public expenditure leads to a 1.2% on impact rise and a 1.6% peak rise in GDP. Additionally, the public expenditure increase would lead to increases in budget deficits.

On fiscal policy and growth, Brownbridge and Canagarajah (2008) argue that fiscal policy should focus on halting the deterioration of human capital by allocating greater resources to recurrent expenditures in the education and health sectors, while also ensuring that macroeconomic stability is not compromised by higher domestic borrowing or that fiscal sustainability is not threatened by excessive external borrowing for capital projects. Also, Kirchgassner (2001) using a conceptual research approach while focusing on a study period of

30 years seem to concur to the notion that fiscal policy is a key tool in reallocation and redistribution of resources. Specifically, the study examines the effect of fiscal institutions on public finance and finds that statutory fiscal institutions have mainly been effective in reducing public expenditure. Also, budgetary procedures present a feasible alternative way of attaining fiscal sustainability.

On the other hand, Tanzi (2006) undertook a conceptual research and found that there is asymmetric information between policymakers and civil servants who draft legislative proposals on the various fiscal instruments such as taxes, aid and public expenditure and also disagreements in the use of these instruments hence posing the weakness of fiscal policy. However, the study is unclear on the link between economic growth and fiscal policy stance and also the extent to which fiscal policy stance affects public expenditure.

Research Methodology

This paper adopted the causal analytical research design since it enabled the determination of the cause and effect of the relationship between fiscal policy stance and public expenditure in Kenya. Zikmund (2002) indicates that the main goal of undertaking causal research is to determine the cause and effect relationships among variables. The study population period was 1964 to 2015 since it captured the universe of these variables in Kenya. Secondary data on fiscal policy, recurrent expenditure and development expenditure was collected from Kenya National Bureau of Statistics (KNBS) economic surveys and statistical abstracts and annual budget estimates books.

The data collected were analysed using descriptive and inferential statistics where it involved a description of the data such as the determination of the mean, standard deviation, skewness and kurtosis. Diagnostic testing was then done where it included stationarity tests and cointegration tests and finally time series modelling. The time series model used was the VECM which enabled the testing of the relationship between fiscal policy stance and public expenditure. The model is as follows;

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{m} \gamma_i X_{it} + \varepsilon_t$$

Where:
Y_t = Dependent Variable
Y_{t-1} = Lagged Dependent Variable
X_{it} = Independent Variables
β_0 = The Constant or Intercept
β_1 = Model Coefficient of the Lagged Dependent Variable
γ_i = Model Coefficients of the Independent Variables
ε_t = Error Term or Structural Shock

Data Analysis

Data Description

Time series annual data was collected from KNBS reports from 1964 to 2015. Data description begins with trends in fiscal policy (budget deficit), recurrent expenditure and development expenditure (recurrent and development expenditure adds up to public expenditure) as indicated in figures 1and 2 respectively.

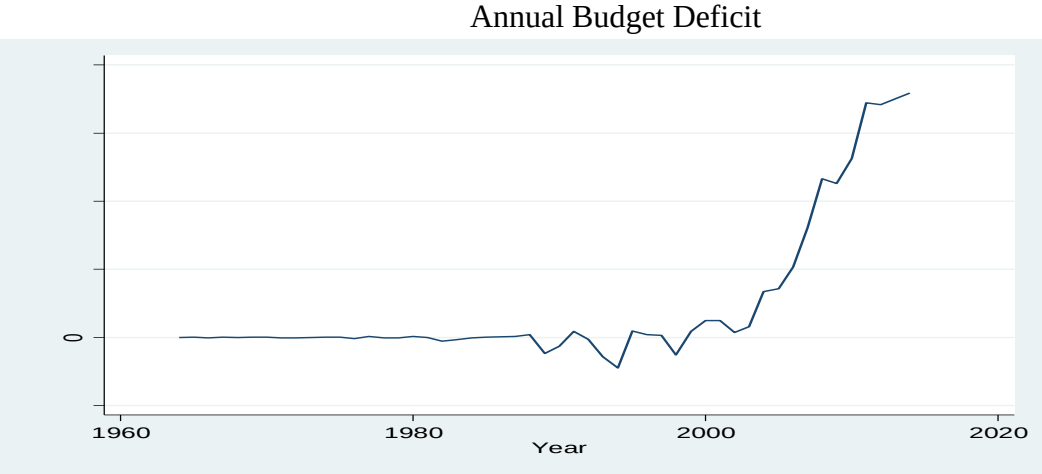

Figure 1. Budget Deficit in Kenya, 1964 – 2015

The budget deficit in Kenya as indicated by Figure 1 seems to be constant from 1964 to 1990. Subsequently, in the 1990s the deficit was volatile implying that there were years when we had budget surpluses. However, after the year 2000 up to 2015 budget deficit has been on an increasing trend implying that there was a shortfall of budgeted revenue over budgeted public expenditure. As the budget deficit has been on an increasing trend also public expenditure has had a sharp rise over that time period. Alesina and Perotti (1994) argued that budget deficits should mainly be observed during war and recessions yet in the Kenyan context there has been an increasing trend of deficits from the year 2000 to 2015. This implies that the government is always willing to run budget deficits even when there is an economic boom so as to enhance its popularity to the citizens.

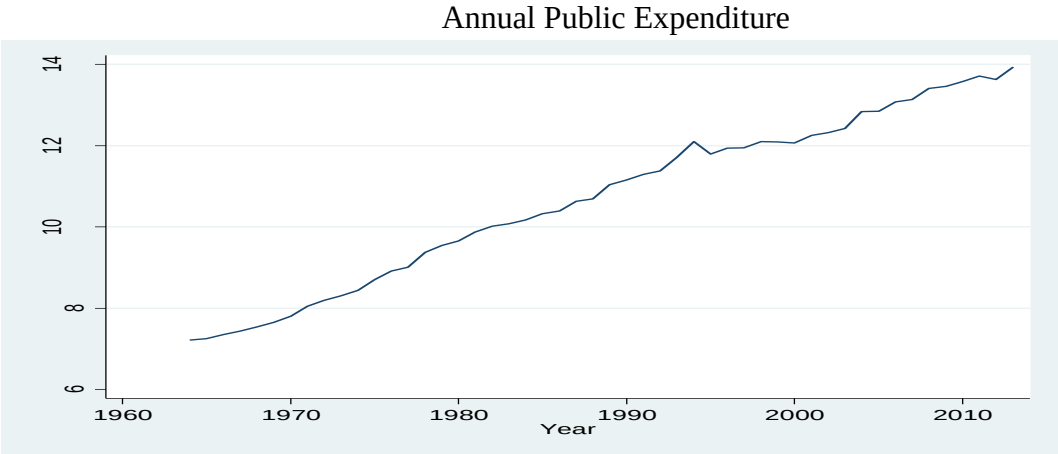

Figure 2. Public Expenditure in Kenya, 1964 – 2015

The total public expenditure from 1964 to 2015 is shown in Figure 2. The graph indicates an increasing smooth trend in public expenditure which concurs with Wagner's Law that public expenditure growth tends to be smooth over time. Also, Henrekson (1993) concurs with Wagner's findings on the nature of public expenditure growth and further emphasizes the need to focus on the time series behaviour of public expenditure as addressed in this study. That is unlike the Peacock and Wiseman hypothesis which argues that public expenditure tends to move in a step-like manner as argued by Peacock and Wiseman (1961) and supported in a subsequent study by Henry and Olekalns (2000).

Summary Statistics

Fiscal policy stance (budget deficit) has a mean of Ksh. 42507.66 million with a standard deviation of Ksh.100432.6 million.Fiscal policy stance (tax) has a mean of Ksh. 123379.8 million with a standard deviation of Ksh. 196962.8 million. For public expenditure, the mean is Ksh. 192760.3 million with a standard deviation of Ksh. 294372.1 million.Recurrent expenditure has a mean of Ksh. 154004.7 million with a standard deviation of Ksh. 225055.6 million while development expenditure has a mean of Ksh. 38755.66 million with a standard deviation of Ksh. 70916.40 million. Fiscal policy stance, recurrent, development and public expenditure are positively distributed as indicated by the skewness. On kurtosis, the variables are highly peaked relative to the peakedness of a normal distribution.

Table 1. Summary Statistics

	Budget Deficit (Ksh. m)	**Tax (Ksh. m)**	**Recurrent Expenditure (Ksh. m)**	**Development Expenditure (Ksh. m)**	**Public Expenditure (Ksh. m)**
Mean	42507.66	123379.8	154004.7	38755.66	192760.3
Median	395.50	30486.6	42632.13	10795.19	53007.75
Maximum	350050.0		941192.1	300204.2	1241396.0

		786196.0			
Minimum	-44986.00	735.32	1080.80	272.40	1362.40
Std. Dev.	100432.6	196962.8	225055.6	70916.40	294372.1
Skewness	2.14	1.95	1.82	2.34	1.96
Kurtosis	6.24	5.84	5.61	7.51	6.13
Jarque-Bera	59.90	48.39	41.77	87.96	52.44
Probability	0.00	0.00	0.00	0.00	0.00
Sum	2125383.0	6168990.0	7700234.0	1937783.0	9638017.0
Sum Sq. Dev.	4.94E+11	1.90E+12	2.48E+12	2.46E+11	4.25E+12

Source: Researcher's Computations

Diagnostic Test Results

This paper employed the Augmented Dickey-Fuller (ADF) test for stationarity and Johansen test for cointegration in undertaking diagnostic tests. The stationarity tests were undertaken on fiscal policy stance (tax, budget deficit), recurrent expenditure, development expenditure and public expenditure in order to determine if they are stationary or non-stationary.

Table 2. Results of Stationarity Tests

Variable	**ADF Statistic at Level**	**ADF Statistic at First Differencing**	**ADF Statistic at Second Differencing**
Tax	-0.5459 (0.8728)	-6.9760 (0.0000)	
Budget Deficit	-0.2621 (0.9223)	-0.7274 (0.8293)	-10.7528 (0.0000)
Recurrent Expenditure	8.0696 (1.0000)	2.5409 (1.0000)	-13.8973 (0.0000)
Development Expenditure	-0.2716 (0.9214)	-8.3704 (0.0000)	
Public Expenditure	9.5844 (1.0000)	4.5209 (1.0000)	-16.1278 (0.0000)

Source: Researcher's Computations

In Table 2, the stationarity results indicate that tax and development expenditure are stationary at first differencing which means that they are integrated at order one I(1). On the other hand, budget deficit, recurrent expenditure and public expenditure are stationary at second differencing meaning that they are integrated at order two I(2). Cointegration tests were undertaken in order to test if the variables have a long run relationship between them. The Johansen test for cointegration was conducted using the trace statistic and maximum Eigen values. For

cointegration to exist, the trace statistic should be greater than the critical values at 5% level of significance.

Table 3. Results of Johansen Cointegration Trace Statistic Test

	Hypothesized No. of CE(s)	**Eigen value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.**
Budget Deficit & Public Expenditure	None*	0.7121	67.3906	20.2618	0.0000
	At most 1	0.1469	7.6267	9.1645	0.0971
Budget Deficit & Recurrent Expenditure	None*	0.6929	63.6804	20.2618	0.0000
	At most 1	0.1360	7.0190	9.1645	0.1254
Budget Deficit & Development Expenditure	None*	0.2969	24.9769	20.2618	0.0104
	At most 1	0.1548	8.0709	9.1645	0.0803
Tax & Public Expenditure	None*	0.4578	50.7290	20.2618	0.0000
	At most 1*	0.3733	21.9590	9.1645	0.0001
Tax & Recurrent Expenditure	None*	0.5181	56.6370	20.2618	0.0000
	At most 1*	0.3781	22.3222	9.1645	0.0001
Tax & Development Expenditure	None*	0.3736	28.4927	20.2618	0.0029
	At most 1	0.1182	6.0388	9.1645	0.1877

* denotes rejection of the null hypothesis at the 0.05 level of significance

Source: Researcher's Computations

The results in Table 3 indicate that budget deficit and public expenditure are cointegrated since the trace statistics of 67.3906 is greater than the critical value of 20.2618 at 5% level of significance. Similarly, there is cointegration between tax and public expenditure since the trace statistics is greater than the critical value at 5% level of significance. However, it is notable that tax seems to have a stronger level of cointegration which is essentially a stronger long-run relationship with public expenditure as compared to budget deficit with public expenditure as evidenced by the number of co-integrating equation results in Table 3. Cointegration tests using the ARDL bound test approach was also used in testing if the variables are cointegrated as shown in Table 4.

Table 4. ARDL Bound Test for Cointegration

Wald Test:

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	8.801457	(3, 35)	0.0002
Chi-square	26.40437	3	0.0000

Null Hypothesis: C(10)=C(11)=C(12)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(10)	0.260739	0.121434
C(11)	967.8103	4778.604
C(12)	0.043329	0.231911

Restrictions are linear in coefficients.
Source: Researcher's Computations

According to Table 4, fiscal policy stance and public expenditure are cointegrated using the Auto Regressive Distributed Lag (ARDL) bound test for cointegration. The bound test requires one to determine the f-statistic in the Wald test and compare it with the upper and lower bound values obtained from the Pesaran et al. (2001) Table. The f-statistic is 8.801457 at 5% level of significance is greater than the upper bound value of 4.85 obtained from the PesaranTable, then there is cointegration existing between the study variables.

Granger causality tests were undertaken so as to determine if one variable causes another or simply testing the level of prediction of one variable against another. The null hypothesis in the Granger causality test states that a variable x does not Granger cause variable y in the first regression while variable y does not Granger cause variable x in the second regression at 5% level of significance.

Table 5. Results of Granger Causality Tests

Null Hypothesis	**f-Statistic**	**Probability**
Budget deficit does not Granger cause development expenditure	0.7476	0.4796
Development expenditure does not Granger cause budget deficit	2.0310	0.1436
Recurrent expenditure does not Granger cause tax revenue	2.4433	0.0988
Tax revenue does not Granger cause recurrent expenditure	0.6179	0.5438
Tax revenue does not Granger cause public expenditure	0.2904	0.7494
Public expenditure does not Granger cause tax revenue	2.4340	0.0997
Budget deficit does not Granger cause tax revenue	0.4930	0.6142
Tax revenue does not Granger cause budget deficit	1.6651	0.2011

Source: Researcher's Computations

The findings in Table 5 indicate that budget deficit does not Granger-cause development expenditure and vice versa at 5% level of significance as indicated by the *p*-values of 0.4796 and 0.1436. Recurrent expenditure does not Granger-cause tax revenue and vice versa at 5% level of significance as indicated by the p-values of 0.0988 and 0.5438. Tax revenue does not Granger-cause public expenditure and vice versa at 5% level of significance as indicated by the p-values of 0.7494 and 0.0997.

Model Specification

Fiscal Policy Stance and Public Expenditure

The main objective was to examine the effect of fiscal policy stance on public expenditure in Kenya. Before the modelling was done, lag selection was undertaken to determine the number of lags in each variable and in essence how many lags can be used in a model for analysis. The common techniques used in establishing the lag structure include the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwartz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ). The techniques were used in establishing the total lags in all the study variables and also the number of lags in each study variable.One advantage of the above lag selection techniques is that they are useful for not only in-sample but also out-of-sample forecasting performance of a regression model. The smaller the FPE, AIC, SC and HQ value, the better the model. Table 6 shows the lag length selection of the relationship between fiscal policy stance and public expenditure. The abbreviations LogL and LR stand for log likelihood and likelihood ratio respectively.

Table 6. Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-644.7833	NA	3.42e+08	28.16449	28.28375	28.20917
1	-452.3442	351.4105	117779.3	20.18888	20.66592*	20.36758
2	-437.8954	24.50021*	93478.64*	19.95197*	20.78679	20.26470*
3	-430.9990	10.79427	103876.2	20.04344	21.23603	20.49019
4	-426.9937	5.746833	132508.2	20.26059	21.81096	20.84137

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
Source: Researcher's Computations

From the Table 6, two (2) lags were selected since under the AIC, FPE, LR and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on public expenditure was undertaken. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and stationarity test so as to ensure that the model would generate robust results. The data were tested for stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown below;

Table 7. VECM Model of Fiscal Policy Stance and Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) - 1.03485617939*TAX(-1) +1.23422707728E-07*BDEFIC(-1)
- 0.150503713201) + C(2) *D(PEXP(-1)) + C(3)*D(PEXP(-2)) + C(4)*D(TAX(-1)) + C(5)

*D(TAX(-2)) + C(6)*D(BDEFIC(-1)) + C(7)*D(BDEFIC(-2)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.251640	0.270345	-0.930811	0.3577
C(2)	-0.253809	0.224387	-1.131122	0.2649
C(3)	-0.007484	0.205753	-0.036373	0.9712
C(4)	-0.003788	0.190341	-0.019899	0.9842
C(5)	-0.157971	0.156606	-1.008717	0.3193
C(6)	-1.41E-06	1.02E-06	-1.377510	0.1762
C(7)	5.87E-08	1.05E-06	0.056019	0.9556
C(8)	0.211818	0.048616	4.357002	0.0001

R-squared	0.128431	Mean dependent var	0.142247
Adjusted R-squared	-0.028004	S.D. dependent var	0.122805
S.E. of regression	0.124513	Akaike info criterion	-1.174978
Sum squared resid	0.604633	Schwarz criterion	-0.860059
Log likelihood	35.61198	Hannan-Quinn criter.	-1.056472
F-statistic	0.820986	Durbin-Watson stat	1.974580
Prob(F-statistic)	0.575843		

Source: Researcher's Computations

From Table 7, the effect of fiscal policy stance on public expenditure is statistically insignificant as indicated in the p-values while the R^2 is 12.84% meaning that 12.84% of the variations in public expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.3577 meaning that there is no long-run causality running from fiscal policy stance to public expenditure. Short run causality was also tested using the Wald test as indicated in Tables 8 and 9.

In the Wald test, the null hypothesis states that there is no short-run causality from tax to public expenditure if the coefficients of tax C(4) and C(5) all equal to zero. If the coefficients are equal to zero, then there is no short-run causality.

Table 8. Wald Test for Tax and Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.621301	(2, 39)	0.5425
Chi-square	1.242602	2	0.5372

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.

C(4)	-0.003788	0.190341
C(5)	-0.157971	0.156606

Source: Researcher's Computations

The Wald Test results indicated in Table 8, we accept the null hypothesis that there is no short-run causality running from tax to public expenditure as indicated by the *p*-value of 0.5372.

Table 9. Wald Test for Budget Deficit and Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.997535	(2, 39)	0.3780
Chi-square	1.995070	2	0.3688

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-1.41E-06	1.02E-06
C(7)	5.87E-08	1.05E-06

Source: Researcher's Computations

The null hypothesis states that there is no short-run causality from budget deficit to public expenditure if the coefficients of budget deficit C(6), C(7) all equal to zero. If the coefficients are equal to zero, then there is no short-run causality. To test for short-run causality, we use the Wald Test. As indicated in Table 9, we can accept the null hypothesis that there is no short-run causality as indicated in the *p*-value of 0.3688. In summary, there is no long run and short run causality running from tax and budget deficit to public expenditure. Post-diagnostic tests were done such as serial correlation tests and heteroscedasticity tests so as to determine the robustness of the VECM model. The results are as indicated in the Tables 10 and 11.

Table 10. Serial Correlation Test in the Model
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.084254	Prob. F(2,37)	0.3487
Obs*R-squared	2.602086	Prob. Chi-Square(2)	0.2722

Source: Researcher's Computations

From the Table 10, there is no serial correlation as indicated by the *p*-value of 0.2722. This means that the variables in the VECM model are not correlated.

Table 11. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.204110	Prob. F(9,37)	0.0058
Obs*R-squared	20.58628	Prob. Chi-Square(9)	0.0146
Scaled explained SS	31.74708	Prob. Chi-Square(9)	0.0002

Source: Researcher's Computations

The results in the Table 11 indicate that there is heteroscedasticity as shown by the *p*-value of 0.0146 at 5% level of significance while the corresponding R^2 is 20.58628.

Fiscal Policy Stance and Recurrent Expenditure

The effect of fiscal policy stance on recurrent expenditure was also established using a VECM model and similar pre-diagnostic checking and post-diagnostic checking was undertaken. Table 12 shows the lag length criteria/selection method used.

Table 12. Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-650.2900	NA	4.35e+08	28.40391	28.52317	28.44859
1	-453.3590	359.6131	123092.5	20.23300	20.71004*	20.41170
2	-436.7182	28.21708*	88814.68*	19.90079*	20.73561	20.21352*
3	-428.0622	13.54854	91424.27	19.91575	21.10834	20.36250
4	-425.1641	4.158077	122376.2	20.18105	21.73142	20.76183

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
Source: Researcher's Computations

From the Table 12, two (2) lags were selected since under the LR, FPE, AIC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on public expenditure was undertaken. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data were tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and recurrent expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown below;

Table 13. VECM Model for Fiscal Policy Stance and Recurrent Expenditure

D(RECUR) = C(1)*(RECUR(-1) - 1.09439442108*TAX(-1) +3.02095143163E-07*BDEFIC(-1)
+ 0.692336931879) + C(2) *D(RECUR(-1)) + C(3)*D(RECUR(-2)) + C(4)*D(TAX(-1)) +
C(5)*D(TAX(-2)) + C(6)*D(BDEFIC(-1)) + C(7)*D(BDEFIC(-2)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.218791	0.165707	-1.320352	0.1944
C(2)	-0.277179	0.207882	-1.333349	0.1902
C(3)	0.005265	0.241675	0.021787	0.9827
C(4)	0.036567	0.159434	0.229357	0.8198
C(5)	-0.198036	0.136479	-1.451042	0.1548
C(6)	-1.83E-06	1.11E-06	-1.648477	0.1073
C(7)	-2.55E-07	1.14E-06	-0.223115	0.8246
C(8)	0.216628	0.054969	3.940873	0.0003

R-squared	0.145229	Mean dependent var	0.140679
Adjusted R-squared	-0.008192	S.D. dependent var	0.121696
S.E. of regression	0.122193	Akaike info criterion	-1.212588
Sum squared resid	0.582315	Schwarz criterion	-0.897670
Log likelihood	36.49582	Hannan-Quinn criter.	-1.094082
F-statistic	0.946605	Durbin-Watson stat	1.994099
Prob(F-statistic)	0.482722		

Source: Researcher's Computations

From Table 13, the effect of fiscal policy stance on recurrent expenditure is statistically insignificant as indicated in the p-values while the R^2 is 14.52% meaning that 14.52% of the variations in recurrent expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.1944 meaning that there is no long-run causality running from fiscal policy stance to recurrent expenditure. Short run causality was also tested using the Wald test as indicated in Tables 14 and 15.

Table 14. Wald Test of Tax and Recurrent Expenditure

Test Statistic	Value	Df	Probability
F-statistic	1.241021	(2, 39)	0.3003
Chi-square	2.482042	2	0.2891

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	0.036567	0.159434
C(5)	-0.198036	0.136479

Source: Researcher's Computations

As indicated in Table 14, there was no short-run causality running from tax to recurrent expenditure as indicated by the *p*-value of 0.2891.

Table 15. Wald Test of Budget Deficit and Recurrent Expenditure

Test Statistic	Value	Df	Probability
F-statistic	1.404529	(2, 39)	0.2576
Chi-square	2.809058	2	0.2455

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-1.83E-06	1.11E-06
C(7)	-2.55E-07	1.14E-06

Source: Researcher 's Computations

As indicated in Table 15, there is no short-run causality running from budget deficit to recurrent expenditure as indicated by the *p*-value of 0.2455. In summary, there is neither long run nor short-run causality running from tax and budget deficit to recurrent expenditure.

Table 16. Serial Correlation Test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.475893	Prob. F(2,37)	0.6251
Obs*R-squared	1.178705	Prob. Chi-Square(2)	0.5547

Source: Researcher's Computations

From the Table 16 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.5547.

Table 17. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.945660	Prob. F(9,37)	0.0000
Obs*R-squared	27.78685	Prob. Chi-Square(9)	0.0010
Scaled explained SS	47.47749	Prob. Chi-Square(9)	0.0000

Source: Researcher's Computations

As indicated in Table 17, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.001 at 5% level of significance while the corresponding R^2 is 27.78685.

Fiscal Policy Stance and Development Expenditure

The effect of fiscal policy stance on development expenditure was also established using a VECM model and pre-diagnostic checking and post-diagnostic checking was undertaken. Table 18 shows the lag length criteria/selection method used. From the Table 18, one (1) lag was selected since under the FPE, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on development expenditure was undertaken.

Table 18. Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-682.4762	NA	1.76e+09	29.80331	29.92257	29.84799
1	-495.7418	340.9934	777173.0*	22.07573	22.55277*	22.25443*
2	-493.1618	4.374696	1033413.	22.35486	23.18968	22.66759
3	-477.3008	24.82592*	777684.3	22.05656*	23.24915	22.50331
4	-472.7872	6.476045	970361.0	22.25162	23.80199	22.83240

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
Source: Researcher's Computations

Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data were tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and development expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next;

Table 19. VECM Model for Fiscal Policy Stance and Development Expenditure

D(DEV) = C(1)*(DEV(-1) - 0.976138840865*TAX(-1) -5.77496508736E-06*BDEFIC(-1)+ 1.10840586842)
+ C(2)*D(DEV(-1)) + C(3)*D(DEV(-2)) + C(4)*D(DEV(-3))+ C(5)*D(TAX(-1)) + C(6)*D(TAX(-2))
+ C(7)*D(TAX(-3)) + C(8)*D(BDEFIC(-1)) + C(9)*D(BDEFIC(-2)) + C(10)*D(BDEFIC(-3)) + C(11)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.137986	0.135585	-1.017712	0.3158
C(2)	-0.104978	0.207005	-0.507131	0.6152
C(3)	-0.012646	0.202130	-0.062562	0.9505
C(4)	0.221253	0.187094	1.182579	0.2449
C(5)	-0.123856	0.276484	-0.447968	0.6569
C(6)	0.216128	0.255025	0.847480	0.4025
C(7)	0.203285	0.272137	0.746995	0.4601
C(8)	-1.19E-06	2.64E-06	-0.453143	0.6532
C(9)	-1.13E-06	2.37E-06	-0.477259	0.6361
C(10)	-1.75E-06	2.48E-06	-0.707843	0.4837
C(11)	0.119427	0.084444	1.414273	0.1661

R-squared	0.194759	Mean dependent var	0.148310
Adjusted R-squared	-0.035309	S.D. dependent var	0.246581
S.E. of regression	0.250897	Akaike info criterion	0.277419
Sum squared resid	2.203226	Schwarz criterion	0.714703
Log likelihood	4.619360	Hannan-Quinn criter.	0.441228
F-statistic	0.846526	Durbin-Watson stat	2.065735
Prob(F-statistic)	0.588852		

Source: Researcher's Computations

From Table 19, the effect of fiscal policy stance on development expenditure is statistically insignificant as indicated in the p-values while the R^2 is 19.48% meaning that 19.48% of the variations in development expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.3158 meaning that there is no long-run causality running from fiscal policy stance to development expenditure. Short run causality was also tested using the Wald test as indicated in Tables 20 and 21.

Table 20. Wald Test for Tax on Development Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.731706	(3, 35)	0.5401
Chi-square	2.195119	3	0.5329

Null Hypothesis: C(5)=C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	-0.123856	0.276484
C(6)	0.216128	0.255025
C(7)	0.203285	0.272137

Source: Researcher's Computations

As indicated in Table 20, there was no short-run causality running from tax to development expenditure as indicated by the *p*-value of 0.5329.

Table 21. Wald Test for Budget Deficit on Development Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.194625	(3, 35)	0.8994
Chi-square	0.583876	3	0.9001

Null Hypothesis: C(8)=C(9)=C(10)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-1.19E-06	2.64E-06
C(9)	-1.13E-06	2.37E-06
C(10)	-1.75E-06	2.48E-06

Source: Researcher's Computations

As indicated in Table 21, there was no short-run causality running from budget deficit to development expenditure as indicated by the *p*-value of 0.9001.

Table 22. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.475752	Prob. F(3,32)	0.2397
Obs*R-squared	5.590697	Prob. Chi-Square(3)	0.1333

Source: Researcher's Computations

From the Table 22 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.1333.

Table 23. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	2.610153	Prob. F(12,33)	0.0145
Obs*R-squared	22.39993	Prob. Chi-Square(12)	0.0333
Scaled explained SS	10.44098	Prob. Chi-Square(12)	0.5773

Source: Researcher's Computations

As indicated in Table 23, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0333 at 5% level of significance while the corresponding R^2 is 27.78685.

Fiscal Policy Stance and Public Expenditure

The study findings indicate that there is an insignificant effect of fiscal policy stance on public expenditure which implies that there are other variables that explain the effect on public expenditure. Furthermore, these results seem to validate one of the assumptions of the theory of fiscal policy that policy makers have a lower incentive to pursue public interests in comparison to their personal interests. Again these study findings validate the assertions of Kirchgassner (2001) and Brownbridge and Canagarajah (2008) that fiscal policy should aim to effectively control the level of public expenditure and that budgetary procedures present an alternative feasible way to attaining fiscal sustainability.

However, the study findings differ from those of Stancik and Valila (2012) where they found that contractionary fiscal stance increases the level of development expenditure and loosens recurrent expenditure. On the other hand, most of the control variables used in Stancik and Valila's study such as long-term government interest rate, population, unemployment rate, foreign direct investment inflows and various measures of urbanisation had an insignificant effect on the relationship between fiscal policy stance and public expenditure.

Conclusion

The study findings indicate that fiscal policy stance has an insignificant effect on public expenditure. There was also a weak negative effect of fiscal policy stance on recurrent expenditure and development expenditure. The study findings also showed a negative relationship existing between fiscal policy stance and public expenditure which is similar to the findings of Kirchgassner (2001) and Stancik and Valila (2012). The inverse relationship implies that the interaction of fiscal policy stance and public expenditure in Kenya is countercyclical. The weak effect of fiscal policy stance on public expenditure further highlights the result that fiscal policy stance does not directly affect public expenditure. However, the theory of fiscal policy asserts that fiscal policy should aim at redistributing and reallocating resources even though fiscal policymakers may not have the incentives to pursue public interests and the fiscal institutions may not be strong enough to execute the control of public expenditure effectively.

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