Intervening Effect of Selected Macroeconomic Factors on Fiscal Policy Stance and Public Expenditure in Kenya

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Abstract: *This paper investigates the intervening effect of selected macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya using time series modelling. This paper is underpinned by the theory of fiscal policy, Wagner's Law of increasing state activities and Peacock-Wiseman hypothesis. The population is the Kenyan economy while secondary data was collected from Kenya National Bureau of Statistics reports. Time series modelling was applied. The findings indicate that foreign aid and grants have an intervening effect on the relationship between fiscal policy stance and public expenditure in Kenya. Nevertheless, fiscal stance has a statistically insignificant effect on public expenditure. The results show that fiscal stance, foreign aid and grants and public expenditure are cointegrated using the Johansen cointegration test but there is no short run causality between the variables as indicated by the Wald test statistics. The conclusion is that foreign aid and grants explain the extent to which fiscal policy stance affects the level of public expenditure in Kenya even though fiscal policy stance has an inverse relationship with public expenditure.*

Keywords: Fiscal policy stance, public expenditure, macroeconomic factors, Kenya.

Introduction

Worldwide there is increased attention on fiscal sustainability especially in developing economies (Bui, 2020) where there are numerous challenges in raising public revenues optimally in order to balance out with public expenditure. There is a growing trend of enacting fiscal rules across nations in order to have a balanced budget (Tsai, 2014) and also to avoid possible cases of unsustainable public expenditure levels or high public debt amounts which can lead to a crisis. Furthermore, the benefits of fiscal rules have been observed to enhance inclusive growth (Sabir & Qamar, 2019). There is a significant body of knowledge in the empirical literature on

macroeconomic factors, fiscal policy and even on public expenditure. However, there is insufficient evidence on the nexus between fiscal policy stance and public expenditure while considering the mediating influence of macroeconomic factors.

In Kenya, public expenditure levels have been on an increasing trend as indicated in Figure 1A in the appendix thus indicating an expansionary stance. Furthermore, fiscal policy stance as operationalized using tax revenues and budget deficits indicate an expansionary trend over the study period indicating that Kenya's fiscal policy stance has been pro-cyclical. The question then is to what extent would fiscal policy stance control public expenditure levels? Nevertheless, public expenditure exhibits an increasing smooth trend over the years as indicated in Figure 1A in the appendix. This is despite the mixed theoretical debate on public expenditure trends of countries as argued by Wagner's Law of increasing state activities that public expenditure growth follows a smooth pattern as opposed to the step-like pattern as argued by Peacock-Wiseman hypothesis since public expenditure experiences shock due to war, crisis, natural disasters or pandemics.

Fiscal policy refers to a toll of measures that governments utilise in controlling the level of public expenditure with an objective of redistributing and reallocating resources and economic stabilization (Tanzi, 2006; Perotti, 2007; Sabir & Qamar, 2019). Therefore, fiscal policy stance can be described as the fiscal position taken up by a government – contractionary or expansionary fiscal stance. Public expenditure generally refers to the expenses incurred by a government in its own maintenance, the society at large or assisting other nations. Public expenditure can be classified into recurrent expenditure and development expenditure (Dornbusch, Fischer & Startz, 2017).

In this paper, three macroeconomic factors have been selected from amongst other factors which include inflation rate, unemployment rate and foreign aid and grants. The key reason for studying the three variables is that they have been observed in previous studies (Tanzi, 2006; Gatauwa et al., 2017a) as having a significant relationship with fiscal policy. Furthermore, there is insufficient evidence on how these macroeconomic factors mediate on the relationship between fiscal policy stance and public expenditure. Dornbusch et al. (2017) describe macroeconomic factors as indicators of the economic behaviour and policies that affect an economy. The unemployment rate is the fraction of the labour force that is out of work and looking for a job or expecting a recall from a layoff while inflation is the rate of change in the general price level (Dornbusch et al., 2017). Foreign aid and grants constitute the amount of aid and grants sourced from other countries. Generally, studies on macroeconomic factors and public expenditure done by Fan and Rao (2003) and Tayeh and Mustafa (2011) argue that macroeconomic factors in a nation can determine public expenditure levels. This implies that macroeconomic stability would ignite changes in public expenditure.

There is inconclusive evidence on the mediating effect of inflation, unemployment rate and foreign aid and grants on the relationship between fiscal stance and public expenditure in Kenya in the existing finance literature. Hence, this paper seeks to answer the following research questions; what is the effect of fiscal stance on public expenditure in Kenya? Do inflation rate, unemployment rate and foreign aid and grants have a mediating effect on the relationship

between fiscal policy stance and public expenditure in Kenya? This paper is arranged in the following sections; introduction, literature review, research methodology, data analysis and conclusions.

Literature Review

Theoretical Review

This paper is anchored on the following theories; Theory of fiscal policy, Wagner's Law of increasing state activities and Peacock-Wiseman hypothesis. The Theory of fiscal policy states that fiscal policy aims at redistributing income and reallocating resources in addition to achieving stabilization in an economy (Musgrave, 1959; Johansen, 1965). This theory contends that fiscal policy can influence the increase or decrease in public expenditure considering the fiscal priorities present. Tanzi (2006) argues that fiscal policymakers have a key agenda of promoting the social and economic welfare of citizens dependent upon the government in power. Therefore, the theory of fiscal policy underpins the relationship between fiscal policy stance and public expenditure since fiscal policy intends to redistribute and reallocate resources in a nation.

Wagner's Law of increasing state activities is a theory arguing that there is a long-run tendency for public expenditure to grow in relation to national income. Wagner (1863) based the theory in Germany, where he noted that all types of governments showed an increasing trend in public expenditure regardless of their size or plans. However, Wagner was not clear on the composition of public expenditure but Musgrave (1959) argued that Wagner's focus could have been on the size of the public sector in the economy as a whole. Wagner's contributions to public expenditure theories are significant considering that before his study the popular notion was that public expenditure had an inverse relationship with economic growth. Nevertheless, over the years there has been a debate on Wagner's assertions. Some studies such as Chang (2002); Aregbeyen (2006); Kumar, Webber and Fargher (2012) have found support for Wagner's Law while on the other hand, Burney (2002); Huang (2006); Adil, Ganaie and Kamaiah (2017) have found a weak link on Wagner's Law. However, in this paper Wagner's Law implicitly underpins the relationship between the selected macroeconomic factors and public expenditure taking into consideration that macroeconomic factors explain the economic behaviour of a nation.

The Peacock-Wiseman hypothesis is a theory stating that public expenditure increases in relation to economic growth in a step-like manner unlike the smooth and continuous pattern as argued by Wagner's Law. Peacock and Wiseman (1961) argued that public expenditure in the UK from 1890 to 1955 had a smooth pattern but seemed to have steep increases especially during war or civil instability but public spending stabilized afterwards. The public expenditure trends are related to tax revenues and it is notable that the tolerable tax burden by the public is stable unless there are cases of economic or political instability. Henry and Olekalns (2000) tested the hypothesis in the UK and found support of the hypothesis where they show four instances of displacement. However, Legrenzi (2004) tested the displacement effect of P-W hypothesis in Italy but did not confirm the existence of a displacement. The divergent findings would be as a result of differences in study contexts or the type of empirical testing applied on the hypothesis.

Nevertheless, this theory underpins the relationship between fiscal policy stance and public expenditure considering that fiscal stance is operationalized by tax and budget deficits.

Empirical Review

In the finance literature, several studies have been undertaken where they relate macroeconomic factors to economic growth but there is still insufficient evidence on how these macroeconomic factors relate to fiscal policy stance and public expenditure. For instance, UNCTAD report (2010) using a descriptive research approach examines macroeconomic policy and development during the 2008 global financial crisis (GFC). The report argues that the popular notion before the GFC was that countries undergoing economic distress should implement prudent measures in the form of tight fiscal policies to achieve macroeconomic stability. Canuto (2009) using a descriptive research approach, supports the view that in a crisis period and recession, which is characterized by rising unemployment, rising interest rates and a fall in commodity prices, countries should implement contractionary economic policies. However, Brixiova (2010) and UNCTAD (2010) argue that non-restrictive policies are beneficial to all economies inclusive of Africa in order to stimulate aggregate demand in an economy as part of post-crisis recovery.

The fiscal policy adopted by a country would influence the macroeconomic factors and essentially the levels of public expenditure. Perotti (2007) argues that a rise in the interest rate regulated by the monetary authorities would lead to some fall in the output gap and a slowdown in inflation. Fan and Rao (2003) using regression analysis from 1980 to 1998 across 43 developing nations in Asia, Africa and Latin America contend that the macroeconomic reforms of a nation can determine the level of public expenditure in a country. This implies that changes in macroeconomic factors would affect the level of public expenditure as influenced by the fiscal policy adopted by a government.

Studies on the relationship between macroeconomic factors and public expenditure exhibit varied findings. For instance, Njeru (2003) using cointegration approach for the period 1970 to 1999 in Kenya contends that the level of foreign aid would affect the amounts of public expenditure. This means that economies which mainly finance their budgets using a significant amount of debt, the public expenditures in those economies would be affected. Remmer (2004) using time series cross sectional regression analysis from 1970 to 1999 in 120 middle and lower income countries, sought to examine whether foreign aid generates incentives and opportunities for public expenditure growth. The study findings indicate that foreign aid generates incentives for the growth of public expenditure. Similarly, Fan and Rao (2003) investigated the trends and impact of public expenditure in developing countries and found that public debt levels can determine the level of public expenditure. On the converse, Samir and Qamar (2019) using the system generalized method in developing Asian economies argue that fiscal policy is dependent on the distribution of public revenue or expenditures in an economy.

On the interrelation between the unemployment rate and inflation rate on public expenditure, Tayeh and Mustafa (2011) using correlation analysis from 1979 to 2000 in Jordan found that unemployment rates and inflation rates have a significant relationship with public expenditure. The study further argues that a government uses fiscal policy to fight inflation since it would respond by reducing public spending when inflation increases and when the share of

unemployment rises, it is inclined to increase public spending. However, the study did not extend the modelling to advanced methodologies such as using the error correction model to test the interrelationships among the variables.

Magazzino (2011) using time series data from 1970 to 2009 in the Mediterranean countries found that public expenditure growth and inflation have a long run relation in Portugal. Granger causality tests were also undertaken and the findings indicate that there is bi-directional flow for public expenditure growth and inflation in Italy in the short run, unidirectional flow from inflation to public expenditure in Portugal in the long run, in France a unidirectional flow in the short run but in the opposite direction (from public expenditure to inflation) in Cyprus, Malta and Spain. Similarly, Ezirim, Moughalu and Elike (2008) undertook a study on public expenditure and inflation from 1970 to 2002 using cointegration analysis and Granger causality testing. The study found that public expenditure and inflation are cointegrated thus implying that they have a long run interrelation. Ayo, Nwosa and Ditimi (2012) indicate that from public expenditure to the inflation rate, there exists unidirectional causality. However, there are studies that report a weak relationship between inflation and public expenditure. For instance, Han and Mulligan (2008) using time series data from 1973 to 1990 based on eighty countries indicate that permanently high non-defence public expenditure across countries is weakly related to inflation. Generally, the studies on inflation and public expenditure present mixed findings yet they use Granger causality tests to explore these interrelationships. The differences in economic environment such as whether a developed or developing region, whether the data used is time series or cross-sectional or the theoretical underpinning of the study could be some of the reasons that could explain the divergence of results.

There has been extensive literature on budget deficits and their effects on economies. Nevertheless, there was a study done by Alesina and Perotti (1994) that sought to examine the institutional determinants of budget deficits. The study contends that budget deficits should only be observed during wars and recessions since those are times when public expenditure is temporarily high. Interestingly the study findings indicate that fiscal illusion by voters due to their ignorance on government budget constraints and asymmetric stabilization policies that entail politicians always willing to run deficits during recessions contribute to the rising levels of budget deficits. Similarly, Beetsma, Giuliodori and Klaassen (2008) examined the effect of public spending on budget deficits in the European Union. Their findings indicate that increases in public spending affect budget deficits with a greater impact to open economies as compared to the closed ones. On the other hand, Haffert and Mehrtens (2015) analyse budget surpluses and public expenditure in six developed economies between 1980 and 2009 with findings indicating that surpluses were achieved by public expenditure cuts but mainly used for tax cuts.

In summary, from the finance literature various research gaps emerge. First, is that there is insufficient evidence on the effects of fiscal policy stance on public expenditure. This means that the link between the two variables requires to be investigated considering that governments are grappling with the issue of controlling the levels of public expenditure. Secondly, the intervening influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure is not clear. This is considering that macroeconomic factors are critical to the

success of fiscal policy implementation and ultimately on controlling the levels of public expenditure in an economy.

Research Methodology

The causal analytical research design was adopted since it enabled the determination of the cause and effect in examining the effect of selected macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. The study population period was 1964 to 2015. Secondary data on fiscal policy stance, macroeconomic factors (inflation rates, unemployment rates and foreign aid & grants) and public expenditure was collected from Kenya National Bureau of Statistics (KNBS) economic surveys, statistical abstracts and annual budget estimates books. Fiscal policy stance was measured by budget deficits and tax revenues; macroeconomic factors were measured using the annual inflation rates, unemployment rates and the annual amount of foreign aid and grants while public expenditure was measured by annual recurrent and development expenditure. The data collected were analysed using descriptive and inferential statistics where it involved a description of the data, undertaking of diagnostic tests and finally time series modelling. Description of data involves the determination of the measures of central tendency and dispersion. Pre-diagnostic testing involved undertaking Stationarity test, Johansen cointegration test and Granger causality test. Post-diagnostic testing entailed Wald test, serial correlation test and heteroscedasticity test. Finally, time series modelling was undertaken using Vector-Auto Regressive (VAR) and Vector Error Correction (VECM) models.

In establishing the effect of macroeconomic factors on the relationship between fiscal policy stance and public expenditure, three steps were involved in testing the intervening effect according to the Baron and Kenny (1986) approach and further supported by MacKinnon et al. (2002). The first step involved regressing fiscal policy stance against public expenditure using a VECM model as follows;

$$PExp_t = \propto_{10} + \propto_{11} PExp_{t-1} + \propto_{12} FP_{t-1} + \varepsilon_{1t} \quad (1)$$

Where:

$PExp_t$ = Public Expenditure

$PExp_{t-1}$ = Lagged Public Expenditure

FP_{t-1} = Fiscal Policy Stance

α_{10} = The Constant or Intercept

α_{11} = Model Coefficient of the Lagged Public Expenditure

α_{12} = Model Coefficient of Fiscal Policy Stance

ε_{1t} = Error Term or Structural Shock

The second step involved regressing fiscal policy stance against inflation rate and unemployment rate using VAR models while a VECM model was used in regressing fiscal policy stance against foreign aid & grants as follows;

$$Unemp_t = \propto_{10} + \propto_{11} FP_t + \varepsilon_t \qquad (2)$$

$$Infl_t = \propto_{20} + \propto_{21} FP_t + \varepsilon_t \qquad (3)$$

$$FGrnt_t = \propto_{30} + \propto_{31} FP_t + \varepsilon_t \qquad (4)$$

Where:

$Unemp_t$ = Unemployment Rate

$Infl_t$ = Inflation Rate

$FGrnt_t$ = Foreign Aid and Grants

FP_t = Fiscal Policy Stance

$\alpha_{10}, \alpha_{20}, \alpha_{30}$ = Constant or Intercept

$\alpha_{11}, \alpha_{21}, \alpha_{31}$ = Model Coefficient of Fiscal Stance

ε_t = Error Term or Structural Shock

The final step involved regressing fiscal policy stance and economic growth on public expenditure using a VECM model as follows;

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{m} \gamma_i X_{it} + \varepsilon_t \qquad (5)$$

Where:

Y_t = Public Expenditure

Y_{t-1} = Lagged Public Expenditure

X_{it} = Independent Variables

β_0 = Constant or Intercept

β_1 = Model Coefficient of the Lagged Public Expenditure

γ_i = Model Coefficients of the Independent Variables

ε_t = Error Term or Structural Shock

Data Analysis

Summary Statistics

Fiscal policy stance (budget deficit) has a mean of Ksh. 42507.66 million with a standard deviation of Ksh. 100432.6 million as indicated in Table 1. Fiscal policy stance (tax) has a mean of Ksh. 123379.8 million with a standard deviation of Ksh. 196962.8 million. Unemployment, inflation and foreign aid and grants have a mean of 9.51%, 9.95% and Ksh. 6537.43 million respectively. Public expenditure has a mean of Ksh. 192760.3 million with a standard deviation of Ksh. 294372.1 million. Fiscal policy stance, inflation rate, foreign aid and public expenditure have a positive distribution as indicated by the skewness. On kurtosis, the variables are highly peaked relative to the peakedness of a normal distribution with values above three (3) implying that the distribution is leptokurtic.

Table 1. Summary Statistics of the Study Variables

	Budget Deficit (Ksh. M)	Tax (Ksh. M)	Unemployment Rate (%)	Inflation Rate (%)	Foreign Aid & Grants (Ksh. M)	Public Expenditure (Ksh. M)
Mean	42507.66	123379.8	9.51	9.95	6537.43	192760.3
Median	395.50	30486.6	9.55	9.60	3875.64	53007.75
Maximum	692000.0	1021597.0	12.20	28.80	57082.00	1953509.0
Minimum	-44986.00	735.32	6.90	-0.50	3.42	1362.40
Std. Dev.	100432.6	196962.8	1.08	6.13	10793.38	294372.1
Skewness	2.14	1.95	0.15	1.01	2.82	1.96
Kurtosis	6.24	5.84	3.83	4.35	12.18	6.13
Jarque-Bera	59.90	48.39	1.61	12.31	241.87	52.44

Diagnostic Test Results

This paper used 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), unemployment rate, inflation rate, foreign aid and grants 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)
Unemployment Rate	-3.8872 (0.0042)		
Inflation Rate	-5.5615 (0.0000)		
Foreign Aid & Grants	1.1795 (0.9975)	-3.6062 (0.0099)	
Public Expenditure	9.5844 (1.0000)	4.5209 (1.0000)	-16.1278 (0.0000)

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 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
Tax & Public Expenditure	None*	0.4578	50.7290	20.2618	0.0000
	At most 1*	0.3733	21.9590	9.1645	0.0001
Budget Deficit & Unemployment Rate	None	0.1507	13.9976	20.2618	0.2896
	At most 1	0.1204	6.1599	9.1645	0.1787
Budget Deficit & Inflation Rate	None	0.1834	17.8665	20.2618	0.1034
	At most 1	0.1560	8.1415	9.1645	0.0779
Budget Deficit & Foreign Aid and Grants	None*	0.3664	23.8262	20.2618	0.0155
	At most 1	0.0393	1.9244	9.1645	0.7927
Tax & Unemployment Rate	None*	0.3115	24.5437	20.2618	0.0121
	At most 1	0.1289	6.6260	9.1645	0.1476
Tax & Inflation Rate	None*	0.3396	28.3674	20.2618	0.0031
	At most 1	0.1614	8.4514	9.1645	0.0682
Tax & Foreign Aid and Grants	None*	0.3047	27.7818	20.2618	0.0038
	At most 1*	0.1938	10.3415	9.1645	0.0298

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

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, 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. 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 4. Results of Granger Causality Tests

Null Hypothesis	f-Statistic	P-values
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
Tax revenue does not Granger cause inflation rate	0.0103	0.9898
Inflation rate does not Granger cause tax revenue	1.5524	0.2234
Budget deficit does not Granger cause inflation rate	0.7747	0.4672
Inflation rate does not Granger cause budget deficit	0.6156	0.5450
Tax revenue does not Granger cause unemployment rate	0.0311	0.9694
Unemployment rate does not Granger cause tax revenue	0.0905	0.9137
Budget deficit does not Granger cause unemployment rate	0.0366	0.9641
Unemployment rate does not Granger cause budget deficit	0.0233	0.9770
Foreign aid & grants does not Granger cause budget deficit	1.5967	0.2143
Budget deficit does not Granger cause foreign aid & grants	0.2880	0.7512

The findings in Table 4 indicate that 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. Budget deficit does not Granger-cause tax revenue and vice versa at 5% level of significance as indicated by the p-values of 0.6142 and 0.2011. Foreign aid and grants do not Granger-cause budget deficit and vice versa at 5% level of significance as indicated by the p-values of 0.2143 and 0.7512. In essence, there is no Granger causality between the variables in Table 4 above.

Model Specification

Fiscal Policy Stance, Selected Macroeconomic Factors and Public Expenditure

The first step of testing intervening or mediating effect involved fiscal policy stance and public expenditure whereby a VECM model was used. The results are indicated in Table 1A in the appendix, where the effect of fiscal policy stance on public expenditure is statistically insignificant. The second step of testing intervening or mediating effect which entailed fiscal policy stance and each of the selected macroeconomic factors (inflation rate, unemployment rate and foreign aid & grants) was established using VAR models and a VECM model as determined by the existence of cointegration between the variables in a model. Pre-diagnostic checking and post diagnostic checking was undertaken.

Fiscal Policy Stance and Inflation Rate

The effect of fiscal policy stance on inflation rate was established using a VAR model. Pre-diagnostic checking and post diagnostic checking was undertaken. Using lag length criteria/selection method, three (3) lags were selected since under the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwartz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ) the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on inflation rate was undertaken. Before running the VAR 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 no cointegration between fiscal policy stance and inflation rate hence a VAR model being the most appropriate model to be used. The VAR model is as shown next in Table 5.

Table 5. VAR Model for Fiscal Policy Stance and Inflation Rate

Equation: INFL = C(1)*INFL(-1) + C(2)*INFL(-2) + C(3)*INFL(-3) + C(4) *TAX(-1) + C(5)*TAX(-2)

+ C(6)*TAX(-3) + C(7)*BDEFIC(-1) + C(8)*BDEFIC(-2) + C(9)*BDEFIC(-3) + C(10)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.120961	0.174718	0.692323	0.4931
C(2)	0.336349	0.162970	2.063868	0.0461
C(3)	0.110923	0.179778	0.616998	0.5410
C(4)	-1.510121	6.557149	-0.230301	0.8191
C(5)	-2.374565	9.267427	-0.256227	0.7992
C(6)	3.906250	6.039229	0.646813	0.5217
C(7)	4.25E-05	4.66E-05	0.912172	0.3676
C(8)	-8.49E-05	6.55E-05	-1.297048	0.2026
C(9)	3.92E-05	6.00E-05	0.652339	0.5182
C(10)	5.026319	6.155116	0.816608	0.4194

R-squared	0.207301	Mean dependent var	10.12128
Adjusted R-squared	0.014482	S.D. dependent var	6.285108
S.E. of regression	6.239432	Akaike info criterion	6.685958
Sum squared resid	1440.429	Schwarz criterion	7.079606
Log likelihood	-147.1200	Hannan-Quinn criter.	6.834090
F-statistic	1.075106	Durbin-Watson stat	1.981043
Prob(F-statistic)	0.403453		

From Table 5, the effect of fiscal policy stance on inflation rate is statistically insignificant as indicated in the p-values except for the two lagged variable of inflation with a *p*-value of 0.0461

at 5% level of significance. The R^2 is 20.73% meaning that 20.73% of the variations in inflation can be explained by fiscal policy stance.

The joint significance between budget deficit and inflation rate was tested using the Wald test as indicated in Table 2A in the appendix. From Table 2A, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence inflation rate as indicated by the *p*-value of 0.6097. Also we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence tax as indicated by the *p*-value of 0.2756. From Table 2A in the appendix, we reject the null hypothesis that tax and its lagged variables cannot jointly influence budget deficit as indicated by the *p*-value of 0.0338. Therefore, there is joint significance between tax and budget deficit. Table 6 indicates the serial correlation test undertaken so as to determine if there was any autocorrelation between the variables after running the model.

Table 6. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.623811	Prob. F(3,34)	0.0663
Obs*R-squared	8.835556	Prob. Chi-Square(3)	0.0316

There is serial correlation in the model as indicated by the *p*-value of 0.0316 while the corresponding R^2 is 8.835556. Table 7 shows the results of the heteroscedasticity test done in order to determine if there was heteroscedasticity between the variables after running the model.

Table 7. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.652829	Prob. F(9,37)	0.1363
Obs*R-squared	13.47741	Prob. Chi-Square(9)	0.1422
Scaled explained SS	8.002532	Prob. Chi-Square(9)	0.5339

We accept the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.1422 at 5% level of significance while the corresponding R^2 is 13.47741.

Fiscal Policy Stance and Unemployment Rate

The effect of fiscal policy stance on unemployment rate was established using a VAR model. Pre-diagnostic checking and post diagnostic checking was undertaken. Using the lag length criteria/selection method used in testing the effect of fiscal policy stance on unemployment rate, one (1) lag was selected since under the LR, FPE, AIC, SC and HQ the lag value was the lowest.

After the lag selection was done, the effect of fiscal policy stance on unemployment rate was undertaken. Before running the VAR model, diagnostic tests were done such as the Johansen cointegration test and Stationarity tests 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 no cointegration between fiscal policy stance and unemployment rate hence a VAR model being the most appropriate model to be used. The VAR model is as shown in Table 8.

Table 8. VAR Model for Fiscal Policy Stance and Unemployment Rate

Equation: UNEMP = C(1)*UNEMP(-1) + C(2)*LNTAX(-1) + C(3)*BDEFIC(-1) + C(4)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.515862	0.126849	4.066725	0.0002
C(2)	0.005419	0.085496	0.063386	0.9497
C(3)	-5.45E-07	1.92E-06	-0.283869	0.7778
C(4)	4.548747	1.489158	3.054576	0.0038

R-squared	0.272725	Mean dependent var	9.491837
Adjusted R-squared	0.224240	S.D. dependent var	1.088354
S.E. of regression	0.958593	Akaike info criterion	2.831407
Sum squared resid	41.35050	Schwarz criterion	2.985841
Log likelihood	-65.36946	Hannan-Quinn criter.	2.889999
F-statistic	5.624927	Durbin-Watson stat	2.250381
Prob(F-statistic)	0.002315		

From Table 8, the effect of fiscal policy stance on the unemployment rate is statistically insignificant as indicated in the *p*-values except the lagged variable of unemployment with a *p*-value of 0.0002 at 5% level of significance. The R^2 is 27.27% meaning that 27.27% of the variations in unemployment can be explained by fiscal policy stance.

The joint significance between budget deficit and unemployment rate was tested using the Wald test as indicated in Table 2A in the appendix. As shown in Table 2A, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence unemployment rate as indicated by the *p*-value of 0.7765. Thus, we accept the null hypothesis that tax and its lagged variables cannot jointly influence unemployment rate as indicated by the *p*-value of 0.9495. According to Table 2A, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence tax as indicated by the *p*-value of 0.9980 and we also accept the null hypothesis that tax and its lagged variables cannot jointly influence budget deficit as indicated by the *p*-value of 0.0675. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 9.

Table 9. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.699867	Prob. F(1,44)	0.1075
Obs*R-squared	2.832845	Prob. Chi-Square(1)	0.0924

As indicated in Table 9 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.0924. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 10.

Table 10. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.935836	Prob. F(3,45)	0.0017
Obs*R-squared	13.89273	Prob. Chi-Square(3)	0.0031
Scaled explained SS	29.35110	Prob. Chi-Square(3)	0.0000

As indicated in Table 10, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0031 at 5% level of significance while the corresponding R^2 is 13.89273.

Fiscal Policy Stance and Foreign Aid and Grants

The effect of fiscal policy stance on foreign aid & grants was also established using a VECM model and pre-diagnostic checking and post diagnostic checking was undertaken. Using the lag length criteria/selection method, one (1) lag was selected since under the LR, FPE, AIC, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on foreign aid & grants was undertaken.

A VECM model was used to test the hypothesis. 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 foreign aid & grants hence a VECM model being the most appropriate model to be used. The VECM model is as shown next;

Table 11. VECM Model for Fiscal Policy Stance and Foreign Aid & Grants

D(FAID) = C(1)*(FAID(-1) - 1.57215141671*TAX(-1) + 6.50736179382E-06*BDEFIC(-1) + 8.97000160415) + C(2) *D(FAID(-1))

+ C(3)*D(TAX(-1)) + C(4)*D(BDEFIC(-1)) + C(5)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.515110	0.118614	-4.342744	0.0001
C(2)	0.002664	0.132603	0.020088	0.9841
C(3)	-0.071623	0.645929	-0.110883	0.9122
C(4)	-2.08E-06	4.36E-06	-0.475706	0.6367
C(5)	0.132701	0.135081	0.982388	0.3314

R-squared	0.333789	Mean dependent var	0.107992
Adjusted R-squared	0.271816	S.D. dependent var	0.810732
S.E. of regression	0.691827	Akaike info criterion	2.199372
Sum squared resid	20.58088	Schwarz criterion	2.394289
Log likelihood	-47.78493	Hannan-Quinn criter.	2.273031
F-statistic	5.386027	Durbin-Watson stat	2.085435
Prob(F-statistic)	0.001319		

From Table 11, the effect of fiscal policy stance on foreign aid & grants is statistically insignificant as indicated in the *p*-values while the R^2 is 33.38% meaning that 33.38% of the variations in foreign aid & grants can be explained by fiscal policy stance. The p-value of C(1) or the constant is 0.0001 meaning that there is a long run causality running from fiscal policy stance to foreign aid & grants. Short run causality was also tested using the Wald test as indicated in Tables 3A in the appendix. The results in Table 3A show that there was no short run causality running from tax to foreign aid & grants as indicated by the *p*-value of 0.9117. As indicated in Table 3A, there was no short run causality running from budget deficit to foreign aid & grants as indicated by the *p*-value of 0.6343. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 12.

Table 12. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.776253	Prob. F(1,42)	0.1898
Obs*R-squared	1.947635	Prob. Chi-Square(1)	0.1628

From Table 12, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.1628. Table 13 shows the results of the heteroscedasticity test done in order to determine if there was heteroscedasticity between the variables after running the model. As indicated in Table 13, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0197 at 5% level of significance while the corresponding R^2 is 15.06716.

Table 13. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.126331	Prob. F(6,41)	0.0129
Obs*R-squared	15.06716	Prob. Chi-Square(6)	0.0197
Scaled explained SS	17.75203	Prob. Chi-Square(6)	0.0069

The final step of testing intervening effect involves regressing fiscal policy stance and macroeconomic factors on public expenditure using a VECM model as determined by the existence of cointegration between the variables. Pre-diagnostic checking and post diagnostic checking was undertaken. Lag length criteria/selection method was used in testing the effect of

fiscal policy stance and macroeconomic factors on public expenditure. Subsequently, one (1) lag was selected since under the LR, FPE, AIC, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance and macroeconomic factors on public expenditure was undertaken.

A VECM model was used to test the hypothesis. 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, macroeconomic factors and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next in Table 14.

Table 14. VECM Model for Fiscal Stance, Macroeconomic Factors & Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) - 15736.2245224*LNTAX(-1) - 0.24453168855*BDEFIC(-1) + 2431.8744158 *INFL(-1) - 13380.6980862
*UNEMP(-1) + 1.26755271764*FAID(-1) + 88692.7003921) + C(2)*D(PEXP(-1)) + C(3)*D(TAX(-1)) + C(4)*D(BDEFIC(-1)) + C(5)
*D(INFL(-1)) + C(6) *D(UNEMP(-1)) + C(7)*D(FAID(-1)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.342478	0.038840	8.817671	0.0000
C(2)	-0.912425	0.205434	-4.441446	0.0001
C(3)	27691.44	25462.30	1.087547	0.2833
C(4)	-0.478694	0.215678	-2.219485	0.0322
C(5)	-633.4364	497.5667	-1.273068	0.2103
C(6)	3182.388	3428.008	0.928349	0.3588
C(7)	1.774987	0.671363	2.643857	0.0117
C(8)	44128.90	5763.727	7.656313	0.0000

R-squared	0.783399	Mean dependent var	25833.03
Adjusted R-squared	0.745494	S.D. dependent var	49717.29
S.E. of regression	25081.69	Akaike info criterion	23.24868
Sum squared resid	2.52E+10	Schwarz criterion	23.56054
Log likelihood	-549.9682	Hannan-Quinn criter.	23.36653
F-statistic	20.66730	Durbin-Watson stat	1.849100
Prob(F-statistic)	0.000000		

From Table 14, the effect of fiscal policy stance and macroeconomic factors on public expenditure is statistically significant as indicated in the *p*-values while the R^2 is 78.34% meaning that 78.34% of the variations in public expenditure can be explained by fiscal policy

stance and the macroeconomic factors. As indicated in Table 14 fiscal policy stance (budget deficit), foreign aid & grants and the lagged variable of public expenditure have a significant effect on public expenditure. The *p*-value of C(1) or the constant is 0.0000 meaning that there is a long run causality running from fiscal policy stance and macroeconomic factors to public expenditure. The f-statistic is 0.000000 meaning that the model fits the data well.

Short run causality was also tested using the Wald test as indicated in Table 3A in the appendix. As indicated in Table 3A, there was no short run causality running from tax to public expenditure as indicated by the *p*-value of 0.2768. However, there was short run causality running from budget deficit to public expenditure as indicated by the *p*-value of 0.0265. Nevertheless, there was no short run causality running from inflation rate to public expenditure as indicated by the *p*-value of 0.2030. Furthermore, there was no short run causality running from the unemployment rate to public expenditure as indicated by the *p*-value of 0.3532. Finally, there was short run causality running from foreign aid & grants to public expenditure as indicated by the *p*-value of 0.0082. Table 15 shows the results of the serial correlation test undertaken in order to determine if there was any autocorrelation between the variables after running the model.

Table 15. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.699733	Prob. F(1,39)	0.4080
Obs*R-squared	0.846030	Prob. Chi-Square(1)	0.3577

From Table 15, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.3577. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 16.

Table 16. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.290103	Prob. F(12,35)	0.2675
Obs*R-squared	14.72031	Prob. Chi-Square(12)	0.2571
Scaled explained SS	46.13026	Prob. Chi-Square(12)	0.0000

Table 16 results indicate that we accept the null hypothesis that states there is no heteroscedasticity as indicated by the *p*-value of 0.2571 at 5% level of significance while the corresponding R^2 is 14.72031.

The final step of testing the intervening effect which involves regressing fiscal policy stance and macroeconomic factors on public expenditure using a VECM model is indicated in Table 14. The results show that fiscal policy stance and foreign aid & grants have a significant effect on

public expenditure. Therefore, foreign aid & grants as one of the macroeconomic factors have a mediating/intervening effect on the relationship between fiscal policy stance and public expenditure. Table 17 shown next gives a summary of the model coefficients before and after the intervening variable is introduced as also indicated in Table 1A (in the appendix) and Table 14 respectively. Also the percentage change as a result of the intervening variable which is macroeconomic factors is also indicated.

Table 17. Intervening Influence of Macroeconomic Factors on Fiscal Stance and Public Expenditure

Variables		Coefficients without intervening variable	Coefficients with intervening variable	% Change in the coefficients
Fiscal Policy Stance	Tax(-1)	-0.0038	27691.44	100%
	Tax(-2)	-0.1580		
	Budget Deficit (-1)	-0.00000141	-0.4787	99.99%
	Budget Deficit (-2)	0.0000000587		
Macro-economic Factors	Inflation (-1)		-633.44	
	Unemployment (-1)		3182.39	
	Foreign Aid & Grants (-1)		1.775	

As indicated in Table 17, there is a significant change in the model coefficients after the intervening variable (macroeconomic factors) is introduced in the relationship between fiscal policy stance and public expenditure. The percentage changes are approximately 100%.

Discussion of Findings

This paper sought to find out the intervening effect of selected macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. Three steps were used according to Baron and Kenny (1986) and further supported by MacKinnon et al. (2002) with the first step testing the effect of fiscal policy stance and public expenditure being insignificant. The second step testing the effect of fiscal policy stance on macroeconomic factors was insignificant. However, the final step of testing the effect of fiscal policy stance and macroeconomic factors on public expenditure was significant.

Thus, the findings indicate that foreign aid and grants have an intervening effect on the relationship between fiscal policy stance and public expenditure in Kenya. The study was unique in the aspect of examining the mediating or intervening effect of selected macroeconomic

factors. However, there are other studies with similar findings such as Gatauwa et al. (2017b) that examined intervening effect of economic growth on the link between fiscal policy stance and public expenditure. Similarly, Stancik and Valila (2012) indicate that fiscal policy stance affects public expenditure resulting in an increasing proportion of development and loosening favouring recurrent expenditure. Nevertheless, this paper found a statistically insignificant relationship between fiscal stance and public expenditure. These findings differ from those of Stancik and Valila (2012) which could be as a result of differences in methodology considering that Stancik and Valila used the General Method of Moments (GMM) modelling while this paper used time series modelling using VECM and VAR models. Furthermore, the differences in the study context – EU; Kenya – could be attributed in the results and findings.

Conclusions

First, fiscal policy stance has a weak effect on each individual macroeconomic variable. This implies that there could be several other variables that could explain a more significant effect on each of the macroeconomic variables other than fiscal policy stance. Secondly, the direct effect of fiscal policy stance on macroeconomic factors has not been widely examined. In the finance literature, there are studies that argue in favour of adoption of restrictive fiscal policies during a worsening macroeconomic environment such as increased level of unemployment yet these studies do not clearly show how fiscal policy would influence a particular set of macroeconomic factors. Thirdly, this study contributes to the finance literature by examining the relationship between fiscal policy stance and macroeconomic factors which is a relationship insufficiently explored in empirical literature. Finally, from the study findings foreign aid and grants have an intervening effect on the link between fiscal policy stance and public expenditure in Kenya.

References

Adil, M.H., Ganaie, A.A., & Kamaiah, B. (2017). Wagner's hypothesis: An empirical verification. *IIM Kozhikode Society & Management Review*, *6*(1), 1–12.

Alesina, A., & Perotti, R. (1994). The political economy of budget deficits. *National Bureau of Economic Research Working Paper Series*, No. 4673, NBER.

Aregbeyen, O. (2006). Cointegration, causality and Wagner's Law: A Test for Nigeria, 1970–2003. *Central Bank of Nigeria Economic and Financial Review*, *44*(2), 1–17.

Ayo, O., Nwosa, P., & Ditimi, A. (2012). A trivariate causality test among economic growth, government expenditure and inflation rate: Evidence from Nigeria. *Research Journal of Finance and Accounting*, *3*(1), 65–73.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

Barro, R., & Grilli, V. (1994). *European Macroeconomics.* Basingstoke, Hampshire: Macmillan.

Beetsma, R., Klaassen, F., & Giuliodori, M. (2008). The effects of public spending shocks on trade balances and budget deficits in the European Union. *Journal of the European Economic Association*, *6*(2/3), 414–423.

Brixiova, Z. (2010). Africa in the post-crisis global economy: Turning the recovery into strong, sustained and shared growth. *The Committee of Ten Policy Briefs (C-10 PB)* http://www.afdb.org/

Bui, D.T. (2020). Fiscal sustainability in developing Asia – new evidence from panel correlated common effect model. *Journal of Asian Business and Economic Studies*, 27(1): 66–80.

Burney, N. A. (2002). Wagner's hypothesis: Evidence from Kuwait using cointegration tests. *Applied Economics*, *34*(1), 49–57.

Canuto, O. (2009). Fiscal policy in developing countries: Implications from the current crisis, *65th Annual Congress of the International Institute of Public Finance*, Cape Town, South Africa.

Chang, T. (2002). An econometric test of Wagner's Law for six countries, based on Cointegration and Error-Correction modelling techniques. *Applied Economics*, *34*(9), 1157–1169.

Dornbusch, R., Fischer, S., & Startz, R. (2017). *Macroeconomics*. 13th Ed, New York: McGraw Hill.

Ezirim, C., Moughalu, M., & Elike, M. (2008). Inflation versus public expenditure growth in the US: An empirical investigation. *North American Journal of Finance and Banking Research*, *2*(2), 26–40.

Fan, S., & Rao, N. (2003). Public spending in developing countries: Trends, determination and impact. *EPTD Discussion Paper* No. 99, EPTD.

Gatauwa, J.M, Kaijage, E.S., Sifunjo, K., & Kiriti-Nganga, T.W. (2017a). Fiscal policy stance and public expenditure in Kenya. *The Pan-African Journal of Business and Management*, *1*(2), 61–80.

Gatauwa, J.M., Kaijage, E.S., Sifunjo, K., & Kiriti-Nganga, T.W. (2017b). The intervening influence of economic growth on fiscal policy stance and public expenditure in Kenya. *The Pan-African Journal of Business and Management*, *1*(2), 21–27.

Huang, C.J. (2006). Government expenditures In China and Taiwan: Do they follow Wagner's Law? *Journal of Economic Development*, *31*(2), 139–148.

Kumar, S., Webber, D. J., & Fargher, S. (2012). Wagner's law revisited: Cointegration and causality tests for New Zealand. *Applied Economics*, *44*(5), 607–616.

Legrenzi, G. (2004). The displacement effect in the growth of governments. *Public Choice*, 120, 191–204.

Haffert, L., & Mehrtens, P. (2015). From austerity to expansion? Consolidation, budget surpluses, and the decline of fiscal capacity and the size of government. *Politics & Society*, *43*(1), 119–148.

Han, S., & Mulligan, B. (2008). Inflation and the size of government. *Federal Reserve Bank of St. Louis Review*, *90*(3), 245–267.

Henry, O. & Olekalns, N. (2000). The Displacement Hypothesis and Government Spending in the United Kingdom: Some New Long-Run Evidence. *The University of Melbourne Working Paper* No. 750.

Johansen, L. (1965). *Public Economics.* Amsterdam: North Holland Publishing Co.

MacKinnon, D.P., Lockwood, C., Hoffman, J., West, S., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83–104.

Magazzino, C. (2011). The nexus between public expenditure and inflation in the Mediterranean countries. *MPRA Paper* No. 28493, MPRA.

Musgrave, R. (1959). *The Theory of Public Finance*. New York: McGraw-Hill.

Njeru, J. (2003). The impact of foreign aid on public expenditure: The case of Kenya. *AERC Research Paper* No. 135, AERC.

Peacock, A., & Wiseman, J. (1961). *The Growth of Public Expenditure in the United Kingdom*. Princeton: Princeton University Press.

Perotti, R. (2007). Fiscal policy in developing countries: a framework and some questions. *World Bank Research Working Paper* No. 4365, World Bank.

Remmer, K. (2004). Does foreign aid promote the expansion of government? *American Journal of Political Science*, *48*(1), 77–92.

Sabir, S., & Qamar, M. (2019). Fiscal policy, institutions and growth: Evidence from the developing Asian countries. *International Journal of Social Economics,* 46(6): 822–837.

Stancik, J., & Valila, T. (2012). Changes in the fiscal stance and the composition of public spending. *Empirical Economics*, 43, 199–217.

Tanzi, V. (2006). Fiscal policy: When theory collides with reality. *CEPS Working Document* No. 246, CEPS.

Tayeh, S., & Mustafa, M. (2011). The determinants of public expenditures in Jordan. *International Journal of Business and Social Science*, *2*(8), 45–49.

Tsai, P.H. (2014). State fiscal rules and composition changes in public spending before the election. *Public Finance Review*, *42*(1), 58–91.

UNCTAD (2010). *The financial crisis, macroeconomic policy and the challenge of development in Africa*, Geneva.

Wagner, A. (1863). Grundlegung der politischen ökonomie. Retrieved from http://www.google.com.

APPENDIX: *TABLES AND FIGURES*

Table 1A. 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		

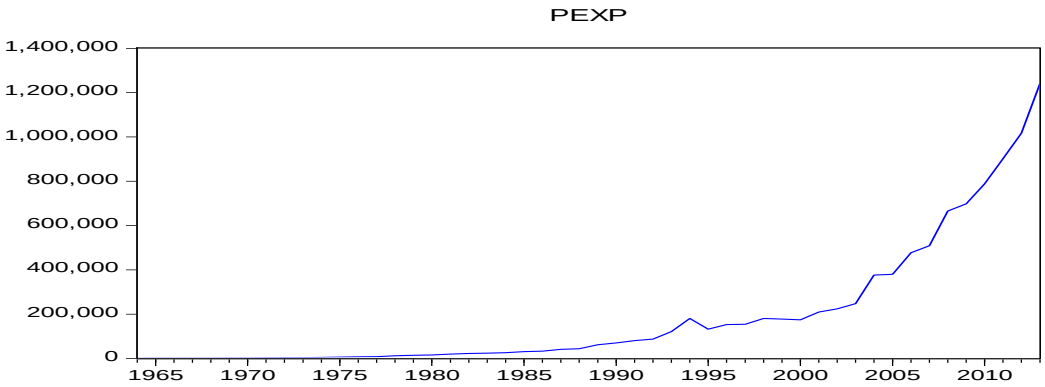
Table 2A. Joint Significance Test

	Test Statistic	Value	df	Probability
Budget deficit and Inflation rate	Chi-square	1.824088	3	0.6097
Budget deficit and tax	Chi-square	3.872157	3	0.2756
Tax and budget deficit	Chi-square	8.684858	3	0.0338
Budget deficit and Unemployment rate	Chi-square	0.080582	1	0.7765
Tax and Unemployment Rate	Chi-square	0.004018	1	0.9495
Budget deficit and tax	Chi-square	6.24E-06	1	0.9980
Tax and budget deficit	Chi-square	3.343580	1	0.0675

Table 3A. Wald Test

	Test Statistic	Value	df	Probability
Tax on Foreign aid & grants	Chi-square	0.012295	1	0.9117
Budget deficit on Foreign aid & grants	Chi-square	0.226297	1	0.6343
Tax on Public expenditure	Chi-square	1.182758	1	0.2768
Budget deficit on Public expenditure	Chi-square	4.926113	1	0.0265
Inflation on Public expenditure	Chi-square	1.620703	1	0.2030
Unemployment on Public expenditure	Chi-square	0.861832	1	0.3532
Foreign aid & grants on Public expenditure	Chi-square	6.989978	1	0.0082

Figure 1A: Annual Public Expenditure



Source: Kenya National Bureau of Statistics Reports