Constraints to Fiscal Consolidation Efforts in Kenya: Analysis of the Persistent Growth in Public Recurrent Costs

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Original Research Article

ABSTRACT

Aims: Kenya faces substantial fiscal consolidation needs in order to create fiscal space for financing its Vision 2030 development projects, sustainable development goals and the current government's election pledges. To achieve these, the country needs to allocate resources optimally. However, the government has found it a challenge to control the persistent growth in public recurrent costs, which has further led to challenges in carrying out sustainable fiscal consolidation. This paper looks into the factors behind the persistent rise in public recurrent costs in Kenya that have also acted as constraints to fiscal consolidation efforts in the country.
Methodology: The study employs four ARDL error correction models in the analysis using 2000 Quarter 1 to 2015 Quarter 4 time series data.
Results: The study shows that persistent rise in public recurrent costs is influenced by the real minimum wage adjustments and the devotion of real tax revenue towards recurrent spending at the expense of development expenditures. Inflation was found to erode the real value of non-wage public spending leading to upward adjustment of their nominal values. Real effective exchange rates was found to be significant in explaining the increases in real development expenditure. Surprisingly, an occurrence of a general election was found to lead to a decline in real public recurrent costs and compensation of government employees implying that the government tend to

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focus more on fiscal discipline during the election periods.

Conclusion: The study concludes that the persistent growth in public recurrent costs and the growth in public investment spending are not influenced significantly by the same factors and that frequent public wage adjustments and the devotion of domestic taxes to financing public recurrent costs are the main constraints to sustainable fiscal consolidation efforts in Kenya.

Keywords: Fiscal consolidation; fiscal adjustment; public recurrent costs; compensation of employees; non-wage recurrent costs.

1. INTRODUCTION

Fiscal policies of many developing countries across the world are increasingly becoming unsustainable [1]. The countries face fiscal consolidation needs in order to create additional fiscal space, which would enable them to meet their development goals. Fiscal consolidation refers to steps taken by governments to reduce government deficits and public debt accumulation. Failure of most International Monetary Fund (IMF) fiscal programs suggest that there are a number of factors that constrain fiscal consolidation efforts in the countries where they are implemented [2]. In a review of the IMF fiscal programs, [3] points out that political economy factors significantly influence the success of fiscal adjustment, thus programs that do not adequately account for political and institutional realities misrepresent the constraints facing policy-makers thus are more likely to fail. The main instruments of fiscal consolidation are revenue increases and expenditure cuts. [4,5,6,7,8] and [9] affirm that expenditure based consolidation are more effective in fiscal consolidation than tax-based consolidation measures since the former are often accompanied by reforms that enhance the effectiveness of budgetary procedures. Expenditure-based fiscal consolidation tends to be more effective since expenditure measures reflect greater commitment, lead to efficiency gains and makes substantial consolidation more feasible. According to [10,11], consolidations concentrated on the expenditure side especially on public wages and transfers tend to be successful and long lasting while consolidations focused on tax increases or investment cuts tend to be unsuccessful. Alesina and Perotti argue that in successful fiscal consolidations, 73 percent of the adjustment is always on the expenditure side while in unsuccessful consolidation efforts only 44 percent of the adjustment is on the expenditure side. In a recent study, [1] re-examine whether expenditure cuts characterize successful fiscal adjustments using a sample of 20 OECD countries. Their results show that the effect of change in expenditure equals that of change in revenues in successful fiscal adjustments. Therefore, measures for successful fiscal consolidations remain debatable while at the same time the accompanying constraints are key policy concerns to policymakers in developing countries.

In Kenya, fiscal policy stance remains expansionary despite efforts to carry out austerity measures. The expansionary fiscal policy stance is not a cause of concern in itself in view of the country's efforts to attain the development goals in its Vision 2030 blueprint and the international development obligations. The fiscal aspects of particular concern are the composition of the public expenditure over the years and the failure to control the persistent growth of public recurrent costs components that are viewed to be less growth enhancing. Public recurrent costs in Kenya consist mainly of public servants' salaries and wages, foreign and domestic travel costs, training costs, hospitality costs, conferences and catering services costs, electricity costs and costs on stationery. Following the promulgation of the new constitution in 2010, Kenya moved to a two-tier system of governance by the national government and 47 county governments. Fiscal decentralization that came with the new system of governance has generated new fiscal pressures in terms of setting up of administrative structures, additional public wage bill and operational costs of running the 47 county governments. As highlighted by [12], the current pressure for expansionary public spending in Kenya emanates mainly from the administrative costs of rolling out devolution, the rise in public wage bill, the need to enhance security expenditure due to terrorism threats and internal security concerns, the costs of financing infrastructural development in the country's Vision 2030 blueprint and other flagship projects aimed at fulfilling the current government's pre-election promises. For instance, the spending on national security has tripled from Ksh 30.7 billion in 2005/06 to KSh 93.8 billion in 2013/14 with

100 percent absorption rate [12]. Additionally, about 20 percent of total public expenditure (4.3 percent of GDP) is transferred to the county governments [12]. Moreover, even after releasing some functions to the county governments, most of the national government expenditure items have remained at the pre-devolution level and is still on an increasing trend. At the county government level, administrative costs have built-up quickly in view of high costs of setting up administrative infrastructure and operational costs of running the county assemblies and county executive functions. Consequently, the public recurrent spending continues on a rising trend at a time when the country is already struggling to control the existing public recurrent costs. The persistent rise in public recurrent costs implies that the government has to rely more and more on borrowings to finance the public investment spending. Fig. 1 presents the trend in public debt as a percentage of GDP in Kenya for the period 2000 – 2016.

The figure presents the trend in government gross/net debt as a percentage of GDP on the primary vertical axis and changes in the government gross/net debt to GDP ratio on the secondary vertical axis. The figure shows a general decline in both gross and net public debt/GDP ratio from 61.84 percent and 58.44 percent of GDP in 2002 to a low of 38.37 percent

and 34.42 percent of GDP in 2007 respectively. This represents a decline of 23.47 percentage points in gross public debt/GDP ratio and a decline of 24.02 percentage points in net public debt/GDP ratio over the same period. This shows that during the 2002-2007 period when the National Rainbow Coalition (NARC) was in power, fiscal consolidation in Kenya was a success since public debt/GDP ratio reduced by over 23 points in five years. There is no standard definition of successful fiscal consolidation across the world. However, [9] indicates that in most countries, fiscal consolidation is considered successful if debt to GDP ratio reduces by 5 percent below the level prior to start of consolidation in a period of four years. Following the 2007 post-election violence internal shock to the Kenyan economy, the gross public debt rose to a high of 44.40 percent of GDP in 2010 with the net public debt also rising to 40.22 percent of GDP in the same period. After 2010, the gross and net public debt as a percent of GDP slightly declined to 41.68 percent and 37.94 percent respectively in 2012. However, after 2012, the gross and net public debt as a percent of GDP have risen to a new high of 54.39 percent and 49.80 percent respectively in 2016. The annual changes in net public debt/GDP ratio follows the trend of gross public debt/GDP ratio and shows sharp decline in
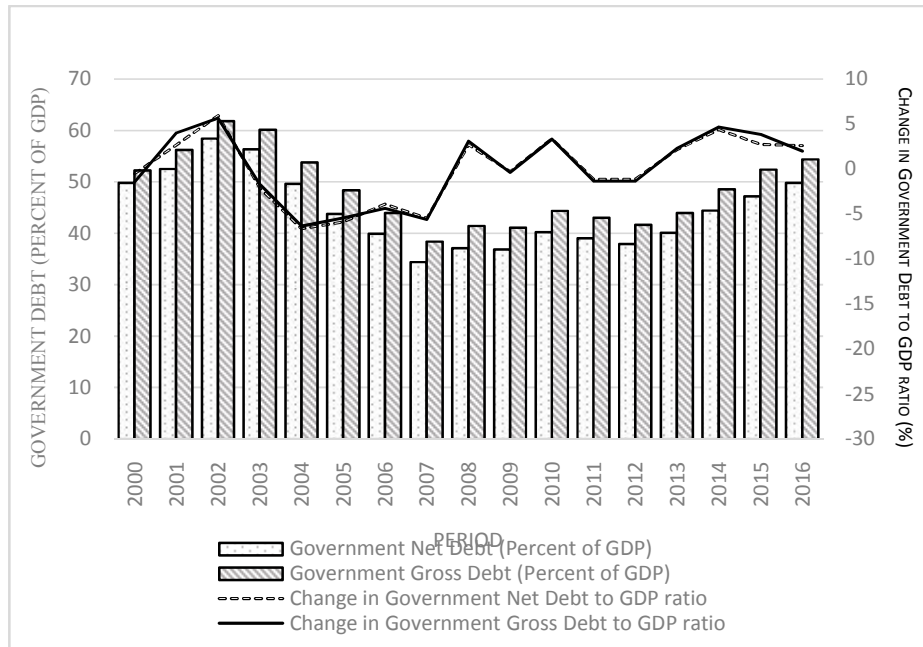

Fig. 1. Public debt as a percentage of GDP
Data Source: IMF, World Economic Outlook Database, April 201

3

2002-2004 period and sharp rises in 2007 – 2008 and 2012 – 2014 periods. As mentioned earlier, during the period of study, there was an internal shock in the Kenyan economy resulting from the post-election violence which followed the disputed December 2007 general elections and an external shock (global financial crisis). Consequently, in March 2008, a coalition government between Party of National Unity (PNU) and Orange Democratic Movement (ODM) was formed which ruled until March 2013. The events in the political arena during the study period indicate that political economy factors are likely to be among the major constraints to fiscal consolidation efforts in Kenya.

These trends show that sustaining fiscal consolidation efforts in the country remains a challenge. For instance, both the national and county governments have found it difficult to adhere to the Public Finance Management (PFM) Act 2012 requirement that public investment spending should be a minimum of 30 percent of national or county government budget. Consequently, Kenya has mainly relied on foreign sources to finance its public investment projects, which again raises the need for more allocation for operations and maintenance of the new public investments. However, [12] indicates that the allocations for operations and maintenance spending for the public investment projects have also declined in the recent past thus raising the prospects of a possible public recurrent costs problem in future. Therefore, the inability to control the rising public recurrent costs, which constitute over 70 percent of the public expenditure at both national and county government levels, is a key policy concern to the Government of Kenya.

1.1 Problem Statement

There is a growing consensus that fiscal consolidation that targets cuts in public recurrent costs is more effective and long lasting [5,9,10,11]. This seems to inform the fiscal adjustment efforts in Kenya, mainly targeted at reducing the public recurrent costs. Despite these efforts, Kenya's fiscal stance in the recent years remains expansionary with the public recurrent costs constituting over 70 percent of the aggregate public outlays. An analysis of Kenya's Economic Survey data for the period 2000-2015 shows that the public recurrent costs has been at an average of 20.98 percent of GDP and development expenditure has been at an average of just 5.35 percent of GDP over the

period. Average government spending on compensation of employees during the period was 7.39 percent of GDP, which is above the development expenditure average. A review of public expenditure in Kenya by the World Bank [12] shows that in 2014, administrative recurrent costs and compensation of employees consumed about 30 percent and 46 percent of the county government budgets respectively, with only ten out of 47 county governments allocating at least 30 percent of their budget to development items.

On the other hand, Kenya's narrow tax base which largely relies on income taxes (40 percent of total revenue and 8 percent of GDP), and value- added tax (which constitutes 25 percent of total revenue) [12] makes it difficult for the government to pursue tax-based fiscal consolidations. Development aid has also increasingly become unpredictable in the recent past [13] forcing the government to rely more and more on domestic revenue resources and borrowing. Additionally, there has been limited revenue raising efforts in the counties as evidenced by collection of only 43 percent of the targeted own-source revenue [12] hence increasing the pressure for more national government transfers to the counties.

The persistent rise in public recurrent costs and the new fiscal pressures emanating from the implementation of the devolved system of governance raise prospects of greater non-priority expenditures. The prospects of higher recurrent expenditures, which are likely to also limit allocations for operations and maintenance of new public investments, are likely to result in a recurrent costs problem in the country. Consequently, all these are likely to further constrain the fiscal consolidation efforts in the country. It is against this backdrop that this study makes an analysis of the persistent growth in public recurrent costs, as a major constraint to fiscal consolidation in the country with particular focus on compensation of public employees and non-wage recurrent costs.

1.2 Objectives

The general objective of this study is to examine the fiscal consolidation constraints that act through the persistent rise in public recurrent costs in Kenya. Specifically, the study seeks:

(i) To examine the factors influencing the persistent growth in public recurrent costs

relative to the costs incurred on public investment items in Kenya.

(ii) To relate how the factors influence the growth in compensation of government employees and non-wage recurrent costs in Kenya.

(iii) To examine the effect of the fiscal adjustment efforts in limiting growth in Kenya's public recurrent costs.

1.3 Policy Relevance

The persistent growth in public recurrent costs at both levels of government has put the national and county governments under critical focus on their spending priorities. Additionally, the growth in public recurrent costs is seen as an obstacle to the fiscal adjustment efforts in the country. In view of these, among other factors, containing the growth in public recurrent costs and shifting more resources towards public investment spending is a major point of policy concern for the Kenyan government, both at national and county level. The results from this study provides useful fiscal policy insights that can be employed to re-orient the fiscal adjustment measures in the country. The study also contributes to the literature on the constraints to fiscal consolidation efforts in developing countries.

1.4 Literature Review

There are several theories put forward in an attempt to explain the growth in public spending. The main theories include the Wagner's Law, Peacock and Wiseman's displacement effect theory, Leviathan theory of government, political business cycle theory, strategic debt accumulation theory, and median voter theorem. Most relevant to this study are political business cycle, strategic debt accumulation and median voter theories. The theory of political business cycles, first presented by [14], stipulates that the period between general elections in a given country influences government expenditure composition and growth. This theory has two variants; theory of opportunistic political budget cycles and theory of political parties. The theory of opportunistic political cycles argues that the incumbent government manipulates spending compositions during election years in order to enhance its chances of being re-elected [15,16,17]. This variant of the political budget cycle theory is more applicable to countries with weak political party ideologies like Kenya. On the other hand, the theory of political parties argues that the ideologies of the party in power

influences government spending. This variant applies to countries with strong political party ideologies like the United States of America (USA). The strategic debt accumulation theory put forward by [18] argues that if current policy makers believe that future policy may be determined by individuals whose views they disagree with, they will accumulate more debt through expansionary fiscal policy to restrain future policy makers' spending. The basis of the argument is the fact that high levels of debt would constrain the spending of future government.

The median voter theorem follows the work of [19,20,21]. The theory assumes that citizens vote in a majority rule voting system with two candidates and only one issue to be decided on (for instance, the composition of public expenditure). The theorem also assumes that the voters can place all the alternatives (tax rates, size of government expenditure, how much to spend on public recurrent costs versus development items) along a one – dimensional political spectrum and that their preferences are single-peaked. Additionally, the theorem assumes that there is perfect information about the issues and the voter preferences. Thus according to the median voter theorem, if an odd number of voters have single-peaked preferences over a one-dimensional space, then the outcome most preferred by the median voter will be selected. However, there can be cases of inefficient outcome resulting from logrolling. In a logrolling system, majority of voters can trade votes to form a coalition to vote for preferences that serve their special interests at the cost of other voters.

Additionally, how wages in the public sector are determined influences the level of remuneration of the public servants and consequently the growth in the public wage bill. The main theories used to explain public sector wage determination and adjustments are flexible theory of wages, surplus value theory, marginal productivity theory, bargaining theory and investment theory of wage determination. The theories which are most relevant to the Kenyan public sector are bargaining theory and investment theory of wage determination. The bargaining theory of wages holds that wages and other working conditions are determined through Collective Bargaining Agreements (CBAs) between employers and workers through their labour unions. According to this theory, wages are determined and adjusted by relative bargaining power of workers' trade

unions [22,23]. In Kenya, adjustments in public sector employees' compensations over the years have involved government constituted ad-hoc commissions and collective bargaining agreements with workers' trade unions in various sub-sectors. On the other hand, the investment theory of wage determination postulates that workers are paid in terms of their investment in education, experience and training [23] which applies to the Kenyan labour market.

The main factors that have been identified in the literature as key drivers of growth in public spending can be categorized into economic factors, political economy factors and demographic factors. Key economic factors are increase in per capita income and inflation. In line with Wagner's law of increasing state activity, increase in income per capita of a country is a key determinant of growth in public expenditure in general and public recurrent costs in particular. Studies such as [24] and [25] have found a significant positive effect of increase in income per capita on government expenditure. Additionally, increase in cost of living resulting from rise in inflation rates has been a basis for demands by trade unions for upward adjustment of wages paid to the workers [22]. In Kenya, the absence of productivity measurement mechanisms on which public service salaries and remuneration could be based means that public wages are determined and revised based on cost of living adjustments which is influenced by rates of inflation in the economy [26]. The Salaries and Remuneration Commission (SRC) recommends a four-year wage review cycle for the public sector and annual salary adjustments to cushion officers from erosion of their real income due to inflation and escalating cost of living [27]. This affirms that level of inflation in the economy is a key determinant of the adjustments in public wages in Kenya. [22] identifies cost of living adjustments and salary adjustments resulting from labour unions activities as the key determinants of the rise in public sector wages in Kenya.

Government revenue has a long run positive relationship with growth in public spending [25,28,29,30]. [25] found out that an increase in the previous year's revenue increases development expenditure by over 70 percent and expenditure on recurrent costs by 38 percent in Nigeria. [29] note that increasing ability of the government to collect taxes and increase in demand for social security due to ageing population contribute to rise in public spending.

[28] observes that most public expenditure variations across Sub-Saharan Africa countries over time is attributable to tax revenue variations. [28] noted that highly indebted countries face severe constraints in access to credit for government consumption smoothing hence their recurrent spending is highly correlated to current government revenue. [31] found a causality running from revenue to recurrent expenditure but no causality between revenue and capital expenditure. Using a modified version of the Granger causality test due to [32,30] investigated the causal relationship between revenue and public expenditure for 13 African countries. The study found a bi-directional causality running between expenditure and revenue for Mauritius, Swaziland and Zimbabwe; no causality in any direction for Botswana, Burundi and Rwanda; unidirectional causality running from revenue to expenditure for Ethiopia, Ghana, Kenya, Nigeria, Mali and Zambia; and a unidirectional causality running from expenditure to revenue for Burkina Faso. These studies affirm that revenue allocation is a key determinant of the rise in government spending, particularly government recurrent spending.

One of the main political economy factors that influences growth and composition of public expenditure is political business cycle. An incumbent government running for re-election has an incentive to increase spending on budget items visible to voters so as to signal its level of "competence" to voters during the election period [33,34]. Recurrent expenditure items are arguably more immediately visible than the development expenditure items, thus are of more direct political value during an election period [33]. The voters may observe type of government expenditure [33] or the overall level of government spending [35]. [25,33], and [36] point out that fiscal manipulation by the incumbent government tend to lead to an increase in recurrent expenditure during the election period at the expense of public investment expenditure. [25] found out that there is a tendency for public recurrent spending to increase by 38 percent during an election period in Nigeria in the long-run. The effects of fiscal manipulations during election period tend to endure even after the elections and the incumbents prefer to manipulate the allocations without increasing the fiscal deficit as the countries engage more in electoral politics [36]. [34] show that as level of deficit in the year preceding the election increases, share of votes received by the incumbent's party decreases. This signals that

well informed voters are averse to high overall government spending and budget deficits. Generally, composition of public expenditures tends to be tilted towards the public goods favored by certain interest groups with greater electoral importance [34].

Several studies also show a tendency for corrupt public officers to channel more budgetary resources towards public goods such as large infrastructure projects and highly sophisticated military equipment whose exact value is difficult to determine over expenses such as textbooks for the education sector [25,37,38,39]. In these studies, there is a general consensus that increase in corruption levels in an economy would lead to high public expenditure on large capital investments than on public recurrent costs items. However, in the end, these large capital investments tend to be of low quality and over-valued, as the public officials seek rent through the tendering process and execution of the awarded contracts [39]. The general argument is that public investment spending is highly discretionary, allowing for opportunities to misappropriate public funds, as opposed to recurrent spending (such as salaries and wages) which are spending on previous commitments with limited discretion to corrupt public officers. The finding of [25] that corruption has a significant negative effect on spending on recurrent costs but a positive effect on development expenditure in Nigeria supports this argument.

Demographic factors also put pressure on most governments to adjust public expenditure to cater for increased demand for public goods and services. Population density has a negative influence on government spending implying that the higher the population density, the less expensive it is to serve it [24]. [40] estimated a system of median voter demand equations for a sample of OECD countries and found population density and its age structure as key factors in determining the rise and composition of public expenditure. [24] point out that the elderly population proportion has a negative relationship with state government expenditure, which indicates that the elderly have a lower demand for public goods. [41] opine that competition for special interest groups in a country's population occurs prior to an election thus favours sought by certain interest groups such as youths and women always influence public policies during and after the elections thus lead to expansionary fiscal policy. This positively influences the growth in public expenditure as the party forming the

government embarks on fulfilling of the pledges made during the election period.

In a nutshell, the reviewed literature identifies some of the main economic, political economy and demographic factors that influences growth of public expenditure and its components. The literature, however, shows little focus on political economy and demographic factors and also generally focuses on how the factors influence growth in aggregate public expenditure with quite a number being cross-country studies. The studies focusing on Kenya, such as [22,42,43] and [44] have not attempted to specifically analyze the persistent growth in public recurrent costs and the constraints to fiscal consolidation efforts in the country. This study therefore makes an attempt to fill these research gaps by carrying out a country-specific analysis using disaggregated quarterly public expenditure data for Kenya for the period 2000 quarter 1 to 2015 quarter 4.

2. METHODOLOGY

The theoretical framework collapses the predictions of various competing expenditure growth theories into a single model to evaluate their different dynamic relationships and relative explanatory power. Specifically, the theoretical framework of this study is based on the fact that fundamental public expenditure decisions are always discretional thus influenced majorly by the political economy factors. This implies that the decisions can be influenced by the citizens through voting or any other opportunity available to them. The policy makers and politicians who make fiscal decisions are conceived as being motivated by the desire to attain and retain power. Therefore, they are expected to take fiscal decisions that appeal to a dominant coalition of voters. The voters on the other hand desire the levels and compositions of expenditures and taxes that would maximize their interests. The central theory for this study, therefore, is the median voter demand theory.

The framework is similar to that employed by [21] and [40,45]. However, [40] disaggregated public expenditure in terms of their functions. In this case, public spending is disaggregated based on whether the expenditure is towards a development item, compensation of government employees or non-wage recurrent expenditure.

In the median voter model, the citizens are assumed to vote in a majority system with the

magnitude of the different components of public spending being the decision items. [21] and [40,45] express the median voter's demand for government expenditure as follows:

$$G_i = \varphi Y_i^\alpha P_{gi}^\beta \; ; \qquad i = 1, 2, \ldots, N \qquad (1)$$

where: G_i is quantity of public goods and services demanded by the voter-taxpayer i.
P_gi is tax-price paid by voter-taxpayer i for G_i

Y_i is income of voter-taxpayer i.

α and β are income and price elasticities for government provided goods and services, respectively while φ is an adjustment factor.

The budget constrain to the government is assumed to be the domestic resources (amount of tax revenue) available for spending and [21] and [40,45] specify the price to be paid by the voter-taxpayer i for the government to provide public goods and services as:

$$P_{gi} = T_i C N^\sigma \qquad (2)$$

where: T_i is the tax share of voter-taxpayer i in total tax revenue.

C is per unit cost of public goods and services (G)

N is the total population while σ is the degree of publicness of the government provided goods and services.

Equation 2 show that the price paid by voter-taxpayer i for the public goods and services provided by the government depends on the tax the individual pays, per unit cost of the good or service, the population and the extent to which the good or service is nonrivalrous and nonexcludable. Assuming that there is no discrimination in taxation, [31] notes that T_i is assumed to be equal to $1/N$ thus the price to be paid for the public goods and services is obtained by substituting T_i with $1/N$, which gives $P_{gi} = CN^{\sigma-1}$. With this information, the variable P_gi is replaced in Equation 1 and the equation is manipulated to express the median voter's demand for government expenditure as:

$$G_i = \varphi Y_i^\alpha C^\beta \, N^{\beta(\sigma-1)} \; ; i = 1, 2, \ldots, N \qquad (3)$$

Since the government is assumed to be sensitive to the median voter's demand, it is expected to match its expenditure with the demand of the median voter. Therefore, the nominal government expenditure on voter-taxpayer i is equal to the median voter's demand for government expenditure given by Equation 3. It therefore follows that the total nominal government expenditure ($G_{nominal}$) is given by:

$$G_{nominal} = \; G_i P_{gi} N^\sigma \qquad (4)$$

Where all the variables are as defined before and quantity of public goods and services demanded by the voter-taxpayer i can be expressed as $G_i = {G}/{N^\sigma}$ with G being the aggregate demand for public goods and services.

Since this is a time-series analysis, [21] suggest that Equation 3 should be modified to allow for change in relative public/private sector prices (Pr) which is given as:

$$P_r = \; {C}/{P_x} \qquad (5)$$

Where P_x is the price of private sector goods and C is per unit cost of public goods and services (G).

[21] notes that to compute real government expenditure (G), nominal government expenditure should be divided by the tax-price (P_{gi}). However, since the degree of publicness (σ) is not known, it is divided by the unit cost of the government provided goods (C) then the coefficient for population is modified accordingly to accommodate this in the model. Using relative prices and aggregating to express the demand for government provided goods and services in terms of total expenditure, [21] specify the standard median voter demand model as follows:

$$G = \varphi Y^\alpha P_r^\beta N^\emptyset \qquad (6)$$

Where $\emptyset = (\beta + 1)(\sigma - 1) + \sigma - \alpha,$ G is total real government expenditure, Y is total real national income (real GDP), Pr is the relative public/private sector prices, N is the total population.

This specification is the standard median voter demand model where the citizens are fully aware of costs and benefits of government provided goods and services [21]. In contrast to [21] and [40], this analysis assumes that there is no fiscal illusion (the voter-taxpayer is aware of the true tax-price of government provided goods) thus adopt Equation 6 as the theoretical model. In specifying the empirical model, G, the total real government expenditure is disaggregated into development

expenditure and public recurrent costs (which is further disaggregated into compensation of government employees and non-wage recurrent costs). In the model, the median voter income is proxied by the GDP per capita and minimum wages. Instead of the total population, N, the empirical model for this study uses population density, which is used to approximate the concentration of the median voter per square kilometer. Recognizing the fact that growth in public expenditure in Kenya is not solely a political phenomenon, other economic and demographic variables, identified in the literature, are incorporated in the analysis.

In specifying the empirical models for this analysis, the standard median voter demand model presented in Equation 6 is log transformed and modified by inclusion of additional variables identified in the literature. Since the interest is to determine the factors that influence the growth in cost of the various expenditure items, the variables enter the models at their difference (Δ) levels. The empirical models are specified as follows:

Model 1

$$
\begin{aligned}
\Delta lnG_{rc,t} = \alpha_0 &+ \sum \alpha_f \, \Delta lnG_{rc,t-f} + \sum \omega_i \, \Delta lnGDPC_{t-i} \\
&+ \sum \vartheta_m \, \Delta lnMW_{t-m} \\
&+ \sum \aleph_s lnPopD_{t-s} \\
&+ \sum \beta_j \Delta lnTR_{\,t-j} + \sum \gamma_k \, \Delta lnPD_{t-k} \\
&+ \sum \delta_l \, \Delta lnCPI_{\,t-l} \\
&+ \sum \varphi_r \Delta lnREER_{\,t-r} \\
&+ \sum \pi_n \Delta \ln CorPI_{t-n} + \tau_0 \, F_{adj,t} \\
&+ \tau_1 \, ELC_t + \tau_2 \, @trend \\
&+ \mu_t \; \ldots\ldots\ldots (7)
\end{aligned}
$$

Model 2

$$
\begin{aligned}
\Delta lnG_{de,t} = \alpha_0 &+ \sum \alpha_f \, \Delta lnG_{de,t-f} + \sum \omega_i \, \Delta lnGDPC_{t-i} \\
&+ \sum \aleph_s lnPopD_{t-s} \\
&+ \sum \beta_j \Delta lnTR_{\,t-j} + \sum \gamma_k \, \Delta lnPD_{t-k} \\
&+ \sum \delta_l \, \Delta lnCPI_{\,t-l} \\
&+ \sum \varphi_r \Delta lnREER_{\,t-r} \\
&+ \sum \pi_n \Delta \ln CorPI_{t-n} + \tau_0 \, F_{adj,t} \\
&+ \tau_1 \, ELC_t + \tau_2 \, @trend \\
&+ \mu_t \; \ldots\ldots\ldots (8)
\end{aligned}
$$

Model 3

$$
\begin{aligned}
\Delta lnG_{ce,t} = \alpha_0 &+ \sum \alpha_f \, \Delta lnG_{ce,t-f} + \sum \omega_i \, \Delta lnGDPC_{t-i} \\
&+ \sum \vartheta_m \, \Delta lnMW_{t-m} \\
&+ \sum \aleph_s lnPopD_{t-s} \\
&+ \sum \beta_j \Delta lnTR_{\,t-j} + \sum \gamma_k \, \Delta lnPD_{t-k} \\
&+ \sum \delta_l \, \Delta lnCPI_{\,t-l} \\
&+ \sum \varphi_r \Delta lnREER_{\,t-r} \\
&+ \sum \pi_n \Delta \ln CorPI_{t-n} + \tau_0 \, F_{adj,t} \\
&+ \tau_1 \, ELC_t + \tau_2 \, @trend \\
&+ \mu_t \; \ldots\ldots\ldots (9)
\end{aligned}
$$

Model 4

$$
\begin{aligned}
\Delta lnG_{nwrc,t} = \alpha_0 &+ \sum \alpha_f \, \Delta lnG_{nwrc,t-f} \\
&+ \sum \omega_i \, \Delta lnGDPC_{t-i} \\
&+ \sum \vartheta_m \, \Delta lnMW_{t-m} \\
&+ \sum \aleph_s lnPopD_{t-s} \\
&+ \sum \beta_j \Delta lnTR_{\,t-j} + \sum \gamma_k \, \Delta lnPD_{t-k} \\
&+ \sum \delta_l \, \Delta lnCPI_{\,t-l} \\
&+ \sum \varphi_r \Delta lnREER_{\,t-r} \\
&+ \sum \pi_n \Delta \ln CorPI_{t-n} + \tau_0 \, F_{adj,t} \\
&+ \tau_1 \, ELC_t + \tau_2 \, @trend \\
&+ \mu_t \; \ldots\ldots\ldots (10)
\end{aligned}
$$

Where ln is the natural log; Δ denotes change/difference; t denotes time index (from 2000Q1 to 2015Q4); α_0 are the autonomous adjustments of the dependent variables; $\alpha_f, \omega_i, \vartheta_m, \aleph_s, \beta_j, \gamma_k, \delta_l, \varphi_r, \pi_n, \tau_0, \tau_1, \tau_2$ are coefficients; $f, i, m, s, j, k, l, r, n$ are the lag lengths of the respective explanatory variables; G_{rc} is real aggregate public recurrent costs; G_{de} is real public development expenditure; G_{ce} is real compensation of government employees; G_{nwrc} is real public non-wage recurrent costs; $GDPC$ is real national income (real GDP) per capita; MW is real minimum wages; $PopD$ is population density; TR is real domestic tax revenue; PD is real public debt; CPI is Consumer Price Index; $REER$ is real effective exchange rates; $CorPI$ is Corruption Perception Index used to capture perceived level of corruption in the public sector; F_{adj} is Fiscal adjustment dummy; ELC is election dummy; $@trend$ is used to control for time trend in the models; and μ is stochastic disturbance term.

The variables, except the indices and dummy variables, are expressed in real values to remove the effects of general price level changes over time. The variables are measured as explained below:

Real Public Recurrent Costs (G_{rc}) captures the quarterly national government's aggregate public recurrent costs (compensation of employees, non-wage recurrent costs and interests payment on debt).

Real Development Expenditure (G_{de}) is quarterly national government development spending.

Real Compensation of Employees (G_{ce}) is quarterly government expenditure on its employees' wages, allowances, pensions and other social contributions.

Real Non-Wage Recurrent Costs (G_{nwrc}) includes quarterly government spending on operations and maintenance costs, stationery costs, training costs, travel costs, electricity costs, expenses on conferences and catering services.

GDP per capita measures the national income per capita and is used to proxy the median voter income. A positive significant influence on public recurrent costs' growth and its components is expected [24,25].

Real Minimum Wages (MW) is measured using real values of gazetted monthly basic minimum wages in urban areas (Nairobi, Kisumu, Mombasa), excluding house allowances. The three cities have a relatively high concentration of public servants hence the decision to use their minimum wages instead of that for agricultural industry. Real minimum wages is also used to proxy the median voter income and general wage adjustments in the public sector. An increase in real minimum wages is expected to positively influence the growth in public recurrent costs.

Population Density ($PopD$) refers to the number of people per square kilometre. Population density is reported annually (as at 1st July of every year) by [46]. To conform to the data structure of the other variables, the annual data was transformed into quarterly data using *Eviews* and adjusted accordingly to run concurrently with the respective quarters. An increase in population density is expected to have a positive influence on growth in public recurrent costs.

Real Government Tax Revenue (TR) is measured by the total quarterly government tax revenue (excluding grants and non-tax revenue) and is expected to have a positive relationship with growth in public expenditure and all its components [25,28,29,30].

Real Public Debt (PD) is captured by the end of quarter public debt amounts. It is expected to have a positive influence in growth of all public expenditure categories. *Consumer Price Index (CPI)* is used to measure the effect of inflation and it is expected that inflation negatively impacts on real wages and consequently the aggregate compensation of public employees hence results in increased agitation for the cost of living adjustment of wages in the public sector [22,47]. Similarly, inflation erodes real values of expenditure items thus is expected to result in upward adjustment in their nominal values.

Real Effective Exchange Rates (REER) is calculated from the Nominal Effective Exchange Rates (NEER) and a measure of the relative price between the home country (Kenya) and its trading partners. This analysis employs CPI-based REER reported by UNCTAD, which is a weighted average of the Kenya Shilling (KSh) relative to a basket of the trading partners' currencies, adjusted for the effects of inflation. Therefore, a rise in REER (a depreciation of the KSh) is expected to have a positive influence on government spending [48] as this makes the imports consumed by the government expensive in domestic currency.

Corruption Perception Index ($CorPI$) captures perceived level of corruption in the public sector as reported by Transparency International. It is measured on a scale of 0 (highly corrupt) to 100 (very clean). A decline in corruption perception index score (interpreted as an increase in corruption levels in the country's public sector) is expected to have a positive effect on growth in public development expenditure and a negative or insignificant effect on growth in public recurrent costs [25,37,38,39].

Fiscal Adjustment Dummy (F_{adj}) is used to capture the improvement or decline in the quarterly primary budget deficit. The fiscal balances are computed by the difference between total revenue (including non-tax revenue but excluding grants) and total government expenditure as reported by the Central Bank of Kenya (CBK) in every quarter. It

is captured by 1 for the periods when there were improvements (positive growth) in fiscal balances and 0 for period with decline (negative growth) in fiscal balances.

Election dummy (ELC) captures the influence of political business cycle. It takes the value 1 for the periods when there were general elections (three quarters before the election and the quarter when the election is held) and 0 for the period where there were no general elections. The dummy is defined for the period before the elections since the interest here is to capture the pre-election fiscal manipulations. A positive influence on the growth of various components of government spending during election periods [25,33,34,35,36] is expected.

It is worth noting that GDP per capita and REER are reported annually thus the data was transformed into quarterly data using Eviews statistical software to conform to the data structure of the other variables. The quarterly data on components of government expenditure, public debt and Consumer Price Index was obtained from Central Bank of Kenya [49] and Kenya National Bureau of Statistics (KNBS) online statistics. Data on GDP per capita was obtained from the World Bank database [50]. Quarterly data on tax revenue was obtained from Kenya Revenue Authority. The data on minimum wages was obtained from Kenya's Economic Surveys published by KNBS. Data on Kenya's population density was obtained from the World Population Prospects by United Nations, Department of Economic and Social Affairs, Population Division [46] whereas data on Corruption Perception Indices for Kenya was obtained from various Transparency International's annual reports. Data for real effective exchange rates was obtained from UNCTAD statistics [51].

3. RESULTS AND DISCUSSION

The stationarity properties of the time series data is examined using Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. Other diagnostic tests carried out are tests for heteroskedasticity, serial correlation, structural breaks and cointegration.

3.1 Diagnostic Tests

The unit root tests' results show that the variables *LnGrc, LnGde, LnGce, LnGnwrc,*

LnMW, LnTR, FAdj and *ELC* are integrated of order zero (I(0)) whereas *LnGDPC, LnPD, LnCPI, LnREER* and *LnCorPI* are integrated of order one (I(1)). Order of integration of the variable *LnPopD* at levels could not be determined since the three test statistics gave conflicting results but the variable was found to be non-stationary at first difference, thus it is dropped from the models henceforth.

The results from the Breusch-Pagan-Godfrey heteroskedasticity test show that there is no heteroskedasticity in all the models except Model 2 which is heteroskedastic at 10% significance level. At 5% level of significance, the Breusch-Godfrey LM Test results show that there is serial correlation in the models. The multicollinearity test results show that *LnGDPC* is highly correlated with *LnTR, LnCPI, LnREER* and *LnCORPI.* Consequently, to control for the problems associated with multicollinearity, the variable for GDP per capita (*LnGDPC*) is dropped from the model henceforth. When there is an unexpected shift in time series then there could be a structural break in the data series. In this analysis, multiple breakpoint test was applied to identify periods of possible structural breaks and then Chow breakpoint test was applied on the periods identified to confirm whether they are significant or not. Table 1 presents the results for the structural break tests.

The results show a significant breakpoint in Model 2 for the period 2013Q1. This breakpoint is associated with the March 2013 general election in Kenya. The structural break point is thus catered for in the models by the election dummy (ELC) which is used to capture the political business cycle.

3.2 ARDL Bounds Cointegration Test and Model Selection

This analysis made use of the Akaike's information criterion (AIC), Schwarz's Bayesian information criterion (SBIC), and the Hannan and Quinn information criterion (HQIC) lag-order selection statistics to determine the optimal lag before testing for cointegration. The results show that the optimal lag length for model 1 and Model 4 is 9 lags whereas that for model 2 and model 3 is 8 lags. This is within the expected optimal lag length of 12 for quarterly time series data. Since the variables are not integrated of the same order, Autoregressive Distributed Lag (ARDL) model is used to test for cointegration. The ARDL/Bounds Testing methodology of [52] and

[53] can be used with a mixture of I(0) and I(1) data series, and different variables can be assigned different lag-lengths as they enter the model. However, none of the variables should be I(2). This explains the dropping of the variable for population density (*LnPopD*) which is neither integrated of order zero nor order one. The following ARDL model is employed in testing for cointegration:

$$
\begin{aligned}
\Delta lnDepVar_t \\
= \alpha_0 + \sum \alpha_i \, \Delta ln(DepVar)_{t-i} \\
+ \sum \vartheta_m \, \Delta lnMW_{t-m} + \sum \beta_j \Delta lnTR_{t-j} \\
+ \sum \gamma_k \, \Delta lnPD_{t-k} + \sum \delta_l \, \Delta lnCPI_{t-l} \\
+ \sum \varphi_r \Delta lnREER_{t-r} \\
+ \sum \pi_n \, \Delta ln \, CorPI_{t-n} + \theta_0 \, ln(DepVar)_{t-1} \\
+ \theta_1 \, lnMW_{t-1} + \theta_2 \, lnTR_{t-1} + \theta_3 \, lnPD_{t-1} + \theta_4 \, lnCPI_{t-1} \\
+ \theta_5 \, ln \, REER_{t-1} + \theta_6 \, lnCorPI_{t-1} + \tau_0 Fadj_t + \tau_1 ELC_t \\
+ \tau_2 @trend + \mu_t \qquad\qquad (11)
\end{aligned}
$$

Where *DepVar* is the dependent variable that is *lnGrc, lnGde, lnGce,* and l*nGnwrc,* for the respective models. ∆ is the difference operator and *@trend* is used to control for time trend in the models. Other variables are as defined before. Note that in the second model (development expenditure model) the variable for minimum wages is omitted since it is assumed that the variable is not relevant in this model. This applies to the entire analysis. The results for the ARDL Bounds cointegration test are presented in Table 2.

The ARDL Bounds cointegration test results show that F-statistics for all the models are greater than the Upper Bound Pesaran's critical values. Therefore, the null hypothesis of no cointegration is rejected. On the other hand, the results for Bounds t-test show that the t-statistics for all models except Model 1 are greater than the Upper Bound Pesaran's critical values (in absolute terms) at 5% level of significance. The results for model 1 show that the Bounds t-test statistic fall between the lower bound and the upper bound but closer to the upper bound. This implies that the test is indeterminate. Despite the mixed result for one of the models, the conclusion is that there is cointegration in all the models based on the strength of the F – statistics results which are significantly above the upper bound. In view of the ARDL Bounds cointegration test results, the analyses make use of an Error Correction Model (ECM). In modelling the ECM, the error correction term (ECT) is given by residuals of the long-run level relationship of the models. This is obtained from the estimation of the following equation:

$$
\begin{aligned}
lnDepVar_t \\
= \alpha_0 + \theta_1 \, lnMW_t + \theta_2 \, lnTR_t + \theta_3 \, lnPD_t \\
+ \theta_4 \, lnCPI_t + \theta_5 \, ln \, REER_t \\
+ \theta_6 \, lnCorPI_t + \tau_0 Fadj_t + \tau_1 ELC_t \\
+ \tau_2 @trend_t + \varepsilon_t \, \dots\dots\dots\dots\dots\dots\dots\dots (12)
\end{aligned}
$$

Where *DepVar* is the dependent variable, that is, *lnGrc, lnGde, lnGce,* and *lnGnwrc* for the respective models; α_0 is the constant; $\theta_1, \dots, \theta_6$ and $\tau_0, \dots, \tau_2$ are the coefficients and ε is the error term. Other variables and notations are as defined before. The Error Correction Model (ECM) for each of the models' cointegrated data is estimated using the following equation:

$$
\begin{aligned}
\Delta lnDepVar_t = \alpha_0 + \sum \alpha_i \, \Delta ln(DepVar)_{t-i} \\
+ \sum \vartheta_m \, \Delta lnMW_{t-m} \\
+ \sum \beta_j \Delta lnTR_{t-j} + \sum \gamma_k \, \Delta lnPD_{t-k} \\
+ \sum \delta_l \, \Delta lnCPI_{t-l} \\
+ \sum \varphi_r \Delta lnREER_{t-r} \\
+ \sum \pi_n \, \Delta ln \, CorPI_{t-n} + \tau_0 Fadj_t \\
+ \tau_1 ELC_t + \tau_2 @trend + \sigma ECT_{t-1} \\
+ \mu_t \, \dots\dots\dots\dots\dots\dots\dots\dots\dots (13)
\end{aligned}
$$

Where *DepVar* is the respective dependent variables (*lnGrc, lnGde, lnGce,* and *lnGnwrc,*). *ECT* is the error correction term obtained from Ordinary Least Squares (OLS) residual series from the long-run cointegrating relationship (Equation 11).

3.3 Efficiency and Dynamic Stability of the Models

The efficiency and dynamic stability of the regression models are ascertained through test for serial correlation, residual normality, CUSUM test of parameters stability, AR roots graphs test of stability and Granger causality test. The test for serial correlation was done to confirm if the errors are serially independent (a requirement for ARDL model efficiency). Additionally, Jarque-Bera test was used to determine the normality of the residuals, with the null hypothesis that residuals are normally distributed. The results for these tests are presented in Table 3.

Table 1. Test for structural break

		Multiple Breakpoint test		Chow Beakpoint test	Conclusion
	Break Test	F-statistic	Break Dates	F-statistic	
Model 1	0 vs.1	67.7667	2013Q1	1.4684	Break point not significant
	1 vs. 2	3.4005			
Model 2	0 vs. 1	66.1426	2013Q1	3.5106***	Break point significant
	1 vs. 2	3.2814			
Model 3	0 vs. 1	98.1122	2013Q1	1.5076	Break point not significant
	1 vs. 2	3.2174			
Model 4	0 vs. 1	1.8081	None	-	No Break point

*, **, *** denote the rejection of the null hypothesis at 10%, 5%, 1% level of significance, respectively.
Source: Author (2017)

Table 2. ARDL bounds cointegration test

Specification		*Model 1* Unrestricted intercept and unrestricted trend; number of regressors (k) = 7	*Model 2* Unrestricted intercept and unrestricted trend; number of regressors (k) = 6	*Model 3* Unrestricted intercept and unrestricted trend; number of regressors (k) = 7	*Model 4* Unrestricted intercept and unrestricted trend; number of regressors (k) = 7
F – statistic		4.5621	63.0724	450.4870	89.5382
Pesaran Critical Values at 5%	Lower Bound	2.69	2.87	2.69	2.69
Level of Significance	Upper Bound	3.83	4.00	3.83	3.83
t – statistic		-4.4364	-17.4469	-53.6470	-23.2677
Pesaran Critical Values at 5%	Lower Bound	-3.41	-3.41	-3.41	-3.41
Level of Significance	Upper Bound	-4.85	-4.69	-4.85	-4.85
Conclusion		Cointegrated	Cointegrated	Cointegrated	Cointegrated

Source: Author (2017)

The results show that residuals in the models are serially independent and normally distributed which is desirable for their specification. Further, the test for dynamic stability of the models was carried out using the CUSUM test and the AR roots graphs. The results for CUSUM test are presented in Fig. 2.

The figures show that the models are dynamically stable since the blue line lies between the two redlines representing the lower bound and upper bound. The stability of the models is confirmed by AR roots graphs (not presented here) that showed that all roots have modulus less than one and lie inside the unit circle.

Table 3. Test for the models' efficiency

Test	Model 1	Model 2	Model 3	Model 4	Conclusion
Breusch-Godfrey Serial Correlation LM Test (F-statistic)	1.5759	1.2414	2.4489	0.7513	No serial correlation
Jarque-Bera Normality Test (test –tatistic)	0.2881	4.2321	0.2191	0.1870	Residuals are normally distributed

*, **, *** denote the rejection of the null hypothesis at 10%, 5%, 1% level of significance, respectively.
Source: Author (2017)

CUSUM Test Results for Model 1

CUSUM Test Results for Model 2

CUSUM Test Results for Model 3

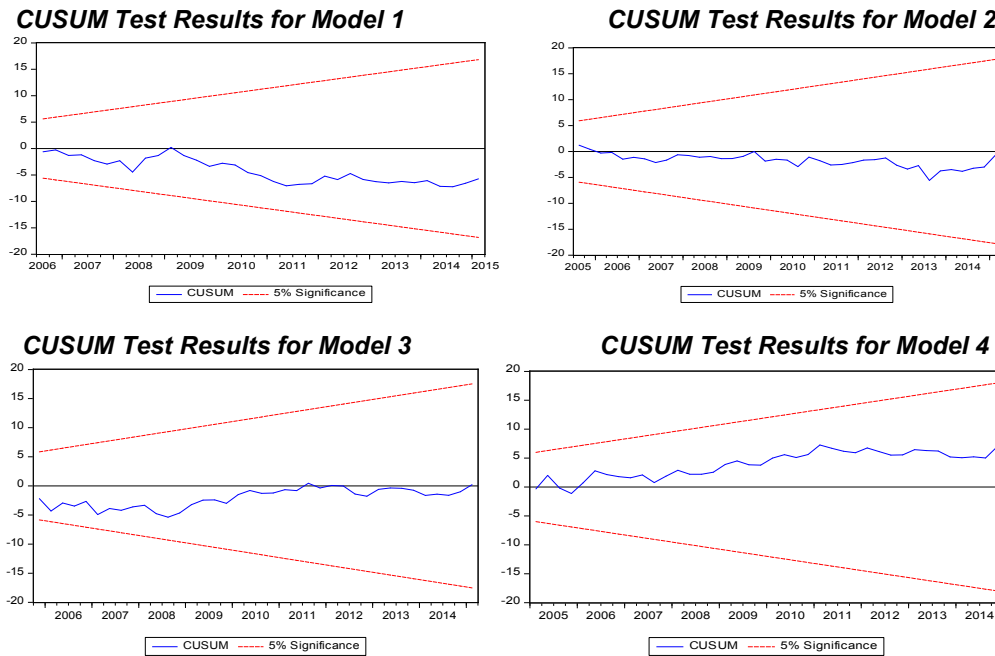### CUSUM Test Results for Model 4

Fig. 2. CUSUM test for stability of the models
Source: Author (2017)

Using pairwise Granger causality test, causality between the independent variables and the dependent variables in each model was also tested. The results showed that real minimum wages Granger causes growth in public recurrent costs and compensation of government employees. Real tax revenue was found to have bidirectional causality with the public recurrent costs and its components but an unidirectional causality running from public development spending to real tax revenue. The feedback effect between real tax revenue and public recurrent expenditure implies that whereas tax revenue is used to finance the expenditure, the public expenditures also act as a base for income tax and VAT revenue. Inflation ($\Delta lnCPI$) was found to Granger cause real public recurrent costs and its two components. The results also showed an unidirectional causality running from fiscal adjustment dummy to real non-wage recurrent costs. The empirical results from the analyses are presented in Table 4.

The empirical results show that in the public development expenditure model, the systems adjust towards the long run equilibrium at the speed of 19.52 percent whereas in the public recurrent costs model, the system adjusts towards the long run equilibrium at a speed of 44.66 percent. On the other hand, the analysis shows that the systems in the compensation of

government employees' model adjust towards its long run equilibrium at a speed of 73.11 percent as compared to that of the government non-wage recurrent costs that adjusts at speed of 86.08 percent towards its long-run equilibrium. This explains why growth in public recurrent costs always adjusts faster than growth in development spending.

The factors found to significantly influence the changes in public recurrent costs are real minimum wages, real tax revenue and the political budget cycles. The study found out that at 1% significance level, a percentage unit increase in real minimum wages (lagged once) would lead to a 6.09 percent rise in public recurrent costs whereas a percentage unit increase in real minimum wages (lagged twice) would lead to a 8.57 percent rise in public recurrent costs. The analysis also shows that at 5% level of significance, a percentage increase in real minimum wages (lagged once) would lead to a 6.03 percent rise in compensation of employees.

This result implies that the persistent trade union demands for adjustments of public sector wages, which are often accompanied by the annual adjustments in the minimum wages across the board, tend to significantly lead to an increase in compensation of public employees.

Table 4. ARDL ECM regression results for growth in public recurrent costs

Regressors	Model 1	Model 2	Model 3	Model 4
	Dependent variable: $\Delta lnG_{rc,t}$	Dependent variable: $\Delta lnG_{de,t}$	Dependent variable: $\Delta lnG_{ce,t}$	Dependent variable: $\Delta lnG_{nwrc,t}$
$\Delta lnG_{rc,t-1}$	-0.0081 (0.1507)	-	-	-
$\Delta lnG_{de,t-4}$	-	0.9445*** (0.0574)	-	-
$\Delta lnG_{ce,t-1}$	-	-	0.3940**(0.1916)	-
$\Delta lnG_{nwrc,t-1}$	-	-	-	0.0905 (0.1320)
$\Delta lnMW_{t-1}$	6.0941*** (1.9065)	-	6.0253** (2.5621)	-
$\Delta lnMW_{t-2}$	8.5692*** (1.7122)	-	-	-
$\Delta lnTR_{t-2}$	4.6864*** (1.1335)	-	6.5124***(1.5260)	3.9299***(1.0373)
$\Delta lnTR_{t-3}$	5.1718*** (1.1904)	-	3.2095** (1.2028)	-
$\Delta lnTR_{t-4}$	5.2155***(1.1072)	0.4807 (0.3759)	-	-
$\Delta lnPD_{t-2}$	-	0.5906 (1.5096)	-	0.9450 (3.1686)
$\Delta lnPD_{t-4}$	-1.7323 (2.1055)	-	1.6185 (2.7791)	-
$\Delta lnCPI_{t}$	-5.8345 (3.7489)	-	-4.0173 (5.4270)	-
$\Delta lnCPI_{t-1}$	-	-	-	-9.2714* (5.4732)
$\Delta lnCPI_{t-2}$	-	-1.8135 (2.6267)	-	-
$\Delta lnREER_{t}$	-	-	-	3.2150 (2.6505)
$\Delta lnREER_{t-1}$	1.9971 (2.1288)	-	-	-
$\Delta lnREER_{t-2}$	-	2.6329** (1.2454)	2.5888 (2.5991)	-
$\Delta \ln CorPI_{t}$	-	-	2.3987 (3.8112)	-
$\Delta \ln CorPI_{t-1}$	2.0538 (3.3426)	-	-	-
$\Delta \ln CorPI_{t-3}$	-	-2.7477 (1.8110)	-	-
$\Delta \ln CorPI_{t-4}$	-	-	-	5.9097 (4.0648)
$Fadj_t$	0.2810 (0.1797)	0.0596 (0.1163)	0.7793*** (0.2073)	1.0134*** (0.2194)
ELC_t	-0.3598** (0.1678)	-0.0046 (0.1188)	-0.3715* (0.2183)	-0.3583 (0.2462)
@trend	-0.0032 (0.0045)	0.0004 (0.0030)	-0.0051 (0.0059)	-0.0087 (0.0068)
Constant	-0.1121 (0.2185)	-0.0474 (0.1494)	-0.3746 (0.2801)	-0.2441 (0.3357)
ECT_{t-1}	-0.4466** (0.1931)	-0.1952* (0.0997)	-0.7311**(0.2703)	-0.8608*** (0.2625)
Number of Observations	50	50	51	51
F - statistic	19.5254***	91.1655***	10.5422***	12.5737***
Adjusted R-squared	0.8411	0.9485	0.6961	0.6983
R-squared	0.8865	0.9590	0.7690	0.7587

Note: Level of significance are denoted by * p=.1, ** p=.05, and *** p=.01. The figures inside the parentheses are robust standard errors

Source: Author (2017)

The study shows that at 1% level of significance, a percentage increase in real tax revenue at second, third and fourth lag level would lead to a 4.69 percent, 5.17 percent and 5.22 percent rise in public recurrent costs respectively. This is a combined effect of about 15.08 percent within a year. Real tax revenue was also found to have a significant positive effect on the rise in both public recurrent costs components. The results show that at 1% significance level, a percentage increase in real tax revenue (lagged twice) would lead to a 6.51 percent rise in compensation of government employees and a 3.93 percent rise in government non-wage recurrent costs. Additionally, the results show that at 5% level of significance, a percentage increase of real tax revenue (lagged with three quarters) would lead to a 3.21 percent rise in real compensation of government employees. It is worth noting that for a percentage increase in real government revenue, real compensation of government employees increases by about 5.79 percent more than non-wage recurrent costs. The results on public recurrent costs, is supported by the findings of [25,28,30], and [31]. However, real tax revenue was found not to significantly influence growth in government development expenditure meaning that government revenue is mainly devoted to financing of the public recurrent costs at the expense of the public development expenditure.

The analysis found out that the consumer price index has a negative insignificant coefficient in the public recurrent costs model, government development expenditures model and compensation of government employees' model but a significant negative coefficient in the government non-wage recurrent costs model. The results show that at 10% level of significance, a percentage increase in consumer price index would lead to a 9.27 percent decline in real value of government non-wage recurrent costs. This implies that an increase in inflation erodes the real value of non-wage public spending thus tend to lead to an upward adjustment of their nominal values leading to an overall rise in nominal government expenditure.

The study also shows that real effective exchange rates is insignificant in explaining the changes in real public recurrent costs and its components but significant in explaining the changes in real development expenditure. The results show that at 5% level of significance, a percentage increase in real effective exchange rates (lagged twice) would lead to a 2.63 percent

increase in real development expenditure. This shows that most of the inputs used in government development projects are imported thus their costs and consequently the aggregate cost of public investment are greatly influenced by the depreciation of the shilling. This supports the arguments by [48] that rise in REER (a depreciation of the Kenya Shilling) has a positive influence on government spending as this makes the imports consumed by the government expensive in domestic currency.

The election dummy was found to have a significant negative coefficient in the real public recurrent costs model and real compensation of government employees' model but an insignificant negative coefficient in the real development expenditure model and real government non-wage recurrent costs model. The results show that at 5% level of significance, an occurrence of a general election would lead to a 0.36 percent decline in real public recurrent costs whereas at 10% level of significance, an occurrence of a general election would lead to a 0.37 percent decline in compensation of government employees. These results are contrary to the findings of [25,33] and [36] who pointed out that fiscal manipulation by the incumbent government tend to lead to an increase in recurrent expenditure during the election period at the expense of public investment expenditure. These results show that the Kenyan government tend to focus more on fiscal discipline during the election periods to avoid increasing the fiscal deficit. This is in line with the argument by [34] who show that as the level of deficit in the year preceding the election increases, the share of votes received by the incumbent's party decreases. This signals that well informed voters are averse to high overall government spending and budget deficits.

Fiscal adjustment, on the other hand, was found to have a positive coefficient in all models. The results show that at 1% level of significance, an improvement in fiscal balances would lead to a 0.78 percent increase in real compensation of government employees and a 1.01 percent rise in real government non-wage recurrent costs. These findings confirm that the fiscal adjustment measures are not effective in limiting the growth of public wage bill and non-wage recurrent costs. The results show that the fiscal adjustment measures are not effective on the expenditure side and the improvement on the fiscal balances could be because of improvement on revenue collection, which in turn leads to increase in

government spending. The other variables included in the models but found to have insignificant coefficients are real public debt and corruption perception index.

5. CONCLUSION

This study shows that the persistent growth in public recurrent costs and the growth in public investment spending are not influenced significantly by the same factors. The study found out that the growth in public recurrent costs is mainly influenced by the real minimum wages and real tax revenue whereas the growth in real government development spending is mainly influenced by its lagged values and the real effective exchange rates. The study also shows that compensation of government employees adjust faster to the significant factors as compared to government non-wage recurrent costs. The results indicate that within four quarters, the combined effect of the significant factors on the rise in compensation of government employees is about 16.16 percent whereas the combined effect on the rise in government non-wage recurrent costs is about 14.21 percent. From these results, the conclusion is that frequent public wage adjustments (mainly resulting from minimum wage adjustments and demands by labour unions for wage renegotiations) and the devotion of domestic taxes to financing public recurrent costs (leaving public investment spending to be financed through debt) are the main constraints to sustainable fiscal consolidation efforts in Kenya. The study also concludes that fiscal adjustments effort does not significantly limit growth in public recurrent costs in Kenya. The results from the study confirm that the fiscal adjustment dummy has a positive coefficient in all the three models. In the third and fourth models, the results show that at 1% level of significance, an improvement in fiscal balances would lead to a 0.78 percent increase in real compensation of government employees and a 1.01 percent rise in real government non-wage recurrent costs. These results show that the fiscal adjustment measures are not effective in limiting the growth of public wage bills and non-wage recurrent costs.

On the basis of the conducted study, the following recommendations are made. First, the Kenyan government, through Salaries and Remuneration Commission, should do more to restrict public sector wage adjustments. For instance, the government can consider restricting wage adjustments to the amounts usually paid as years of service increments only. Second, the Kenyan government non-wage recurrent costs were found to adjust faster to their long-run equilibrium than the compensation of government employees. Thus, the government should also put more focus in reducing the level of spending on goods and services used by the various state ministries, departments and agencies. This can be realized by cutting down on non-priority expenditures and increasing the efficiency of procurement through better sourcing and reducing wastages. Third, fiscal adjustment was found to increase expenditure on the public recurrent costs' components. This confirms that more and more resources are still being channeled towards recurrent spending thus making it difficult for both levels of government to meet the fiscal responsibility principles of the Public Finance Management (PFM) Act of 2012 that requires public investment spending to be a minimum of 30 percent of the total national or county government budget. Strict enforcement of the fiscal responsibility principles of the Public Finance Management (PFM) Act of 2012 by the Office of the Budget Controller should be ensured.

Last but not least, from the literature reviewed, there is a general consensus that expenditure based consolidation measures are more effective than tax based consolidation measures. Therefore, the government needs to carry out significant expenditure reforms to signal government commitment to fiscal management and sustainability. For instance, the government needs to begin the fiscal adjustment efforts with a large upfront adjustment to signal its seriousness on fiscal consolidation and deliver credible change in debt dynamics.

6. AREAS FOR FURTHER RESEARCH

During the study period (since 2000), the developments in the Kenyan labour market show that there has been increased unionization of labour in the country, which have been instrumental in negotiating wage increments on behalf of their members. This study however faced limitations of data to capture the effect of the trade unions' activities on growth in public recurrent costs, particularly compensation of public sector employees. A further study in this area is therefore recommended.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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