



Government Expenditure and Regional Economic Growth: The Direction of Causality

Naftaly Mose^{1*}

¹University of Eldoret, Kenya.

Author's contribution

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

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ABSTRACT

This study examines the link between government expenditure and regional economic growth, over the period 2013 to 2017. Gross County Product per capita growth is used as indicator of regional economic growth. This study used Error Correction Model and Engle and Granger framework two step procedure to investigate the long-run and short-run equilibrium relationship between expenditure and regional growth. The analysis reveals that expenditure and regional growth are co-integrated and, hence a long-run equilibrium relationship exist between them. Non-devolved expenditure is found to be significant in determining regional growth and growth significantly affect non-devolved in short-run. Further, short-run uni-directional causality was detected between capital, recurrent expenditures and growth. This study argues that expansionary government expenditure accelerates regional economic growth in long-run. The absence of a long-run causality moving from growth to components of expenditure implies that economic growth macroeconomic policies can be implemented without adversely affecting the size of government expenditure.

Keywords: Expenditure; economic growth; causality; co-integration test; VECM.

1. INTRODUCTION

The world drift towards regionalism is centered on sub-national legitimacy and entails increased

transfers of economic resources and political power from the state to the regional units [11]. Fiscal decentralization involves mainly delegating expenditure functions, revenue

*Corresponding author: E-mail: nafsmose86@gmail.com;

sources and administrative functions to sub-national units. The notion behind the fiscal delegation is inspiring efficiency and effectiveness in the supply and provision of local public goods and services, thus improving and encouraging the mechanisms of income growth in the country [1]. Since lower tier of government are primary public goods and service suppliers, altering their organization may have an extensive impact on several aspects of its governance such as service delivery, policy decision making, revenue generation and general spending [2]. According Keynes [3] on multiplier expenditure, expenditure decentralization ought to stimulate income growth since it is expected to make the opinion of the underprivileged heard and considered; increase their access to public goods and service; grow quality of service and ease their vulnerability [4].

In 2010, Kenyans voted overwhelmingly for the new Constitution that ushered in a devolved system of government, with fiscal decentralization as main inspiration. The new constitution of Kenya, Article 203, sets the minimum annual transfer from the central government to the new 47 counties at 15 per cent of the recent audited account of national revenue [4]. Since introduction of devolved expenditure Kenya has experienced economic growth from 4.6 in 2012 to 5.9 in 2016. However, in 2017 Gross Domestic Product growth for Kenya slowed down due to drought and post-election violence experienced [5]. Further, data reveals that county expenditure has been increasing in contrast to income growth.

There are two channels [3,6] through which public expenditure associate with income enlargement. On the one hand, Wagner's hypothesis states that population demand for public goods and services such infrastructure investments and welfare enhancement is income elastic [6]. Thus any economic growth is usually accompanied by proportionate growth in spending due to the pressure from society for welfare improvement [7]. On the other hand, Keynesian hypothesis infer that the desired increase in public expenditure stimulate local income expansion through the spending multiplier effect on overall demand; an increase in private and public purchase of goods and services will probably grow capital accumulation, production, efficiency, employment opportunities, private sector growth and overall income growth [3].

Past empirical studies have been carried on the topic, for instance, Muthui et al. [8] found bi-directional relationship in Kenya. However, a few of regional studies conducted produced varied outcomes, such as, Madhumita et al. [10] study in India's 28 states for the period between 2003 and 2015. Causal association exists from state GDP growth to rise in government expenditure in India, in agreement with Wagner's conclusion. In contrast, Yemek [9] established that there was no granger causality between regional fiscal transfers, and economic growth in South Africa (Provincial level).

Most of the preceding empirical studies on the relationship between expenditure and growth have, however, focused on the national levels other than the lower tier government. These studies do not consider the emerging significance of regional governments in planning and influencing national economic activities. This uncertainty submits that the link between fiscal decentralization and regional economic growth is not clear-cut and that the performance is basically swayed by devolved unit particulars [2]. Therefore, calls for a regional specific investigations and recommendations.

2. METHODOLOGY

2.1 Data

This study applied quantitative research design so as to analyse the association of government expenditure on economic growth in Kenyan counties. The selected research design is appropriate to the study as it allows for a broader study, involving a greater number of variables, and enhancing the generalization of the findings. This study was carried in Kenya. This is because in the study period, there has been a significant transfer of funds to 47 county governments by the central government in order to address income and regional inequalities, poverty rate and stimulate economic activities in counties [4]. The choice of counties as a unit of analysis was informed by the fact that devolved units are the center of planning and development. This was carried out in the period 2013 - 2017 using annual series secondary data for 47 counties and panel ARDL technique, resulting in 235 county-year observations. The study is limited to the period 2013 to 2017. The choice of the study period is informed by lifespan of devolution, availability of data, and also to provide sufficient degree of freedom. However, due to the short lifespan of devolution this study only observed 5 years, short time dimension is problematic during

data analysis, thus this study made use of panel ARDL technique. Panel ARDL framework was preferred since it is reliable and performs well for small sample size data which is appropriate for this study. The econometric results of this study was also limited by the quality of data as reported by different sources; hence data for this study was not free from this apparently common data problem. This limitation originates from the problem of data missing for some years as reported by different county and national institutions. However, such missing data was sought from other sources such as the National Treasury reports and Institute of Economic Affairs' reports.

This study employed secondary panel data set of 47 counties/regions in Kenya. Secondary panel data was preferred in this study because it is readily available, cheaper and easily accessible. This study utilized annual data from Economic surveys and County Budget Implementation Review reports. Data collection schedule were used to collect the panel data set for this study. The collected panel data was entered in the data sheet where cleaning was carried out correctly to confirm reliability and validity.

2.2 Theoretical Framework and Model Specification

A number of empirical studies have introduced diverse adjustments to the Solow neoclassical growth model framework [10] aiming at highlighting the role of a factor(s) in explaining economic growth in sub-national level. The augmented Solow model was introduced by Mankiw et al. [11], and stresses the significance of including human capital to the Solow framework. Islam [12] promotes panel data estimation. In addition, Barro [13] and Ram [14], added government expenditure component to the production function. By allowing for investment expenditure, which is public spending that increases private capital marginal productivity, such as infrastructure development [13,14]. The key assumption is that the devolved government expenditure share influences factor productivity via a level effect on the efficiency parameter that controls labour-augmenting technical change [15].

The starting point of Ram [14] model is an aggregate Solow neoclassical production function that contain labour augmenting technological progress [10]:

$$Y(t) = F(K(t), A(t)L(t))$$

Where Y denotes total real income, the technology parameter A, K is the real capital stock and L is labour. Ram [14] estimated the following two-sector production function as shown:

$$P = P(L_p, K_p, G) \quad (1)$$

$$G = G(L_g, K_g) \quad (2)$$

Where, P= Private sector, G=public sector, L= Labour input, and K=Capital input.

The model assumes that the economy consists of two distinct sectors, the government sector (G) and the private sector (P). The final output of these sectors depends on the labor (L) and capital (K) inputs engaged. It is also assumed that output (size) of the government sector exerts an externality effect on the output of the non-government sector (P). The total output (Y) is thus defined as follows:

$$Y = P + G \quad (3)$$

Barro [13] and Ram [14] assumption was that marginal productivities of labour and capital in the government sector are $(1 + \delta)$ times the corresponding factor productivities in the private sector. If δ is positive, then the regional government sector has higher marginal factor productivity. Suppose that the ratio of the respective marginal factor productivities in the two sectors deviates from unity by a factor, δ . That is,

$$G_L/P_L = G_K/P_K = (1 + \delta) \quad (4)$$

where the lower case subscripts denote partial derivatives (For example, $G_L = \partial G / \partial L$). If δ is positive, then the government sector has higher marginal factor productivity.

Thus, after taking the total differentials (Equation 1 to 4) for P and G, it is presented as,

$$\partial Y = P_K \partial K + P_L \partial L + \left(\frac{\delta}{1 + \delta} \right) \partial G + P_G \partial G \quad (5)$$

Where P_K , P_L and P_G refer to the marginal productivities in the private sector. Given that, $\beta_1 = P_K$, $\beta_2 = \frac{P_L}{Y/L}$ and $I = \partial K$, where I denotes private investment, and ∂G (government

investment), substituting into (5), dividing through by Y: equation (6) can be rewritten as

$$\frac{\partial Y}{Y} = \quad (6)$$

The rate of increase of overall real per capita GCP is taken as a proxy for income expansion, $\partial Y/Y$. Gross fixed capital formation by both sectors is used for I/Y , government recurrent spending is used for G/Y , and human capital (proxy for change in labour) for $\partial L/L$. Existing empirical studies exclude $\partial G/G$ from the final estimation to avoid multicollinearity [1]. This study therefore embraces Ram growth model [14] to explain the relationship of governments spending components on regional growth using panel data techniques that allow us to take into account the county-specific and time-specific effects.

Thus, building on Ram theoretical framework [14,10], a simple growth equation model (7) is formulated.

$$\ln Y_{i,t} = \beta \ln X_{i,t-1} + \gamma \ln G_{i,t-1} + \mu_i + v_t + \varepsilon_{i,t} \quad (7)$$

Where, $\ln Y_{i,t}$ - the dependent variable - County economic growth (Constant price in 2009)

$\ln X_{i,t-1}$ - set of explanatory variables apart from components of county expenditure
 $\ln G_{i,t-1}$ - the county government expenditure variables
 β and γ - are parameters to be estimated
 μ_i - county fixed effects v_t - time fixed effects
 $\varepsilon_{i,t}$ - the error term
 and the subscripts i and t represent county and time period respectively.

Thus, panel model to be estimated is specified in logarithm form as:

$$y = f(\text{rg, cg, ng, ag, hc, cr, tc, ec}),$$

$$\begin{aligned} \ln y_{i,t} &= \beta_0 + \beta_1 \ln \text{rg}_{i,t-1} + \beta_2 \ln \text{cg}_{i,t-1} + \beta_3 \ln \text{ng}_{i,t-1} \\ &+ \beta_4 \ln \text{ag}_{i,t-1} + \beta_5 \ln \text{hc}_{i,t-1} + \beta_6 \ln \text{cr}_{i,t-1} + \beta_7 \ln \text{tc}_{i,t-1} \\ &+ \beta_8 \ln \text{ec}_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (8)$$

Estimation process of the relationship of government spending and growth involved disaggregating devolved fiscal data it into three levels of spending components, namely recurrent, capital and non-devolved expenditure

(national capital and recurrent expenditure). The basis for doing so was that one constituent of the economic theory argues that non-devolved (In ng) and capital (In cg) spending is a significant factor in stimulating growth [13]. In contrast, recurrent (In rg) budget has been qualified as hampering economic performance [13,14]. In addition to the components of county expenditure, there are other variables that influence regional income growth. Therefore, this study used corruption index (In cr), crime reported (In tc), human capital development (In hc), electricity demand (In ec) and absorption rate of budget (In ag) as the study control variables.

2.3 Panel Granger Causality

Panel cointegration between explanatory and dependent variables does not stipulate the direction of causation between the study variables. Theoretical literature submits that there is at least one-way direction causation among target variables [16,17]. Thus Granger causality analysis is applied, if two study variables are cointegrated, in order to account for short-run association between variable. The Granger causality test scrutinize if variable Y's present value can be accounted by its own past value and whether the explanatory power could be enhanced by including the past value of another variable X. From econometric analysis if the coefficient of X is found to be statistically significant, X is said to Granger cause Y. Past studies have established a bi-directional granger causality while others find a uni-direction causality originating from economic growth to public expenditure or vice versa while others find no causality [18,16].

This study used the framework of Engle and Granger [18] for causality test. Engle and Granger [18] framework suggest two step procedures to determine the long-run equilibrium and short-run dynamic relations between government spending and economic performance. In the first step, the long-run framework as stated in equation (7) is estimated and in the next step, this study generated the residuals from the long-run panel model, then this study defined the lagged residuals attained as the error correction model (ECM). The analysis of panel Vector Error Correction Model (VECM) was as shown:

$$\Delta \ln Y_{i,t} = \sum_{i=0}^k \beta \Delta \ln X_{i,t-1} + \sum_{i=0}^k \gamma \Delta \ln G_{i,t-1} + \gamma \text{ECM}_{i,t-1} + \mu_i + v_t + \varepsilon_{i,t} \quad (9)$$

Where the term Δ depicts first difference operator, $i (1, \dots, k)$ is lag length determined by the Akaike Information Criterion (AIC), and $\gamma ECM_{i,t-1}$ is the estimated lagged error correction model (ECM) achieved from the long-term co integrating relations (equation 7). Significant and negative coefficient of ECM is expected to represent long-run association between variables and significance of lagged explanatory variables will represent short-run dynamic causality relation [18, 19]. The element γ is the adjustment coefficient, and $\varepsilon_{i,t}$, is the error term, which is characterized with a zero mean and constant variance. The strength of ECM, which is obtained from autoregressive distributed lag (ARDL) of pooled mean group (PMG) by linear transformation, it incorporates the long-run equilibrium with the short-run adjustment dynamics without losing the long-run information.

The panel estimation findings are usually biased, inconsistent and inefficient if econometric problems such as heteroscedasticity, serial correlation, model mis-specification and correlation of error term occur in the regression model. Therefore, diagnostic examination is significant to ensure the regression model is free from standard econometric problems.

3. RESULTS AND DISCUSSION

3.1 Panel Unit Root Test Result

This study estimated the panel regression model framework of Engle and Granger [18]. This model suggests two step procedures to determine the short-run and long-run panel dynamic relations between regional expenditure components and GCP per capita growth. In order to determine the integrating level of target variables, conventional panel unit root test such as Harris and Tzavalis [20] was first applied.

From Table 1 result, all variables were stationary at level except GCP per capita growth, human capital and non-devolved expenditure at five per cent level of significance. Thus the three elements were differenced in the regression model in order to avoid spurious findings.

3.2 Panel Cointegration Test Result

After conducting unit root test using Harris and Tzavalis (HT), Kao panel cointegration test was applied and result presented in Table 2. Kao test is superior to other co integration tests, since is founded on the Engle-Granger two-step mechanism, and assumes homogeneity on the variables in the panel [20,19].

Table 1. Results of the Panel Unit Root Tests Using HT

Variable	Statistic	Z	P-Value	Variable	Statistic	Z	P-Value	Order of I
$\ln y$	0.5352	0.495	0.6896	$\Delta \ln y$	-0.676	-12.8***	0.0000	I(1)
$\ln cg$	0.1754	-4.6***	0.0000					I(0)
$\ln rg$	0.1627	-4.8***	0.0000					I(0)
$\ln ng$	0.4469	-0.747	0.2276	$\Delta \ln ng$	-0.094	-5.9***	0.0000	I(1)
$\ln ag$	0.1697	-4.7***	0.0000					I(0)
$\ln cr$	-0.3738	-12.3***	0.0000					I(0)
$\ln ec$	0.1999	-4.2***	0.0000					I(0)
$\ln hc$	0.6827	-2.570	0.9949	$\Delta \ln hc$	-0.458	-10.2***	0.0000	I(1)
$\ln tc$	0.2110	-4.1***	0.0000					I(0)

Notes: The null hypothesis is that the series is non-stationary or the series has a unit root. Indicates *** 1% significance level and ** 5% significance level, Δ element indicates that the first difference of the variable was take, order of I-integration. $\ln y$ - real per Capita Gross County Product (GCP) (Proxy for county economic growth), $\ln cg$ - County government capital expenditure, $\ln rg$ - County government recurrent expenditure, $\ln ng$ - County government non-devolved expenditure, $\ln ag$ - Absorption rate of County government expenditure, $\ln hc$ - County Human capital, $\ln cr$ - County Corruption rate, $\ln tc$ - County Total Crime rate, $\ln ec$ - Electricity Consumption

Table 2. Kao Residual Panel Co integration Test Results

	t- statistic	P- Value
ADF	-3.064099***	0.0011
Residual Variance	0.000419	
HAC variance	0.000306	

Notes: The null hypothesis is that No co integration, indicates *** 1% significance level

The panel Kao result reported in Table 2 shows all the statics are statistically significant at 5 per cent level, confirming the presence of long-run relationship between the target variables. This suggest that there exist a long-run panel cointegration relation between dependent and explanatory elements.

3.3 Panel Vector Error Correction Model Analysis

The panel vector error correction model (VECM) is used to correct the disequilibrium in the cointegration relationship, as well as to test for long-run and short-run causality between cointegrated variables. However, if cointegration is not detected during analysis, then the panel VECM is reduced to panel vector autoregressive (VAR) framework, and the panel Granger causality tests is applied to establish causal links between target variables [16]. Since the model contained co integration relation between the variables, then the study proceeded to VECM analysis which captures long-run relationship with respect to components of expenditure while holding the other study variables constant. Thus the long-run findings are shown in Table 3.

From Table 3 (long-run panel equation), recurrent and non-devolved county government expenditure are significant and positively related to county economic expansion at five per cent significance level in the long-run (sign changes because of Error Correction Term (ECT)). The result can be qualified that regional government spending augments the aggregate purchase of goods and services, which stimulates economic growth depending on spending multipliers that accelerate economic expansion in long-run [5]. However, capital spending had no influence in the long-run. This can be attributed to low capital spending allocation in most counties and crowding out effect in the local economy.

After estimating the long-run panel VECM model (Table 3), this study proceeded to conduct short-run panel Granger causality test [18]. With panel co integration, the dynamic causal relations between variables are formulated in a panel vector error correction function. This makes it possible for this study to determine both long-term and short-term relation, respectively, on the chi-square, χ^2 - test of the lagged first differenced terms for each right-hand-side variable and the t-test of the error correction term (ECT). The causality estimate results are presented in Table 4.

Following empirical results, from Table 4, long-run causality running from county expenditure to economic growth is established by the coefficient of the error-correction term in the growth function, which is negative and statistically significant. Specifically, the coefficient of the ECM term in the growth function is -0.24 and its t-statistic is statistically significant at the 1 per cent level of significance. This means that about 24 per cent of the disequilibrium is corrected each year in counties. This finding supports Keynesian hypothesis in Kenyan counties that county public expenditure stimulates regional economic growth through Keynesian channel in long-run. This result is consistent with those of Abu-Eideh [21] and Nanjala [17] who established that government spending Granger cause economic expansion in long-run. However, it contrasted Odhiambo [22] conclusion that economic growth Granger-causes public spending in long-run in Kenya. This is on account when county economic growth was employed as the dependent variable. However, when capital, recurrent and non-devolved expenditure are used as the dependent variable, there is no causality detected since the error correction term is not significant at 5 per cent. The absence of a long-run causality moving from economic growth to components of expenditure implies that economic growth macroeconomic policies can be implemented without adversely affecting the size of county government expenditure.

Table 4 result shows that there exist a bi-directional relationship running from non-devolved expenditure to regional economic growth in short-run. These result is in support of the theoretical predictions of both Keynesian and Wagner's conclusion in Kenya. A key factor in the Keynesian model is that the expansion of aggregate effective demand should contribute to sub-national economic growth through expenditure multiplier channel [3]. Higher non-devolved expenditure of the county public spending stimulate demand for goods and services, which in turn allows local suppliers to intensify use of their productive capacities by engaging new labour and capital, and thus to enlarge output in short-run and ultimately income growth in the long-run. Wagner's law postulates that the increase in national spending will be more than the comparative rise in the country output and will thus result in a relative increase of the government size [6]. This finding is consistent with those of Muthui et al. [8] in Kenya, Odhiambo [22] in South Africa and

Table 3. Vector error correction estimates

Co integrating Eq.	CointEq1			
$\ln y(-1)$	1.000000			
$\ln rg(-1)$	-0.19952*** (0.070196) (-2.842272)			
$\ln cg(-1)$	-0.003284 (0.009403) (-0.349222)			
$\ln ng(-1)$	-0.38122*** (0.053286) (-7.154250)			
Cons	0.312010			
Error Correction:	$\Delta \ln y$	$\Delta \ln cg$	$\Delta \ln rg$	$\Delta \ln ng$
CointEq1	-0.24489** (0.027968) (-8.756001)	-0.25664* (0.16563) (-1.54945)	-0.052484 (0.07461) (-0.70348)	-0.028358 (0.05958) (-0.47595)

Long-run equation

ECT

Notes: indicates *** 1 per cent significance level, ** 5 per cent significance level, and * 10 per cent level of significance. Δ - First difference operator, ect_{t-1} - representing the error -correction term

Table 4. Panel granger causality results

Independent variables					
Dependent Variables	Short-run Dynamic Causality				Long-run Causality
	χ^2 -statistics of lagged 1 st differenced term [p-value]				Coefficient (t-ratio)
	$\Delta \ln y$	$\Delta \ln cg$	$\Delta \ln rg$	$\Delta \ln ng$	ect_{t-1}
$\Delta \ln y$	--	21.243*** [0.0007]	1.622513 [0.8985]	23.913*** [0.0002]	-0.2449*** (-8.75600)
$\Delta \ln cg$	2.075015 [0.8387]	--	43.40629*** [0.0000]	19.702*** [0.0014]	-0.2566* (-1.54945)
$\Delta \ln rg$	10.32753* [0.0665]	13.3329** [0.0205]	--	56.935*** [0.0000]	-0.0525 (-0.70348)
$\Delta \ln ng$	10.13794* [0.0714]	1.608199 [0.9003]	20.53866*** [0.0010]	--	-0.0284 (-0.47595)

Notes: *** indicates significant at 1 per cent, ** indicates significant at 5 per cent, * indicates significant at 10 per cent. Δ - First difference operator, ect_{t-1} - representing the error -correction term. The figure in the parenthesis

(...) represents as t-statistic and the figure in the squared brackets [...] denotes as p-value for Chi-square χ^2 . Δ

- First difference operator, ect_{t-1} - representing the error -correction term

Madhumita et al. [7] in India. However, the findings of this study contrast studies by Nanjala [17] who found no short-run causality in Kenya. The contradicting result can be attributed to the use of sub-national government expenditure level data set other than the aggregate national level data set.

The findings show that there exist a uni-directional link moving from county recurrent expenditure to economic growth in counties, in the short-run. Intuitively, recurrent expenditure by the county government is supposed to raise local private capital accumulation, which in turn will stimulate economic activities in the short-run [21]. This finding is in agreement with Abu-Eideh

[21] and Odhiambo [22] conclusion on uni-directional causality in the short-term. However, the results of this study contrast studies by Yemek [9] and Nanjala [17] who found no causality in the short-term.

Table 4 show that there is a short-run unidirectional causality flowing from county capital to recurrent expenditure. This is supported by the corresponding F statistics in the recurrent estimation, which are statistically significant. These results imply that past values of capital spending have a predictive ability in influencing the current values of recurrent expenditure - any variation in capital expenditures will lead to a change in

consumption budget in counties in short-term. The results suggest that there is switching of federalized expenditures between capital and recurrent expenditure in counties and that the public expenses on capital can be substituted to take care of recurrent county expenditures in short-run.

Before model estimation a number of panel diagnostic investigations were conducted. Consistent with the long-run results, the short-run dynamic regression model passed all the panel diagnostic tests carried out in this study except heteroscedasticity, which was corrected by use of panel robust standard error. Thus the panel regression model employed was free from standard econometric problems.

4. CONCLUSIONS

On the basis of causality findings, the study infer that components of 47 county spending budget causes regional economic growth in long-run. This conformed to Keynesian hypothesis that sustained growth in the county expenditure will induce economic growth in counties in the long-run. In contrast, this study confirms the absence of Wagner's hypothesis in Kenyan counties, which postulates that sustained increase in county economic growth should cause an increase in county expenditures. The absence of a long-run causality moving from regional growth to components of county expenditure implies that economic growth macroeconomic policies can be implemented in counties without adversely affecting the size of government expenditure. Non-devolved expenditure has the potential to stimulate the regional economic growth and remove market failures in counties in short-run. This study therefore recommends that central government should increase its non-devolved spending on infrastructure and human capital development in 47 Kenyan counties. Especially since Kenyan counties are underspending on infrastructure investment.

The results on causality test showed that there is a uni-direction causality running from county recurrent expenditure to economic growth in short-run. This means expansionary recurrent expenditure granger causes regional growth in Kenya. This implies that expansionary recurrent spending boosts economic growth through the channel of improved purchasing power of the population. Higher recurrent expenditures of the devolved units stimulate demand for products, which in turn allows county producers to increase use of their productive capacities by

hiring new capital and labor and thus grow output. This finding confirms the Keynesian hypothesis. Further, Granger causality results show that there is a short-run uni-directional relations from capital spending to recurrent expenditure. Thus, if policy makers in Kenyan counties consider switching spending from one component to another, especially in the context of regions where there is a tremendous scarcity of resources and physical infrastructure, standard economic literature envisages that switching from recurrent to capital expenditures would give higher economic returns. This is because Kenyan counties usually lack physical infrastructures that help promote productivity and stimulate regional economic growth.

The mechanisms of the causality of regional expenditure on economic growth can be traced in two levels: In short-run the county authorities target economic boom through following Keynesian policies, but they should be careful the share of recurrent expenditure is not above the optimal level since it will disadvantage capital budget. In such situation, any increase above optimal level will reduce GCP growth. In the long-run, county authorities will favour policy of government intervention for rapid economic expansion. But it should be noted such a policy may or may not impede regional economic growth. The process of economic growth in counties will depend on both components of devolution expenditure and unique economic features of the specific region.

AREAS FOR FURTHER RESEARCH

For detailed analysis of relationship of expenditure on economic growth future studies should extend macroeconomic analysis to include a more comprehensive disaggregation of regional spending by functions in line to the traditional ministries. Such a disaggregation would allow extension of the estimation and differentiate among the causality of health, education, infrastructure and agriculture expenditure on regional economic growth. The results of the study may help in deciding on how the resources should be shifted from the less productive to the more productive sectors of the economy so as to boost regional economic growth.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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