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DO FISCAL TRANSFERS FOSTER REGIONAL ECONOMIC GROWTH?

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Abstract

Fiscal transfer development across the world today has been in part driven by assertions of a supposed 'economic dividend' linked with the devolved financial spending. There is, however, little empirical evidence to validate these assertions in Kenya. It is against this background that this study was carried out to estimate the end product of fiscal transfer on regional economic growth in Kenya using a secondary panel data set. Using the ARDL estimation technique the long -run and error correction estimates of the model were generated. The findings revealed that increased fiscal transfer in recurrent budgets accelerates regional growth, hence confirming the Keynesian hypothesis. Conversely, fiscal transfer in capital expenditure was insignificant. This study recommends the need for policymakers to put in place policies and strategies that will improve budget allocation and execution in capital budgets so as to improve physical infrastructure and thus boost private productivity and consequently regional income growth.

JEL classification: E62, O23, H54, G51

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Introduction

The federalized fiscal transfer trend in Sub-Saharan nations is reinforced by the Bretton Woods twins, which consider fiscal transfer a key pillar of regional growth and poverty eradication strategy (World Bank, 2016). But attention to fiscal transfer has been mainly inspired by increasing demand for more autonomy from some areas of the state, as well as fair and equitable distribution of national wealth (Yemek, 2005). The objective of the fiscal transfer program in Canada is to minimize financial resource concentration at the center (Ezcurra & Rodríguez-Pose, 2010). With fiscal transfer trends in Africa, rural areas are currently receiving more attention than the urban ones (Omolo, 2010). The mechanisms through which components of fiscal transfer may impact regional income growth is through the channel of direct effect on economic activities through improving the country's capital stock and indirectly by improving the marginal productivity of privately supplied factors of production (Gisore, 2017).

Even with the devolved fiscal transfer growth, Kenya's economic growth has been lower than yearly estimated targets, widening income disparities and increasing the poverty rate over the years. Fluctuating economic growth adversely affects income expansion and income equality (GoK, 2019). This advances the reservation on whether fiscal transfer is an effective fiscal policy tool for achieving regional growth. And if so, how can it be used to address macroeconomic problems in Kenyan counties.

Literature review

According to the devolution hypothesis, delegation of power and fiscal transfers will translate to accountability, transparency and output growth at the lower tier level of government (Oates, 1999). The local producers will be encouraged to produce and supply public goods and services according to the preference, tastes and desires of the citizens. As a result, the cost of provision of public services will be reduced accompanied with low prices, improved quality of final products and income growth. As evidenced, in the Solow neoclassical theory, if the desire to invest or save in new public investment is altered by fiscal policy, this affects the equilibrium capital-output ratio and finally the level of output path, but not the slope. Thus, according to the Solow (1956) model, only population change and technological progress can stimulate economic growth in devolved units.

Most of the preceding empirical studies on the relationship between fiscal transfers and growth have, however, focused on the national government levels other than the lower tier government (Akai & Sakata, 2002). These studies do not consider the emerging significance of sub-national government in planning and influencing regional economic activities.

Research methodology

This study applied quantitative research design so as to analyse the effect of fiscal transfer on regional growth in Kenyan counties. The selected research design is appropriate to the study as it capture the trends of fiscal transfer and its effects on regional growth in Kenya. It allows for a broader study, involving a greater number of variables, and enhancing the generalization of the findings. This was carried out in the period 2013 - 2017 using annual series secondary data for 47 counties and panel ARDL/PMG technique, resulting in 235 county-year observations. Panel data technique permitted control for unobserved county government heterogeneity.

Econometric model specification

Building on previous studies (Ram, 1986), a simple growth equation model (1) is formulated.

$$lnY_{i,t} = \beta lnX_{i,t-1} + \gamma lnG_{i,t-1} + \mu_1 + v_t + \varepsilon_{i,t}$$

Where:

$\ln Y_{i,t}$ - the dependent variable - Regional economic growth

$lnX_{i,t-1}$ - set of explanatory variables apart from components of fiscal transfer

$\ln G_{i,t-1}$ - the fiscal transfer 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.

Measurement of variables and sources of data

Regional Economic Growth

As established in the growth literature (Mose et al., 2019), this study used the growth of GCP per capita as a function of fiscal transfer and the control variables. It is an indicative measure of a county's standard of living and is derived by dividing Gross County Product (GCP) by its total population (World Bank, 2016). The real GCP per capita growth variable data was obtained from the Gross County Product report.

Fiscal Transfer Components

According to Keynesian theory, capital spending can improve positively economic growth by adding productivity into the population (Keynes, 1936; Romer, 2001). But recurrent fiscal transfers are expected to give a negative result, since most recurrent are for consumption purposes. Consumption expenditure is ineffective on the grounds of the crowding-out phenomenon (Mitchell, 2005). The fiscal transfer variables were obtained from County Budget Implementation Review Reports.

Control Variables

Absorption rate of fiscal transfers denotes the share of the actual regional spending out of the targeted budgeted spending. If the budget absorption rate is lower there will be deterioration of the economy (Claudia & Goyeau, 2013). Panel data for this variable was obtained from annual County Budget Implementation Review reports. Non-devolved fund transfers were measured as the share of national government spending (less county government expenditure), which is a better indicator of national government activity on counties (Ezcurra & Rodríguez-Pose, 2010). Keynesian macroeconomic theory posits that non-devolved expenditure can accelerate growth through growing purchasing power of the citizens (Keynes, 1936; Romer, 2001). The data for this variable was obtained from National Budget Implementation Review reports.

The overall school enrolment rate at a specific level of schooling is often used to measure human capital development in the economic literature because the quality of the data on schooling level is usually better (Mo, 2001). Data for the variable was collected from annual Statistical Abstracts. As previous economic literature has suggested, economic growth depends highly on energy inputs (Wen-Cheng, 2016). Following studies by Aslan (2014) and Wen-Cheng (2016), electricity demand in Kilowatts by region was used as a proxy. Data was retrieved from the Kenya Power Distribution Master Plan reports.

Crime rate is factored in the panel growth regression analysis since it is one of the main elements that influence household, firm and government location decisions. Total Crimes reported to the police service by region was used as a proxy, following the Detotto and Pulina (2009) study. The panel data used in the study was retrieved from Economic Survey reports. Corruption perceptions index is negative in relation to economic growth (Hanousek & Kochanova, 2015). The secondary data was obtained from Ethics and Anti-Corruption Commission (EACC) reports.

Panel data analysis techniques

The unit root test was employed in order to check for the presence of the non-stationary in the regression model in order to reduce chances of spurious findings. The Harris–Tzavalis (HT) unit root test is specified as follows:

$$\Delta X_{i,t} = \propto_i + \beta_i X_{i,t-1} + \sum_{j=1}^{k} y_{i,j} \Delta X_{i,t-j} + \varepsilon_{i,t}$$

Where Δ is first difference operator, $X_{i,t}$ is dependent variable, $\varepsilon_{i,t}$ is the white-noise disturbance with a variance σ^2 of ,1,…, N indexes sample (region) and 1, …,T indexes year.

Basically, the Autoregressive Distributed Lag (ARD)/ Pooled Mean Group Estimation (PMG) technique involved the following steps. First, it involves testing of the long-run relation among the variables under consideration by the use of the F-statistic. Second step is to check if the variables have a long-run relationship; this study applied the Kao co integration test. When co integrating is confirmed, the long-run equilibrium and short-run dynamic adjustments of the ARDL are attained. At this stage of analysis, diagnostic test statistics of the selected ARDL framework is examined from a short-run adjustment process. The diagnostic examination is significant to ensure the regression model is free from standard econometric problems. The error correction framework of the series can be represented as follows:

$$\Delta\, lnX_{i,t} = \sum_{i=0}^{k} \beta \Delta lnX_{i,t-1} + \sum_{i=0}^{k} y\Delta\, lnG_{i,t-1} + yECM_{i,t-1} + \varepsilon_{i,t}$$

In this model y_t is the impact multiplier or short-run dynamic effect that measures the immediate impact that a change in G_t will have on change in Y_t. On the other hand, ECM_{t-1} is the adjustment effect and shows how much of the disequilibrium is being corrected, that is, the extent to which any disequilibrium in the previous period effects any adjustment. The error-correction model (ECM) estimated will capture both the short-run and long-run adjustment equilibrium mechanism.

Discussion of results

Panel unit root results

A Panel Harris–Tzavalis (HT) unit root test was conducted in this study at level and at first difference and result reported in Table 1.

Table 1: Panel Unit Root Results

Variable	Statistic	Z	P-Value	Variable	Statistic	Z	P-Value	Order of I
ln y	0.5352	0.495	0.6896	Δln 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	Δln 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	Δln 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.*

Source: Own elaboration

The results in Table 1 indicate that all the target variables are stationary at their level except per capita GCP, human capital and non-devolved expenditure at 5 per cent level of significance. Thus, the null hypothesis of non-stationary for all cannot be rejected and hence the panel series contains a unit root. But they become stationary after the first difference implying that the variables are integrated of order one, I (1).

Panel co-integration result

In the case of Kao residual co-integration test, from the result in Table 2, all the statics are statistically significant at 5 per cent level, confirming the presence of a long-run relationship between the target variables.

Table 2: Kao 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, ** 5% significance level and * 10% significance level.*

Source: Own elaboration

Long-run analysis regression results

Table 3 presents the long-run regression results.

Table 3: Long-Run Regression Results

Variable	Coefficient	Standard error	t- Statistics	P-value
ln rg	0.199515***	0.070196	2.842272	0.0049
ln cg	0.071553	0.092460	0.773876	0.4399
ln ag	0.443697**	0.188628	2.352237	0.0196
ln ng	0.381221***	0.053286	7.154250	0.0000
ln ec	0.184176***	0.044249	4.162305	0.0000
ln tc	-0.161680**	0.071938	-2.247493	0.0256
ln hc	0.168296*	0.088961	1.891799	0.0598
ln cr	0.300932***	0.064302	4.679937	0.0000
Cons	0.312010	0.464699	0.671424	0.5028
LM Test	F(4,212) = 0.990024		Prob > F = 0.4139	
Breusch - Pagan Test	F(16,215) = 13.14***		Prob > F = 0.0000	
Pesaran CD	(z) = -1.38348		Pr = 0.1665	
Ramsey-Reset Test	F(1,215) = 0.291460		Pr = 0.5898	
Goodness of Fit Test	**F statistics** = 83.59***		P-value(F) = 0.0000	
	R^2 = 0.88137		Adjusted R^2 = 0.87313	

*Notes: *** indicates significant at 1 per cent, ** indicates significant at 5 per cent, * indicates significant at 10 per cent.*

Source: Own elaboration

The regression result revealed that the effect of recurrent fiscal transfer on regional growth is positive and significant in the long-run. Specifically, 1 percentage point increase in recurrent spending would cause an increase in real GCP per capita by 0.2 percentage point in counties. This is attributed to the ability of recurrent transfers to improve the purchasing power and productivity of the population in the regional economy. County recurrent budget on health and education services, for example, has the likelihood of inspiring and growing workers' productivity and thus regional growth in long-run (Kweka & Morrissey, 2000; Gisore et al., 2014). The result is consistent with other studies (Kweka & Morrissey, 2000; Gebreegziabher, 2018) on positive effect. In contrast, Mutie (2014), Hammed (2016), Maingi (2017) found a negative relationship. Implying an increase in recurrent spending is likely to cut growth rate given that in order to fund them, higher taxes must be introduced which will discourage private investment and growth.

From the results in Table 3, the effect of capital transfers on regional growth was insignificant. Most of physical infrastructure investments are generally long-run initiatives for growth. If insufficient budget is allocated to the county public infrastructure, it will be a waste of resources, and therefore will have insignificant influence on expansion in the long-run (Hammed, 2016). The above finding is consistent with the results of other studies like, Muguro (2017), which point to an insignificant relationship in Kenya. In contrast, other studies, Wahab (2011) and Gebreegziabher (2018), established that a positive relationship exists in the long-run. This type of public spending could be associated with the productive spending that Barro and Sala-i (2003) identified to be an extra factor to the growth production function.

Regarding the control variables, the estimated coefficient of absorption rate of fiscal transfer is positive and statistically significant in the long-run at 5 per

cent level. This demonstrates that economic growth is often tied to public expenditure, that is, failure to spend county budgeted money directly affects the rate at which the economy expands in the long-run. The effect of non-devolved expenditure on GCP per capita is positive and significant, implying that the efficiency and effectiveness of national spending exceeded the adverse effect of higher taxes and transfer payment to fund budget and thus accelerating growth. Table 3 shows that the coefficient of human capital is positive and significant. Improved human capital leads to increase in productivity and further inducing of regional growth. Any expansion in electricity demand is estimated to stimulate the agriculture process and industrial activities at local level as an additional input in the production function. Corruption was significant and positive at 5 per cent level of significance. Prior studies postulate that corruption has a beneficial effect on economic expansion through reducing barriers from bureaucracy and lack of transparency of the judicial system and, hence, increases the efficiency of an economy by removing obstacles to private sector investment and increasing growth. The results of the panel regression analysis support the hypothesis that crime rate has a negative effect on growth. The effects of crime on private businesses can involve diverting resources to crime prevention measures and otherwise discouraging private investment and thus slowing growth (Cardenas, 2007).

Short-run regression results

Consistent with the long-run results, the estimated short-run panel regression findings revealed similar conclusions, as presented in Table 4.

Table 4: Short-Run Regression Results

Variable	Coefficient	Standard error	t- Statistics	P-value
Δln rg	0.040953**	0.015780	2.595308	0.0102
Δln cg	0.000490	0.009827	0.049851	0.9603
Δln ag	0.116742**	0.049062	2.379463	0.0183
Δln ng	0.116576***	0.033189	3.512520	0.0006
Δln cr	-0.029637***	0.010583	-2.800470	0.0056
Δln hc	0.112542***	0.024184	4.653604	0.0000
Δln ec	0.187711***	0.013471	13.93495	0.0000
Δln tc	-0.256716***	0.027281	-9.410220	0.0000
Δln y	0.117091*	0.068099	1.719430	0.0873
ect_{t-1}	-0.244890***	0.027968	-8.756001	0.0000
Cons	0.312010***	0.051681	6.037182	0.0000
LM Test	F(2,213) = 0.76965		Prob > F = 0.4645	
Breusch - Pagan Test	F(17,214) = 10.04***		Prob > F = 0.0000	
Pesaran CD	(z) = -1.12439		Pr = 0.2608	
Ramsey-Reset Test	F(1,214) = 0.662835		Pr = 0.4165	
Goodness of Fit Test	**F statistics** = 29.89***		P-value(F) = 0.0000	
	R^2 = 0.675147		Adjusted R^2 = 0.664995	

*Notes: *** indicates significant at 1 per cent, ** indicates significant at 5 per cent, * indicates significant at 10 per cent.*

Source: Own elaboration

In the short-run recurrent expenditure is positive and significant at 5% level of significance. This finding can be attributed to increased purchasing power of the population in the short-term. The result of this study is in agreement with the findings obtained by scholars like Ag'enor (2007) and Gebreegziabher (2018). Contrasting studies by Mutie (2014) and Maingi (2017) concluded that negative relations exist. The impact of capital expenditure on growth is insignificant in the short-run. Capital budget is usually seen as expenditure creating future benefits, as there could be some intervals between when it is incurred and when it takes effect on the economy. They are more discretionary and are made of new programs that are yet to reach their stage of completion (Ag'enor, 2007). The above findings agree with the results of Muguro (2017) and Oguso (2017). However, this finding contrasts other studies, Maingi (2017) and Gebreegziabher (2018) found that positive relationships exist in the short-run.

From the result in Table 4, budget absorption rate is positive and significant at 5 per cent. Economic growth is often tied to budget execution, failure to spend budgeted money directly affects the rate at which the economy expands in the short-term. Impact of non-devolved expenditure on regional income was positive and significant. Non-devolved expenditures increase population purchasing power for public goods and services, which in turn permits suppliers to grow use of their productive capacities by engaging new labour and capital, and thus expanding supply in the economy (Romer, 2001; Mose, 2021). An increase in electricity power use is estimated to cause economic growth and its shortage may cause a slowdown in the development process. The coefficient of human capital is positive and significant at the 5 per cent level in the short-run. According to macroeconomic thought, development of human capital increases labour force productivity. Corruption is negative and significant. Corruption incidence can result in resource misallocation when decisions on how public funds will be invested, or which private sector businesses are to be approved, are made by a corrupt county government authority (Choe et al., 2013). County Crime rate is negative and significant. Crime increase imposes large costs to private and public sectors which have a negative impact on private investment and growth.

ECT_{t-1} is quite low, -0. at 25, implying that equilibrium slowly converges to long-run equilibrium in counties. From the result, cross-sectional dependence and autocorrelation were not a problem in this study. However, heteroscedasticity was a problem but the study used robust standard error to correct it. Also, the adjusted R^2 was 0.67 implying that 67 percent of the variations of the dependent variable are explained by the explanatory variables in the model. This indicated that the overall goodness of fit was satisfactory.

Conclusion

This study set out to estimate empirically the long-run and short-run effects of fiscal transfer on regional economic growth in Kenya, 2013-2017. In order to achieve the specific objectives, this study disaggregated the fiscal transfer variable further into recurrent and capital spending. This study used panel econometric techniques such as testing for panel unit root test using Harris and Tzavalis test so as to avoid the problem of spurious outcomes that arise due to non-stationary data. Using the Kao testing approach to co-integration the study estimated the long-run static relationship and short-run dynamic relationship of the model. The findings of this study established that there exists a co integration relationship among the real GCP per capita and the regressors in the model. Panel diagnostic tests were applied to ensure the estimates are free from standard econometric problems. The coefficients of the effect of these were shown to differ in magnitude, sign and direction. However, the overall fit of the regression models suggests that the target variables explain significant amount of fluctuation of economic growth in Kenyan counties. The first objective of this study was to estimate the long-run and short-run effects of recurrent expenditure on growth in counties. The finding revealed that the effect of recurrent transfers is positive for economic growth. However, on the second objective, there was no evidence of impact of capital transfers on GCP growth. The overall result revealed that fiscal transfers have been a key driver of regional economic growth.

Since capital spending has no influence on economic growth in counties this study thus recommends that regional government should allocate more funds to public infrastructure development and human capital activities. Since capital expenditure is insignificant, there is a need for the county authorities to reduce recurrent transfers so as to free resources which can be used for development purposes. The mechanisms of the effect of devolved expenditure on economic growth can be traced in two levels: In the short-run the county authorities target economic boom through following Keynesian policies, but they should be careful that the share of recurrent expenditure is not above

the optimal level since it will disadvantage the capital budget. In such a situation, any increase above optimal level will reduce GCP growth. In the long-run, county authorities will favour a policy of government intervention for rapid economic expansion. But it should be noted such a policy may or may not impede county economic growth. The implication is that the process of growth in counties will depend on both components of fiscal transfers and unique economic features of the specific county.

The study has some limitations. One limitation is that regression analysis does not factor-in all the determinants that influence regional economic growth. Another limitation of the study is the small sample size.

For future research, macroeconomic analysis should be extended to include the source of fiscal transfers (tax revenue, intergovernmental transfer, grants, public debt and budget deficit) used to finance public expenditure, which need to be identified and taken into account in the analysis. For this reason, some extra macroeconomic factors should be included as control variables during panel estimation, and there is a need to extend the sample size.

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