

## Effect of Government Capital Expenditure on Tourism Sector Growth in Kenya

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### ABSTRACT

*Tourism is a vital sector of Kenya's economy by contributing to employment, alleviation of poverty, Gross Domestic Product (GDP), foreign exchange earnings, and balance of payments surplus. Tourism is a productive economic activity that needs a stable macroeconomic environment in terms of budgetary resource allocation for sustainable and continued growth. Thus, this study sought to establish the effect of government capital expenditure on tourism sector growth in Kenya. The study adopted a causal research design using quarterly time series data from 2012 to 2021. The findings revealed that government capital expenditure ( $t=3.4746$ ,  $p<0.05$ ), government recurrent expenditure ( $t=6.1303$ ,  $p<0.05$ ), and taxation ( $t=2.8608$ ,  $p<0.05$ ) had positive significant effects on tourism sector growth in Kenya. The study recommends an increase in capital budgetary allocation for continued growth of the sector which is the main source of foreign revenue in Kenya.*

**Keywords:** Capital Budgetary Allocation, Government Capital Expenditure, Tourism Sector Growth

### I. INTRODUCTION

Tourism is a vital sector contributing greatly to economic growth around the world (WTTC, 2020). Characterized by accelerated growth and related economic benefits, tourism has been regarded in practice and academically as an effective means of earning revenue for attaining sustainable development. Thus, owing to its growing essentiality the tourism sector ought not to be underestimated due to its contribution to both global and national economic growth in terms of income, employment, investment, and improvement of balance of payments (Perween & Hajam, 2021). Munga et al. (2020), assert that the tourism sector is the only major sector in international trade where developing countries enjoy surpluses. This emphasizes the necessity of continuously examining this sector from all angles in order to uncover major factors with the potential to promote tourism sector growth (Ivankova et al., 2021), and government capital expenditure is one of the factors.

According to the World Travel and Tourism Council (WTTC, 2020), globally, in 2019, the tourism sector had a growth rate of 3.5%, provided 10.3% of the gross domestic product (GDP), and accounted for 10.4% of employment. In the African context, the tourism sector had a growth rate of 5.8%, and accounted for 8.5% of the GDP, Tunisia and Rwanda experienced the highest growth rates with 12.9% and 10.9% respectively. In the Kenyan context, the tourism sector had a growth rate of 4.9%, contributed 10.5% of the GDP and 3.5% of total employment. However, the growth rate of 4.9% is way below the envisioned 10% by Vision 2030 (GOK, 2013; GOK, 2008).

Nguyen et al. (2020) noted that government capital expenditure promotes infrastructural accumulation which boosts the growth of tourism in a country, and consequently, its competitive level in the global tourism market. Infrastructural development is crucial for the tourism sector to experience growth; it provides fundamental physical amenities which are essential to businesses and society (United Nations, 2016). UNCTAD (2022) reckons that infrastructure is a vital part of production capabilities and therefore it plays a crucial responsibility in fostering resilience, which augments sustainable development outcomes. A good infrastructural system makes it easier to provide a better and more affordable tourism experience in a location, which draws more visitors from abroad (WTTC, 2018), thus boosting tourism activities via the construction of hotels, restaurants, and connected businesses, and stimulating the development of new sites in a country (Kanwal et al., 2020).

The study was guided by the Keynesian theory of aggregate demand that was pioneered by British economist J.M. Keynes around the 1930s during the Great Depression. This theory advocates for government intervention through its expenditure and taxation to stimulate the growth of economic sectors and hence output. The theory postulates that increased government spending creates employment, and increases efficiency and investment via multiplier effects (Muguro, 2017). Keynesian economists advocated for government spending expansion and reduction in tax rates as efficient tools for instigating overall demand for commodities in the economic sector (Nyasha & Odhiambo 2019; Mose, 2014; Emily, 2012) and stabilizing the economy (Muguro, 2017). This theory applies to this study since it advocates for increased government capital expenditure and tax reduction as ways of increasing output. The theory is useful in the harmonization of macroeconomic stability which is a prerequisite for sustainable growth in economic sectors (Emily, 2012). The rest of the paper is structured as follows; sector two contains a review of the literature, section three covers methodology, section four displays results and discussion, and finally, section five displays the conclusion and recommendation.

## II. A BRIEF EMPIRICAL LITERATURE REVIEW

Studies that have examined the nexus between government capital expenditure and sectoral growth have concentrated mostly on the manufacturing sector. Dore (2022) examined how government capital expenditure influences the manufacturing sector in Nigeria from 1981 to 2020 and found that government capital expenditure on administrative services, economic services, and transfers had a positive significant effect on manufacturing sector output, while government capital spending on social and community services depicted a negative insignificant impact. Emmanuel and Oladiran (2015) examined the nexus between government capital expenditure and the manufacturing sector. The results indicated government capital expenditure was positively statistically significant in explaining manufacturing sector output Njoku et al. (2014) assessed the impact of capital expenditure and economic growth. The results showed a positive impact of capital expenditure on manufacturing sector output. However, studies of Dore (2022), Emmanuel and Oladiran (2015), and Njoku et al. (2014) focused on the nexus between capital expenditure and the manufacturing sector; this study examined how government capital expenses affect tourism sector growth in Kenya.

Nguyen et al. (2020) employed both Random Effects and Fixed Effects models in investigating capital investment in tourism in 150 countries from 2003 to 2017. The study comprised 53 low- and lower-middle-income economies, 44 upper-middle-income countries, and 53 high-income countries. The findings indicated that an increment in government spending on tourism resulted in an increment in capital investments in tourism by 0.13%-0.14% for Random Effects estimates or 0.08% for Fixed Effects estimates. Therefore, it can be seen that government spending promotes capital investment in tourism which is a determinant of tourism sector growth. This study looked at the relationship between government capital expenditure and tourism sector growth in Kenya, as opposed to Nguyen, Binh, and Su's (2020) examination of the relationship between government spending and capital investment in tourism.

Li et al. (2020) employed Propensity Score Matching and Difference-in-differences methods in examining the impact of the Belt and Road Initiative (BRI) on the tourism economy in 155 countries from 2000 to 2017. The results showed that the Belt and Road Initiative increased inbound tourists by 17.2% and inbound revenue by 8.0%. By using a cluster analysis of the Organization for Economic Cooperation and Development (OECD) countries, Ivankova et al. (2021) investigated the relationship between road transport infrastructure and tourism spending and discovered that progress in the development of road infrastructure increased tourism spending. Nguyen (2021) employed the nonlinear ARDL in examining the nexus between investment in tourism infrastructure and international visitors' attraction and found that investment in tourism infrastructure promoted international tourist arrivals in Vietnam. Therefore, it is evident that infrastructure a vital component of government capital expenditure promotes inbound tourism (Li et al., 2020, Nguyen, 2021) as well as tourism spending (Ivankova et al., 2021).

It is clear from the papers examined that less research has been done on the relationship between government capital expenditure and tourism sector growth. Therefore, this study aims to contribute to the existing literature by studying the nexus between government capital expenditure and tourism sector growth.

## III. METHODOLOGY

A causal design was adopted in establishing the nexus between government capital expenditure and tourism sector growth. Secondary data sourced from the Kenya National Bureau of Statistics was employed. The study used



quarterly data from 2012 to 2021 for the variables of interest. Government capital expenditure (CAEX) was proxied by capital expenditure as a percentage of gross domestic product (GDP), while Tourism Sector Growth (TSG) was proxied by growth rates.

### 3.1 Econometric Model Specification

Data were collected, cleaned, and sorted using an Excel spreadsheet and analyzed using EViews software version 10. A multiple regression analysis was employed in testing the hypothesized relationship between tourism sector growth and government capital expenditure. The following model was employed;

$$TSG_t = \beta_0 + \beta_1 REEX_t + \beta_2 CAEX_t + \beta_3 TAXA_t + \mu$$

Where:  $TSG_t$  = tourism sector growth,  $REEX_t$  = government recurrent expenditure,  $CAEX_t$  = government capital expenditure,  $TAXA_t$  = taxation,  $t$  = time index, and  $\mu$  = error term.

## IV. RESULTS & DISCUSSIONS

### 4.1 Descriptive Statistics

Table 1 displays the descriptive statistics for tourism sector growth measured by growth rates and recurrent expenditure proxied by recurrent expenditure as a percentage of gross domestic product (GDP).

**Table 1**  
*Descriptive Statistics*

Variables	TSG	CAEX
Mean	4.0850	5.4125
Maximum	6.7000	6.6000
Minimum	0.9000	4.6000
Std. Dev.	1.3067	0.5988
Skewness	-0.6526	0.2550
Kurtosis	3.4277	2.0216
Jarque-Berra	3.1443	2.0289
Probability	0.2076	0.3626
Observations	40	40

Table 1 indicates that tourism sector growth (TSG) had a mean of 4.085%, which is below the envisioned 10% by Vision 2030 (GOK, 2008; GOK, 2013) indicating the tourism sector has not achieved its full potential (Kenya Institute for Public Research and Analysis, 2015). Additionally, recurrent expenditure (CAEX) proxied as a percentage of GDP has a mean of 5.4125%, which according to the World Bank (2020), was the figure averaged in lower-middle-income economies (5.4%) in 2019. Government capital expenditure as proportion of GDP was fluctuating from one quarter to another, same as growth rates of the tourism sector.

### 4.2 Augmented Dickey-Fuller Unit Root Test

It is crucial to verify the presence of a unit root before performing any statistical analysis to prevent inaccurate results because the majority of statistical models and procedures presume that the underlying data is stationary (Gujarat, 2022). In this study, the Augmented Dickey-Fuller (ADF) test was adopted in checking for unit roots. Tourism sector growth (TSG) was stationary at level while government capital expenditure (CAEX) was stationary at the first difference. Table 2 displays ADF test results.

**Table 2**  
*ADF Unit Root Test*

Variable	ADF Test statistic @ level	Critical Value @ 5%	ADF Test statistic @ 1 <sup>st</sup> difference	Critical Value @ 5%	Integration order
TSG	-3.733839	-3.529758	-	-	Level
CAEX	-2.967421	-4.234972	-8.843549	-3.533083	1 <sup>st</sup> difference



### 4.3 Optimal Lag Length Determination

The study determined the number of lags to be included in the model by comparing the Akaike Information Criteria (AIC), Schwarz Information Criteria (SC), and the Hannan-Quinn Information Criteria (HQ). Table 3 indicates that AIC, SC and HQ all chose one lag because there is an asterisk on lag 1, thus, it was best suited for the regression model. Therefore, lag 1 of government capital expenditure was incorporated in the regression model as an independent variable.

**Table 3**  
*Determination of Optimal Lag Length*

Lag	logL	LR	FPE	AIC	SC	HQ
0	-211.8464	NA	1.371521	11.66738	11.84153	11.72877
1	-160.3115	89.14156*	0.202243*	9.746567*	10.61733*	10.05355*
2	-146.1736	21.39792	0.231197	9.847220	11.41460	10.39979
3	-139.6665	8.441634	0.420592	10.36035	12.62434	11.15851

### 4.4 F-Bounds Cointegration Test

The ARDL bounds test was adopted in checking for cointegration since the variables exhibited mixed integrated order (Tursoy and Faisal, 2018). Table 4 displays the F-Bounds cointegration test results

**Table 4**  
*F-Bounds Test*

Test Statistic	Value	Significant	I (0)	I (1)
F- statistic	2.207712	10%	3.47	4.45
K	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

According to Table 4, the researcher failed to reject the null hypothesis at a 5% significance level, since the F-statistic (2.207712) of the Bounds test was smaller than critical values of I (0) and I (1) at 5%, which are 4.01 and 5.07 respectively. Indicating the absence of a long-run relationship between the variables under study.

### 4.5 Granger Causality Test

The study adopted the Granger causality test to determine if the lagged values of government capital expenditure (CAEX) predict accurately the present value of tourism sector growth (TSG). Table 5 displays Granger causality test results.

**Table 5**  
*Granger Causality Test*

VAR Granger Causality/ Block Exogeneity Wald Tests			
Included observations: 38			
Dependent Variable: TSG			
Excluded	Chi-sq	df	Prob
CAEX	2.095059	2	0.3508
All	2.095059	2	0.3508
Dependent Variable: CAEX			
Excluded	Chi-sq	df	Prob
TSG	0.247022	2	0.8838
All	0.247022	2	0.8838

From Table 5, government capital expenditure (CAEX) Granger causes tourism sector growth (TSG) with p-value of  $0.3508 < 0.05$ , while tourism sector growth (TSG) does not Granger cause government capital expenditure



(CAEX) with p-value of 0.8838>0.05, hence indicating a unidirectional causality from government capital expenditure to tourism sector growth.

#### 4.6 Regression Results

A multivariate regression analysis was adopted in establishing the nexus between government capital expenditure and tourism sector growth. Table 6 displays the output of regression analysis.

**Table 6**  
*Regression Results*

Dependent Variable: TSG				
Method: Least Squares				
Sample (adjusted): 2012Q2 2021Q4				
Included observations: 39 after adjustments				
Variable	Coefficient	Std. Error	t-statistic	Prob
TSG1	0.398861	0.103802	3.842520	0.0005
REEX	0.484809	0.079084	6.130345	0.0000
DCAEX (-1)	0.852497	0.245354	3.474557	0.0014
TAXA (-1)	0.241511	0.084421	2.860781	0.0072
C	-10.05061	2.034059	-4.941157	0.0000
R- squared	0.694431	Mean dependent var	4.092308	
Adjusted R- squared	0.658482	S.D. dependent var	1.322952	
S.E. of regression	0.773128	Akaike info criterion	2.442464	
Sum squared resid	20.32269	Schwarz criterion	2.655741	
Log likelihood	-42.62805	Hannan- Quinn criter.	2.518986	
F- statistic	19.31695	Durbin- Watson stat	2.006347	
Prob (F-statistic)	0.000000			

Table 6 indicates that the measure of goodness of fit ( $R^2$ ) value of 0.694431 and the probability value of F-statistic was 0.00000< 0.05 implying the fitness and statistical significance of the regression model at a 5% level of significance. Furthermore,  $R^2$  of 0.694431 implied that the variance in the tourism sector growth was predicted by a variance of 69.44% in the explanatory variables. The lagged values of tourism sector growth (TSG (-1)) were included in the model to make the regression model feasible.

The regression equation obtained from Table 6 is;

$$TSG_t = -10.0506 + 0.3987TSG_{t-1} + 0.4848REEX_t + 0.8525DCAEX_{t-1} + 0.2515TAXA_{t-1} + \mu$$

Where; TSG= Tourism sector growth

TGS t-1= lag1 of tourism sector growth taken as an independent variable in the model.

REEX= Recurrent expenditure as a % of GDP (measure for recurrent expenditure in the study)

DCAEXt-1= lag 1 of the first difference of capital expenditure as a % of GDP (measure for capital expenditure in the study)

TAXA1= lag 1 of tax on products as a % of GDP (measure for taxation in the study)

$\mu$ = the error term

t = quarterly time series

##### 4.6.1 Results interpretation

From Table 6, government capital expenditure (CAEX) has a significant positive effect on tourism sector growth with a p-value of 0.0015<0.05, and a coefficient ( $\beta_0$ ) of 0.852497 showing that a percentage increase in capital expenditure relates to an 85.2497 percentage increase in tourism sector growth Ceteris Paribus in the short run. Granger causality test in table 5 indicates a unidirectional causality from government capital expenditure to tourism sector growth, demonstrating that lagged values of government capital expenditure accurately predicted current tourism sector growth.

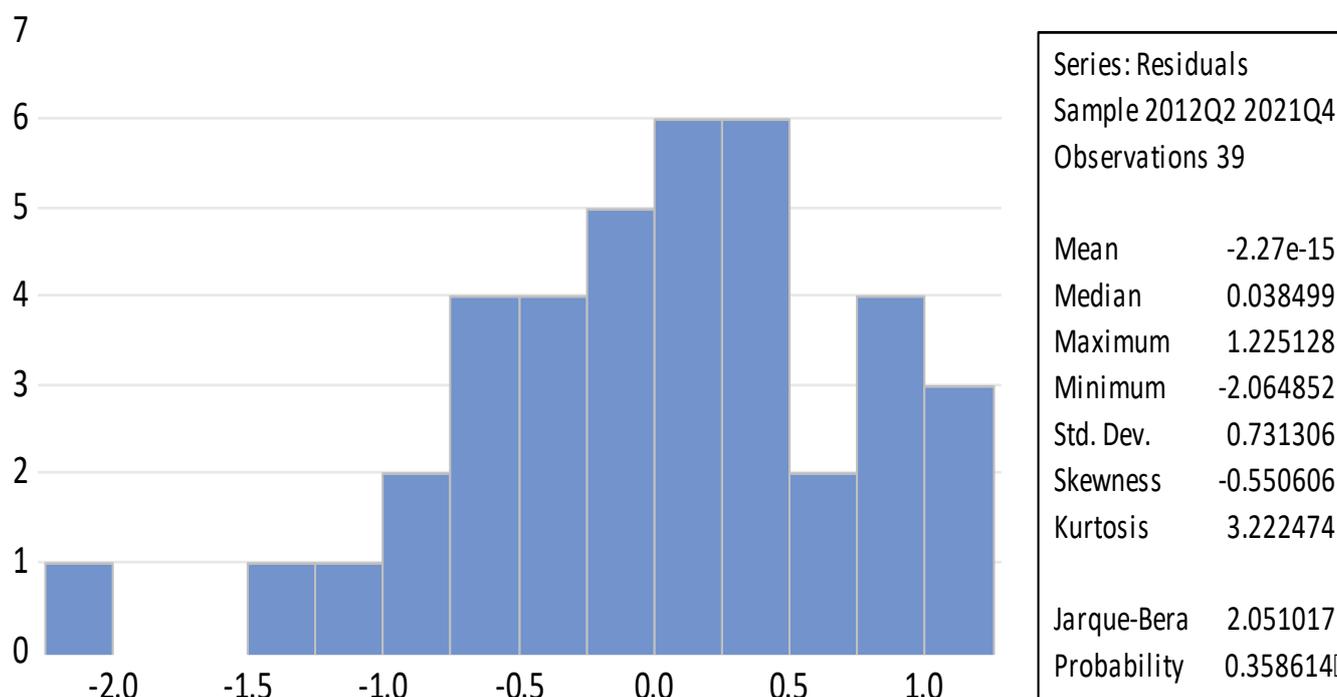
This finding implies that when the government spends to meet its developmental goals, it stimulates tourism sector growth. The capital spending by the government leads to the private sector accumulating infrastructural capital, consequently, the infrastructural accumulation fosters the competitiveness of a tourism destination, thus determining the success level of a tourist destination (Nguyen et al., 2020). Government capital expenditure ensures infrastructure connectivity that boosts cross-border tourism (Li et al., 2020). Infrastructural development is vital to tourism sector growth as it provides fundamental physical amenities that are essential to economic activities in a country (United Nations, 2016). A good infrastructural system makes it easier to provide a better and more affordable tourism experience in a location, which draws more visitors from abroad (WTTC, 2018), thus fostering tourism sector growth.

This finding concurs with those of Li et al. (2020) who used the Propensity Score Matching and Difference-in-differences methods in examining the impact of the Belt and Road Initiative on the tourism economy in 155 countries from 2000 to 2007. The finding also agrees with Dore (2022), Emmanuel and Oladiran (2015), and Njoku et al. (2014), who found that government capital expenditure had a positive significant impact on the manufacturing sector output in Nigeria.

#### 4.7 Post-Estimation Diagnostic Tests

##### 4.7.1 Normality Test

The study adopted the Jarque-Berra test in checking if the regression residuals were normally distributed. Figure 1 shows the Jarque-Berra test output for normality.



**Figure 1**  
*Jarque-Berra Test for Normality*

The results in Figure 4.1 show that the Jarque-Berra p-value of 0.358614 > 0.05, implying that the regression residuals were distributed normally.

##### 4.7.2 Multicollinearity Test

Table 7 indicates the Variance Inflation Factors Test output in checking for multicollinearity. The decision criteria for multicollinearity test VIF values should be less than 10 to indicate the absence of multicollinearity in the regression model (Gogtay & Thatte, 2017).



**Table 7**

*Variance Inflation Factor Multicollinearity Test*

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
TSG (-1)	0.010775	13.02440	1.191717
REEX	0.006254	51.99532	1.017760
DCAEX (-1)	0.060199	117.2931	1.340151
TAXA (-1)	0.007127	49.23708	1.148268
C	4.137397	269.9538	NA

Table 7 shows that the VIF values of TSG (-1), REEX, DCAEX(-1), and TAXA(-1) are 1.191717, 1.0177660, 1.340151, and 1.148268 respectively. The above VIF values were less than 10, thus implying there was no multicollinearity in the regression model.

**4.7.3 Breusch-Pagan-Godfrey Heteroscedasticity Test**

In a model, the error terms of regressors are presumptively homoscedastic, meaning their variance is constant (Gujarat, 2022). Table 8 displays the output of the Breusch-Pagan-Godfrey heteroscedasticity test that was adopted in checking for the presence of Heteroscedasticity.

**Table 8**

*Breusch-Pagan- Godfrey Heteroscedasticity Test*

Heteroscedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.492823	Prob. F(4,34)	0.2261
Obs *R-squared	5.826192	Prob. Chi-Square(4)	0.2125
Scaled explained SS	3.125509	Prob. Chi-Square(4)	0.5370

It can be shown from Table 8 that there was no heteroscedasticity because the observed R-squared probability was greater than 0.05.

**4.7.4 Breusch -Godfrey Autocorrelation Test**

The study employed the Breusch -Godfrey Test in checking for autocorrelation. Table 9 displays the results of the Breusch-Godfrey Test for autocorrelation.

**Table 9**

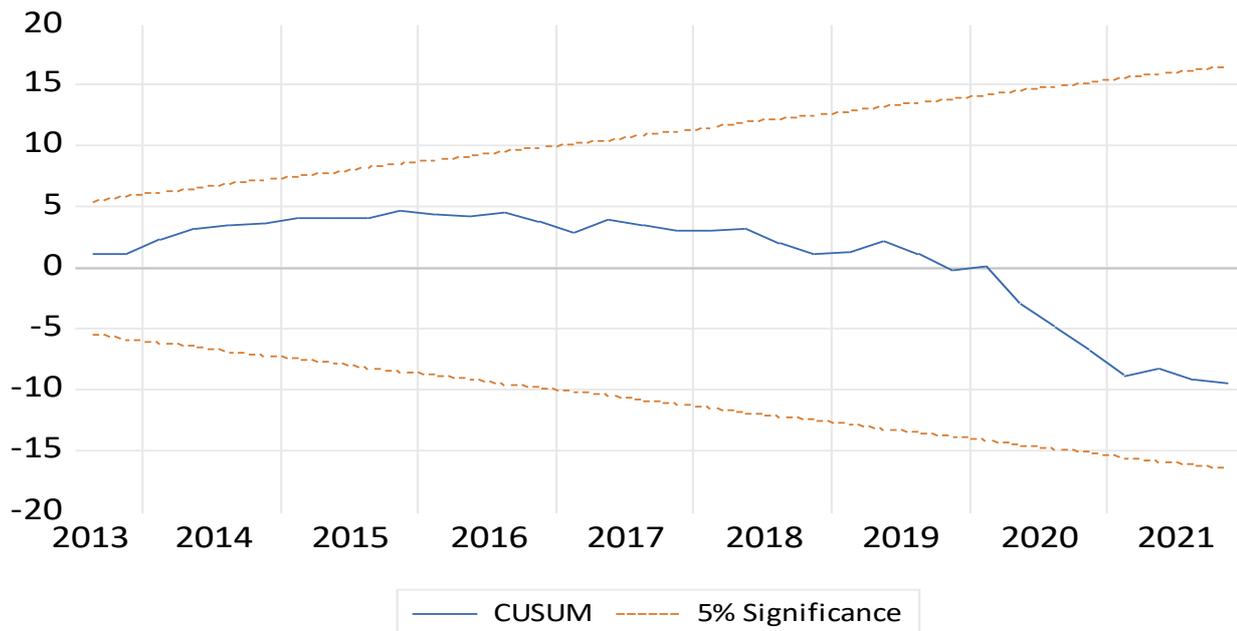
*Breusch- Godfrey Autocorrelation Test*

<b>Breusch-Godfrey Serial Correlation LM Test:</b>			
<b>Null hypothesis:</b> No serial correlation at up to 4 lags			
F-statistic	0.970346	Prob. F(4,30)	0.4382
Obs *R-squared	4.467762	Prob. Chi-Square(4)	0.3464

The results of the Breusch-Godfrey test in Table 9 indicate that the p-value of Chi-square was  $0.3464 > 0.05$ , implying that the model was not affected by autocorrelation.

**4.7.5 CUSUM Model Stability Test**

Figure 2 shows the results of the CUSUM model stability test. All the variables lie within the 5% boundary implying that the model is stable and suitable for policy formulation (Zeileis, 2004).



**Figure 2**  
*CUSUM Model Stability Test*

## V. CONCLUSIONS & RECOMMENDATIONS

### 5.1 Conclusions

The study examined the nexus between government capital expenditure and tourism sector growth in Kenya, employing quarterly data from 2012 to 2021. Findings from regression output revealed that capital expenditure had a positive significant effect on tourism sector growth in Kenya, with a regression coefficient ( $\beta_2$ ) of 0.852497 and a p-value of  $0.0014 < 0.05$ . The study concludes that government capital expenditure boosts tourism sector growth by ensuring infrastructural connectivity which promotes cross-border tourism.

### 5.2 Recommendations

The government should consistently increase its capital expenditure to spur higher and more stable growth in the tourism sector. Increasing government capital expenditure will promote infrastructural development hence boosting tourism-related businesses.

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