

# Government expenditure and economic growth: does corruption and democracy matter?

## Abstract

This research seeks to investigate the extent to which the promotion of democracy and control of corruption influence the effect of government expenditure on economic growth. Books and materials in public finance predict growth-enhancing activities of various core functions of government. However, higher government expenditure, in corrupt and undemocratic countries, may slow down the overall performance of the economy through rent-seeking activities, high taxes to produce public goods and engaging in unproductive activities. The research objective is to analyze the role of democracy and corruption levels in the effects of government expenditure on economic growth in Kenya from 1990 - 2020. The generalized method of moments (GMM) framework was used to estimate the study model. The estimated results indicate that government expenditure, corruption and democracy have positive and direct effects on economic growth. Besides, this study finds that there are indirect effects of government expenditure on growth through democracy and corruption. Thus, promoting democracy and bureaucratic corruption associated with expenditure policy should be a top policy priority for a country to foster an environment conducive to sustainable growth.

Keywords: Corruption; Democracy; Economic growth; Government expenditure

JEL classification: D73; H50; O40; P16

## 1. Introduction

Public finance literature suggests growth-enhancing activities of various core functions of government in developing countries. However, government expenditure in undemocratic and corrupt nations often goes beyond these core purposes, namely into rent-seeking, wastage, excess public goods provision, bribetaking and non-productive activities (Alfada, 2019; Nguyen & Bui, 2022). Specifically, if the country is undemocratic, the government rationally will choose rent over public goods to maintain support, and this will cause growth (Plümper & Martin, 2003). Furthermore, Kato and Sato (2015) and Huang (2016) argue that corruption can be useful in "greasing the wheels" in the economy thereby promoting efficiency in the economy, especially for developing countries with weak institutions. Most studies argue that corruption has a direct and negative effect on economic processes while democracy has only an indirect effect on growth. It has been argued that one of democracy's indirect benefits is its ability to mitigate the harmful effect of corruption on economic growth (Drury et al., 2006). While corruption may occur in democracies, the electoral system inhibits politicians from engaging in corrupt acts that are detrimental to economic progress and thereby damaging their political survival (Baum & Lake, 2003; Drury et al., 2006). However, excess political freedom and corruption may hurt the economies. If this impact is identified then countries can tailor their policies towards making expenditures to be growth-enhancing.

Neoclassical and endogenous theories have amplified the critical role government spending plays in stimulating economic growth. Particularly, government spending allocates the necessary resources that impact long-run growth, infrastructure development, and education and health outcomes (Ochieng et al., 2014). In addition, public expenditure provides public goods, stimulates consumption and encourages private investment by creating efficiency and removing market failure (D'Agostino et al., 2016; Ochieng et al., 2014; Bucci et al., 2021). However, other empirical studies argue if used excessively government spending can harm the economy (Hajamini & Falahi, 2018; Nguyen & Bui, 2022). This suggests although the effect of government expenditure on growth has been reviewed extensively, there are still conflicting views on the expenditure-growth association.

Economic literature argues that democracy may improve the quality of economic institutions (Oslon, 1962). The quality of institutions will improve the efficiency of government expenditure and thus promote economic growth. The institution quality will vary from democracy to autocracy and also depend on the level of human quality in an economy (Friedman, 1962; Oslon, 1991; Krieger, 2022). Several measures of democracy (political freedom) exist, binary measures, Vdem polyarchy, continuous and the dichotomous machine learning index, and lexical index of electoral democracy (Gründler & Krieger, 2021, Krieger, 2022). The study adopted continuous machine learning indicators as a democracy measure since it produces a less biased index in comparison to dichotomous (Krieger, 2022). The continuous Machine Learning index varies between 0 (extremely autocratic) and 1 (extremely democratic). Political participation influences how governments spend resources, opportunistic governments will choose the optimal combination of rent and public good instruments to attract political support. If the country is autocratic, the government rationally will choose rent over public goods to maintain support (Oslon, 1965; Oson, 1991; Plümper & Martin, 2003). Democracy, as a consequence, increases efficiency and thus growth. However, if political participation increases further then the government may over-invest in the provision of public goods and this will cause inefficiency, hurt private investment and slow growth (Friedman, 1962; Plümper & Martin, 2003; Krieger, 2022).

The relationship between corruption level and economic growth has been inconclusive with some empirical studies arguing that corruption control can improve the efficiency of resource allocation, grow the private sector and the economy (Dzhumashev, 2014; Gründler & Potrafke, 2019; Al Qudah et al., 2020; Ilyyasu & Muhammed, 2023). According to Hodge et al. (2011), corruption control can stimulate economic growth by reducing total government spending. Furthermore, Kato and Sato (2015) and Huang (2016) observe that corruption can be useful in “greasing the wheels” in the economy thereby promoting efficiency in the economy, especially for poornations with weak institutions. In contrast, other studies argue corruption can reduce the efficiency of spending and thus harm the economy or “sand the wheel” (Dzhumashev, 2014; Nguyen & Bui, 2022). According to Nur-Tegin and Jakee (2020) and Mose (2021), corruption will make those in authority allocate budget resources in terms of preference and use distorted budgets that favour projects with more scope for corruption and manipulation. As a result, corruption will exaggerate government expenditure, lead to wastage and reduce domestic investment. In addition, D'Agostino et al. (2016) argued that corruption decreases economic growth by promoting military expenditure.

The Kenyan economy recorded an average growth rate of 4.5 cent in the decade to 2022, higher than the 3.0% average for Sub-Saharan Africa. Study results show that Kenya's growth is explained by public expenditure allocation (Gisore, 2017). In Kenya, on average public expenditure has been on an upward trend, spending in Kenya averaged 267122 KES Million from 1964 until 2022, reaching an all-time high of 1348217 KES Million in 2022 and a record low of 998 KES Million in 1964 (Trading economies, 2022). However as observed in Kenya, economic growth has been inconsistent despite the expenditure being on an upward trend, because of corruption, wastage and curtailed public freedom (Gisore, 2017). According to the democracy index score for 2024, on a scale of 0 (least free) to 100 (most free), Kenya was rated partly free in freedom, (52/100) (Freedom House, 2024). Besides, Kenya has reached many democratic milestones namely, the adoption of the progressive constitution, decentralized governance with increased capacity in public expenditure management and public participation, and vibrant media and civil society sector (Gisore, 2020). However, police brutality and pervasive corruption remain serious problems. Furthermore, in 2023, Kenya was ranked 126th among the 180 countries, where the country ranked last is perceived to have the most dishonest public service sector (Transparency International, 2023). Nevertheless, from empirical studies, it is clear government expenditure, corruption and democracy are key conditions for any economy that wants to achieve sustainable growth. This research is conducted to determine the role of corruption and democracy in the impact of government expenditure on economic growth in Kenya.

## 2. Literature review

The Keynesian growth model treats government spending as exogenous and economic growth as endogenous variables. The Keynesian model argues that an increase in government expenditure will increase the total demand for goods and services and thus grow domestic investment and finally the economy (Keynes, 1936; Gisore, 2017). However excess spending and high taxes and borrowing will make expenditure to be detrimental to growth. Solow (1956) neo-classical growth model indicates that changes in factors of production, labour and capital, will increase human and capital stock accumulation and technology and thus stimulate growth. Solow noted investment can explain growth differentials. However excess investment, in the market can cause inefficiency, crowd out private investment and thus slow growth (Barro & Sala-i-Martin 1995). Endogenous growth models assume that factors of growth and policies influence economic growth, government expenditure is one of the fiscal policies that influence resource allocation, private sector regulation and public sector promotion thus growth (Nguyen & Bui, 2022).

Generally, the empirical literature has identified two opposing hypotheses, whether corruption "greases the wheel" or "sands the wheel"(Nur-Tegin& Jakee, 2020).According to modernization theory, the mechanism of economic democratic and political development in modern societies tends to breed economic inequality, gender differentiation, political instability and corruption. Corruption is seen as a means of using public powers to achieve private goals (Huntington, 1968). Generally, all theories acknowledge the problem of corruption, only depending on the causes and impact on growth and economy.Kiltgaard propagated a new theory known as the "corruption formula" indicates that corruption will occur when there is a monopoly of power (autocracy), limited accountability and power to make judgments (Klitgaard, 1988). These three conditions will make corruption thrive in any economy and cause public investment and provision of public goods to be inefficient.Kiltgaard identified three conditions that can cause corruptionlevels to reduce in growth, increasing competition, enhancing transparency and strengthening accountability mechanisms (Klitgaard, 1988). Moreover, Rose-Ackerman's theory emphasizes the importance of strong institutions in combating corruption and experiencing growth through allocating resources efficiently (Kelman, 2000). The theory suggests that every country should have strong institutions with effective checks and balances to curb increasing corruption cases (Kelman, 2000). Further, the theory suggests economic progress, legal reforms, and social change can curb corruption behaviour. Finally, the corruption is the wheel hypothesis argues that corruption can be useful in "greasing the wheels" in the economy thereby promoting efficiency in the economy, especially for poor countries with weak institutions (Kato & Sato, 2015; Huang, 2016).

The theoretical literature on the relationship between democracy, spending and growth has generated competing views. According to Friedman (1962), "on Capitalism and freedom hypothesis," the two freedoms (political and economic) are mutually related and the impact of democracy on economic growth depends on the quality of economic institution (Friedman, 1962). Economic institutions are built, maintained and supported through government consumption. The more democratic a country is, the higher the incentive for the government to implement sound economic institutions through public goods and as a result it experiences economic growth(Plümper& Martin, 2003).In contrast, Oslon (1965) theory of collective actionsindicates that democratic governments are likely to divert expenditure from investment to consumption. Reduced private investment, via crowding out, will depress economic progress. The theory argues that in democracies the elite and special interest groups are more likely to promote their selfish agendas than for undemocratic governments. Most of these policies will be detrimental to economic growth as they will only promote excess and inefficient expenditures (Oslon, 1991; Plümper& Martin, 2003).Hence, the model delivers a theoreticalexplanation for the link between levels of democracyand economic growth based on the level and quality of expenditure. From this, the study can generate two causal links. First, the relationship between expenditure for public goods and subsequent economic performance. A budget that is allocated to infrastructure, education and health will stimulate the economy more than the same amount of resources spent on unproductive rental transfers

(Plümper& Martin, 2003). The second link originates from growth depressing level of high expenditure level. Because as expenditure increases beyond a certain level of democracy, income is taxed away from the economy to attract political support(Barro & Sala-I-Martin, 1995; Plümper& Martin, 2003). This will result in less investment and depress growth.

Several empirical studies have been conducted, however, most of the findings have been contradictory and have used diverse estimation methods. For instance, Nguyen and Bui (2022) study in Asian countries using GMM estimation, indicated that expenditure and corruption harm economic growth. In contrast, Iliyasu and Muhammed (2023) in Nigeria using ARDL estimation, suggested that expenditure promotes growth while corruption hurts growth. In addition, Alfada (2019) study concluded that generally, expenditure is not significant. Finally, Plümper and Martin (2003) suggested democracy inspired growth in most economies. Table 1 presents an empirical review of the expenditure-growth link.

**Table 1: Empirical Literature Review**

Author (s)	Sample (Period)	Methods	Result
Plümper& Martin (2003)	83 countries (1975-1997)	OLS	Expenditure not significant Democracy promotes growth Interaction term significant
Hodge et al. (2011)	81 countries (1985-2004)	SURE	Expenditure hurt growth Corruption hurt growth Interaction term insignificant
Sakyi & Adams (2012)	Ghana 1960-2008	ARDL	Expenditure promote growth Democracy promotes growth Interaction term significant
D'Agostino et al. (2016)	OECD countries (1996-2010)	GMM	Expenditure hurt growth Corruption hurt growth Interaction term significant
Alfada (2019)	Indonesia (2004-2015)	2SLS	Expenditure not significant Corruption hurt growth Interaction term insignificant
Mose (2021)	Kenyan counties (2013-2017)	OLS	Expenditure promote growth Corruption hurt growth
Nan (2022)	China (2020)	Literature review	Expenditure hurt growth Corruption hurt growth Interaction term significant
Nguyen & Bui (2022)	16 Asian countries (2002-2019)	GMM	Expenditure hurt growth Corruption hurt growth Interaction term significant
Iliyasu & Muhammed (2023)	Nigeria (1990-2020)	ARDL	Expenditure promote growth Corruption hurt growth Interaction term significant

Notes: ARDL: Autoregressive Distributed Lag; SURE: Seemingly Unrelated Regression ; 2SLS: Two-stage least squares; GMM: Generalized Method of Moments; OLS: Ordinary Least Squares Regression

The study contributes to economic literature that examines the relationship between government expenditure and economic growth. The major difference between past studies and the current study is the use of the most recent data (1990-2020). In addition, the study uses democracy and corruption to investigate their impact on the government expenditure–growth nexus. Finally, the study applies the GMM estimation method, whereas previous studies have used SURE, OLS and 2SLS approaches. GMM performs well with endogeneity and can generate efficient estimates with a many limited time dimension.

### 3. Methodology

The explanatory research design was used to study the influence of corruption and democracy on the expenditure-growth nexus with limited data for Kenya, from 1990-2020. To better describe the trend and characteristics of the study variables' correlation examination and descriptive analysis were carried out. The study will check the properties of time series data by conducting a stationarity test of time series data. Unit root test is important to make sure variables are of the same order before regression analysis and this can reduce misleading inferences. Most time series data are always characterized by stochastic trends, which are always removed by differencing (Greene, 2012). The expected integration order is I(0) or I(1). The standard unit root tests for time series data are the Augmented-Dickey Fuller (ADF) test and the Phillips-Perron (PP) test. This study adopted the Phillips-Perron (PP) technique to check for stationarity, the alternative to the ADF test. The main strength of PP over other tests is that it is a non-parametric test. Thus, it is not necessary to specify the model and lagged parameter in the test regression (Phillips & Perron, 1988). The PP unit root test is specified as shown in Equation 1:

$$\Delta X_t = \alpha_i + \beta_i X_{t-1} + \sum_{j=1}^k \gamma_{i,j} \Delta X_{t-j} + \varepsilon_t \quad (1)$$

Where  $\Delta$  is the first difference operator,  $X_t$  is the dependent variable,  $\varepsilon_t$  is the stochastic term.

The baseline framework for growth regression analysis was generated from the works of Barro and Sala-i-Martin (1995) on growth theories. The equation states that economic factors influence human and physical capital by increasing stock, technological progress and finally growth. In contrast, some factors reduce incentives to invest, promote inefficiency and market failure and thus slow growth (Iliyasu & Muhammed, 2023). In line with the empirical work of Nguyen and Bui (2022) and Iliyasu and Muhammed (2023), the study modified the growth model and generated growth equation 2 to analyze the effect of government expenditure on economic growth in Kenya.

$$GDP_t = \alpha + \beta EXP_t + \gamma X_t + \varepsilon_t \quad (2)$$

Where:

$\varepsilon$  is the error in the model and subscript  $t$  is the time dimension.

The independent variable is economic growth (GDP), measured as GDP per capita growth as postulated by Ghose and Das (2013). The independent variables included government expenditure (EXP) measured by final government consumption, public spending influences infrastructure and social outcomes. Corruption level was proxied by the corruption control index to measure the effectiveness of state to control the vice, the index ranges from -2.5 (weak) to 2.5 (strong). To probe the role of political freedom, democracy (DEM) was added to the model and was measured using the machine learning index, which varies between 0 (very autocratic) and 1 (very democratic). According to Alfada (2019) and Nguyen and Bui (2022) corruption and democracy level can act as explanatory variables as well as control variables in the estimation model. Also, expenditure can be influenced by changes in democracy and corruption (Cieslik & Goczec, 2018). The study followed the empirical works of Cieslik and Goczec (2018), Nguyen and Bui (2022) and Iliyasu and Muhammed (2023) to employ a linear interaction model by forming the term of interaction between expenditure and democracy (EXP\*DEM), and expenditure and corruption (EXP\*COR) on growth model. Finally, inflation (INF) measured by price change and domestic investment (INV) proxied by gross capital formation were included as control variables (X) during regression. Table 2 shows the sources of data and definition of study variables.

#### Table 2: Variables and definitions

Variable	Abbreviation	Definition	Data Source	Expected sign
Economic growth	GDP	GDP per capita growth (%)	WDI	Not predicted (Ghose & Das, 2013)
Government Expenditure	EXP	General government final consumption expenditure (% of GDP)	WDI	Negative (Ghose & Das, 2013)
Corruption	COR	Corruption Control Index estimates(range 2.5 to -2.5)	WDI	Negative (Nguyen & Bui, 2022)
Democracy	DEM	Machines democracy index (range 1 to 0)	ML democracy Indexes	Positive (Krieger, 2022)
Interactive term for corruption	EXP*COR	Interaction between expenditure and corruption	Constructed	Negative (Iliyasu & Muhammed, 2023)
Interactive term for democracy	EXP*DEM	Interaction between expenditure and democracy	Constructed	Positive (Krieger, 2022)
Private investment	INV	Gross capital formation (% of GDP)	WDI	Positive (Alfada, 2019)
Inflation	INF	Consumer prices (%)	WDI	Negative (Nguyen & Bui, 2022)

Using equation 3, the study will investigate the influence of corruption and democracy on government expenditure. Thus letting expenditure be the dependent variable and corruption and democracy be the independent variables. Then the study model will be.

$$\beta = \delta_1 + \delta_2 COR_t + \delta_3 DEM_t + \varepsilon_t \quad (3)$$

Accordingly, the regression model of the effect of government expenditure on economic growth has the following equation:

$$GDP_t = \alpha + \delta_1 EXP_t + \delta_2 EXP_t * COR_t + \delta_3 EXP_t * DEM_t + \delta_4 COR_t + \delta_5 DEM_t + \gamma X_t + \varepsilon_t \quad (4)$$

The study adopted the Generalized Method of Moments (GMM) approach proposed by Arellano and Bond (1991) to estimate the effect of expenditure on economic growth via equation 4. Most empirical studies such as Cieslik and Goczek (2018), Hajamini and Falahi (2018) and Nguyen and Bui (2022) have all employed GMM to estimate the link between expenditure and growth. The main advantage of the GMM approach, it allows for the control of endogeneity problems in regression models. Endogeneity exists if independent variables are correlated with errors, and these independent variables are called endogenous parameters. Other strengths of GMM include its controls for heteroscedasticity, it does not require normality assumption and can estimate models that cannot be estimated from first-order conditions (Ergün & Göksu, 2013). The GMM analysis will be done through the use of a matrix of instrumental variables that are correlated with endogenous variables, but not correlated with the model errors (Arellano & Bond, 1991; Hajamini & Falahi, 2018; Nguyen & Bui, 2022). The GMM model was subjected to the residual diagnostic tests, namely the Hansen test and normality test, to avoid misleading inferences. To test the validity of GMM estimates, the study will conduct J-tests or Hansen tests aimed at checking for the validity of the exclusion restrictions. The null hypothesis states that instruments are correctly excluded

from the GMM model (Hansen & West, 2002; Roodman, 2009). Jarque-Bera test will be applied to make sure whether the data fits the normal distribution or not. Finally, the Granger causality test was conducted to define the causal link between spending, democracy, corruption and growth (Granger, 1988).

#### 4. Empirical Findings and Discussion

##### 4.1 Statistical Description of Variables

A descriptive statistics summary was conducted to demonstrate the characteristics and properties of variables as presented in Table 3. The data set consists of 31 annual observations for Kenya covering the period 1990-2020, informed by the availability of data. The minimum and maximum numbers of the ratios of different variables are narrowly separated and the standard deviation is very low implying that the annual data is not quite diverse or volatile. Based on the standard deviation index, there is generally low variation between study variables. During the study period, the inflation index recorded the highest volatility while democracy reported the lowest volatility, meaning Kenya may have experienced a general price change and political stability, respectively. The results indicate that the mean and median of all variables are different, indicating variable may be symmetrical. The normality test is performed by the Jarque-Bera test, the probability value indicates that only economic growth, government expenditure and private investment series are normally distributed, so the null hypothesis of normality is accepted. Table 3 demonstrates the descriptive statistics result.

**Table 3: Descriptive statistics results**

Variable	<i>GDP</i>	<i>EXP</i>	<i>COR</i>	<i>DEM</i>	<i>EXP * COR</i>	<i>EXP * DEM</i>	<i>INF</i>	<i>INV</i>
Mean	3.119	14.649	-0.593	0.717	-8.218	10.244	11.597	19.241
Median	3.105	14.842	-0.964	0.731	-13.117	10.757	9.234	19.341
Maximum	3.218	18.642	1.160	0.884	21.636	13.372	45.978	24.950
Minimum	3.066	11.742	-1.304	0.005	-20.553	0.099	1.554	15.003
Std. Dev.	0.045	2.039	0.879	0.211	13.596	2.891	9.465	2.630
Skewness	0.807	0.217	1.497	-2.470	1.410	-2.804	1.969	0.182
Kurtosis	2.368	1.930	3.334	8.998	3.252	10.555	7.008	2.358
Jarque-Bera	3.888	1.723	11.735	78.006	10.360	114.369	40.789	0.702
Probability	0.143	0.422	0.002	0.000	0.005	0.000	0.000	0.703
Observations	31	31	31	31	31	31	31	31

Pearson correlation analysis was conducted to investigate the association between study variables. The correlation coefficients between explanatory variables and economic growth are presented in Table 4 below.

**Table 4: Correlation matrix results**

	<i>GDP</i>	<i>EXP</i>	<i>COR</i>	<i>DEM</i>	<i>EXP * COR</i>	<i>EXP * DEM</i>	<i>INF</i>	<i>INV</i>
<i>GDP</i>	1							
<i>EXP</i>	-0.779	1						
<i>COR</i>	-0.190	0.273	1					
<i>DEM</i>	0.354	-0.653	-0.652	1				
<i>EXP * COR</i>	-0.076	0.169	0.989	-0.635	1			
<i>EXP * DEM</i>	-0.052	-0.233	-0.646	0.884	-0.694	1		
<i>INF</i>	-0.308	0.236	0.619	-0.363	0.588	-0.283	1	
<i>INV</i>	0.532	-0.470	0.211	-0.010	0.315	-0.347	-0.076	1

Table 4 presents the correlation result between study variables. The study has identified a negative correlation between economic growth and government expenditure, corruption, and inflation, an interaction term for corruption and an interaction term for democracy. The results reported a strong negative correlation between economic growth and expenditure while a weak negative association between interaction terms for democracy, and growth. Democracy and private investment variables reported a positive correlation to economic growth, although moderate. Finally, based on the result, multicollinearity is not an issue because the correlation value for independent variables is very low

The study investigated the time series data properties of the sample size using the Phillips-Perron (PP) unit root test. Table 5 shows the stationarity test result of the series.

**Table 5: Unit root test result**

Variables	Level		Order	First difference		Order
	Adjusted t	Prob.		Adjusted t	Prob.	
<i>GDP</i>	0.745298	0.9912	I(1)	-7.777614	0.0000	I(0)
<i>EXP</i>	-1.976253	0.2951	I(1)	-4.872863	0.0005	I(0)
<i>COR</i>	-2.168749	0.2211	I(1)	-5.375012	0.0001	I(0)
<i>DEM</i>	-4.801685	0.0006	I(0)	-	-	
<i>EXP * COR</i>	-2.389854	0.1529	I(1)	-5.292053	0.0002	I(0)
<i>EXP * DEM</i>	-6.727581	0.0000	I(0)	-	-	
<i>INF</i>	-2.797582	0.0706	I(1)	-12.14548	0.0000	I(0)
<i>INV</i>	-2.976865	0.0486	I(1)	-6.593310	0.0000	I(0)

Note \*\*\* Signifies significance at a 1% level of significance  
Null Hypothesis: The variable has a unit root

Based on the Table 5 result, all variables have a unit root except democracy and the interaction term for democracy at a 1 % level of significance. However the six variables were converted into stationarity after first differencing, meaning the series was mixed, I(0) and I(1). Considering the period (T) of the study is large, the unit root test was significant to make sure all variables were stationary before GMM estimation.

#### 4.2 Estimation Regression Results

The study conducted a Generalized Method of Moments (GMM) regression analysis to define the relationship between economic growth and explanatory variables. Table 6 shows regression results using the GMM approach.

**Table 6: GMM Estimated Result**

Variable	Coefficient	Standard error	t-Statistics	p-Value
<i>EXP</i>	0.196	0.006	29.995***	0.0000
<i>COR</i>	0.828	0.284	2.915***	0.0076
<i>DEM</i>	5.405	0.376	14.350***	0.0000
<i>EXP * COR</i>	-0.053	0.019	-2.809***	0.0097
<i>EXP * DEM</i>	-0.331	0.029	-11.230***	0.0000
<i>INV</i>	-0.010	0.005	-1.892*	0.0705
<i>INF</i>	0.001	0.001	1.042	0.3074
	Durbin Watson test = 2.014		Adjusted R2 = 0.653	
	Hansen test=2.116323		P- value = 0.145736	

Jarque Bera test=1.199762	p-value = 0.548897
Note: * p < 0.1, ** p < 0.05, *** p < 0.01 are significance levels, in which the null hypothesis is rejected. Dependent variable: GDP	

Regression results indicate that government expenditure has a positive significant effect on economic growth. Particularly, a 1 per cent increase in government expenditure leads to about 0.196 per cent increase in economic growth in Kenya. The findings support the Keynesian view and endogenous theories that fiscal policy tools like expenditure are growth-enhancing through influencing resource allocation, supporting government functions and complementing the private sector (Gisore, 2020). Furthermore, an increase in government expenditure on social outcomes (health and education) and infrastructure development raises labour productivity and increases economic output. Findings agree with previous research by Ghose and Das (2013) in emerging countries and Iliyasu and Muhammed (2023) in Nigeria. In contrast, Hajamini and Falahi (2018) and Nguyen and Bui (2022) indicated a negative relationship between the two variables exists, suggesting that inefficient use of government spending may hurt the economy. Most studies argue that excess government expenditure may slow growth through increases in taxes and borrowing (Barro & Sala-i-Martin, 1995; Gisore, 2017).

Corruption has a positive effect on economic growth in Kenya at a 1 per cent level of significance. Specifically, an increase in corruption level by 1 per cent will lead to a rise in economic growth by 0.828 per cent. Findings imply that corruption can accelerate the efficiency of resource allocation and break long bureaucratic chains in government administration thus encouraging private investment and growing the economy (Nan, 2022). The plausible explanation is that certain elements of corruption help overcome inefficiency resulting from weak institutions and bureaucratic bottlenecks (Mose, 2021). The findings imply that in Kenya corruption is the "greasing of the wheels" and thus can lead to growth through making government activities efficient. Nguyen and Bui (2022) noted corruption can stimulate growth only if it's complemented by improved effectiveness of government management. Furthermore, Kato and Sato (2015) and Huang (2016) argue that corruption can be useful in "greasing the wheels" in the economy thereby promoting efficiency in the economy, especially for developing countries with weak institutions. The finding disagrees with the result of Iliyasu and Muhammed (2023) in Nigeria, who noted corruption is the sand in the wheels. D'Agostino et al. (2016) argued that corruption decreases economic growth by promoting military expenditure. Furthermore, corruption leads to inefficient allocation of resources, the presence of a shadow economy and low quality of human capital development (Drury et al., 2006; Kato & Sato, 2015; Huang, 2016).

Based on the result democracy is positively significant to economic growth. Specifically, it means if democracy increases by 1 per cent economic growth will rise by approximately 5.405 percent. Studies by Oslon (1962), Baum and Lake (2003), and Sakyi and Adams (2012) suggested democracy leads to economic growth. Baum and Lake (2003) indicate that democracy has a positive effect on growth via the positive impact of political stability and freedom, health and education expenditure and life expectancy (Baum & Lake, 2003; Drury et al., 2006). As a consequence of democracy, an increase in political freedom tends to increase efficiency and raise prospects of economic growth. Economic literature argues that democracy may improve the quality of economic institutions (Oslon, 1962). The quality of institutions will improve the efficiency of government expenditure and thus improve economic performance. Sakyi and Adams (2012) study in Ghana observed that democracy leads to economic growth through productive spending and other complementing reforms such as macroeconomic stability and the rule of law.

The interactive term for corruption is negative and statistically significant at 1 per cent. The finding implies a simultaneous increase in government expenditure and corruption level by 1 per cent will reduce economic growth by about 0.053 per cent. This means the interaction of expenditure and corruption leads

to inefficiency in resource allocation and hurt growth (Nguyen & Bui, 2022). Furthermore, other studies argue corruption can reduce the efficiency of government expenditure and thus harm the economy or sand the wheel (Dzhumashev, 2014). Nur-Tegin and Jakee (2020) argued that corruption can both grease and sand the wheel depending on the institutional quality. Implies, excess corruption may push government spending to be inefficient, hurt private investment and slow growth (Friedman, 1962; Plümper & Martin, 2003; Krieger, 2022). Findings agree with the conclusion of D'Agostino et al. (2016) in OECD countries, Iliyasu and Muhammed (2023) in Nigeria and Nguyen and Bui (2022) in Asia that expenditure can harm growth via corruption. Nguyen and Bui (2022) reported a negative relationship, arguing that corruption inhibits resource allocation and thus hurts economic growth. In contrast, other studies argue that interaction between government expenditure and corruption can enhance economic growth, implying that corruption makes expenditure efficient by removing bureaucratic bottlenecks (Kato & Sato, 2015; Huang, 2016).

Findings from the interactive term for democracy, indicate that indirect democracy can harm by making expenditure to be inefficient and thus slow growth. Particularly, a simultaneous increase in democracy and expenditure by 1 per cent will cause growth to decline by 0.331. This can imply interaction of expenditure and democracy leads to inefficiency in resource allocation and slow growth. As democracy and political rights increase further then the government may over-invest in the provision of public goods and this will cause inefficiency, crowd private investment and slow growth (Friedman, 1962; Plümper & Martin, 2003; Krieger, 2022). In contrast, several studies indicate that democracy has an indirect positive effect on economic performance, due to the positive influence of such things as education and health spending, life expectancy and political stability (Baum & Lake, 2003; Dury et al., 2006; Sakyi and Adams, 2012). Drury et al. (2006) indicate that democracy has a positive and indirect effect on growth via human capital and institution development. Sakyi and Adams (2012) conducted a study in Ghana and concluded that democracy and spending go hand in hand to have a positive impact on economic growth.

Private investment is negative and significant at 10 per cent to economic growth. Specifically, a rise in private investment by 1 per cent will lead economic growth to decline by 0.010. This suggests domestic investment may slow economic growth in Kenya. This has been attributed to the high debt ratio, public investment crowding out effect, high interest rate, high taxes, weakened local currency and inflationary uncertainty in Kenya that has slowed private sector growth and thus economic progress (Iliyasu & Muhammed, 2023). Excess government expenditure implies high taxes and borrowing that hinder private-sector borrowing and hurt growth. Findings are similar to Iliyasu and Muhammed (2023) who reported negative relationships in Nigeria. In contrast, Ghose and Das (2013) and Nguyen and Bui (2022) found a positive relationship, private investment complements the public sector and stimulates growth.

Inflation is positive for economic growth in Kenya, although the variable was not significant. This implies at the study period inflation did not influence economic growth. Inflation uncertainty affects the tradeoff between inflation and growth by depressing private sector confidence and financial stability and thus slowing growth. The findings are similar to Nguyen and Bui (2022) who reported an insignificant relationship in Asia. In contrast, Iliyasu and Muhammed (2023) reported a positive relationship in Nigeria via an increase in production and thus output.

The coefficient of determination R-squared indicates that 65 per cent of the variation in the dependent variable has been explained by independent variables, thus showing that data fits the model well. Furthermore, Durbin Watson value of 2.014 has confirmed that the error term is free of serial correlation. Implies autocorrelation is not an issue. J-tests or Hansen tests were conducted to check for instrument validity. From Hansen J statistics, with a p-value of J-Hansen greater than 0.05, suggesting that the study cannot reject the null hypothesis that the instruments are correctly excluded or jointly valid, indicating that instrument variables are jointly valid and thus the GMM approach can be used.

### 4.3 Causality test results

The Granger causality test was conducted to define the directions of the relationship between study variables. Table 7 presents the Granger causality result between growth and explanatory variables.

**Table7: Causality Test Result**

Null hypothesis	Observations	F-statistics	Probability
Government expenditure does not Granger cause economic growth	30	3.18465*	0.0856
Economic growth does not Granger cause government expenditure		4.73956**	0.0384
Corruption does not Granger cause economic growth	30	2.52670	0.1236
Economic growth does not Granger cause corruption		0.06745	0.7971
Democracy does not Granger cause economic growth	30	7.76834***	0.0096
Economic growth does not Granger cause democracy		0.87062	0.3591
An interaction term for corruption does not Granger cause economic growth	30	2.47515	0.1273
Economic growth does not Granger cause interaction term for corruption		0.22022	0.6426
An interaction term for democracy does not Granger cause economic growth	30	6.26404**	0.0187
Economic growth does not Granger cause interaction term for democracy		0.53398	0.4712
Note: * p < 0.1, ** p < 0.05, *** p < 0.01 are significance levels, in which the null hypothesis is rejected. Null hypothesis: no causality			

The study indicates a bi-directional causality running from government expenditure to growth and vice versa, confirming the feedback effect. This implies an increase in government functions can stimulate growth and at the same time increase in output will provide necessary resources to the government to conduct its activities. The findings agree with previous studies of Ghose and Das (2013) in emerging economies and Iliyasu and Muhammed (2023) in Nigeria. The study has also identified a unidirectional relationship running from democracy to growth. Implying democracy will increase public participation and efficiency in resource allocation and thus growth (Oslon, 1962). Finally, based on the association result, the study has identified unidirectional causality running from interaction term for democracy to growth. Implying simultaneous increases in government expenditure and democracy will lead to growth. Political freedom promotes political stability, public participation and efficiency in expenditure allocation thus causing growth.

### 5. Conclusion

This research investigates the interactive effect of corruption and democracy on the government expenditure-growth relationship in Kenya over the period 1990-2020. The main aim of the study was to examine how corruption and democracy influence the relationship between government expenditure and economic growth. Using annual time series data, analysis was carried out using the Generalized Method of Moments (GMM) estimation model. Several diagnostic tests conducted namely serial correlation, instrument validity and normality test were satisfactory. The regression results indicate that government expenditure, corruption and democracy have a positive direct effect on economic growth in Kenya. Moreover, this study finds that the effect of government expenditure on growth is largely indirect through democracy and corruption. The results also show that the interaction of both democracy and corruption on government expenditure will hurt economic growth. Specifically, the study has established the direct

effect of variables as follows: First, Government expenditure is growth enhancing through physical and human capital development that raises labour productivity. Second, corruption stimulates economic growth through overcoming inefficient allocation of resources resulting from weak institutions and bureaucratic bottlenecks “greasing the wheels”. Finally, democracy is an enabler of growth through increasing efficiency, political participation and improving the quality of institutions. The indirect effect of government expenditure through corruption and democracy has also been reported as follows: Simultaneous increase in government expenditure, corruption and democracy will lead to inefficiency in resource allocation and thus harm the economy. This implies that an increase in corruption and democracy will lead to inefficient use of government spending and may hurt the economy. Based on our result, indirectly, government expenditure, democracy and corruption can slow economic performance, implying that corruption and democracy make expenditure inefficient. The study considered control variables during analysis and based on the result private investment hurt growth attributed to uncertainty in inflation and crowding out effect while inflation was not significant in Kenya.

The study has demonstrated the key role of controlled democracy, corruption control and sustained expenditure on economic growth. Based on the result certain amount of corruption and democracy can lead to economic growth and can help overcome inefficiency resulting from bureaucratic bottlenecks and weak institutions. For this to be possible the study recommends the need to have improved effectiveness in government management of resources. The study has revealed rapid drive towards democracy and corruption control without productive expenditure and improving on macroeconomic conditions will not lead to growth. The study suggests the need to promote general institutional development namely rule of law, economic liberalization, and encourage private property rights and regulatory reforms to complement political freedom. Furthermore putting in place policies to attract foreign investment, human capital development and promoting a free market will make expenditure, corruption and democracy simultaneously lead to efficient allocation and growth. The anti-corruption bodies need to put in place regulation and monitoring mechanisms, enhance transparency and strengthen accountability mechanisms to reduce deep-rooted corruption. National and sub-national governments should have strong institutions with effective checks and balances to curb increasing corruption cases. Further, the bodies need to sensitize the public on the vice of corruption and this will make resources to be allocated efficiently and thus grow the private sector and the economy. Government expenditure allocation needs to be transparent and fairly allocated to the social sector and infrastructure to promote growth and reduce wastage and corruption. The national and county governments need to publicize the project being funded and the process of awarding tenders furthermore public participation inclusion during budget making will grow the economy by making expenditure efficient. Based on control variables the government may need to remove inflation uncertainty, high interest rates, political instability, and corruption to grow the private sector. Government need to manage inflation by taking a combination of monetary, fiscal and supply-side measures. This suggests that attaining sustained growth is possible by raising government expenditure, promoting democracy and allowing certain elements of corruption. The regression result has noted corruption or democracy can stimulate growth, however, when government expenditure variables interact with corruption or democracy, the result turns negative. This raises the question of the best level of corruption control or democracy promotion. The study suggests future studies to conduct the estimation of threshold or optimal corruption and democracy value.

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