

# GOVERNANCE MATTERS AND MACROECONOMIC PERFORMANCE IN AFRICA

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## Abstract

In recent years governance matters have been identified as critical to macroeconomic performance. The perceived nexus between governance matters and macroeconomic outcomes has occasioned a number of developments in the creditor-debtor relationships on the global scene. Although there is strong evidence in the literature that link poor macroeconomic performance to poor governance the findings are not conclusive, however. This study seeks to contribute to the debate regarding the role of governance matters on macroeconomic performance by focusing on a panel of 28 countries in Africa over the period 1990-2005. In this study it is found that countries characterized by poor governance record allocate their budgets away from education, health and social welfare. It is also found that these countries tend to post poor economic growth and investment outcomes.

*Keywords:* Governance, macroeconomic outcomes; panel; and Africa.

*JEL classification:* E6 E60

## 1.0 INTRODUCTION

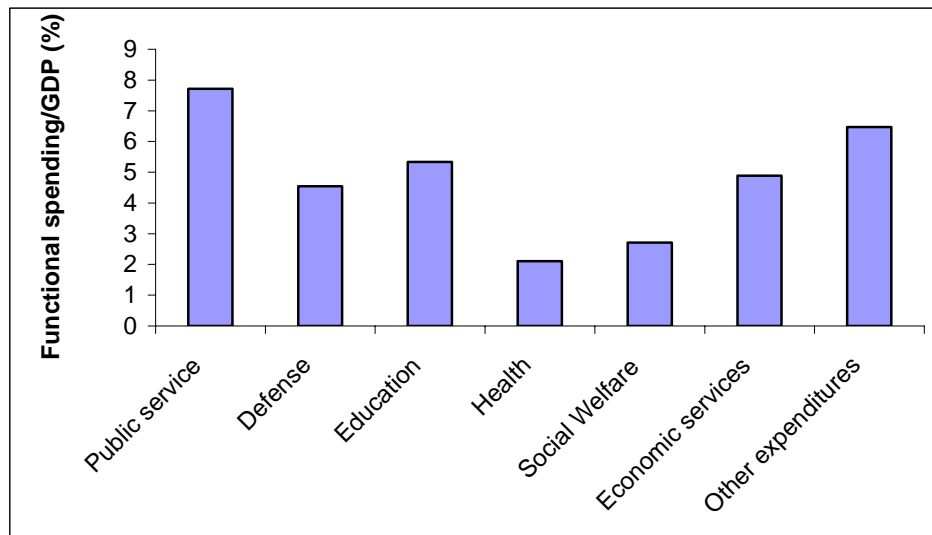
Poor macroeconomic performance in Africa has been an area of concern for a long time. It manifests itself in many forms *inter alia*, poor economic growth performance; poor private investment performance; low levels of foreign direct investment; price instability; nominal exchange rate instability; real exchange rate misalignment; and poor distribution of the public budget. Vast literature exists that link poor macroeconomic outcomes to specific factors. For example, failure in domestic economic policies and lack of openness to international trade are blamed (Sachs and Warner, 1997), overvalued exchange rates (Ghura and Grennes, 1993) and lack of financial deepening (Collier and Gunning, 1999). Other studies find a combination of macroeconomic as well as political instability

(Collier and Gunning, 1999; Ghura and Hadjimichael, 1995; Fosu, 2001; Ghura and Grennes, 1993), geographic problems (Easterly and Levine 1997, Sachs and warner, 1997 and Gallup and Sachs, 1998), ethnic fractionalization, inadequate institutions and corruption (Sachs and warner 1997, Easterly and Levine 1997, Easterly 2001).

## 1.1 REVIEW OF MACROECONOMIC PERFORMANCE IN AFRICA

### 1.1.1 Distribution of public finances

Figure 1: Average distribution of public budget/GDP in Africa: 1995-2004

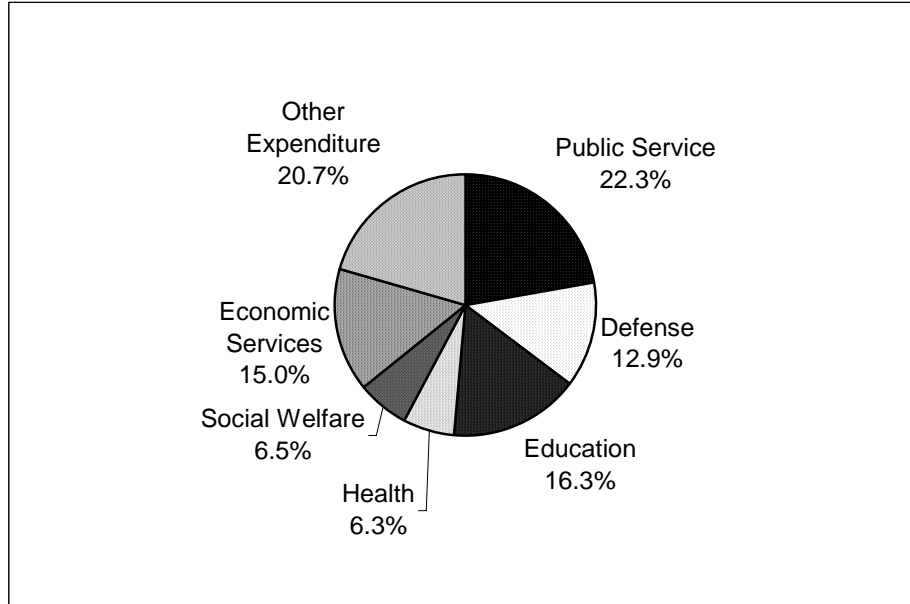


Source: International Monetary Fund: Country Reports, various issues.

Figure 1 shows the average shares of functional spending categories of the public budget to GDP in Africa during the period 1995- 2004. From the figure, it can be noted that the public service spending category accounted for the highest share of GDP (7.7%), followed by “other” spending category (6.5%). Among the social sector spending categories, education accounted for the highest share of GDP (5.3%), which was nearly double the share of the health and social welfare spending categories. The economic services spending category, on the other hand, stood at 4.9 per cent of GDP, while defense spending amounted to 4.5 per cent. From the foregoing, it is apparent that the public budget allocation in Africa

during this period was tilted towards public services, defense and education. The internal allocation of the public budget is shown in Figure 2.

Figure 2: Average distribution of public budget in Africa: 1995-2004



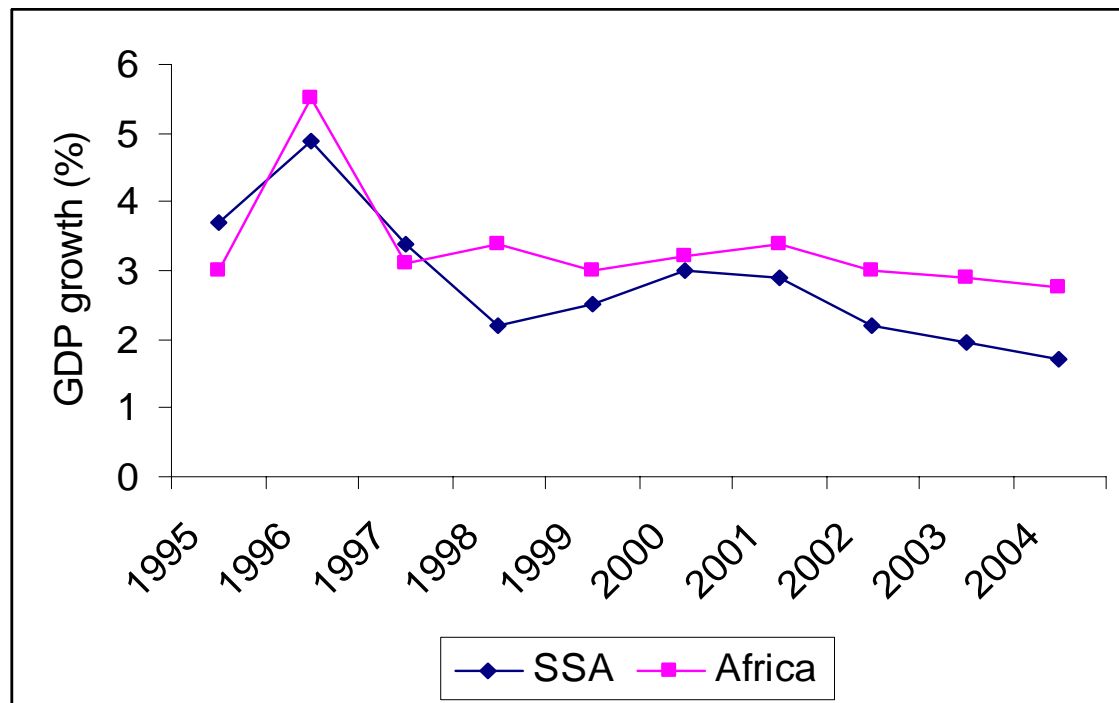
Source: International Monetary Fund: Country Reports, various issues.

Figure 2, shows the average share of the public budget components during the period 1995- 2004. It is apparent that during this period general public services spending which dominated all other spending categories, accounted for 22.3 per cent of total public spending. It was followed closely by “other” spending that accounted for 20.7 per cent. Defense spending remained high during this period, accounting for 12.9 per cent of the budget, which is not surprising given the situation in the continent in the 1990s when problems experienced in countries such as Angola, Rwanda, Ethiopia and Eritrea occasioned massive spending in defense to restore stability in these countries. Africa devoted few resources to the economic services sector (15.0 per cent), which probably explain the dismal growth performance posted in the continent during this period. Spending in the social sectors shows that education had the highest allocation (16.3 per cent), probably because governments in the continent recognise the role of education in development

and therefore devoted more public resources to the sector. It may also be attributed to the fact that the provision of education in many countries in Africa is in the hands of the public sector, which requires a sizeable budget. The health budget, on the other hand, accounted for only 6.3 per cent, probably because of higher private sector participation in health care. On the other hand, social welfare spending accounted for 6.5 per cent of the public budget.

### 1.1.2 Trend of economic growth in Africa

Figure 3: Growth performance of GDP in Africa: 1995-2004



Source: World Bank: Africa Development Indicators, various issues

Figure 3 shows economic growth performance during the period 1995-2004 for the continent in general and the Sub-Saharan Africa region. From the figure it is noted that the performance of Africa in general has been higher than the average posted in the Sub-Saharan African countries. This therefore suggests that the high economic growth performance of higher than 3 per cent per annum was driven by countries outside the Sub-Saharan Africa region (North African countries).

## **1.2 DATA TYPE AND SOURCES**

This study utilizes annual data for the period 1995-2004 for 28 countries (listed in the appendix). Data on the budget shares is obtained from the country reports published by the International Monetary Fund (IMF). Also data used in constructing the IMF programme dummy is obtained from the IMF. Corruption control index, political stability index and voice and accountability index data are obtained from the World Bank<sup>1</sup>. Data on the rest of the variables used in this study is obtained from the World Bank: African Development Indicators, various issues.

The rest of the paper is organized as follows. Section 2 discusses the determinants of the budget structure, economic growth and investment and presents the estimation results while Section 3 concludes with some recommendations.

## **2.0 ECONOMETRIC PROCEDURES AND ESTIMATION RESULTS**

### **2.1 Distribution of public finances**

#### **2.1.1 The model**

In the literature a number of factors are outlined that determine the allocation of the public budget to the various functional categories. The level of GDP is highlighted prominently in the literature (Mauro, 1998; Sanjev. et al. 2001), demographic characteristics (Kwame and Gerdthan, 1992; Mauro, 1998), public

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<sup>1</sup> The Corruption Control Index is a proxy for the level of corruption. It is constructed in such way that a country which puts the least effort in the fight against corruption (and therefore most corrupt) is assigned a value of -2.5 while one that puts more effort in fighting corruption (and therefore least corrupt) is assigned a value of +2.5. The Political Stability Index is a proxy for the level of political stability in a country. It is constructed in such way that a country which is most politically unstable is assigned a value of -2.5 while one that is politically stable is assigned a value of +2.5. The Voice and Accountability Index is a proxy for the level of transparency and accountability of a government and whether or not it is tolerant. It is constructed in such way that a country which ranks poorly in voice and accountability, is assigned a value of -2.5 while one that is ranked highly is assigned a value of +2.5.

debt (Tabellini and Alesina, 1990; Beetsma and Bevenberg, 1999, 2002; and Mahdavi, 2004), political instability (Davoodi, et al., 2001), level of corruption<sup>2</sup> (Sanjeev, et al., 2001; Mauro, 1998; Tanzi and Davoodi, 2000), democracy and accountability of government (Aidt, et al., 2006; Nader, 1994), the existence of IMF programmes (Johakin and Stephens, 1999, Davoodi, et al., 2001); the size of government relative to GDP (Davoodi, et al, 2001; Mauro, 1998). In view of this discussion we specify a model of the distribution of public expenditures expressed in shares as:

$$\left(\frac{g_i}{G}\right)_{jt} = \alpha_i + \beta_i(Lypc)_{jt} + \gamma_i(Lgov)_{jt} + \delta_i(DEM)_{jt} + \kappa_i(GovX)_{jt} + \omega_i(IMF)_{jt} + \tau_i\left(\frac{D}{G}\right)_{jt} + \mu_{ijt} \quad 1$$

Where,  $\frac{g_i}{G}$  is the  $i^{\text{th}}$  functional expenditure relative to total public expenditure;  $Lypc$  is the real per capita GDP that serves as a proxy for the level of development;  $Lgov$  is ratio of total government expenditure to GDP that measures the size of size of the government relative to the economy;  $DEM$  is a vector of demographic characteristics such as population, population structure, density and urbanization;  $GovX$  is a vector of governance indicators, namely political stability index which measures the extent of political stability in a country; voice and accountability index, which measures the extent of political, civil rights and democracy in a country; and corruption control index which measures the corruption control efforts in a country.  $IMF$  is the IMF dummy which proxy the degree of reform in a country while  $\frac{D}{G}$  is the ratio of public debt to total public budget.

Equation 1, which depicts the expenditure by category as a share of the total public budget imposes the following adding up constraint:

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<sup>2</sup> As noted by Tanzi (1998), the most popular and simplest definition of corruption is that it is the abuse of public power for private benefit. Sometimes, the abuse of public power is not necessarily for one's private benefit but for the benefit of one's party, class, friends, family, and so on. In fact, in many countries some proceeds of corruption go to finance the activities of the political parties.

$$\sum_{i=1}^7 \left( \frac{g_i}{G} \right)_{jt} = \sum_{i=1}^7 \alpha_i + \sum_{i=1}^7 \beta_i (Lypc)_{jt} + \sum_{i=1}^7 \gamma_i (Lgov)_{jt} + \sum_{i=1}^7 \delta_i (DEM) + \sum_{i=1}^7 \kappa_i (GovX)_{jt} + \sum_{i=1}^7 \omega_i (IMF)_{jt} + \sum_{i=1}^7 \tau_i \left( \frac{D}{G} \right)_{jt} + \sum_{i=1}^7 \mu_{jt} = 1 \quad 2$$

Equation 2, implies that the error terms in various equations are correlated because relative spending shares in the  $j^{\text{th}}$  country at time  $t$  must necessarily add up to unity. The adding up restriction has implications on the estimated parameters of Equation 1 as follows:

$$\sum_{i=1}^7 \beta_i = \sum_{i=1}^7 \gamma_i = \sum_{i=1}^7 \delta_i = \sum_{i=1}^7 \kappa_i = \sum_{i=1}^7 \omega_i = \sum_{i=1}^7 \tau_i = 0 \quad 3$$

Another implication is with regard to the sum of error terms, which follows from the fact that since for the  $j^{\text{th}}$  country in period  $t$ , underestimation of the share of some spending category is associated with overestimation of the remaining shares. Thus the sum of the error terms from the share equations will sum to zero, which is formally stated as:

$$\sum_{i=1}^7 \mu_i = 0 \quad 4$$

In view of Equation 3, which imposes restrictions on estimated parameters of the share equations and Equation 4, which gives the expected value of the errors from the share equations it follows that:

$$\sum_{i=1}^7 \alpha_i = 1 \quad 5$$

This therefore, suggests that the error terms across the share equations comprise a system of seemingly unrelated equations. As suggested by Equation 4 the sum of the error terms from the system of equations will sum to zero, which implies that since our system comprises of seven equations only six are independently estimated and the parameter estimates of the seventh are recovered by using the restrictions suggested by Equations 3 and 5.

### 2.1.2 Estimation results

The estimations are conducted using the Iterative Seemingly Unrelated Regression (ITSUR) procedure<sup>3</sup> and the results are presented in Tables 1-4. In Table 1 bivariate estimations are conducted using the various governance indicators as the only independent variables. In Panel A of Table 1 the system estimation results of the role of corruption on the distribution of the public budget is reported and it is found that corruption plays an important role in the allocation of public resources to different votes on the budget. In the general public services spending category the estimated coefficient of the corruption control index is positive and insignificant which fails to suggest that countries that thrive on high levels of corruption tend to allocate a larger share of their budgets to general public services. The estimated coefficient of the corruption control index is not significant and has the expected positive sign in the case of defense spending which shows that , although corruption has been highlighted in the literature as one of the main factors that instigate larger allocations of the budget to defense, our evidence does not support this notion. The estimated coefficient of the corruption control index is found to be positive and significant at 1 per cent level in the case of education spending which suggests that education spending tends to benefit in countries where corruption is not rampant. This finding supports those of Mauro (1998) who also came to the same conclusions. The estimated coefficients of corruption control index are positive and significant in the case of health spending and social welfare spending categories which suggests that corrupt governments spend a smaller share of their budgets on health and social welfare. On the other hand, the estimated coefficient of the corruption control index on the economic services spending category is negative as expected. However, it is not found to be significant at the conventional levels of testing which suggests that the economic service budget is not significantly affected by corruption.

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<sup>3</sup> The iterative seemingly unrelated regression (ITSUR) is done in SAS ver. 9.1.

In Panel B the estimated coefficient of the political stability index is negative and insignificant at the conventional levels of testing in the public services spending category. Its coefficient in the defense spending category is also negative but significant at 1 per cent level of testing indicating that countries that are politically stable spend a smaller share of their budgets on defense. The estimated coefficient of the political stability index on education spending is not significant at the conventional levels of testing which suggests that education spending may not be influenced that much by political stability in a country. On the other hand, the estimated coefficients of the political stability index on health spending and social welfare are positive and significant at 1 per cent level of testing which suggests that political instability plays a role in the allocation of the public budget, with countries with high instability tending to spend less of their budgets on health and social welfare. On the other hand, its coefficient in the economic services is not significant at the conventional levels.

Table 1: Panel system estimation results: Governance matters and distribution of public budget

	General public services	Defense	Education	Health	Social welfare	Economic services	Other
<i>Panel A: Bivariate OLS estimation with corruption control index as exogenous variable</i>							
cor	0.001 (0.12)	-0.011 (-0.95)	0.028*** (4.37)	0.008*** (2.88)	0.061*** (10.87)	-0.010 (-0.91)	-0.077 (n/a)
R <sup>2</sup>	0.01	0.01	0.06	0.03	0.29	0.01	-
<i>Panel B: Bivariate OLS estimation with political stability index as exogenous variable</i>							
pol	-0.010 (-1.52)	-0.047*** (-6.92)	0.004 (0.94)	0.008*** (4.43)	0.027*** (7.02)	0.014** (2.01)	-0.004 (n/a)
R <sup>2</sup>	0.008	0.147	0.003	0.066	0.151	0.014	-
Adj. R <sup>2</sup>	0.005	0.144	0.000	0.063	0.148	0.011	-
<i>Panel C: Bivariate OLS estimation with Voice and accountability index as exogenous variable</i>							
Vac	-0.004 (-0.481)	-0.070*** (-8.87)	0.018*** (3.43)	0.008*** (3.62)	0.035*** (7.23)	0.016* (1.83)	-0.003 (n/a)
R <sup>2</sup>	0.01	0.22	0.03	0.04	0.15	0.01	-
N	28	28	28	28	28	28	28
T	10	10	10	10	10	10	10

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. Constant have been excluded from the table but they are found significant at the conventional levels of testing in all cases.

In panel C the estimated coefficient of the voice and accountability index is not significant in the case of general public services spending. In the case of defense spending, it is negative and significant. Thus, evidence exists regarding the role of the voice and accountability index on the allocation of the budget share to defense. In the case of education spending the estimated coefficient of the voice and accountability index is positive and significant at 1 per cent level of testing indicating strong evidence that public spending on education is influenced by the level of accountability of the government. In the health spending category, it is found that the estimated coefficient is positive and significant at the 1 per cent level of testing. Social welfare spending is positively correlated to the voice and accountability index. On the other hand, the estimated coefficient is positive and significant only at 10 per cent level in the case of economic services spending. It therefore suggests that public decisions on whether or not to allocate more resources to economic services are affected by the level of transparency of the government and the extent to which it accommodates the voice of its people.

In view of the above results further analysis is conducted by including other variables in the estimation as reported in Tables 2-4. From Table 2 it can be observed that the reported coefficient of corruption control index in the case of general public services remains statistically insignificant. The same is true for defense spending and economic services spending. This therefore suggests that our evidence at the bivariate level of estimation remain valid which implies that although some studies have found strong evidence regarding the role of corruption on general public services, defense and economic services that notion is not supported here. On the other hand, the estimated coefficients of corruption control index on education, health and social welfare spending are found to maintain the positive signs and are significant at the conventional levels of testing which leads one to conclude that high levels of corruption tend to negatively affect the budget allocation to these sectors. However, it appears that the estimated coefficients are generally larger when compared to those found in the bivariate estimation.

Table 2: Estimation results: dependent variable is share of total public budget

	General Public services	Defense	Education	Health	Social welfare	Economic services	Other
Cor	-0.004 (-0.31)	0.004 (0.37)	0.036*** (4.02)	0.011** (2.87)	0.039*** (5.35)	-0.018 (-1.26)	-0.068 (n/a)
Ldefn	0.085*** (4.00)	0.125*** (6.37)	0.013 (0.87)	0.007 (1.07)	-0.018 (-1.43)	-0.007 (-0.27)	-0.205 (n/a)
Ldebt	-0.006 (-0.80)	-0.002 (-0.27)	-0.007 (-1.24)	0.002 (1.00)	-0.006 (-1.35)	0.035*** (3.77)	-0.016 (n/a)
Lgov	-0.106** (-2.32)	-0.413*** (9.80)	0.127*** (3.91)	0.052*** (-3.82)	0.057** (-2.15)	-0.064 (-1.20)	0.347 (n/a)
Lpop	-0.094*** (-8.97)	-0.008 (-0.79)	0.013* (1.76)	-0.004 (-1.12)	0.011* (1.74)	0.003 (0.27)	0.079 (n/a)
IMF	-0.098 (-0.88)	-0.668*** (-6.44)	0.152* (1.91)	0.145*** (4.31)	-0.233*** (-3.58)	0.313** (2.38)	0.389 (n/a)
IMF*Lgov	0.074 (0.94)	-0.491*** (-6.73)	-0.122** (-2.18)	-0.105*** (-4.44)	-0.164*** (-3.57)	-0.235** (-2.54)	1.043 (n/a)
Lypc	-0.021 (-1.24)	-0.098*** (-6.39)	0.010 (0.84)	0.002 (0.39)	0.044*** (4.54)	0.063*** (3.24)	0.000 (n/a)
C	0.996*** (7.280)	-0.268** (-2.120)	0.231** (2.37)	0.152*** (3.70)	-0.000 (-0.00)	0.001 (0.01)	-0.112 (n/a)
R <sup>2</sup>	0.33	0.50	0.16	0.12	0.40	0.12	-
Adj R <sup>2</sup>	0.31	0.48	0.14	0.10	0.39	0.10	-

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket.

Table 3 shows the multivariate system estimation on the functional spending categories. From the results it is found that the estimated coefficient of political stability in the general public services spending is negative and significant which contradicts the insignificant coefficient obtained in the bivariate estimation. In the case of defense the estimated coefficient is found to be negative as expected and it is not radically different from the one obtained from the bivariate estimation. The estimated coefficient in the case of education spending again appears insignificant at the conventional levels. In the case of health and social welfare spending the estimated coefficients of political stability index are positive and significant at the conventional levels. The estimated coefficient is found insignificant in the economic services spending category. All these therefore suggest that although the magnitude of the estimated parameters is different the expected effect of political stability on the budget allocation to various votes is established.

Table 3: Estimation results: dependent variable is share of total public budget

	General public services	Defense	Education	Health	Social welfare	Economic services	Other
pol	-0.018** (-2.56)	-0.044*** (-7.42)	0.002 (0.41)	0.010*** (5.09)	0.017*** (4.10)	0.010 (1.23)	0.023 (n/a)
Ldefn	0.072*** (3.35)	0.095*** (5.17)	0.018 (1.12)	0.015** (2.37)	-0.002 (-0.18)	-0.001 (-0.05)	-0.197 (n/a)
Ldebt	-0.002 (-0.30)	0.007 (1.09)	-0.008 (-1.39)	-0.000 (-0.04)	-0.011** (-2.24)	0.033*** (3.51)	-0.019 (n/a)
Lgov	-0.093** (-2.11)	-0.458*** (-12.17)	0.096*** (2.93)	0.052*** (4.00)	0.037 (1.38)	0.090* (1.73)	0.276 (n/a)
Lpop	-0.101*** (-9.44)	-0.024*** (-2.61)	0.015* (1.87)	0.001 (0.18)	0.018** (2.78)	0.007 (0.53)	0.084 (n/a)
IMF	-0.067 (-0.60)	-0.754*** (-7.94)	-0.132 (-1.60)	0.157*** (4.80)	0.239*** (3.57)	0.344*** (2.61)	0.213 (n/a)
Imf*Lgov	0.052 (0.66)	0.553*** (8.29)	-0.108* (-1.87)	-0.114*** (-4.96)	-0.169*** (-3.60)	-0.258*** (-2.78)	0.044 (n/a)
Lypc	-0.008 (-0.57)	-0.057*** (-4.58)	0.035*** (3.26)	0.001 (0.30)	0.059*** (6.71)	0.040** (2.31)	-0.07 (n/a)
C	0.991*** (7.88)	-0.334*** (-3.11)	0.088 (0.95)	0.120*** (3.24)	-0.138* (-1.83)	0.088 (0.59)	0.185 (n/a)
R <sup>2</sup>	0.34	0.58	0.11	0.18	0.38	0.12	-
Adj R <sup>2</sup>	0.32	0.57	0.09	0.15	0.36	0.10	-

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket.

In the case of the role of voice and accountability in Table 4 its effect on the allocation of the public budget to general services is not established as in both cases the estimated coefficients are not significant at the conventional levels of testing. In the case of defense a negative sign is found while in the health and social welfare it is found consistently positive and significant. However, the estimated coefficients in the case of education and economic services cease to be significant in the multivariate estimations.

Other than the governance indicators discussed other important findings can also be derived from Tables 2 to 4. The estimations show that defense spending of the neighbouring countries has a strong positive influence on expenditure decisions on general public services and defense spending. This may be explained by the fact that as neighbouring countries tend to increase their spending on defense, it results into heightened regional tension and an increased priority to increase own defense spending. Such an increase in defense spending

also spills over into increased expenditure on general public services which include the police and security departments.

Table 4: Panel system estimation results

	General public services	Defense	Education	Health	Social welfare services	Economic services	Other
acc	0.000 (0.00)	-0.039*** (-4.75)	0.005 (0.74)	0.007** (2.49)	0.010* (1.77)	0.007 (0.61)	0.010 (n/a)
Ldefn	0.084*** (3.91)	0.107 (5.59)	0.019 (1.18)	0.011* (1.68)	-0.010 (-0.73)	-0.005 (-0.20)	-0.206 (n/a)
Ldebt	-0.006 (-0.78)	-0.007 (-1.00)	-0.007 (-1.21)	0.003 (1.27)	-0.006 (-1.21)	0.003 (1.27)	0.020 (n/a)
Lgov	-0.109** (-2.47)	-0.399*** (-10.13)	0.091*** (2.82)	0.039*** (2.93)	-0.016 (-0.60)	-0.078 (-1.50)	0.472 (n/a)
Lpop	-0.094*** (-8.94)	-0.003 (-0.33)	0.013* (1.74)	-0.004 (-1.28)	0.010* (1.62)	0.002 (0.18)	0.076 (n/a)
IMF	-0.100 (-0.90)	-0.655*** (6.58)	-0.126 (-1.54)	0.135*** (4.00)	0.202*** (2.98)	0.323** (2.45)	0.221 (n/a)
IMF*Lgov	0.076 (0.97)	0.471*** (6.73)	-0.102* (-1.78)	-0.096*** (-4.05)	-0.140*** (-2.92)	-0.240** (-2.59)	0.031 (n/a)
Lypc	-0.024 (-1.43)	-0.055*** (-3.78)	0.032*** (2.67)	0.003 (0.64)	0.064*** (6.35)	0.042** (2.17)	-0.062 (n/a)
C	1.012*** (7.78)	-0.399*** (-3.45)	0.101 (1.06)	0.129*** (3.29)	-0.129* (-1.63)	0.096 (0.63)	0.190 (n/a)
R <sup>2</sup>	0.32	0.54	0.11	0.12	0.35	0.12	-
Adj. R <sup>2</sup>	0.30	0.52	0.09	0.09	0.33	0.09	-

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket.

Although public debt was found only significant in the case of economic services spending. This is plausible in the African context because most of the infrastructure projects undertaken by government such as roads, water and other public works are largely driven by borrowed capital. The IMF dummy variable is found to be negative and significant in most cases in the general public services, defense and social services spending categories. It is also positive in the case of education, health and economic services spending categories. This finding leads one to conclude that in countries where IMF programmes are implemented, a general tendency exists for the public budget to be structured in favour of education, health and economic services and against votes such as general public services and defense spending. It is also found that countries with IMF programmes tend to lower their spending on public services and defense when

the size of the public budget to GDP is reduced. However, in this case the reduction is less than proportionate. Furthermore, education, health, social welfare and economic services spending tend to benefit more when the overall budget is reduced relative to GDP. The estimated elasticities are relatively small which suggests that all these budget components are resilient to changes in the share of total public budget to GDP.

The estimated coefficients of GDP per capita are negative in the case of the general public services and defense spending categories, which suggest that as countries develop they allocate a smaller share of their budgets to these categories. On the other hand, it is found to positively influence spending in education, health, social welfare and economic services.

## **2.2 Economic growth**

Theoretical as well as empirical evidence of determinants of economic growth is well documented in the economic literature. On the empirical side a number of factors have been identified in the literature that explain economic growth. The share of investment to GDP is often identified as important in economic growth models<sup>4</sup> such as the ones estimated by Levine and Renelt (1992); Pak Hung Mo (2001). The rate of population growth is identified by Levine and Renelt (1992), Mauro (1995, 1998), GDP per capita (Mauro, 1995; ), and a proxy for human capital.

Governance matters are also identified as prominent in the growth performance. For example, theoretical and empirical studies argue that corruption adversely affect investment and economic growth (Myrdal 1989; Shleifer and Vishny, 1993; Knack and Keefer, 1995; Mauro, 1995; Tanzi and Davoodi, 1998; Li, et al.,2000;, Sanjeev, et al. 2001; Del Monte and Papagni, 2001; and Rock and Bonnett,

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<sup>4</sup> Some studies tend to omit investment to GDP ratio because it is regarded as the source of endogeneity in the estimated growth model.

2004). Other studies such as Huntington (1968), Friedrich (1972) and Lui (1985) find that some level of corruption is beneficial to economic growth. This therefore suggests that there is controversy in the theoretical as well as empirical literature regarding the role of corruption on economic performance. Political stability is also regarded as one of the crucial governance matters that influence economic growth. For example, Barro (1991), Alesina, et al. (1996), Mauro (1993), Pak Hung Mo (2001) find that there exists an inverse relationship between political instability and economic growth. Alesina and Perotti (1996) have used the probability of the opposition taking over (executive political instability) or the turnover of power over a certain period to proxy political instability and arrived at the same inverse relationship. On the other hand, the level of voice and accountability has been suggested by some studies as being important with countries with higher levels of voice and accountability posting higher levels of economic growth. For example, Pak Hung Mo (2001) finds a positive relationship between human rights and economic growth.

In view of this discussion we specify a growth model as:

$$\Delta Gr_{i,t} = \beta_0 + \beta_1 \ln(INV) + \beta_2 \ln(POPR) + \beta_3 \ln(YPI) + \beta_4 \ln(HUM) + \beta_5 \ln(GOVS) + \beta_6 \ln(GovX) + \varepsilon_{it} \quad 6$$

where  $\Delta Gr$  is the growth rate of GDP,  $INV$  is the ratio of private investment to GDP,  $POPR$  is the population growth rate,  $YPI$  is the GDP per capita to proxy the level of development of the country,  $HUM$  is the proxy for human capital accumulation;  $GOVS$  is the government size; and  $GovX$  is a measure of governance which may include corruption, political stability, voice and accountability. In the estimation process the role played by each of the governance indicators are analysed using bivariate estimations. Two types of estimations are done, one involving OLS estimations and another based on the Two stage least square (2SLS) to accommodate reverse causality which is highlighted by a number of studies.

Table 5: Bivariate estimation results of GDP growth and corruption control index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimations</i>				
Cor	0.011*** (5.122)	0.019*** (4.394)	0.011*** (4.411)	0.024*** (3.818)
R <sup>2</sup>	0.60	0.44	0.42	0.69
<i>Panel B: 2SLS estimations</i>				
Cor	0.016*** (4.611)	0.069*** (5.105)	0.017*** (4.165)	0.095*** (5.418)
R <sup>2</sup>	0.61	0.59	0.60	0.71

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instrument is the lagged corruption control index.

From panel A of Table 5 it appears the estimated coefficients of corruption control index are positive and significant at 1 per cent level of significance. In Panel B the Two Stage Least Squares (2SLS) estimations show that the estimated parameters are positive and significant at the conventional levels of testing. However, there appears a significant difference in terms the magnitudes of the estimated parameters with the ones obtained from the 2SLS estimations being consistently higher compared to those obtained from the OLS estimation. When comparing the different models Column 1 shows the estimations based on the pooled model (PM) where it is found that the estimated coefficient of corruption control index is higher compared to the one obtained in the OLS estimation. Column 2 on the other hand shows the estimation results obtained from the fixed effects model (FEMC), which recognizes that there are country specific characteristics that occasion differences in economic growth. In this case, it is found that the estimated coefficient of corruption control index is higher compared to that obtained from the OLS estimation. Column 3 shows the results of the fixed effects model (FEMT) which recognizes that economic growth is affected by time specific factors and its is found that estimated coefficient of the 2SLS estimation is higher. Column 4 results from the a 2 way error component model (FEM2W) which recognizes country-specific and time specific factors in economic performance in which it is also found that the parameter estimate of corruption control index in the 2SLS estimation higher compared to that obtained from the OLS estimation. The positive coefficients for corruption control index suggest that a higher level of efforts to control corruption in a country is

associated with higher levels of economic growth and otherwise. This result is plausible because as a country puts more efforts to control corruption it tends to result in efficiency in the use of public funds to sectors that spur economic growth. This finding is consistent with those of Mauro (1995), Tanzi and Davoodi (2001), Pak Hung Mo (2001) who used different proxies of corruption control and found that there is a negative relationship between economic growth and corruption.

From Table 6 bivariate OLS and 2SLS estimations are reported where the dependent variable is economic growth as proxied by GDP growth rate and the independent variable is the political stability index. In the OLS estimations in Panel A most of the estimated coefficients of political instability are not significant at the conventional levels of testing while in panel B most of the estimated coefficients are significant at the conventional levels of testing. Comparing the various panel estimations, Column 1 shows the parameter estimates of the pooled model where it is found that the estimated coefficient in the OLS estimation is negative and insignificant at the conventional levels of testing while that obtained from 2SLS is positive and significant at 1 per cent level of testing. Column 2 shows the results from the fixed effects model in which it is found that the estimated coefficients of political stability index are positive but not significant at the conventional levels of testing. In Column 3 it is found that the estimated coefficient from the OLS is positive but not statistically significant while the one obtained in the 2SLS is significant at 1 per cent level of testing. In the 2 way error component model it is found that the estimated parameters in both cases are positive with the one obtained in the OLS being significant at 1 per cent level of testing while that obtained from 2SLS being significant at 10 per cent level of testing.

Table 6: Bivariate estimation results of GDP growth and political stability index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimations</i>				
pol	-0.000 (-0.268)	0.002 (0.976)	0.002 (0.861)	0.008*** (3.275)
R <sup>2</sup>	0.60	0.89	0.40	0.68
<i>Panel B: 2SLS estimations</i>				
pol	0.019*** (3.864)	0.057 (0.703)	0.020*** (3.454)	0.050* (1.849)
R <sup>2</sup>	0.36	0.47	0.23	0.57

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instrument is the lagged political stability index.

In view of the findings based on the 2SLS estimations it may be inferred that there exists a positive relationship between political stability and economic growth such those that countries characterized by political stability tend post higher levels of economic growth while those countries with higher levels of political instability tend to post low levels of economic growth. The same is true for a given country over time such that periods characterized by political instability will tend to post lower rates of economic growth compared to those periods characterized by high level of political stability. This result is consistent with Barro (1991), Alesina et al. (1996), Mauro (1993), Pak Hung Mo (2001) who found inverse relationship between political instability and economic growth.

In Table 7 the bivariate OLS and 2SLS panel estimations of different model specifications are reported. From Panels A and B it can be observed that there is a positive relationship between economic growth and voice and accountability index. In all model specifications the estimated parameters obtained from the 2SLS are higher compared to those from the OLS estimation. These results therefore, suggests that higher levels of voice and accountability is associated with higher levels of economic growth which is plausible as greater openness and tolerance by government leads to public transactions being planned and implemented in a manner consistent with the preferences of the citizens whose ultimate interest is higher social welfare which may be occasioned by higher levels of economic growth.

Table 7: Bivariate estimation results of GDP growth and voice and accountability index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimation</i>				
Vac	0.008*** (5.012)	0.009** (2.343)	0.010*** (5.580)	0.023*** (5.162)
R <sup>2</sup>	0.66	0.89	0.51	0.70
<i>Panel B: TSLS</i>				
Vac	0.014*** (5.504)	0.025* (1.806)	0.013*** (4.445)	0.031** (2.001)
R <sup>2</sup>	0.64	0.77	0.57	0.69

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In 2SLS the instrument is the lagged voice and accountability index.

In view of the results in Tables 5-7 other variables that are conventionally used in growth estimations are included purposely to investigate further whether our estimated parameters are robust. The estimation results from the OLS and 2SLS estimations are reported in Table 8. In Table 8 Columns 1-4 show various model specifications under the OLS estimations, in which it is found that the estimated coefficients of corruption control index are positive and significant at the conventional levels of testing. The same is true for the 2SLS estimation in which it is found that the estimated coefficients are positive and significant. On the other hand, the estimated coefficients of political stability index are positive and significant in the OLS estimation. However, they are negative and insignificant in most of the estimations in the 2SLS estimations. In the case of voice and accountability index it is found that the estimated coefficients are positive and significant in the OLS estimation while they are largely insignificant in the 2SLS estimations.

Other variables included in the estimation including the ratio of investment to GDP are found positive and significant in most of the estimations. In the cases where the estimated coefficients are negative they are found not significant at the conventional levels of testing. This finding suggests that higher levels of investment are associated with higher levels of economic growth. This finding supports Levine and Renelt (1992); Pak Hung Mo (2001). As expected the coefficient of income per capita are found to be negative and significant in most

of the estimations which shows that countries with higher levels of GDP per capita tend to grow less faster compared to countries characterized by lower levels of GDP per capita.

Table 8: Multivariate estimation results of GDP growth

	OLS estimation				2SLS estimation		
	PM	FEMC	FEMT	FEM2W	PM	FEMC	FEMT
COR	0.017*** (3.647)	0.019*** (2.703)	0.017*** (3.614)	0.021*** (2.820)	0.014*** (2.422)	0.046*** (3.345)	0.014*** (2.301)
POL	0.006*** (3.415)	0.019*** (7.017)	0.005*** (2.549)	0.017*** (5.884)	-0.004* (-1.754)	-0.003 (-0.670)	-0.002 (-0.918)
VAC	0.005** (1.980)	0.025*** (3.806)	0.005** (1.890)	0.024*** (3.503)	0.003 (0.884)	0.016 (1.203)	0.002 (0.673)
LINV	0.075*** (6.751)	-0.020 (-1.188)	0.076*** (5.969)	-0.019 (-0.990)	0.096*** (6.685)	0.210*** (3.749)	0.091*** (6.164)
POP	0.007*** (2.959)	0.005** (1.901)	0.010*** (3.336)	0.013*** (3.707)	0.013*** (3.186)	0.016 (1.546)	0.018*** (3.946)
YPP	-0.012*** (-2.596)	-0.551*** (-9.702)	-0.011** (2.065)	-0.639*** (-9.290)	0.0019 (0.192)	-0.247** (-2.120)	0.007 (0.921)
GOV	-0.073*** (-5.508)	0.001 (0.027)	-0.071*** (-4.640)	-0.014 (-0.535)	-0.089*** (-5.456)	-0.021 (-0.156)	-0.077*** (-4.251)
C	0.070*** (2.525)				0.016 (0.380)		
R <sup>2</sup>	0.79	0.81	0.61	0.77	0.82	0.88	0.74

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instruments are the lagged independent variables.

The estimated coefficients of the population growth rate are found to be positive at 1 per cent level of testing in most of the estimations. It is also found that the estimated coefficients of relative size of government are negative and significant in most of the estimations. This supports the notion that countries which have large governments compared to the size of the economy tend to be associated with high level bureaucracy which may stifle investment and therefore economic growth.

### 2.3 Private investment

A number of factors are outlined in the literature that explain private investment. For example, GDP per capita is conventionally included in investment models (see, Mauro (1995)) to measure the levels of development with the expectation

that there exists a positive relationship with investment. Government consumption and population growth rate are also included. In the studies that focus on governance matters, corruption features prominently in the investment models. For example, in the models estimated by Del Monte and Papagni (2001), Mauro (1995), point out that corruption is detrimental to investment. Political stability is also outlined as critical to investment with higher levels of political instability being characterized by low levels of investment. For example, in the models estimated by Alesina and Perotti (1996) in which they use an index for social political instability it is found that higher levels of social political instability is associated with lower levels of investment. Other studies (Pastor and Hilt, 1993) also find negative relationship between political instability and private investment. In view of the above discussion we specify an investment function of the form:

$$\ln(PVI) = \alpha_0 + \alpha_1 GovX + \alpha_2 \ln(YPI) + \alpha_3 \ln(POPR) + \alpha_4 \ln(Gov) + \varepsilon_{it} \quad 7$$

Where PVI is the ratio of private investment to GDP; GovX is a vector of governance indicators (corruption control index, political stability index; and voice and accountability index), YPI is the GDP per capita, POPR is the population growth rate, and Gov is the ratio of total government expenditure to GDP. Table 9 shows the bivariate OLS and 2SLS estimation results based on different panel assumptions and it is found that the estimated coefficients of corruption control index have mixed signs and sometimes insignificant. This finding therefore fails to give a conclusive evidence of the role of corruption control in encouraging investment. This finding captures the controversies in the empirical and theoretical literature. In the case where the estimated parameter is positive suggests that lower levels of corruption are associated with higher levels of investment which supports the work of Del Monte and Papagni (2001), Mauro (1995), who argue that higher levels of corruption tend to discourage private investment. However, in cases where the estimated coefficient is negative suggests that higher levels of corruption is associated with lower levels of investment which suggests that corruption is necessary for investment to grow.

This finding indirectly supports Huntington (1968), Friedrich (1972) and Lui (1985) who found that some level of corruption is a prerequisite for economic growth particularly in case where there is cumbersome bureaucracies such as the ones that are available in government transactions in Africa.

Table 9: Bivariate estimation of investment and corruption control index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimation</i>				
Cor	0.127*** (13.875)	0.005 (0.363)	0.125*** (13.253)	0.003 (0.206)
R <sup>2</sup>	0.39	0.42	0.36	0.27
<i>Panel B: 2SLS estimation</i>				
Cor	0.140*** (14.018)	-0.029 (-1.391)	0.137*** (13.255)	-0.041* (-1.951)
R <sup>2</sup>	0.17	0.19	0.21	0.24

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instrument is the lagged corruption control index

From Table 10 the estimated parameters of political stability have different signs and level of significance in different models with the OLS estimations being positive and significant in 2 out of 4 estimations. On the other hand, the estimations based on 2SLS show conflicting results with the pooled estimations and fixed effects (FEMT) positing positive coefficients while the FEMC being negative and insignificant and the FEM2W being negative and significant at 10 per cent level of significance. The positive relationship found here suggests that there is an inverse relationship between political instability and private investment which supports Alesina and Perotti (1996) and Pastor and Hilt, 1993).

Table 10: Bivariate estimation results of investment and political stability index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimations</i>				
pol	0.078*** (11.523)	-0.009 (-0.994)	0.077*** (11.337)	-0.001 (-0.128)
R <sup>2</sup>	0.14	0.18	0.45	0.37
<i>Panel B: 2SLS estimations</i>				
pol	0.070*** (10.763)	-0.008 (-0.660)	0.069*** (10.441)	0.002 (0.204)
R <sup>2</sup>	0.23	0.21	0.32	0.17

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instrument is the lagged political stability index.

In the bivariate regression involving the voice and accountability index it is found that the estimated coefficients are positive and significant in most of the estimation which suggests that countries or times characterized by high levels of voice and accountability are associated with high levels of private investment.

Table 11: Bivariate estimation results of investment and voice and accountability index

	PM	FEMC	FEMT	FEM2W
<i>Panel A: OLS estimations</i>				
Vac	0.071*** (10.835)	0.018 (1.254)	0.069*** (11.784)	0.028** (2.140)
R <sup>2</sup>	0.34	0.46	0.56	0.51
<i>Panel B: TSLS estimations</i>				
Vac	0.065*** (10.617)	0.041** (2.406)	0.064*** (11.309)	0.056*** (4.260)
R <sup>2</sup>	0.29	0.31	0.45	0.39

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In 2SLS the instrument is the lagged voice and accountability index.

In view of the above results further analysis is conducted to establish whether the same results can persist when we include other variables in the regression as reported in Table 12. From the estimations it is found that in all estimations using OLS the control of corruption index is not significant at the conventional levels and it is found to possess mixed signs. However, in the 2SLS estimation it is found that the estimated coefficients are negative and largely significant at the conventional levels of testing which suggests that higher levels of corruption encourages investment. In the case of political stability index it is found that most of the estimated coefficients are positive and significant at the conventional levels of testing which is plausible because no investment is possible in an environment political instability. Similar results are obtained with regard to the role of voice and accountability where positive and significant coefficients are reported which suggests that as a country becomes more open and accepts alternative views it tends to post higher levels of investment. This may be the case with regard to foreign direct investment which tends to move to areas where governments are accountable and respect rights of the citizens.

Table 12: Multivariate estimation results of investment

	OLS estimation				2SLS estimation			
	PM	FEM_C	FEM_T	FEM2W	PM	FEM_C	FEM_T	FEM2W
COR	0.018 (1.497)	-0.016 (1.123)	0.019 (1.506)	-0.019 (-1.271)	-0.013*** (-0.752)	-0.109*** (-3.011)	-0.027 (-1.521)	-0.109*** (-2.765)
POL	0.063*** (9.683)	-0.010 (1.294)	0.063*** (9.218)	-0.012 (-1.471)	0.069*** (11.053)	0.024* (1.671)	0.069*** (9.548)	0.023 (1.458)
VAC	0.016* (1.827)	0.029* (1.953)	0.014 (1.520)	0.039*** (2.747)	0.042*** (3.861)	0.056*** (2.617)	0.041*** (3.353)	0.065*** (3.456)
YPP	0.074*** (4.608)	0.595*** (6.537)	0.076*** (4.700)	0.681*** (5.732)	0.104*** (5.278)	1.111*** (4.334)	0.112*** (5.322)	0.922*** (3.365)
POP	0.005 (0.752)	-0.004 (-0.943)	0.004 (0.604)	-0.003 (-0.746)	0.053*** (4.518)	0.041* (1.991)	0.047*** (3.262)	0.022 (0.847)
GOV	0.667*** (13.812)	0.244*** (4.009)	0.676*** (13.850)	0.257146	0.844*** (15.469)	0.695*** (4.482)	0.844*** (15.951)	0.700*** (4.538)
R2	0.72	0.89	0.91	0.80	0.60	0.72	0.71	0.75

\*\*\* Significant at 1 per cent; \*\* significant at 5 per cent; and \* significant at 10 per cent; t-statistics in bracket. In the 2SLS the instruments are the lagged independent variables.

Other variables included in the regression such as GDP per capita is found to be positive and significant at the conventional levels of testing which tends to support the finding of Mauro (1995), who found that higher levels of per capita income is associated with higher levels of investment. On the other hand, population growth is found to be insignificant in the OLS based estimations while it is found to be positive and significant in the 2SLS based estimations. The size of government is found to be positive and significant in all the estimations which shows that countries with large governments relative to the size of the economy tend to post higher rates of investment. This is plausible in two fronts, firstly large government tend to require large amounts of goods and services which are produced by the private sector. Thus for such government to be serviced adequately private sector must grow rapidly. Secondly, large governments tend to allocate resources in a variety of options to areas such as state owned enterprises which are also involved in investment projects.

### 3.0 CONCLUSION

The purpose of this study is to investigate the role that governance matters plays on macroeconomic outcome outcomes in Africa. While acknowledging that governance is a broad concept which also applies to macroeconomic outcomes

we narrowed our study to investigate the role that corruption, political stability and voice and accountability of government have on the distribution of the public budget, economic growth and investment in 28 countries in Africa during 1995-2004. With regard to the role of governance on the allocation of the public budget the major highlights are as follows: Firstly, corruption tilts the budget in favour of defense although the evidence is not conclusive, while countries that are less corrupt tend to allocate a larger share of their budgets to education, health and social services. Secondly, political stability strongly affects budget allocations with countries that suffer from instability allocating a larger share of their budgets to general public services and defense, while the stable ones allocating a larger share of their budgets to the health and social welfare categories. Thirdly, high levels of voice and accountability tend to favor spending on health and social welfare. In the case of the role played by governance matters on economic growth and investment it was found that high levels of corruption, political instability and low levels of voice and accountability of government negatively affect economic growth and investment performance.

In view of our findings therefore, it is suggested that for the countries in Africa to post impressive macroeconomic outcomes it is incumbent upon them to put in place measures and structures that inhibit corruption, political instability and at the same time promote high levels democracy and openness.

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**Appendix A1: Countries included in the study**

Angola	Ang
Botswana	Bots
Burundi	Bur
Cameroon	Came
Cote D'Ivoire	CDI
Djibouti	Dji
Ethiopia	Eth
Eritrea	Eri
Gambia	Gam
Ghana	Gha
Guinea-Bissau	Gunb
Kenya	Ken
Lesotho	Les
Madagascar	Madag
Malawi	Malaw
Mali	Mali
Mauritius	Maur
Namibia	Nam
Niger	Niger
Nigeria	Nga
Rwanda	Rwa
Senegal	Sen
Sierra Leone	Sleon
South Africa	ZAR
Uganda	Uga
Morocco	Moro
Tunisia	Tun