ECONOMIC ANNALS, Volume LXVII, No. 232 / January – March 2022
UDC: 3.33 ISSN: 0013-3264

https://doi.org/10.2298/EKA2232127A

*Adedeji Adeniran**
*Mma Amara Ekeruche***
*Chimere O. Iheonu****

THE QUALITY OF BUDGETARY INSTITUTIONS IN AFRICA: EXPLORING THE DRIVERS

ABSTRACT: *This paper examines the economic and political determinants of the observed variations in the quality of budgetary institutions in 31 selected African countries from 2005 to 2017. The quality of budgetary institutions is measured using the World Bank's Country Policy and Institution Assessment score. The empirical analysis utilises Ordinary Least Squares, two-stage least squares, two-step generalized method of moment, and the random effects probit and mixed effects models. The most significant and robust determinants of budgetary institution quality were found to be the level of external debt, foreign aid, the extent of control of corruption, and the level of voice and accountability. The results also reveal that foreign aid, control of corruption, and voice/accountability increase the probability of an improved quality of budgetary institutions. These findings resonate with the broader discussion on the role of political will and the need for the preferences of domestic actors to be aligned in order to deliver institutional reform in Africa.*

KEY WORDS: *budgetary institution, crisis hypothesis, common pool problem, fiscal performance, Africa*

JEL CLASSIFICATION: C23, H61, P16

* Centre for the Study of the Economies of Africa, Abuja, Nigeria, email: aadedeji@cseaafrica.org
** Centre for the Study of the Economies of Africa, Abuja, Nigeria, email: mma.ekeruche@cseaafrica.org
*** Centre for the Study of the Economies of Africa, Abuja, Nigeria, email: ciheonu@cseaafrica.org

1. INTRODUCTION

Budgetary institutions play a fundamental role in a country's economic development and prosperity. First, the efficient and effective utilisation of public resources, the strategic alignment of finances with a country's priorities, and the maintenance of a sustainable fiscal programme all require sound budgetary institutions. Second, fiscal management and stabilisation policies, especially the adoption of counter-cyclical fiscal policies, are dependent on the quality of budgetary institutions. Third, budgetary institutions are also critical for ensuring government accountability and transparency and delivering pro-poor policies. According to Raudla (2014), budgetary institutions cover two aspects of institutional arrangements. The first is fiscal rules, which entail constraints in taxation, debt, and public spending, and the second is budgetary process rules, the procedures associated with public budgeting which outline the process that governs the preparation, adoption, and implementation of the budget.

Several instances demonstrate the importance of high-quality budgetary institutions to key economic and development indicators. Gollwitzer (2010) reveals that budgetary institutional quality is associated with better fiscal performance – specifically, low primary budget balance. In Latin America, countries whose budgetary institutions rank within the top 25% (with regards to rigidity of fiscal rules and hierarchical and transparent procedures) achieve a better fiscal balance of about 2 percentage points of GDP than countries within the bottom 25% (File & Scanticini, 2004). Similarly, using a global sample, Piatti-Fünfkirchen and Smets (2019) conclude that improved public finance management and, by extension, strengthening of budgetary institutions, reduce under-5 mortality by 14 deaths per 1,000 live births.

Despite the broad consensus on the importance of budgetary institutions for economic performance, there is limited understanding of what makes budgetary institutions more viable in some countries than in others. The limited evidence on the determinants of the quality of budgetary institutions mostly refers to developed countries (Von Hagen, 2002 & Mulas-Granados, 2003 for Europe) or inferences that can be drawn from the larger literature on political institutions. Despite the remarkable heterogeneity in the quality of budgetary institutions in Africa (see Gollwitzer, 2010), attempts to investigate the economic and political factors behind this variation are limited. While the pivotal role of budgetary

institutions in fiscal sustainability in Africa is widely established (see Dabla-Norris, Allen, Zanna, Prakash, Kvintradze, Lledo, Yackovlev & Gollwitzer, 2010), studies of the causal factors behind quality budgetary institutions are scarce and the few that do exist rely on qualitative analysis of budgetary institutions in individual countries (see Department for International Development (DFID), 2014 for Nigeria).

This paper fills this gap by empirically investigating the economic and political drivers of the observed variation in the quality of budgetary institutions in Africa. Following the World Bank (2019), we define high-quality budgetary institutions as those characterized by (1) adoption of rules that specify transparent budgeting processes, (2) allowing for design and implementation of effective fiscal policies, and (3) allowing for fiscal reporting in a comprehensive and timely fashion. The World Bank's Country Policy and Institution Assessment (CPIA-13) codifies these characteristics into a measurable indicator by ranking budgetary institutions across countries on a 6-point scale. Using this indicator for selected African countries between 2005 and 2017, we find that around 51% of these countries scored above 3.2, the benchmark for high-quality budgetary institutions. This means that across the continent there are an equal number of high-quality and weak budgetary institutions.

We find that high-quality budgetary institutions are more likely to be present in countries with low external debt levels, higher levels of foreign aid, lower levels of corruption, and better accountability levels. We also find strong evidence that foreign aid, the control of corruption, and voice/accountability increase the probability of improving the quality of budgetary institutions in Africa. Overall, political factors have a more robust effect on budgetary institutions than economic factors. This concurs with the politico-institutional hypothesis that budgetary institutions are political instruments (Alesina & Perotti, 1995). The implication of this is that since the identified political factors are within the domain of domestic state actors, improving the quality of budgetary institutions depends largely on political will.

The paper contributes to the literature in two notable areas. First, we are not aware of any previous quantitative study on the drivers of the quality of budgetary institutions in the African context. Given the recurring debt problem experienced

in many African countries over the years, understanding the policy menu that is available for strengthening budgetary institutions can result in better fiscal management. Second, this study relates to the emerging literature on the importance of institutions for economic development. For example, Acemoglu and Robinson (2012) argue that the creation of inclusive economic and political institutions is an offshoot of economic development. Given that budgetary institutions are central to this, the findings from this study will deepen the understanding of how institutions work and affect the economy.

The remainder of the paper is structured as follows. Section 2 reviews the literature on the factors that are associated with the quality of budgetary institutions. Details on the data sources and the methodology are presented in section 3. The findings of the study are discussed in section 4, while section 5 provides concluding remarks.

2. LITERATURE REVIEW

The literature has identified several factors that are associated with the quality of institutions in general and budgetary institutions in particular. One of the well-established linkages in this regard is between the quality of budgetary institutions and the extent of the common pool problem in fiscal policymaking (Weingast, Shepsle, and Johansen, 1981; Velasco, 2000). The public budget is a common pool belonging to many political constituencies and this institutional structure leads to the different constituencies competing for budgetary resources without internalising the costs involved. This creates spending and deficit biases, thereby causing fiscal crisis. The implication is that weak budgetary institutions prevail in countries that are fractionalised or lacking checks and balances in the form of strong electoral competition, because the common pool problem is greater in these settings (Von Hagen, 2002). Similarly, the political structure that mitigates the common pool problem will positively influence the quality of budgetary institutions. De Renzio and Cho (2020) show that fiscal transparency and timely and comprehensive reporting are critical for budget credibility, and that political and economic factors such as democracy and income do not influence the credibility of budgets. Further, Heinsz (2004) suggests that the presence of checks and balances, which the parliamentary system offers, may improve economic outcomes.

Another body of work with profound implications for the trajectory of budgetary institutions is the literature on the resource curse. Specifically, Sachs and Warner (2001) found that countries with abundant natural resources are more likely to have weak institutions and procyclical fiscal policy. This suggests that poor quality budgetary institutions will be prevalent in countries that are resource dependent. However, in a few resource-endowed countries in the developing world the presence of natural resources has promoted growth and not weakened their institutions. Acemoglu, Johnson, and Robinson (2003) showed that in the previous 35 years, Botswana, with its diamonds, had the highest per capita growth globally, which Cabrales and Hauk (2011) link to the presence of good quality institutions before the emergence of natural resources. Other manifestations of poor institutional quality such as lack of transparency, corruption, and limited voice and accountability for citizens will affect budgetary institutions directly and indirectly. Schick (1998) noted that corruption is a crucial factor contributing to the poor budget management observed in Africa and other low-income countries. Similarly, Alesina and Tabellini (2008) find that in developing countries the majority of procyclical fiscal policies – a measure of the strength of budgetary institutions – can be explained by high levels of corruption. Furthermore, Alt and Lassen (2006) find that higher transparency in the political process reduces state actors' ability to be corrupt. Ngo and Nguyen (2020) reveal the need to improve the institutional set-up of economies to avoid high and unstable budget deficits. The tendency for corruption and absence of voice and accountability to reduce the quality of budgetary institutions reinforces the agency problem examined in Persson and Tabellini (2000), where politicians appropriate resources for personal gain at the expense of citizens.

Furthermore, the literature on the 'crisis hypothesis' suggests that the likelihood for reform is higher during economic crises (Mahmalat, & Curran, 2018). For instance, recession provides an opportunity to introduce structural reforms like budget transparency or fiscal rules, which are unlikely during an economic boom. Therefore, growth trends should influence the quality of budgetary institutions. Gradstein (2008) supports this hypothesis, as he finds that backward economic development, measured by income per capita, is associated with poor institutional quality. Similarly, the level of debt can also induce public management and fiscal reforms to avert debt crisis. Ayee (2008) argues that most administrative and public financial management reforms in Africa result from

serious economic crises. This is at least the case with the introduction of the medium-term fiscal framework and fiscal rules in Uganda, Nigeria, and Ghana in response to debt crisis (World Bank, 2013; Akunyili, Katz & Duncan, 2013).

The role of trade openness in institutional quality is inconclusive. Rodrik (2000) argues that the adoption of trade liberalisation policies, which in many cases entails the adoption of specific institutional norms, assists in improving domestic institutions, including budgetary institutions. Similarly, Islam and Montenegro (2002) find that trade openness produces better institutions because rent-seeking and corruption are more difficult when there is increased competition between agents. Do and Levchenko (2009) observe that international trade could contribute to the concentration of power in the hands of individuals that intend to establish or perpetuate bad institutions. The influence of foreign aid inflow on budgetary institutions is also mixed. On the positive side, foreign aid can introduce some form of accountability into the budgeting process in response to aid conditionalities from donors. Aid components going into institutional/technical support will have a direct positive impact on budgetary institutions. For example, Nigeria was able to establish a Budget Office, Debt Management Office, and other fiscal reforms largely due to donor support (Akunyili, Katz & Duncan, 2013). Similarly, in a study of 53 African countries, Asongu (2015) finds that there are institutional benefits from foreign aid inflows; however, these benefits are contingent on existing institutional levels. A few earlier studies including Easterly (2003) and Islam (2003) also argue that foreign aid improves institutional quality by allowing the government to invest in activities that improve the quality of bureaucracy, reduce corruption, and enforce the rule of law. However, there are concerns that aid dependency can weaken institutions. Examining the relationship between aid and institutions in sub-Saharan Africa (SSA), Brautigam and Knack (2004) argue that large amounts of aid given over long time periods can weaken institutions.

The approach of this study is to investigate both economic and political factors that influence the quality of budgetary institutions using various econometric procedures for robustness purpose. There are very few studies on the subject matter regarding Africa, yet weak budgetary institutions are more prevalent on that continent than in other regions (Dabla-Norris et al., 2010). These identified gaps are the motivation for this study.

3. DATA AND METHODOLOGY

3.1 Measurement of budgetary institution quality

Several indicators to measure the quality of budgetary institutions have been proposed in the literature. These include, but are not limited to, Public Expenditure and Financial Accountability (PEFA) indicators, the Open Budget Index by the International Budget Partnership, and the Quality of Budgetary and Financial Management criteria (CPIA-13) – a sub-index of the World Bank's Country Policy and Institution Assessment (CPIA) indicators. This paper employs CPIA-13 as our measure of the quality of budgetary institutions. CPIA-13 is an expert scoring of a country's budgetary system on a scale of 1 (worst performance) to 6 (best performance). The CPIA-13 is a composite index made up of three components: (1) comprehensiveness and credibility of the budget and its link to policy priorities, (2) effectiveness of financial management systems to ensure that the budget is implemented in a predictable manner, and (3) timeliness and accuracy of accounting and fiscal reporting, including timely audit of public accounts. The key advantage of CPIA-13 is that it has wider coverage across both time and country than other indicators of budgetary institutions. This ensures that we have enough data points for empirical analysis. However, the CPIA-13 score is not disaggregated along its key components, which means our analysis is limited to identifying the effect of specific economic and political factors on only the overall quality of budgetary institutions.

Given that the CPIA-13 scores are ranked, to improve the robustness of the results it is important for empirical analysis to specify the benchmark in order to separate the countries with high-quality budgetary institutions from the others. Following IMF (2009), which stipulates the mean values of CPIA scores, we set the threshold for a high-quality budgetary institution at 3.2 and above for countries under the World Bank's Poverty Reduction and Growth Facility, and 3.1 and above for countries under the International Development Association (IDA). We called this approach threshold definition. The study also makes use of the actual score in CPIA-13 – a cluster-level analysis. To further test the robustness of the results we also employ a quintile definition, where quality of budgetary institutions is considered high if a country is above the bottom two quintiles of CPIA-13 scores. Quintile definition is widely used in benchmarking

the CPIA score, especially for computation and classification of state fragility (see Bertocchi & Guerzoni, 2010).

Table 1 summarizes the CPIA-13 score between 2005 and 2017 for the 31 SSA countries for which the data is publicly available. The average score for SSA is 3.19, but the score varies widely with a recorded minimum of 1.5 and maximum of 4.5. No country has reached the maximum score of 6, which means there is still enormous room for improvement even in countries deemed to have high-quality budgetary institutions. According to the threshold definition of quality, 203 of the 399 budgetary institutions (50.8%) are high-quality, and this increases to 75.9% of the observations if quintile definition is used instead. This means that a significant number of countries within the bottom two quintiles score below the 3.2 threshold. In essence, the threshold definition sets a higher benchmark for measuring the quality of budgetary institutions than quintile definition.

Table 1: Summary statistics for CPIA-13

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Overall CPIA	399	3.1867	0.6022	1.5	4.5
Threshold definition					
High quality	203	3.6822	0.2748	3.5	4.5
Low quality	196	2.6734	0.3762	1.5	3
Quintile definition					
High quality	303	3.6822	0.2748	3.5	4.5
Low quality	96	2.3333	0.2477	1.5	2.5

Source: Authors computation

3.2 Methodology and Model specification

We model the determinants of the quality of budgetary institutions as a function of economic and political factors using traditional panel data econometric specification as follows:

$$qbi_{i,t} = \alpha_0 + \beta E_{i,t} + \varphi P_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $qbi_{i,t}$ represents the measure of the quality of budgetary institutions for country *i* in period *t*. qbi is measured in two ways: the actual CPIA-13 score is

first used for cluster analysis and then as a binary dummy variable which takes a value of one for high-quality budgetary institution and zero otherwise in both threshold and quintile definitions. Different measures of budgetary institutions require different estimation approaches; hence, a battery of econometric techniques will be used to estimate Equation (1). $E_{i,t}$ represents the vector of economic factors, which includes the GDP growth rate, trade openness as measured by imports plus exports as a percentage of GDP, external debt stock, total GDP to account for economic size, aid as a percentage of GDP, and natural resource rent. $P_{i,t}$ represents the vector of political factors, including a fractionalisation variable to capture the degree of ethnic, linguistic, and religion fragmentation, level of political competition, system of government (parliamentary or presidential), level of corruption control, and voice and accountability. The link between the economic and political factors utilised in this study and the quality of budgetary institutions has been documented in the literature review section. $\varepsilon_{i,t}$ represents the standard error term. Table 2 contains the summary statistics for and definition of all the variables.

Table 2: Descriptive statistics

Variable	Description	Mean	Std. Dev.	Min	Max
GDP growth	Real GDP growth	5.0888	4.4756	–36.6999	20.7157
Trade openness	Import plus export as % of GDP	67.9143	28.0595	19.10	165.6459
External debt stock	Total external debt to GDP	33.5333	26.9949	0	268.4864
Size of the economy	Real GDP constant United States dollar	23.1016	1.4675	18.64449	27.0662
Aid	Development assistance and official aid received (current US$) as % of GDP	0.0891	0.0632	0.0016	0.3587
Natural resource rents	Total natural resource rents (% of GDP)	13.4643	11.4599	0.4500	60.1212
Fractionalisation	Average of ethnic, linguistic, and religious fractionalisation, taken from Alesina and Ferrara (2005)	0.6491	0.1688	0.2094	0.8404
System of governance	0=Presidential; 1=Parliamentary	0.0645	0.2459	0	1
Political competition	Share of the vote of the ruling party (the variable takes 1 for non-democratic states)	0.6989	0.1702	0.2620	1
Control of corruption	Country score on World Bank's Corruption Index	–0.6933	0.5408	–1.5447	0.9495
Voice and accountability	Country score on World Bank's Voice & Accountability Index	–0.5633	0.6525	–1.8301	0.9861

Source: Authors computation

Finally, we address a potential issue that could affect the validity of our results. The possibility of an endogeneity problem is high in our model due to reverse causality/simultaneity between the quality of budgetary institutions and the explanatory variables. For example, the quality of budgetary institutions is a major determinant of debt level and economic growth. To account for this, the study utilised the two-stage least squares (2SLS) and the two-step generalized method of moments (GMM) methodologies to account for endogeneity, along with the traditional Ordinary Least Squares estimator which is heteroskedastic and autocorrelation-consistent (HAC) in standard errors. The 2SLS and GMM estimation procedures utilise internal instruments using lags of the explanatory variables. According to Hayashi (2000) as revealed by Okwoche and Iheonu (2021), the two-step GMM has relative efficiency gains over the traditional 2SLS method. However, dummy explanatory variables such as system of governance and political competition are not instrumented. HAC standard errors are also employed in the 2SLS and the GMM specifications. Prior to estimating the regression model, the study tests for multicollinearity using a simple correlation matrix and cross-sectional dependence using the Pesaran (2015) procedure. According to Baltagi, Kao, and Peng (2016), cross sectional dependence entails common shocks across sectional units such that the error term in country *i* is correlated with that of country *j*. According to Nathaniel and Iheonu (2019), not accounting for cross-sectional dependence in an econometric model can lead to estimation bias. This study utilises the Driscoll and Kraay (1998) regression which accounts for cross-sectional dependence as a robustness strategy.

The study also employs the Random Effects (RE) probit model and the Mixed Effects (ME) probit model to analyse the probability of improving or reducing the quality of budgetary institutions in Africa, which is dependent on the regressors in the models. According to Ekeocha and Iheonu (2020), the RE probit model in this study context is such that a standard normal distribution function for the nonlinear parameterisation at their means is imposed to ascertain the predicted probability of improving the quality of budgetary institutions in Africa. The ME probit model, however, side-steps the assumption of dealing with time-invariant effects using the Fixed Effects or RE model and also yields robust estimates when analysing categorical data. Due to the nature of the data, which is unbalanced with a large number of cross sections and fewer time periods, the stationarity test is not a relevant statistical analysis. This is because the test for

stationarity is more consistent in macro panel data where the number of time periods is significantly large. This is consistent with extant literature where the number of cross sections is larger than the number of time periods (Iheonu & Ichoku, 2021; Asongu & Odhiambo, 2020; Asongu, Nnanna & Acha-Anyi, 2020).

4. PRESENTATION AND DISCUSSION OF RESULTS

This section begins with the correlation matrix of the variables utilised in our econometric models. The correlation matrix is evaluated as a simple measure of understanding whether multicollinearity exists in the regressions. The findings are such that we do not see high levels of correlation between the explanatory variables utilised in the models, except for the two indicators of institutional quality: the correlation between voice/accountability and the control of corruption is 0.72. This means that for unbiased estimates to be derived in the regressions, these variables have to be in separate models.

Table 3: Correlation Matrix of the Variables

	CPIA	CPIA 1	CPIA 2	GDP	Trade	Debt	Eco Size	Aid	Resource Rent	Frac. Index	Gov. System	Pol. Comp.	VA	CC
CPIA	1.00													
CPIA 1	0.84	1.00												
CPIA 2	0.82	0.65	1.00											
GDP	0.19	0.15	0.14	1.00										
Trade	−0.24	−0.24	−0.26	−0.01	1.00									
Debt	−0.33	−0.23	−0.36	−0.23	0.29	1.00								
Eco Size	−0.12	−0.16	−0.11	0.15	−0.17	−0.38	1.00							
Aid	0.42	0.37	0.38	0.08	−0.17	0.17	−0.61	1.00						
Resource Rent	−0.39	−0.41	−0.46	0.17	0.40	−0.02	0.35	−0.31	1.00					
Frac. Index	−0.17	−0.17	−0.07	0.03	−0.27	−0.13	0.41	−0.24	0.25	1.00				
Gov. System	0.05	0.04	0.12	0.05	0.38	−0.01	−0.13	−0.01	−0.10	−0.22	1.00			
Pol. Comp.	−0.01	0.02	−0.05	−0.20	−0.18	−0.05	0.17	−0.19	−0.15	−0.03	−0.07	1.00		
VA	0.66	0.63	0.67	0.07	0.02	−0.20	−0.18	0.25	−0.43	−0.22	0.07	−0.25	1.00	
CC	0.65	0.56	0.58	0.07	0.07	−0.12	−0.38	0.40	−0.50	−0.59	0.23	−0.15	0.72	1.00

Source: Authors computation.

Note: CPIA 1 is the Threshold Definition, CPIA 2 is the Quintile Definition, Eco Size is Economy Size, Frac. Index is Fractionalisation Index, Gov. System is System of Government, Pol. Comp. is Political Competition, VA is Voice and Accountability, CC is Control of Corruption.

The indicators of the quality of budgetary institutions are positively correlated with GDP, foreign aid, system of governance, voice and accountability, and control of corruption. However, the indicators of the quality of budgetary institutions have a negative correlation with trade openness, external debt, size of the economy, resource rent, and the fractionalisation index.

Table 4 shows the study test for cross-sectional dependence in the econometric model, utilising the Pesaran (2015) cross-sectional dependence test. Cross-sectional dependence is present in the model at the 10% level of statistical significance for control of corruption and at the 5% level of statistical significance for voice/accountability.

Table 4: Pesaran (2015) Cross-sectional Dependence Test

Model	Test Value	Probability
Model with Control of Corruption	1.9720*	0.07
Model with Voice and Accountability	2.0110**	0.04

Source: Authors computation.

Note: ** and * represent statistical significance at 5% and 10%.

The findings of this study are presented in Table 5 and cut across various econometric methods. Additional findings are revealed in the Driscoll and Kraay regression, which accounts for cross-sectional dependence and also HAC in standard errors. We find that the GDP growth rate increases the quality of budgetary institutions in Africa. However, the significance of the GDP growth rate differs across the methods utilised. While GDP growth rate significantly increases budget quality in Africa, accounting for endogeneity using the 2SLS and the GMM methodologies reveals that GDP growth rate does not significantly influence budget quality. The positive relationship between GDP growth rate and the quality of budgetary institutions is due to the fact that increased GDP increases fiscal space, which in turn leads to lower levels of debt and fiscal crisis. Furthermore, trade openness is revealed to have a negative influence on the quality of budgetary institutions. However, the negative impact is insignificant when endogeneity is accounted for. The study finds that external debt significantly reduces the quality of budgetary institutions in Africa. The negative impact of external debt on budgetary institutions is in line with the common pool problem due to the creation of increased spending and deficit biases.

Additionally, foreign aid is positively and significantly associated with improved budgetary institutions. One explanation as to why countries that receive large inflows of aid have stronger budgetary institutions is that donor countries as well as multilateral development banks (MDBs) have focused on strengthening the budgetary institutions in recipient countries in the past two decades (Dabla-Norris et al., 2010). The result is consistent with the study of Asongu (2015). The findings also show that political competition, control of corruption, and voice/accountability significantly improve the quality of budgetary institutions, even after endogeneity has been considered. The finding on the corruption and budgetary institution nexus is in line with the findings of Schick (1998) and Alesina and Tabellini (2008). Alt and Lassen (2006) and Ngo and Nguyen (2020) have also revealed the importance of institutional quality in improving the quality of budgetary institutions. Improving institutional quality reduces bottlenecks and increases efficiency, which enhances the quality of budgetary institutions.

The validity of the instruments in the 2SLS and GMM regressions are evaluated using the Sargan test. Findings reveal that the instruments utilised are valid, as the probability values are greater than the conventional levels of statistical significance. The Kleibergen-Paap rk LM statistic for weak instruments reveals strong evidence that the 2SLS and the GMM models are identified.

Table 5: Panel Data Regressions

Variable	OLS	OLS	2SLS	2SLS	GMM	GMM
GDP	0.0119*	0.0145**	0.0212	0.0451	0.0230	0.0039
	(0.087)	(0.029)	(0.564)	(0.238)	(0.524)	(0.891)
Trade	–0.0021	–	–0.0023	–0.0051	–0.0022	–0.0033
	(0.235)	0.0042**	(0.526)	(0.196)	(0.525)	(0.373)
		(0.015)				
External Debt	–	–	–	–	–	–
	0.0055**	0.0055**	0.0096**	0.0090**	0.0096**	0.0106***
	(0.012)	(0.011)	(0.010)	(0.023)	(0.010)	(0.004)
Economy Size	0.0606	0.0327	0.0691	0.0356	0.0669	0.0815
	(0.120)	(0.379)	(0.290)	(0.600)	(0.302)	(0.197)
Aid	3.4243***	4.0894***	4.4151***	5.6279***	4.3641***	6.4654***
	(0.000)	(0.000)	(0.009)	(0.001)	(0.009)	(0.000)
Resource Rent	0.0005	0.0033	0.0021	0.0073	0.0021	0.0047
	(0.887)	(0.401)	(0.751)	(0.333)	(0.753)	(0.508)
Fractionalisation	1.0463***	–0.1953	0.7612**	–0.5381*	0.7650**	–0.5753*
	(0.001)	(0.445)	(0.041)	(0.091)	(0.040)	(0.063)
System of Governance	–0.0573	0.2877**	0.0290	0.4363	0.0295	0.2894
	(0.579)	(0.012)	(0.937)	(0.280)	(0.936)	(0.450)
Political Competition	0.5076**	0.7190***	0.5743	0.9278**	0.5874*	0.6031*
	(0.028)	(0.002)	(0.110)	(0.020)	(0.099)	(0.076)
Control of Corruption	0.9307***		0.9396***		0.9401***	
	(0.000)		(0.000)		(0.000)	
Voice and		0.6336***		0.6499***		0.6151***
Accountability		(0.000)		(0.000)		(0.000)
Constant	1.3166	2.3727**	1.2113	2.1860	1.2452	1.4693
	(0.180	(0.010)	(0.423)	(0.165)	(0.409)	(0.333)
Centred R^2	0.6360	0.6413	0.6525	0.6150	0.6511	0.6503
Uncentered R^2	0.9848	0.9850	0.9850	0.9834	0.9850	0.9849
F-statistic	32.95***	27.60***	21.52***	21.08***	21.55***	21.99***
	(0.0000)	(0.000)	(0.000)	(0.000)	(0.0000)	(0.0000)
Kleibergen-Paap (KP)			9.547***	9.468***	9.547***	13.990***
LM statistic			(0.0085)	(0.0088)	(0.0085)	(0.0029)
Sargan statistic			0.103	0.210	0.103	3.348
			(0.7479)	(0.6471)	(0.7479)	(0.1875)
Observations	226	226	171	171	171	171

Source: Authors computation. **Note:** ***, **, and * denote statistical significance at 1%, 5%, and 10% respectively. Results are HAC in standard errors.

Table 6: Driscoll and Kraay Regression

Variable	Driscoll and Kraay (1)	Driscoll and Kraay (2)
GDP	0.0291*	0.0380***
	(0.095)	(0.001)
Trade	–0.0019	–0.0033***
	(0.115)	(0.000)
External Debt	–0.0072***	–0.0072***
	(0.003)	(0.000)
Economy Size	0.0640***	0.0470***
	(0.001)	(0.003)
Aid	4.8730***	5.7007***
	(0.000)	(0.000)
Resource Rent	–0.0002	0.0010
	(0.940)	(0.564)
Fractionalisation	1.0292***	–0.1751
	(0.000)	(0.338)
System of Governance	0.0145	0.3121***
	(0.866)	(0.000)
Political Competition	0.5044***	0.6903***
	(0.000)	(0.000)
Control of Corruption	0.9259***	
	(0.000)	
Voice and Accountability		0.6147***
		(0.000)
Constant	1.0555**	1.7747***
	(0.034)	(0.002)
R^2	0.6711	0.6731
F-statistic	25145.66***	752.75***
	(0.0000)	(0.0000)
Observations	199	199

Source: Authors computation. **Note:** ***, **, and * represents statistical significance at 1%, 5%, and 10% respectively. Probability values are in parenthesis.

In Table 6, cross-sectional dependence is accounted for using the Driscoll and Kraay (1998) regression. The regressors in the models are instrumented using their first lags to account for endogeneity, except for the system of governance

and political competition variables. The findings are similar to those in the previous table, except that this time we have a larger number of significant variables. Consistent with the results in Table 5, external debt, foreign aid, control of corruption, and voice/accountability all significantly influence the quality of budgetary institutions in Africa. We also find that the influence of political competition on budget quality is sensitive to the measure of institutional quality utilised.

The study uses the marginal effect of the Probit RE and ME models and the threshold approach to the CPIA to capture the probability that the quality of budgetary institutions in Africa has improved. The first lags of the regressors in the models are used as instruments in the original regression to account for possible endogeneity. However, system of governance and political competition are not instrumented due to the binary nature of the variables. Table 7 shows that trade openness reduces the probability that the quality of budgetary institutions in Africa has improved. The results also show that control of corruption, voice/accountability, and foreign aid increase the probability of improved budgetary institutions in Africa. However, the study did not find that external debt, economy size, or resource rent had any significant influence on the probability of improving budgetary institution quality. African countries with a parliamentary system of governance have a higher probability of improving budgetary institutions than those with a presidential system. This finding is in line with Heinsz (2004). This is significantly true when voice/accountability is the indicator of institutional quality rather than control of corruption.

Table 7: Marginal Effect of Probit Regressions (Threshold Approach) CPIA >3.2 or 3.1

Variable	Probit RE Model	Probit RE Model	Probit ME Model	Probit ME Model
GDP	–0.0045	–0.0087	0.0041	0.0048
	(0.584)	(0.254)	(0.683)	(0.571)
Trade	–0.0053***	–0.0061***	–0.0036**	–0.0042***
	(0.005)	(0.001)	(0.040)	(0.007)
External Debt	–0.0005	–0.0015	–0.0012	–0.0013
	(0.768)	(0.312)	(0.437)	(0.389)
Economy Size	–0.0068	–0.0192	0.0154	–0.0182
	(0.895)	(0.693)	(0.640)	(0.543)
Aid	0.1156	0.1599**	0.1967***	0.1690***
	(0.155)	(0.025)	(0.007)	(0.006)
Resource Rent	–0.0005	0.0022	–0.0035	0.0028
	(0.936)	(0.741)	(0.477)	(0.498)
Fractionalisation	0.3161	–0.2707	0.6236**	–0.0694
	(0.529)	(0.469)	(0.025)	(0.737)
System of	0.1840	0.4017*	0.1947	0.3273**
Governance	(0.478)	(0.055)	(0.343)	(0.041)
Political	0.0447	0.1517	0.3951**	0.4744***
Competition	(0.829)	(0.456)	(0.029)	(0.002)
Control of	0.5495***		0.5639***	
Corruption	(0.000)		(0.000)	
Voice and		0.3589***		0.3846***
Accountability		(0.000)		(0.000)
Number of	199	199	199	199
Observations				
Log likelihood	–44.7054	–44.8854	–73.2284	–62.4441

Source: Authors computation. **Note:** ***, **, and * denote statistical significance at 1%, 5%, and 10% respectively. Probability values are in parenthesis.

Table 8 shows the marginal effect results using the quintile definition of the CPIA score. This analysis is used as a robustness check for the threshold approach. The signs of the coefficient across the models and estimation technique are similar.

The results show that trade openness, external debt, and resource rent have a negative influence on the quality of budgetary institutions in Africa.

Table 8: Marginal Effect of Probit Regressions (Quintile Approach) CPIA>3

Variable	RE Probit Model	RE Probit Model	ME Probit Model	ME Probit Model
GDP	0.0068	0.0012	0.0117*	0.0011
	(0.343)	(0.799)	(0.056)	(0.792)
Trade	–0.0004	–0.0008	–0.0004	–0.0008
	(0.701)	(0.397)	(0.593)	(0.257)
External Debt	–0.0011	–0.0018	–0.0013	–0.0018**
	(0.282)	(0.301)	(0.133)	(0.016)
Economy Size	0.0488**	0.0209	0.0458***	0.0209*
	(0.044)	(0.239)	(0.003)	(0.089)
Aid	0.1703***	0.2008*	0.1926***	0.2008***
	(0.001)	(0.081)	(0.000)	(0.000)
Resource Rent	–0.0038	–0.0008	–0.0039	–0.0008
	(0.267)	(0.699)	(0.126)	(0.676)
Fractionalisation	0.8524**	0.3702	0.9077***	0.3702***
	(0.010)	(0.261)	(0.000)	(0.002)
System of Governance	–	–	–	–
Political Competition	0.0885	0.4749	0.2579*	0.4750***
	(0.690)	(0.304)	(0.065)	(0.000)
Control of Corruption	0.5450***		0.5502***	
	(0.000)		(0.000)	
Voice and Accountability		0.4086***		0.4087***
		(0.000)		(0.000)
Number of Observations	193	193	193	193
Log likelihood	–23.4578	–15.8165	–26.3008	–15.8165

Source: Authors computation. **Note:** ***, **, and * denote statistical significance at 1%, 5%, and 10% respectively. Probability values are in parenthesis.

It is further revealed that GDP growth rate, size of the economy, foreign aid, fractionalisation index, control of corruption, and voice/accountability all have a

positive influence on the quality of budgetary institutions in Africa. The result from the quintile approach is consistent with the findings of the threshold approach in terms of the relationship between trade openness, external debt, foreign aid, political competition, control of corruption, and voice/accountability. Low levels of corruption in general, and the design and implementation of the budget through budget transparency and opportunities for citizen participation, are likely to ensure that budgets are credible, and that proposed and actual spending align.

Comparing the results across all three measures of budgetary institutions (actual CPIA-13 score, the threshold definition, and the quintile definition), certain factors consistently play a role: the level of exposure to foreign aid, political competition, extent of control of corruption, and voice and accountability. This points to crucial policy windows for improving budgetary institutions in Africa. For instance, curbing corruption by streamlining the process of budget design, approval, and implementation, sanctioning the use of public funds for private gain, and encouraging open and continuous exchanges between key stakeholders will improve budget use. Additionally, the finding that development assistance to African countries is associated with improvements in budgetary institutions underscores a possible role for external actors.

5. CONCLUSION

This study examines the economic and political factors that influence the quality of budgetary institutions in Africa. Drawing on various econometric analyses, we found the most important factors to be control of corruption, level of voice and accountability, political competitiveness, and exposure to foreign aid. This means political factors play a more crucial role in the viability of budgetary institutions than economic factors. This is unsurprising, given the role budgetary institutions play in policy formulation and as an instrument for political settlement. The study acknowledges that due to the complex nature of governance, particularly in Africa, high levels of political will are required for budgetary quality to be improved.

These findings suggest both opportunities and challenges for improving the quality of budgetary institutions in Africa. Optimistically, political variables are largely within the purview and control of state actors and citizens, which means

achieving quality budgetary institutions relies on the political will of these actors. As Adeniran (2017) observes, effective fiscal reform depends on the preferences of the budget actors. This means achieving high-quality budgetary institutions will require alignment of interests and preferences across multiple actors. However, ensuring alignment of these disparate interests could be difficult, especially if the status quo represents a socio-political equilibrium that serves other social objectives. For example, extant institutions might be linked to a social coherence that changes might upend. Building viable and quality budgetary institutions therefore resonate with the larger discourse on the nexus between political will and governance and public sector reform in Africa.

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Received: March 02, 2021
Accepted: January 15, 2022

APPENDIX

Table 1A: Variable description and data sources

Variable	Description	Source
External debt stock	Total external debt to GDP	World Bank (Fiscal Space Database)
GDP	Real GDP	World Bank (World Development Indicator)
GDP growth	Real GDP growth	World Bank (World Development Indicator)
Trade	Imports plus exports as % of GDP	World Bank (World Development Indicator)
Aid	Development assistance and official aid received as % of GDP	World Bank (World Development Indicator)
Natural resources rents	Total natural resources rents (% of GDP)	World Bank (World Development Indicator)
Fractionalisation	Average of ethnic, linguistic, and religious fractionalisation, taken from Alesina and Ferrara (2005)	Alesina and Ferrara (2005)
System of governance	0=Presidential; 1=Parliamentary	World Bank (Database on Political Institution)
Political competition	Share of the vote of the ruling party (the variable takes 1 for non-democratic states)	World Bank (Database on Political Institution)
Voice and accountability	Country score in World Bank's Voice & Accountability Index	World Bank (World Governance Index)
Control of corruption	Country score in World Bank's Corruption Index	World Bank (World Governance Index)

Source: Authors compilation.

Table 2A: List of Countries.

Angola	Chad	Ghana	Mozambique	Sierra Leone
Benin	Congo, Democratic Republic	Kenya	Niger	Sudan
Burkina Faso	Congo	Lesotho	Nigeria	Tanzania
Cameroon	Cote d'Ivoire	Madagascar	Rwanda	Togo
Cape Verde	Ethiopia	Malawi	Sao Tome and Principe	Uganda
Central African Republic	Gambia	Mali	Senegal	Zambia
Zimbabwe				

Source: Authors compilation.