# Central bank independence, elections and fiscal policy in Africa

## Examining the moderating role of political institutions

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### Abstract

**Purpose** – The purpose of this paper is to primarily investigate the ability of independent central banks (central bank independence (CBI)) to improve fiscal performances in Africa, accounting for election years, and also to examine whether the effectiveness of CBI in improving fiscal performance is enhanced by higher political institutional quality.

**Design/methodology/approach** – Using recent CBI data from Garriga (2016) on 48 African countries, 90 other developing countries and 40 developed countries over the period 1970–2012, the authors apply a two stage system GMM with Windmeijer (2005) small sample robust correction estimator to examine the impact of CBI and elections on fiscal policy in Africa, other developing countries and developed countries.

**Findings** – The authors provide evidence that unlike in other developing countries and developed countries, CBI does not significantly improve fiscal performance in Africa. However, the effectiveness of CBI in improving fiscal performance in Africa is enhanced by higher levels of institutional quality. Although elections directly worsen fiscal performance in Africa, institutional quality enhances CBI's effect on improving fiscal performance in election years across Africa, other developing countries and developed countries.

**Practical implications** – The findings of the study are significant as they provide insight into the benefits of having strong institutions to complement independent central banks in order to control fiscal indiscipline in election years.

**Originality/value** – The study is the first among the studies of CBI-fiscal policy nexus, to measure fiscal policy using net central bank claims on government as a percentage of GDP. In addition to the use of fiscal balance, this study also uses cyclically adjusted fiscal balance as a measure of fiscal policy. This is a critical channel through which independent central banks can constrain government spending. It also compares findings in Africa to other developing countries, noting some differences.

**Keywords** Africa, Developing countries, Institutional theory

**Paper type** Research paper

## 1. Introduction

There has been an apparent failure by developing countries including Africa, in achieving successful fiscal performances (Bodea and Higashijima, 2017) particularly as a result of pre-electoral behaviour of governments. As seen in Figures 1 and 2, Africa's fiscal balance[1], though improving, compares unfavourably to that of other developing and developed countries.

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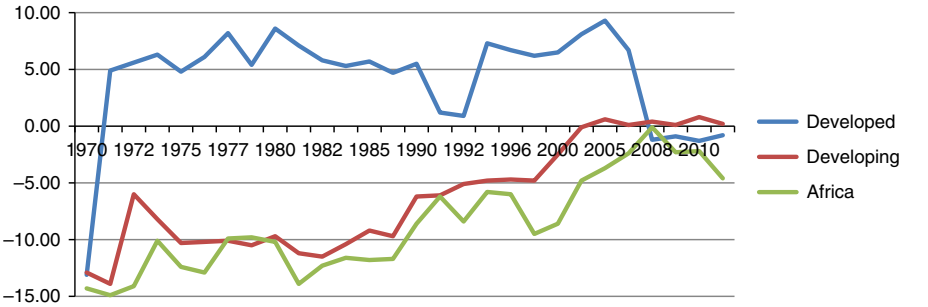



**Figure 1.**
Fiscal balance
1970–2012

**Source:** The World Bank (2017)

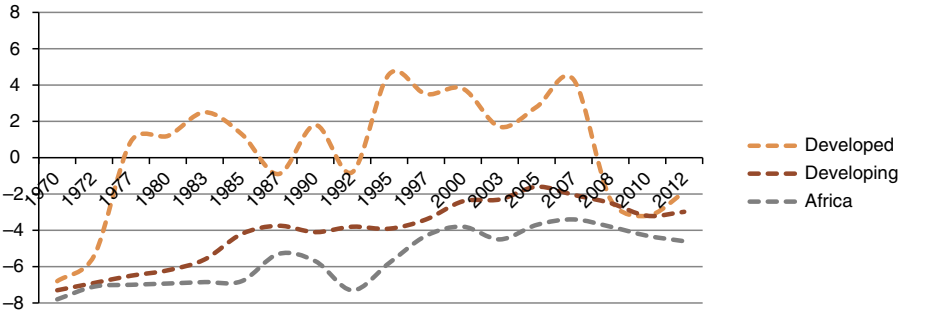



**Figure 2.**
Cyclically adjusted
fiscal balances
1970–2012

**Source:** The World Bank (2017)

Electorally motivated fiscal spending, vote buying, or simply money printing as it has been argued are the sources of inflationary pressures on central banks' price stability objectives (Pourcelot, 2015). According to Ramogi (2017), Kenya's central bank had to "mop excess cash in the economy" as a result of formal and informal spending – voter bribing – related to the elections. Richard and Desmond (2012) found that under excessive central bank credit to government, deficits produce high inflation rates. The study recommended that explicit constraints can be placed on central bank credit to government.

Governments in power are believed to want to use all available mechanisms to win elections, particularly when closely contested, though the probability of recording poor fiscal performances is high. However, there is little empirical evidence in the literature, regarding any effect of opportunistic electoral behaviour on fiscal imbalances.

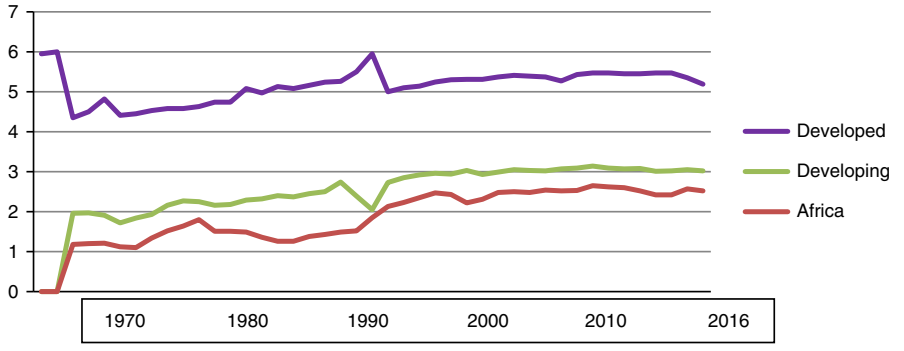
In this study, we analyse to what extent independent central banks are successful in countering fiscal pressures originating particularly in election years. Does central bank independence (CBI) offset spending pressures originated by the electoral cycle?

Empirical work on the impact of CBI on fiscal performance has been few, with many focussing on developed countries and having mixed results (Burdekin and Wohar, 1990; Barnhart and Darrat, 1988). These results implies that having CBI laws without the existence of an accountability mechanism can lead to flouting of restrictions placed on political authorities meant to deterring them from putting pressure on central banks to finance budget deficits beyond legislatively permissible limits. Just as Cukierman (1992) noted, though measures of CBI for developed and developing countries are basically the same with median values of 0.34 and 0.33, respectively, there are sharp disparities between the legal independence of the central bank and their actual independence. He attributed it to

disrespect for CBI provisions. A typical example is Zimbabwe, where the statutory credit the central bank can give to government is pegged at a maximum of 20 per cent of the revenue of the preceding year. Since the late 1990s, however, government has borrowed in excess of this limitation. Despite this credit limit, government borrowing has exceeded the statutory limit since the late 1990s. Monetary accommodation by the central bank came up as a result of limited access by government to credit from foreign markets, fluctuating public revenue, a wide-scale crowding out of the domestic banking system and a massive increase in politically induced government expenditures (Dabrowski, 2015).

Another critical theoretical link that many studies do not identify in the CBI-fiscal policy nexus is that in the context of public finances, poor institutional environments breed corruption that may impact independently both the expenditure and revenue sides of the government's budget, thereby distorting the composition of expenditures by shifting resources towards items where the possibility of inflating spending and obtaining more "commissions" is higher and also where there is a greater scope for indulging in covert corruption, as alluded to by Shleifer and Vishny (1993). Second, as corruption reduces government's revenue, when a part of tax proceeds do not accrue to government and are usurped (Imam and Jacobs, 2007; Tanzi and Davoodi, 1998, 2000), it alters the manner in which revenues are generated by shifting pressure on the central bank to finance government deficits. Subsequently, confronted with this pressure, it becomes more difficult for the central bank to resist financing government, in excess of revenue generated. This may lead to much more difficulty in achieving successful fiscal discipline than in less corrupt environments, thereby implying low effectiveness of independent central banks in influencing fiscal policy and in low institutional environments. Among developing regions such as Latin America, studies by Cardenas *et al.* (2018), found the existence of heterogeneity in the quality of institutions and governance that could potentially mean varying outcomes for CBI in terms of its effectiveness in ensuring fiscal discipline.

As shown in Figure 3, respect for civil liberties, our proxy for institutional quality (measured by the rescaled civil liberties score (from 0 for least rating and 6 for highest rating) from Freedom House for the period 1970–2016), which basically reflects the rule of law, has increased over the period in Africa, though not at similar levels with developed countries. We also observe that although developed countries and other developing countries have higher levels of institutional quality, Africa has comparatively had the lowest levels of institutional quality. One problem this study seeks to address is that with Africa having improved fiscal positions though not as good as that of other developing and developed countries, the quality of political institutions can affect the extent to which central bank reforms affect fiscal policy.




**Source:** Freedom House (1970–2017)

**Figure 3.**
Institutional quality (Civil liberties score)

The study makes important contributions to extant research by advancing the theoretical framework that links CBI to fiscal performance across different income levels and varying political institutional structures. It also extends the empirical tests of this relationship beyond research in developing countries as a whole to focus on Africa where fiscal performances are relatively poor compared to other developing countries (Grilli *et al.*, 1991; Franzese, 2002). This study further addresses three important discussions in the literature: the effects of CBI, the political economy of central bank reforms and the existence and extent of opportunistic political cycles.

We provide evidence that unlike other developing countries and developed countries, CBI is not associated with improved fiscal performance in Africa. However, the effectiveness of CBI in improving fiscal performance in terms of reducing net central bank claims on government and improving fiscal balances is enhanced by institutional quality in all three regions. Also, institutional quality's ability to directly influence fiscal balance is embedded in being in upper-middle income and high-income countries.

The rest of the paper is structured as follows. We review extant literature on CBI electoral cycles and institutional quality. We then outline the methodology, analyse and present the results and conclude based on our findings.

## 2. Literature review

### *2.1 CBI and electoral cycles*

According to Garriga and Rodriguez (2017), it is assumed that central banks and governments have contrasting preferences. Although the central bank is conservative and desires to achieve price stability, political authorities also desire price stability. However, they are motivated by the quest to retain power (Ames, 1987; Bueno de Mesquita *et al.*, 2003). This is because, for the politician, remaining in power is necessary for them to achieve all other policy goals including price stability. Therefore, the central bank's decisions meant to achieve price stability should be protected against political manipulative tools meant to ensure their stay in power.

Fiscal pressures are not constant through time. In election years in particular, there are stronger incentives to enact inflationary policies, resulting in demands for the central bank to loosen monetary policy or the government embarking on an expansionary fiscal policy (Bodea and Higashijima, 2015; Clark and Hallerberg, 2000; Treisman and Gimpelson, 2001).

However, the effects of political pressures on fiscal policy will be determined by the ability of the central bank to resist and or counter these pressures. In election years, the independence of the central bank should be of more importance to achieving fiscal discipline compared to non-election years. During election years, there are stronger pressures on central banks and greater challenges to attain price stability and fiscal discipline compared to non-election years or period. Particularly in Africa and other developing countries, where institutional quality is low, there is a higher incentive for political authorities to manipulate monetary and fiscal policies (Schuknecht, 1996; Shi and Svensson, 2006). In relatively weak institutional environments, there is an observed vastly greater levels of uncertainty concerning election outcomes thereby resulting in higher incentives to influence electoral results through vote buying, last minute infrastructural projects and other electorally related spending (Lupu and Riedl, 2013, p. 1344, 1348).

In Africa and other developing countries, relatively weaker institutions make it easier for politicians to manipulate monetary and fiscal policies (Schuknecht, 1996; Shi and Svensson, 2006). Garriga and Rodriguez (2017) argued that although it seems counterintuitive, developing countries have reasons to respect CBI especially when it is very costly – that is, during elections. This is because, there are significant reputational and signalling considerations that come with compromising the independence of the central bank. Primarily, according to Weeks (2008), violations of institutional commitments give rise to audience costs. In addition, and more

importantly, having an independent central bank constitutes a "good signal" to international markets and is associated with more investment and better credit conditions (Bodea and Hicks, 2015; Maxfield, 1997; Polillo and Guillén, 2005). Governments of African and other developing countries being more vulnerable to international markets distrust have the motivation to respect the independence of the central bank, even when electoral cycles may attempt to cause them to flout CBI provisions. Based on these considerations, it is possible to have a stronger anti-fiscal indiscipline effect of CBI in election years in Africa and other developing countries.

*2.2 CBI, institutional quality, and fiscal performance*

As argued earlier in the study, the independence of monetary policy is capable of influencing fiscal policy. However, there are incentives for political authorities to disregard and/subvert the institutional independence of the central bank. Central bank laws are inherently incomplete but can be altered or threatened to be altered by politicians so as to make the central banks more subservient. Although central bank governor's appointment can be determined by the success or failure of their monetary policies, they can also be dismissed before their tenure (Bodea and Higashijima, 2015).

Earlier studies have showed that the degree to which central bank laws are enforceable is determined by political institutions and, therefore, determines when the de facto behaviour of central banks indicates their aversion to inflation and, subsequently, deficits (Keefer and Stasavage, 2003; Hallerberg, 2002). Monetary policy delegation to the central bank in democratic environments, therefore, enhances the credibility of delegating monetary policy to a central bank that is independent and increases the possibility of having monetary policy that is retaliatory in response to fiscal policy.

The effect of CBI on fiscal deficits in countries with the rule of law and impartial contract enforcement is derived from various central bank behaviours. In the first place, central banks can prompt governments to have fiscal policies that counter macro-economic cycles, thereby leading to surpluses or balanced budgets in favourable times. Second, this can emanate from electoral calendars or government partisanship, during which the central bank accommodates governments as a way of guarding its formal legal independence.

Though institutions are seen as the main drivers of economic growth, weak institutions are the main drawback of developing countries (Lopes, 2014). Wang and Li (2018) for example found that the governance environment is a key driver of foreign direct investment in emerging economies, which has implications for business profitability, economic growth and, therefore, government revenues. Hakimi and Hamdi (2017) also made similar findings in Middle East and North African countries. North and Thomas (1973) maintained that what explains the differences in economic growth is the different levels of institutional development. The institutional characteristics of developing countries are strongly influenced by the role colonial power played/plays. Colonial masters developed institutions in their respective colonies in order to serve their own interests. Thus, in colonies where there were high mortality rates, the colonial masters did not settle there permanently though they developed institutions that were extractive such as they did in Congo. The extractive institutions created do not favour the protection of property rights though there are also no checks and balances on expropriation by government.

In general, high institutional quality environments are associated with strong democracies, which secure property rights, contract enforcements, which are all characterised by an independent judiciary, respect for the rule of law and individual rights (Bodea and Higashijima, 2015). In democracies, the rule of law prevails because there are strong constraints on the power of government. In fact, the opposition parties are interested in the independence of the central banks as having such will conceal from the party in power the opportunistic abuse of monetary policy as well as, consequently, placing limits on government's use of fiscal policy.

Another characteristic of high institutional quality environments is the transparency of political decisions. In political systems that are very transparent, costs are imposed against opportunistic behaviours by government (Broz, 2002). It is very difficult to monitor the independence of most central banks, who by their very nature are opaque in their decision making (Bodea, 2010; Broz, 2002). In high institutional quality environments, violations of CBI can be fiercely criticised by opposition parties and voters with such knowledge can vote governments out. These actions are more likely where there is freedom of the press and free and fair elections. These features assist CBI in ensuring fiscal discipline by government. According to Akhmedov and Zhuravskaya (2004), the political business cycles literature provides evidence that electoral cycles are smaller in the presence of a well-developed local press, where the presence of a free press allows free access to information by voters (Shi and Svensson, 2006) and when there is high level of fiscal policy transparency (Alt and Lassen, 2006).

One critical institutional characteristic that affects the nature of fiscal policy in developing countries including Africa is corruption. It is these observations that provide the motivation for this paper, which seeks to explore the influence of institutional quality on public spending and finance and the implications of this for CBI effectiveness. Following Ghosh and Neanidis (2011), in exploring this study's objective, corruption features in three distinct ways: On the expenditure side, there are two types of effects: first, corrupt officials inflate the size of the public spending, not for increasing the size of the national cake but for their own pecuniary gain; second, although the amount of public spending is higher than warranted, the productivity arising out of such spending is considerably lower than it would otherwise have been. Although some of these aspects have been captured in previous empirical papers (see Mauro, 1995, 1998; Tanzi and Davoodi, 1998; Haque and Kneller, 2008, among others), explicit analytical conditions have not been derived in the literature on the effects of corruption on public finances. On the revenue side, corruption in tax administration implies that not all tax revenues end up in government coffers, as some of it is embezzled by corrupt bureaucrats involved in tax collection.

On the basis of these linkages, this study argues that the impact of poor institutional environments on the effectiveness of CBI is evident when explained also, with the impact of corruption on fiscal policy. Given the pressure on seigniorage financing as a result of poor collection and usage of tax revenues, independent central banks are confronted with more fiscal policy challenges in low institutional environments, making them less effective in improving fiscal policy than in higher institutional environments. Although some empirical papers such as Mauro (1995, 1998), Tanzi and Davoodi (1998) and Haque and Kneller (2008), among others, capture some of these aspects, Ghosh and Neanidis (2011) noted that explicit analytical conditions have not been derived in the literature on the effects of corruption in public finances. We seek to examine how the level of corruption exhibited in the much wider institutional quality affects the effectiveness of independent central banks in influencing fiscal policy. The study argues that in countries with high institutional development, low levels of corruption mean that government expenditure are not overpriced, tax administration is efficient, thereby leading to more reliance on tax revenue and less demand for seigniorage, thereby making it easier for the independent central bank to influence fiscal policy and be more effective.

## 3. Methodology

### *3.1 Data and sample*

To investigate the effect of CBI and elections on fiscal spending and the effect of institutional quality on these relationships, we utilise panel data spanning the post-Bretton–Woods period of 1970–2012 on 45 African countries, 90 other developing countries, 40 developed countries and 35 organisation for economic co-operations and development (OECD) member countries.

During this period, there was discretion in managing monetary policies, thereby making the period suitable to examine the relationship between CBI and deficits. The CBI index is from Garriga (2016) who computes the Cukierman, Webb and Neyapti (CWN) CBI index over the period 1970–2014. The study also includes an elections year dummy and institutional quality measures from Freedom House, as well as control variables based on the models of Bodea and Higashijima (2015) and Acemoglu *et al.* (2008). We include an indicator of trade openness, log of GDP per capita, the real GDP annual growth rate, indicators of financial development, the degree of urbanisation and the share of agriculture in GDP.

The dependent variable, fiscal policy, is measured as the net central bank claims on government ($NetCBClaims_{it}$) that is determined as central bank loans to government agencies net of central government deposits as a percentage of GDP. The study is of the view that, in general, independent central banks will be able to restrict credit to government and, therefore, should lead to lower central banks net claims on government. It is sourced from the World Development indicators (The World Bank, 2017).

We also measure the dependent variable as the ratio of the difference between revenues and expenditures as a share of the GDP ($FiscalBalance_{it}$). These are taken from the World Economic Outlook (IMF, 2016). Though central banks may find of more interest other operationalisations of fiscal policy such as the primary deficit that excludes interest payments by the treasury, due to unavailability of this data for most countries, we are unable to use it in this study, econometrically, the use of revenue minus expenditure exposes us to potential simultaneity bias between the dependent variable and the CBI index. This is because, the more influential a government is in getting deficits monetised by monetary authorities, the smaller degree of CBI. We, therefore, adopt an estimation technique that will address the issue of potential endogeneity.

$CBI_{it}$ that is our principal explanatory variable is measured as the annual legal CBI measure of country $i$ in period $t$. It represents the degree of CBI measured by the *de jure* indicator. We settle on de jure measure of CBI because the focus of the study is on policy reforms. This study uses a CBI index as given by Garriga (2016), who computes an updated CWN index for a large set of countries using the International Monetary Fund's Central Bank Law Database. The CWN CBI index is based on a weighted aggregation of 16 legal indicators in four categories regarding the tenure of the bank's governor, policy formation, objectives, and limitations on lending to the government, using the criteria and weights in CWN. The index varies between 0 and 1, with larger values indicating independence. We prefer this de jure measure to turnover rates of central bank governors, because we seek to investigate the impact of CBI policy reforms on fiscal balances. Also, the alternative form of measuring *de facto* independence, the turnover rate of central bankers (Cukierman and Webb, 1995; Cukierman *et al.*, 1992; De Haan and Siermann, 1996), has been shown to be endogenous to inflation (Dreher *et al.*, 2008). According to the theoretical rationale for CBI, we would expect an increase in CBI to result in a better fiscal balance and a reduction in central bank claims on government.

We identify election years ($Election_{it}$) from the Database of Political Institutions (da Cruz, *et al.,* 2016). We code elections as a dichotomous variable equal to 1 to indicate the occurrence of an election for the executive or legislative branches in a given year and 0 for non-election years. Election years are expected to increase demands on central bank for finance and a worsening fiscal balance.

In this study, as a measure of institutional quality ($InstQual_{it}$), we use the civil liberties score variable obtained from Freedom House database. The score for the variable ranges from 7 to 1, with 7 representing the least rating and 1 the highest. Following Bodea and Higashijima (2017), we rescale the original score to range from 0 to 6 so that lower scores now correspond to lower civil liberties rating and higher scores correspond to higher civil liberties rating. In order to do this, we use the formular −1*(CLS-7), where CLS is the civil

liberty score as given by Freedom House. Civil liberties (CLS) variable captures the degree in freedom of expression, association, assembly, religion and education. In countries with high civil liberty score, there is a generally established fair rule of law system (including an independent judiciary), freedom of economic activity, and a strive for equality of opportunity for everyone, including women and minority groups. There are four subcategories of the civil liberties questions, namely: freedom of expression and belief (four questions), associational and organisational rights (three), rule of law (four) and personal autonomy and individual rights. We expect higher institutional quality to improve fiscal policy, that is, as countries become more democratic and the rule of law prevails, corruption reduces thereby leading to the prudent use of government resources. Such environments also have well-developed tax systems that generate efficient tax accumulation increasing government revenue and improving fiscal performance.

*3.2 Model and estimation technique*

We use a two-step system GMM (2SSGMM), with the Windmeijer (2005) small sample robust correction estimator for various reasons. First, for the relatively small-time duration for some countries in our data and the use of lagged dependent variable in the model, the 2SSGMM is more appropriate as it avoids the bias that would result from using fixed effects in an OLS regression. For example, in the African and developing world sample, there are a number of countries in Africa and post-communist countries, who are in the sample for relatively few years ranging between 7 and 17 years, which does not allow the diminishing over time of shocks to fixed effects (the Nickell bias, Wooldridge, 2002; Beck and Katz, 2004). Second, because both the CBI index and institutional quality, measured as the civil liberties score vary little within countries, the 2SSGMM leads to a more efficient estimation than fixed effects models (Plümper and Troeger 2007). Several shortcomings of the data, which include missing data in the sample, fixed individual effects, and potential heteroscedasticity and auto-correlation within countries, are adequately addressed by the 2SSGMM estimation (Rodman, 2009).

The 2SSGMM approach allows us to treat fiscal balance as a dynamic process, thus accounting explicitly for the possibility that previous budget surplus/deficits may influence future budget surplus/deficits. Also, the use of the 2SSGMM approach allows us to control for the endogeneity of all the explanatory variables. In particular, we assume that the explanatory variables are "weakly exogenous" meaning that they can be affected by current and past realisations of the budget surplus/deficits. However, they must have no relation or correlation with future realisations of the error term. Thus, this means that, for example, future budget surplus/deficits do not affect CBI and institutional quality.

The inclusion of lagged independent variables may not eliminate potential endogeneity and reverse causation problems. If CBI is correlated with regressors from Equation (1), the main result may not hold. More importantly, fiscal balances may affect the level of independence granted to the central bank. The 2SSGMM allows us to account for these potential effects where CBI is treated as an endogenous variable.

The study reports two standard specification tests: The Hansen test of over-identifying restrictions, which tests the overall validity of the instruments and failure to reject the null hypothesis gives support for the model, including our choice of endogenous variables. The Arellano–Bond test for AR (2) in first differences tests whether the residuals from the regression in differences is second order serially correlated and failure to reject the null hypothesis supports the model specification. We also report the number of instruments as suggested by Bazzi and Clemens (2013) who argue that, ideally, the number of instruments should be less than the number of countries in the sample.

Our preferred model based on Bodea and Higashijima (2015), Acemoglu *et al.* (2008) and Romer (1993) can be summarised as follows.

The specification is generally given by:

$$\text{Fiscal Policy}_{it} = \beta_1 \text{Fiscal Policy}_{it-1} + \beta_2 \text{CBI}_{it} + \beta_3 \text{Inst.Qual}_{it} + \beta_4 \text{Election}_{it} + \beta_5 X_{it} + \varepsilon_{it.} \quad (1)$$

To capture possible unobserved heterogeneity and to analyse the impact of institutional quality on the CBI-fiscal policy nexus, we specify the following interaction models:

$$\text{Fiscal Policy}_{it} = \beta_1 \text{Fiscal Policy}_{it-1} + \beta_2 \text{CBI}_{it} + \beta_3 \text{Inst.Qual}_{it} + \beta_4 \text{Election}_{it} + \beta_5 X_{it} + \beta_6 (\text{CBI} \times \text{Inst.Qual}_{it}) + \varepsilon_{it}, \quad (2)$$

$$\text{Fiscal Policy}_{it} = \beta_1 \text{Fiscal Policy}_{it-1} + \beta_2 \text{CBI}_{it} + \beta_3 \text{Inst.Qual}_{it} + \beta_4 \text{Election}_{it} + 5X_{it} + \beta_6 (\text{CBI} \times \text{Election}_{it}) + \varepsilon_{it}. \quad (3)$$

To examine the impact of institutional quality on the CBI-fiscal policy relationship during elections, we specify the following model:

$$\text{Fiscal Policy}_{it} = \beta_1 \text{Fiscal Policy}_{it-1} + \beta_2 \text{CBI}_{it} + \beta_3 \text{Inst.Qual}_{it} + \beta_4 \text{Election}_{it} + \beta_5 X_{it} + \beta_6 (\text{CBI} \times \text{Election}_{it} \times \text{Inst.Qual}) + \varepsilon_{it}, \quad (4)$$

where $i$ denotes the country and $t$ denotes the time, $\varepsilon_{it}$ is the error term, and the variables are defined as follows.

$\text{FiscalPolicy}_{it}$ is a covariate variable measured first as net central bank claims on government as a percentage of GDP ($\text{NetCBClaims}_{it}$) and second as fiscal balance calculated as government revenue minus government expenditure as a percentage of GDP ($\text{FiscalBalance}_{it}$):

- $\text{CBI}_{it}$ is the CBI measured by the CWN index.
- $\text{Election}_{it}$ is a dummy variable measured as 1 for election years and 0 otherwise.
- $\text{InstQUal}_{it}$ is the rescaled civil liberties score (0 for least respect for civil liberties and 6 for highest respect for civil liberties).

We include the following as control variables:

- $\text{GDPR}_{it}$ is the real GDP annual growth rate.
- $\text{URB}_{it}$ is the degree of urbanisation.
- $\text{AGRI}_{it}$ is the share of agriculture in the GDP.
- $\text{FinDev}_{it}$ is the ratio of private credit to GDP.
- $\text{LGDPC}_{it}$ is log of real GDP per capita.
- $\text{OPENNESS}_{it}$ is trade openness measured as sum of exports and imports as a percentage of GDP.

## 4. Analysis and discussion of results

### *4.1 CBI, elections, institutional quality and fiscal policy*

In Tables I and II, we show the results of the influence of CBI, elections and institutional quality on fiscal policy, measured by net central bank claims on government and fiscal balance as a percentage of GDP in Africa, respectively.

As indicated by the economic literature on CBI, the estimated coefficient of CBI is insignificant in Africa as seen in model 1–6 in Table I and models 19–24 in Table II. Meaning

**Table I.**
CBI, elections, institutional quality and net central bank claims on government

| | Africa NEtCBClaims | | | | | | Developing NEtCBClaims | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| $NetCBClaims_{t-1}$ | 0.859*** | 0.901*** | 0.943*** | 1.021*** | 0.920*** | 0.945*** | 0.921*** | 0.940*** | 0.962*** | 0.992*** | 0.970*** | 0.894*** |
| | (0.028) | (0.021) | (0.035) | (0.029) | (0.036) | (0.029) | (0.021) | (0.002) | (0.020) | (0.003) | (0.011) | (0.011) |
| CBI | −0.074 | −0.071 | −0.088 | −0.145 | −0.104 | −0.127 | −0.124* | −0.125** | −0.130* | −0.189* | −0.161* | −0.141* |
| | (0.124) | (0.277) | (0.072) | (0.225) | (0.198) | (0.185) | (0.185) | (0.015) | (0.040) | (0.265) | (0.156) | (0.114) |
| Inst.Qual | −0.196 | −0.132 | −0.496 | −0.115 | −0.102 | −0.038 | −0.213* | −0.057* | −0.262* | −0.036* | −0.067* | −0.124* |
| | (0.104) | (0.086) | (0.104) | (0.053) | (0.096) | (0.079) | (0.125) | (0.019) | (0.142) | (0.026) | (0.052) | (0.069) |
| Election | | | 0.276*** | 0.229 | 0.128** | 0.119 | | | 0.105** | 0.284 | 0.108 | 0.201 |
| | | | (0.038) | (0.179) | (0.059) | (0.185) | | | (0.035) | (0.353) | (0.171) | (0.241) |
| CBI×Inst.Qual | | −0.155*** | | −0.102*** | | | | −0.066*** | | −0.116*** | | |
| | | (0.034) | | (0.032) | | | | (0.019) | | (0.053) | | |
| CBI×Election | | | | | −0.111 | | | | | | −0.044 | |
| | | | | | (0.314) | | | | | | (0.052) | |
| CBI×Election×Inst.Qual | | | | | | −0.164*** | | | | | | −0.087*** |
| | | | | | | (0.008) | | | | | | (0.009) |
| $GDPR_{t-1}$ | −0.134*** | −0.120*** | −0.094*** | −0.067*** | −0.032*** | −0.044*** | −0.153*** | −0.142*** | −0.161*** | −0.144*** | −0.048*** | −0.049*** |
| | (0.01) | (0.011) | (0.013) | (0.015) | (0.01) | (0.009) | (0.033) | (0.004) | (0.033) | (0.004) | (0.001) | (0.001) |
| URB | −0.032** | 0.003 | −0.037** | 0.003 | 0.006 | 0.004 | −0.022* | −0.015*** | −0.022* | −0.014*** | −0.018** | −0.016* |
| | (0.014) | (0.011) | (0.014) | (0.011) | (0.004) | (0.003) | (0.012) | (0.001) | (0.011) | (0.003) | (0.090) | (0.011) |
| AGRIC | 0.03 | 0.063** | 0.03 | 0.036** | 0.003 | 0.007 | 0.033*** | 0.020*** | 0.035*** | 0.022*** | 0.011*** | 0.010*** |
| | (0.019) | (0.026) | (0.028) | (0.025) | (0.014) | (0.015) | (0.01) | (0.001) | (0.010) | (0.003) | (0.001) | (0.001) |
| $FinDev_{t-1}$ | −0.037*** | −0.018** | −0.038*** | −0.025** | −0.004* | −0.003 | −0.019** | −0.015*** | −0.020** | −0.015*** | −0.017* | −0.015* |
| | (0.009) | (0.007) | (0.007) | (0.104) | (0.002) | (0.002) | (0.008) | (0.001) | (0.009) | (0.002) | (0.012) | (0.010) |
| $Openess_{t-1}$ | −1.47*** | −1.872*** | −1.37*** | −1.663*** | −0.726** | −0.414 | −2.914 | −1.466*** | −1.951 | −1.543*** | −1.015*** | −0.991*** |
| | (0.432) | (0.585) | (0.432) | (1.74) | (0.316) | (0.267) | (2.425) | (0.172) | (2.285) | (0.281) | (0.050) | (0.049) |
| $LGDPC_{t-1}$ | −0.139 | −0.489* | −0.427 | −0.354 | −0.172 | −0.073 | −0.027 | −0.008 | −0.038 | −0.012 | −0.004** | −0.001 |
| | (0.211) | (0.289) | (0.514) | (0.604) | (0.193) | (0.156) | (0.049) | (0.005) | (0.043) | (0.012) | (0.002) | (0.002) |
| Observations | 1,092 | 1,092 | 1,092 | 1,092 | 1,013 | 1,013 | 1,645 | 1,645 | 1,619 | 1,619 | 1,583 | 1,583 |
| No. of Countries | 45 | 45 | 45 | 45 | 43 | 43 | 90 | 90 | 90 | 85 | 85 | 85 |
| No. of Instru'ts | 39 | 39 | 39 | 39 | 36 | 36 | 54 | 54 | 54 | 48 | 48 | 48 |
| AR (1) | 0.007 | 0.007 | 0.008 | 0.007 | 0.006 | 0.006 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| AR (2) | 0.117 | 0.115 | 0.107 | 0.115 | 0.108 | 0.113 | 0.313 | 0.201 | 0.115 | 0.114 | 0.115 | 0.112 |
| Hansen ($p > \chi^2$) | 0.504 | 0.525 | 0.504 | 0.525 | 0.514 | 0.525 | 0.552 | 0.553 | 0.421 | 0.423 | 0.521 | 0.442 |

(*continued*)

Table I.

| | Developed NEtCBClaims | | | | | |
|---|---|---|---|---|---|---|
| | (13) | (14) | (15) | (16) | (17) | (18) |
| $NetCBClaims_{t-1}$ | 0.952*** | 0.982*** | 0.960*** | 0.981*** | 0.935*** | 0.934*** |
| | (0.023) | (0.027) | (0.01) | (0.02) | (0.021) | (0.023) |
| CBI | −0.143*** | −0.102* | −0.286** | −0.284*** | −0.237** | −0.273** |
| | (0.029) | (0.061) | (0.058) | (0.039) | (0.179) | (0.056) |
| Inst.Qual | −0.070** | −0.052** | −0.082** | −0.071** | −0.021* | −0.022* |
| | (0.024) | (0.013) | (0.038) | (0.036) | (0.017) | (0.016) |
| Election | | | 0.014** | 0.012 | 0.203 | 0.04 |
| | | | (0.004) | (0.013) | (0.080) | (0.068) |
| CBI×Inst.Qual | | −0.079** | | −0.190*** | | |
| | | (0.064) | | (0.019) | | |
| CBI×Election | | | | | −0.062** | |
| | | | | | (0.028) | |
| CBI×Election×Inst.Qual | | | | | | −0.088** |
| | | | | | | (0.034) |
| $GDPR_{t-1}$ | −0.115*** | −0.134*** | −0.028* | −0.032* | −0.099*** | −0.099*** |
| | (0.019) | (0.03) | (0.015) | (−0.016) | (0.004) | (0.004) |
| URB | −0.67 | −0.417 | −0.009** | −0.001 | −0.010*** | −0.010*** |
| | (0.003) | (0.026) | (0.004) | (0.002) | (0.003) | (0.003) |
| AGRIC | −0.025 | −0.122 | −0.083 | −0.061 | −0.033** | −0.034** |
| | (0.018) | (0.14) | (0.042) | (0.023) | (0.016) | (0.016) |
| $FinDev_{t-1}$ | −0.009*** | −0.009*** | −0.015** | −0.053** | −0.034** | −0.033** |
| | (0.002) | (0.003) | (0.023) | (0.014) | (0.011) | (0.011) |
| $Openess_{t-1}$ | −0.52 | −0.216 | −0.076 | −0.422*** | −0.456 | −0.541 |
| | (0.45) | (0.539) | (0.538) | (0.297) | (0.431) | (0.422) |
| $LGDPC_{t-1}$ | −0.015 | −0.033 | −0.026 | −0.811*** | −0.007* | −0.007 |
| | (0.01) | (0.02) | (0.078) | (0.184) | (0.004) | (0.004) |
| Observations | 1,184 | 1,184 | 1,166 | 1,166 | 1,165 | 1,165 |
| No. of Countries | 40 | 40 | 40 | 40 | 40 | 40 |
| No. of Instru'ts | 37 | 37 | 37 | 37 | 37 | 37 |
| AR (1) | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 | 0.005 |
| AR (2) | 0.311 | 0.21 | 0.211 | 0.195 | 0.201 | 0.186 |
| Hansen ($p > \chi^2$) | 0.602 | 0.712 | 0.222 | 0.234 | 0.232 | 0.254 |

**Notes:** Robust standard errors in parentheses. $NETCBCLAIMS_{it}$ *d*enotes Net Central Bank Claims on Government and is measured as the ratio of central bank loans to central government institutions net of deposits to GDP;$CBI_{it}$ is the central bank independence measured by the CWN index; $GDPR_{it}$ is the real GDP annual growth rate; $URB_{it}$ is the degree of urbanisation; $AGRIC_{it}$ is the share of agriculture in the GDP; $FinDev_{it}$ is the ratio of private credit to GDP; $LGDPC_{it}$ is log of real GDP per capita; $InstQUal_{it}$ is the rescaled the rescaled civil liberties score, from 0 to 6 where 0 denotes least respect for civil liberties and 6 highest respect for civil liberties; $OPENNESS_{it}$ is the trade openness measured as the ratio of sum of exports and imports to GDP; No. of Instru'ts is number of instruments, Is number of instrument. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

**Table II.**
CBI, elections, institutional quality and fiscal balance

| | Africa | | | | | | Developing | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fisc. Balance | | | | | | Fisc. Balance | | | | | |
| | (19) | (20) | (21) | (22) | (23) | (24) | (25) | (26) | (27) | (28) | (29) | (30) |
| Fisc.Balance $_{t-1}$ | 0.640*** | 0.568*** | 0.285*** | 0.427*** | 0.633*** | 0.711*** | 0.778*** | 0.784*** | 0.598*** | 0.579*** | 0.153*** | 0.147*** |
| | (0.08) | (0.062) | (0.079) | (0.05) | (0.105) | (0.077) | (0.107) | (0.108) | (0.078) | (0.065) | (0.01) | (0.01) |
| CBI | 0.201 | 0.216 | 0.392 | 0.380 | 0.243 | 0.221 | 0.11* | 0.228 | 0.277* | 0.231 | 0.153** | 0.132 |
| | (0.93) | (0.754) | (0.165) | (0.494) | (0.230) | (0.191) | (0.07) | (0.109) | (0.032) | (0.341) | (0.46) | (0.169) |
| Inst.Qual | 0.329 | 0.172 | 0.607 | 0.202 | 0.014 | 0.012 | 0.277* | 0.231* | 0.105*** | 0.219* | 0.189** | 0.315* |
| | (0.318) | (0.232) | (0.089) | (0.426) | (0.351) | (0.127) | (0.125) | (0.115) | (0.007) | (0.086) | (0.015) | (0.114) |
| Election | | | −0.335*** | −0.145 | −0.139 | −0.207 | | | −0.668 | −0.511 | −0.153 | −0.147 |
| | | | (0.141) | (0.154) | (0.208) | (0.306) | | | (0.835) | (0.859) | (0.81) | (0.87) |
| CBI × Inst.Qual | | 0.066* | | 0.097* | | | | 0.158* | | 0.134** | | |
| | | (0.022) | | (0.32) | | | | (0.078) | | (0.047) | | |
| CBI × Election | | | | | 0.023 | | | | | | 0.081 | |
| | | | | | (0.043) | | | | | | (0.091) | |
| CBI × Election × Inst.Qual | | | | | | 0.088** | | | | | | 0.186** |
| | | | | | | (0.019) | | | | | | (0.019) |
| GDPR$_{t-1}$ | 0.057*** | 0.062*** | 0.295*** | 0.373*** | 0.048** | 0.053*** | 0.089*** | 0.078*** | 0.111*** | 0.083*** | 0.106*** | 0.114*** |
| | (0.01) | (0.009) | (0.039) | (0.037) | (0.019) | (0.018) | (0.025) | (0.026) | (0.024) | (0.024) | (0.01) | (0.01) |
| URB | 0.075*** | 0.118*** | 0.114*** | 0.113*** | 0.071* | 0.084*** | 0.008 | 0.029* | 0.042*** | 0.011 | 0.054** | 0.056** |
| | (0.03) | (0.028) | (0.02) | (0.038) | (0.038) | (0.026) | (0.012) | (0.016) | (0.011) | (0.015) | (0.21) | (0.22) |
| AGRIC | 0.003 | 0.007 | −0.023 | 0.112 | 0.041 | −0.017 | −0.044* | −0.067** | −0.019 | −0.102*** | −0.012 | −0.014 |
| | (0.08) | (0.096) | (0.043) | (0.077) | (0.061) | (0.030) | (0.022) | (0.027) | (0.015) | (0.028) | (0.013) | (0.014) |
| FinDev$_{t-1}$ | 0.029* | 0.043*** | 0.037** | 0.052** | 0.014 | 0.014 | −0.007 | 0.017* | 0.004 | 0.014* | 0.154** | 0.165** |
| | (0.02) | (0.011) | (0.017) | (0.024) | (0.013) | (0.011) | (0.008) | (0.009) | (0.008) | (0.008) | (0.77) | (0.97) |
| Openess$_{t-1}$ | 1.704*** | 2.378* | 1.018*** | 1.684*** | 0.136 | −0.484 | 0.599 | 0.676 | 0.142 | 0.385 | 0.018 | 0.028 |
| | (0.54) | (1.183) | (1.111) | (0.798) | (0.227) | (0.572) | (1.67) | (1.637) | (0.152) | (0.598) | (0.018) | (0.031) |
| LGDPC$_{t-1}$ | 0.139 | 0.489* | 1.095*** | 1.974*** | 0.786* | 0.181 | 0.227** | 0.177 | 0.229*** | 0.196** | −0.162** | 0.084*** |
| | (0.21) | (0.289) | (0.228) | (0.689) | (0.404) | (0.304) | (0.114) | (0.131) | (0.079) | (0.086) | (0.07) | (0.02) |
| Observations | 373 | 373 | 188 | 188 | 382 | 382 | 1,354 | 1,354 | 1,392 | 1,392 | 1,304 | 1,306 |
| Countries | 31 | 31 | 29 | 29 | 31 | 31 | 65 | 65 | 56 | 56 | 56 | 56 |
| No. of Instru'ts | 28 | 28 | 27 | 27 | 29 | 29 | 45 | 45 | 45 | 39 | 39 | 39 |
| AR (1) | 0.058 | 0.056 | 0.042 | 0.041 | 0.006 | 0.006 | 0.053 | 0.026 | 0.012 | 0.015 | 0.016 | 0.030 |
| AR (2) | 0.108 | 0.118 | 0.112 | 0.114 | 0.108 | 0.113 | 0.239 | 0.334 | 0.145 | 0.136 | 0.720 | 0.526 |
| Hansen ($p > \chi^2$) | 0.583 | 0.577 | 0.565 | 0.462 | 0.414 | 0.425 | 0.683 | 0.677 | 0.52 | 0.534 | 0.221 | 0.332 |

(*continued*)

Table II.

| | Developed Fisc. Balance | | | | | |
|---|---|---|---|---|---|---|
| | (31) | (32) | (33) | (34) | (35) | (36) |
| Fisc.Balance $_{t-1}$ | 0.711*** | 0.768*** | 0.895*** | 0.907*** | 0.564*** | 0.535*** |
| | (0.025) | (0.048) | (0.008) | (0.009) | (0.037) | (0.037) |
| CBI | 0.142*** | 0.102* | 0.161* | 0.158* | 0.337** | 0.329** |
| | (0.659) | (0.053) | (0.076) | (0.052) | (0.183) | (0.107) |
| Inst.Qual | 0.301*** | 0.045* | 0.042* | 0.065* | 0.152** | 0.291** |
| | (0.05) | (0.027) | (0.037) | (0.037) | (0.082) | (0.052) |
| Election | | | −0.506** | −0.108 | −0.364 | −0.335 |
| | | | (0.121) | (0.133) | (0.377) | (0.337) |
| CBI × Inst.Qual | | 0.061* | | 0.180* | | |
| | | (0.021) | | (0.102) | | |
| CBI × Election | | | | | 0.032** | |
| | | | | | (0.012) | |
| CBI × Election × Inst.Qual | | | | | | 0.078** |
| | | | | | | (0.012) |
| $GDPR_{t-1}$ | 0.139*** | 0.159*** | 0.094*** | 0.100*** | 0.115*** | 0.116*** |
| | (0.013) | (0.023) | (0.013) | (0.014) | (0.024) | (0.027) |
| URB | 0.023*** | 0.046*** | −0.008*** | −0.008*** | 0.031*** | 0.030*** |
| | (0.005) | (0.012) | (0.002) | (0.003) | (0.008) | (0.008) |
| AGRIC | −0.120*** | 0.039 | 0.033 | 0.016 | −0.148 | −0.170 |
| | (0.031) | (0.063) | (0.021) | (0.021) | (0.036) | (0.239) |
| $FinDev_{t-1}$ | 0.009** | 0.006 | 0.065*** | 0.055*** | 0.023*** | 0.023*** |
| | (0.004) | (0.005) | (0.012) | (0.015) | (0.005) | (0.004) |
| $Openess_{t-1}$ | −2.914 | 0.466*** | −0.32 | −1.248 | −0.246 | −0.610 |
| | (2.425) | (0.172) | (0.861) | (1.525) | (0.421) | (0.724) |
| $LGDPC_{t-1}$ | 0.021** | 0.050*** | 0.278** | 0.206 | 0.037** | 0.042** |
| | (0.009) | (0.015) | (0.127) | (0.129) | (0.017) | (0.019) |
| Observations | 981 | 981 | 846 | 846 | 779 | 779 |
| Countries | 44 | 44 | 42 | 42 | 44 | 44 |
| No. of Instru'ts | 37 | 37 | 35 | 35 | 36 | 36 |
| AR (1) | 0.073 | 0.072 | 0.05 | 0.066 | 0.033 | 0.043 |
| AR (2) | 0.362 | 0.359 | 0.341 | 0.431 | 0.286 | 0.309 |
| Hansen ($p > \chi^2$) | 0.458 | 0.456 | 0.585 | 0.531 | 0.532 | 0.654 |

**Notes:** Robust standard errors in parentheses. $FiscalBalnce_{it}$ is government revenue less government expenditure as a percentage of GDP; $CBI_{it}$ is the central bank independence measured by the CWN index; $GDPR_{it}$ is the real GDP annual growth rate; $URB_{it}$ is the degree of urbanisation; $AGRIC_{it}$ is the share of agriculture in the GDP; $FinDev_{it}$ is the ratio of private credit to GDP; $LGDPC_{it}$ is log of real GDP per capita; $InstQUal_{it}$ is the rescaled the rescaled civil liberties score, from 0 to 6 where 0 denotes least respect for civil liberties and 6 highest respect for civil liberties; $OPENNESS_{it}$ is the trade openness measured as the ratio of sum of exports and imports to GDP; No. of Instru'ts is number of instruments. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

that CBI has no direct significant impact on reducing net central bank claims on government and improving fiscal balance in Africa. This could be due to the broad disregard for central bank provisions that place limits on the credit central banks can give to government. This results in increase in government expenditure relative to government revenue.

In other developing countries and developed countries, we see a significant and negative effect of CBI on net central bank claims on government (models 7–12 for other developing countries, and models 13–18 for developed countries). This means that more independent central banks are able to significantly reduce credit to government. This is attributable to respect for CBI provisions that limit credit to government. In Table II, we see a significant and positive impact of CBI on fiscal balance in other developing countries as observed in models 25, 27 and 29 and models 31–36 for developed countries, meaning that higher levels of CBI improve fiscal balance as government's reliance on central bank credit reduces, resulting in lower government expenditure and increase in revenues due to stable macroeconomic conditions.

Elections have significant and positive impact on net central bank claims on government throughout Africa, other developing and developed countries. This is evident in model 3 for Africa, 9 for other developing countries and 15 for developed countries. With respect to fiscal balance, elections have a negative and significant impact in developed countries as seen in model 33. In election years, most political authorities seek financing for their projects meant to convince voters to vote for them or to buy votes as experienced in some African countries. This leads to increased demand on the central bank to provide relatively cheaper finance.

The interactive term between CBI and Elections is significant and negative only in developed countries (model 17) and positive in model (35). Meaning that in developed countries, independent central banks are more able to constrain the impact of elections on central bank financing for government projects and improve fiscal balances in election years relative to non-election years. Thus, a unit increase in CBI reduces the impact of elections on net central bank claims on government by 0.062 (in model 17) though a unit increase in CBI improves fiscal balances by 0.032 (in model 35) in election years compared to non-election years.

Institutional quality (InstQual) proxied by the civil liberties does not have a significant effect on reducing net central bank claims on government in Africa as shown in models 1 to 6 and 19 to 24. This can be explained to mean that with low levels of institutional quality in Africa this does not improve central bank's ability to restrict credit to government and neither does it improve fiscal balance. However, in other developing and developed countries, where there are relatively stronger institutions, the coefficient of the variable is significant and negative as shown in models 7–18 and significant and positive as shown in models 25–36. Where there is respect for the rule of law and institutions are allowed to work, government finds itself accountable to the electorate in free and fair elections as well as having the media being free to report government's disregard for laws such as the charter of the central bank. The presence of quality institutions also means a high level of political stability which ensures that businesses work in a stable environment that guarantees their revenues and profits to pay taxes to government. This goes to reduce budget deficits and the need to resort to the central bank for loans. High levels of institutional quality also are associated with more efficient tax collection and administrative systems that enable the payment of taxes and closes loopholes through which tax revenues are leaked, which could lead to government resorting to central banks for financing. High institutional quality means lower levels of corruption, leading to the prudent use of government resources and efficient tax administration thereby increasing government's revenue. With low levels of corruption, it is easier for independent central banks to influence fiscal policy as pressure to finance government spending is lower than in poor institutionally developed countries.

A robustness check estimation, using cyclically adjusted fiscal balance yields similar results. This is shown in Appendix.

When we consider the interactive effect of CBI and institutional quality, the study finds that, in the case of Africa, CBI is effective in influencing fiscal policy only at higher levels of institutional quality (model 2 and 3). In the case of other developing countries and developed countries, CBI reduces net central bank claims on government more at higher levels of institutional quality and improves fiscal balances more in higher institutionally developed environments. Improvements in institutional quality also enable CBI to curtail the negative impact of elections on fiscal policy in election years, as a unit increase in institutional quality enhances the effect of CBI in reducing net central bank claims on government in election years by 0.164 in Africa, 0.087 in other developing countries and 0.088 in developed countries compared to non-election years. Similarly, in terms of fiscal balance, a unit increase in institutional quality results in a more positive and significant impact of CBI on fiscal balance in election years of 0.088 in Africa, 0.186 in other developing countries and 0.078 in developed countries.

### *4.2 Does the level of economic development matter for the impact of institutions on fiscal policy?*

From the regressions above, we note that although the institutional quality variable has a significant impact on fiscal balance in other developing countries and developed countries, this is not the case with regard to Africa. Noting also that there is a large number of high income countries in other developing countries and developed compared to Africa, it appears that the impact of institutions on fiscal performance is driven by the level of development of the countries, particularly by high income countries. We, therefore, seek to empirically examine this and posit that institutions matter because of the economies they are embedded in. That is to say that institutional quality matters for fiscal balance if the economy is already well developed. It can be argued that having strong institutions in poorly developed economies does not improve fiscal balances since strong economies are needed to generate economic activities that will promote increased revenues for government unlike in poorly developed economies. Also, in the midst of poor institutions, strong economies are able to improve fiscal balances due to the systems that have been embedded in the economy to generate high incomes and increase government revenues.

To examine this thought, following Issahaku *et al.* (2018), we split our sample into two, based on The World Bank's 2016 classification of countries based on gross national income (GNI) per capita computed from the Atlas method. The income divisions are low-income countries (GNI per capita of less than or equal to $1,045 in 2013), lower-middle income countries (GNI per capita greater than $1,045 but less than $4,125), upper middle-income countries (GNI per capita greater than $4,125 but less than $12,746) and high-income countries (GNI per capita of $12,746 or greater). For the sake of our analysis and to gain an adequate sample size, we truncate the sample at $4,125; those countries below this amount form one sample (low-income and lower-middle-income countries), whereas those above (upper middle- income and high-income countries) form another sample. This classification is based on the presumption that the institutional characteristics of low-income countries will be similar to those in lower-middle-income countries and the institutional features of upper-middle-income countries will be similar to those in high-income countries. This categorisation will also afford us more observations to avoid over fitting the models.

In the first regression in Table III, we estimate the impact of institutional quality on fiscal balance in the presence of level of economic development for the global sample. We introduce a level of development dummy DevDum, which is 1 for upper middle income and high-income countries, and 0 for low income and lower middle-income countries. We then

| | Global Fiscal balance | | | | LIC and LMIC Fiscal balance | |
|---|---|---|---|---|---|---|
| | (37) | (38) | (39) | (40) | (41) | (42) |
| FISCAL BALANCE $_{t-1}$ | 0.578*** | 0.604*** | 0.574*** | 0.580*** | 0.576*** | 0.599*** |
| | (0.059) | (0.001) | (0.051) | (0.000) | (0.065) | (0.065) |
| CBI | 0.111 | 0.511** | 0.572 | 0.019** | 0.204 | 0.202 |
| | (0.17) | (0.132) | (0.940) | (0.314) | (0.213) | (0.289) |
| Inst.Qual | 0.296** | 0.278** | 0.222 | 0.409 | 0.301 | 0.196 |
| | (0.211) | (0.026) | (0.345) | (0.021) | (0.18) | (0.234) |
| Election | −0.182* | −0.12 | −0.202 | −0.261 | −0.124* | −0.162 |
| | (0.078) | (−0.62) | (0.371) | (0.027) | (0.072) | (0.126) |
| DevDum | | | 1.022*** | 0.409*** | | |
| | | | (0.345) | (0.021) | | |
| DevDum × Inst.Qual | | | | 1.013** | | |
| | | | | (0.469) | | |
| CBI × Inst.Qual | | 0.197 | | | | 0.140** |
| | | (0.172) | | | | (0.732) |
| GDPR$_{t-1}$ | 0.092*** | 0.091*** | 0.070** | 0.082*** | 0.076** | 0.092*** |
| | (0.031) | (0.003) | (0.033) | (0.003) | (0.034) | (0.032) |
| URB | 0.053** | 0.046** | 0.017 | 0.035*** | 0.078*** | 0.098*** |
| | (0.018) | (0.002) | (0.027) | (0.003) | (0.027) | (0.029) |
| AGRIC | −0.009 | −0.011*** | −0.098** | −0.047*** | −0.045* | −0.017 |
| | (0.028) | (0.001) | (0.038) | (0.002) | (0.025) | (−0.022) |
| FinDev$_{t-1}$ | 0.004 | 0.003*** | −0.007 | −0.002* | 0.005 | 0.025 |
| | (0.006) | (0.001) | (0.008) | (0.001) | (0.019) | (0.02) |
| Openess$_{t-1}$ | 1.018*** | 1.684*** | −0.000 | −0.000 | −1.346 | 0.126 |
| | (1.111) | (−0.798) | (0.000) | (0.000) | (2.317) | (2.15) |
| Observations | 3,029 | 3,029 | 3,029 | 3,029 | 722 | 722 |
| No. of countries | 178 | 178 | 178 | 178 | 51 | 51 |
| No. of Instru'ts | 87 | 87 | 87 | 87 | 42 | 42 |
| AR (1) | 0.042 | 0.041 | 0.05 | 0.056 | 0.053 | 0.026 |
| AR (2) | 0.112 | 0.114 | 0.341 | 0.331 | 0.239 | 0.334 |
| Hansen ($p > \chi^2$) | 0.665 | 0.562 | 0.485 | 0.431 | 0.683 | 0.677 |

| | UMIC and HIC Fiscal balance | | OECD Fiscal balance | |
|---|---|---|---|---|
| | (43) | (44) | (45) | (46) |
| Fiscal Balance $_{t-1}$ | 0.661*** | 0.655*** | 0.561*** | 0.545*** |
| | (0.007) | (0.011) | (0.057) | (0.01) |
| CBI | 0.054*** | 0.051* | 0.122* | 0.123* |
| | (0.014) | (0.024) | (0.052) | (0.078) |
| Inst.Qual | 0.116** | 0.113*** | 0.116*** | 0.121** |
| | (0.062) | (0.023) | (0.012) | (0.052) |
| Election | −0.145* | −0.032 | −0.112** | −0.036 |
| | (0.051) | (0.092) | (0.011) | (0.082) |
| DevDum | | | | |
| DevDum × Inst.Qual | | | | |
| CBI × Inst.Qual | | 0.042*** | | 0.021*** |
| | | (0.264) | | (0.251) |
| GDPR$_{t-1}$ | 0.081*** | 0.076*** | 0.051** | 0.066** |
| | (0.006) | (0.005) | (0.005) | (0.004) |
| URB | −0.027* | −0.036** | −0.015* | −0.016** |
| | (0.015) | (0.016) | (0.012) | (0.01) |
| AGRIC | −0.080*** | −0.119*** | −0.051** | −0.112** |
| | (0.015) | (0.025) | (0.013) | (0.022) |

**Table III.**
CBI, institutional quality and fiscal balance: role of level of development

(*continued*)

| | | | | |
|---|---|---|---|---|
| $FinDev_{t-1}$ | −0.008*** | −0.012*** | −0.012*** | −0.011*** |
| | (0.003) | (0.003) | (0.002) | (0.002) |
| $Openess_{t-1}$ | −2.914 | 0.466*** | −2.914 | 0.521** |
| | (2.425) | (0.172) | (1.415) | (0.072) |
| Observations | 802 | 802 | 391 | 391 |
| No. of countries | 40 | 40 | 22 | 22 |
| No. of Instru'ts | 38 | 38 | 19 | 19 |
| AR (1) | 0.052 | 0.05 | 0.03 | 0.02 |
| AR (2) | 0.235 | 0.3 | 0.255 | 0.213 |
| Hansen ($p > \chi^2$) | 0.558 | 0.556 | 0.555 | 0.551 |

**Notes:** Robust standard errors in parentheses. $FiscalBalnce_{it}$ is government revenue less government expenditure as a percentage of GDP; $CBI_{it}$ is the central bank independence measured by the CWN index; $GDPR_{it}$ is the real GDP annual growth rate; $URB_{it}$ is the degree of urbanisation; $AGRIC_{it}$ is the share of agriculture in the GDP; $FinDev_{it}$ is the ratio of private credit to GDP; $LGDPC_{it}$ is log of real GDP per capita; $InstQUal_{it}$ is the rescaled the rescaled civil liberties score, from 0 to 6 where 0 denotes least respect for civil liberties and 6 highest respect for civil liberties; $OPENNESS_{it}$ is the trade openness measured as the ratio of sum of exports and imports to GDP; DevDum is a dummy; 1 for upper middle income and high-income countries, and 0 for low and lower middle income. No. of Instru'ts is number of instruments. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

**Table III.**

run separate regressions for low income and lower middle-income countries on one hand, and upper middle income and high-income countries on the other hand.

From the results in Table III, models 37 and 38, institutional quality is significant and positive. However, when we introduce a level of economic development dummy, our measure of institutional quality loses its significance in models 39 and 40. The dummy variable for economic development DevDum is, however, significant and positive in model 39 and 40. This means that strong institutions impact fiscal balances more in upper middle income and high-income countries than in low income and lower middle-income countries.

The interactive term between the level of economic development and institutional quality in model 40 is significant and positive. This is explained to mean that the impact of institutions on fiscal balance is embedded in being in upper middle income and high-income countries than in low income and lower middle-income countries.

These findings are further established in models 41–44, where separate regressions for low income and lower middle-income countries (LIC and LMIC) and upper middle income and high-income countries (UMIC and HIC) are presented. In low income and lower middle-income countries, institutional quality has no significant impact on fiscal balance directly. However, in upper middle income and high-income countries, institutional quality has a direct and significant impact on fiscal balances. With respect to CBI, we find that it has a direct impact on fiscal balances in upper middle income and high-income countries.

We further proxied developed countries with OECD countries and ran a separate regression for them in models 44 and 46. We find that similar to developed countries, upper middle income and high-income countries, CBI and institutions have a direct and significantly positive impact on fiscal balance in OECD countries, unlike in low income and lower middle-income countries.

This implies that though countries seek to have strong economic and political institutions, they need to seek opportunities to grow their economies so as to harvest the full benefits of CBI and strong institutions in terms of improving fiscal balances.

## 5. Conclusion

The study has investigated the impact of CBI reforms on fiscal performance of governments in Africa accounting for election years and the role of political institutions in this relationship. The findings of the study are important as they provide insight into the benefits of having

strong institutions to complement independent central banks in order to control fiscal indiscipline in election years. From the findings, we conclude that CBI should be encouraged and consolidated through the development of strong institutions, in Africa and other developing economies so as to exert a disciplining influence on political decision makers to improve fiscal policies particularly in election years. More disciplined fiscal policies can be achieved through strong institutions that reduce corruption and guarantee respect for central bank provisions that limit central bank credit to government. With reduced corruption, adequate revenues are mobilised to finance value for money projects, thereby limiting the need to rely on central banks for finance. In this way, the central bank can remain independent of political control and effectively ensure fiscal discipline. In order for central banks to curtail profligate expenditures in election years, high levels of institutional quality is required. However, developing strong institutions should be complemented with growing the economy, as highly developed economies ensure effective functioning of institutions. Future studies may examine which aspects of the characteristics of political institutions (e.g. rule of law, good governance, press freedom among others) matter most for independent central banks to achieve fiscal discipline in various regions of developing countries.

## Note

1. Fiscal balance is measured as government revenue less government expenditure as a percentage of GDP. Government revenue is central government's total revenue plus grants to GDP. Expenditure is total central government expenditure relative to GDP.

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**Table AI.**
CBI, elections, institutional quality and fiscal balance (cyclically adjusted)

| | Africa Fisc. Balance | | | | | | | | Developing Fisc. Balance | | | | | | Developed Fisc. Balance | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (37) | (38) | (39) | (40) | (41) | (42) | (43) | (44) | (45) | (46) | (47) | (48) | (49) | (50) | (51) | (52) | (53) | (54) |
| Fisc.Balance $_{t-1}$ | 0.586*** | 0.575*** | 0.452*** | 0.446*** | 0.577*** | 0.621*** | 0.698*** | 0.702*** | 0.469*** | 0.476*** | 0.326*** | 0.351*** | 0.658*** | 0.654*** | 0.752*** | 0.769*** | 0.445*** | 0.475*** |
| | (0.002) | (0.003) | (0.003) | (0.002) | (0.007) | (0.006) | (0.025) | (0.021) | (0.022) | (0.017) | (0.011) | (0.008) | (0.025) | (0.028) | (0.008) | (0.009) | (0.012) | (0.018) |
| CBI | 0.118 | 0.124 | 0.241 | 0.254 | 0.165 | 0.155 | 0.078** | 0.065 | 0.088* | 0.096 | 0.101** | 0.112 | 0.086** | 0.098* | 0.104** | 0.108* | 0.125** | 0.146** |
| | (0.201) | (0.158) | (0.225) | (0.287) | (0.169) | (0.182) | (0.015) | (0.074) | (0.051) | (0.112) | (0.021) | (0.126) | (0.027) | (0.062) | (0.012) | (0.073) | (0.042) | (0.054) |
| Inst.Qual | 0.115* | 0.098 | 0.214 | 0.226 | 0.145 | 0.121 | 0.189** | 0.115** | 0.118*** | 0.124** | 0.166** | 0.178** | 0.258* | 0.112* | 0.147* | 0.097* | 0.058** | 0.076** |
| | (0.098) | (0.101) | (0.312) | (0.196) | (0.248) | (0.095) | (0.047) | (0.035) | (0.011) | (0.024) | (0.031) | (0.048) | (0.105) | (0.071) | (0.089) | (0.048) | (0.011) | (0.022) |
| Election | | | −0.114** | −0.104 | −0.102 | −0.118 | | | −0.245 | −0.218 | −0.203 | −0.198 | | | −0.118* | −0.115 | −0.104 | −0.106 |
| | | | (0.054) | (0.248) | (0.158) | (0.175) | | | (0.199) | (0.187) | (0.225) | (0.187) | | | (0.074) | (0.226) | (0.214) | (0.196) |
| CBI×Inst.Qual | | 0.048** | | 0.059* | | | | 0.075** | | 0.064** | | | | 0.055** | | 0.075** | | |
| | | (0.011) | | (0.024) | | | | (0.011) | | (0.015) | | | | (0.012) | | (0.025) | | |
| CBI×Election | | | | | 0.014 | | | | | | 0.022 | | | | | | 0.041*** | |
| | | | | | (0.022) | | | | | | (0.034) | | | | | | (0.008) | |
| CBI×Election×Inst. Qual | | | | | | 0.115** | | | | | | 0.145*** | | | | | | 0.065** |
| | | | | | | (0.025) | | | | | | (0.008) | | | | | | (0.02) |
| $GDPR_{t-1}$ | 0.045*** | 0.026*** | 0.087** | 0.096*** | 0.074*** | 0.055*** | 0.068*** | 0.084*** | 0.094** | 0.088*** | 0.075*** | 0.096*** | 0.114*** | 0.126** | 0.132*** | 0.145*** | 0.155*** | 0.127*** |
| | (0.001) | (0.006) | (0.025) | (0.022) | (0.007) | (0.005) | (0.004) | (0.006) | (0.005) | (0.005) | (0.004) | (0.005) | (0.007) | (0.051) | (0.002) | (0.008) | (0.007) | (0.006) |
| URB | 0.027*** | 0.145*** | 0.156*** | 0.175*** | 0.048** | 0.069*** | 0.075* | 0.041** | 0.029*** | 0.048* | 0.087** | 0.046** | 0.074*** | 0.085*** | −0.056*** | −0.011*** | 0.016*** | 0.018*** |
| | (0.0013) | (0.005) | (0.007) | (0.004) | (0.011) | (0.004) | (0.051) | (0.011) | (0.005) | (0.021) | (0.033) | (0.016) | (0.002) | (0.004) | (0.005) | (0.001) | (0.002) | (0.001) |
| AGRIC | 0.011* | 0.013 | −0.113* | 0.132 | 0.154 | −0.097* | −0.035* | −0.067** | −0.038* | −0.057* | −0.078 | −0.039 | −0.056** | 0.024 | 0.055 | 0.031 | −0.054 | −0.063 |
| | (0.002) | (0.026) | (0.005) | (0.198) | (0.261) | (0.004) | (0.019) | (0.022) | (0.017) | (0.021) | (0.112) | (0.047) | (0.015) | (0.085) | (0.145) | (0.156) | (0.112) | (0.117) |
| $FinDev_{t-1}$ | 0.045* | 0.055** | 0.062** | 0.048** | 0.021 | 0.025* | −0.014 | 0.019** | 0.015 | 0.011* | 0.085** | 0.089** | 0.017** | 0.025 | 0.087** | 0.066*** | 0.114*** | 0.123*** |
| | (0.021) | (0.013) | (0.015) | (0.011) | (0.025) | (0.01) | (0.018) | (0.008) | (0.022) | (0.005) | (0.025) | (0.026) | (0.008) | (0.142) | (0.032) | (0.004) | (0.004) | (0.003) |
| $Openess_{t-1}$ | 0.112** | 0.124* | 0.142** | 0.115** | 0.096 | −0.144 | 0.147 | 0.214* | 0.115 | 0.118 | 0.097* | 0.088 | −0.116 | 0.146* | −0.174 | −0.149 | −0.118* | −0.187 |
| | (0.045) | (0.087) | (0.075) | (0.054) | (0.158) | (0.254) | (0.326) | (0.102) | (0.187) | (0.241) | (0.054) | (0.178) | (0.369) | (0.068) | (0.214) | (0.216) | (0.087) | (0.176) |
| $LGDPC_{t-1}$ | 0.287** | 0.296* | 0.248*** | 0.236** | 0.218* | 0.229 | 0.238** | 0.201* | 0.208*** | 0.117** | −0.125** | 0.147*** | 0.128*** | 0.214*** | 0.239** | 0.219 | 0.187** | 0.196** |
| | (0.096) | (0.121) | (0.008) | (0.024) | (0.098) | (0.263) | (0.087) | (0.111) | (0.002 | (0.075) | (0.066) | (0.001) | (0.006) | (0.005) | (0.076) | (0.225) | (0.032) | (0.035) |
| Observations | 373 | 373 | 188 | 188 | 382 | 382 | 1,354 | 1,354 | 1,392 | 1,392 | 1,304 | 1,306 | 981 | 981 | 846 | 846 | 779 | 779 |
| Countries | 31 | 31 | 29 | 29 | 31 | 31 | 65 | 65 | 56 | 56 | 56 | 56 | 44 | 44 | 42 | 42 | 44 | 44 |
| No. of Instru'ts | 27 | 27 | 25 | 25 | 27 | 27 | 44 | 44 | 43 | 41 | 41 | 41 | 35 | 35 | 33 | 33 | 35 | 35 |
| AR (1) | 0.054 | 0.053 | 0.039 | 0.038 | 0.012 | 0.012 | 0.033 | 0.028 | 0.016 | 0.018 | 0.018 | 0.022 | 0.043 | 0.042 | 0.021 | 0.045 | 0.024 | 0.022 |
| AR (2) | 0.214 | 0.225 | 0.268 | 0.254 | 0.218 | 0.226 | 0.332 | 0.311 | 0.295 | 0.278 | 0.354 | 0.441 | 0.215 | 0.226 | 0.247 | 0.285 | 0.268 | 0.297 |
| Hansen ($p > \chi^2$) | 0.336 | 0.338 | 0.461 | 0.489 | 0.458 | 0.442 | 0.774 | 0.715 | 0.698 | 0.625 | 0.634 | 0.598 | 0.447 | 0.421 | 0.479 | 0.401 | 0.458 | 0.501 |

**Notes:** Robust standard errors in parentheses. Fiscal Balance$_{it}$ is the cyclically adjusted fiscal balance measured as government revenue less government expenditure as a percentage of GDP; CBI$_{it}$ is the central bank independence measured by the CWN index; GDPR$_{it}$ is the real GDP annual growth rate; URB$_{it}$ is the degree of urbanisation; AGRIC$_{it}$ is the share of agriculture in the GDP; FinDev$_{it}$ is the ratio of private credit to GDP; LGDPC$_{it}$ is log of real GDP per capita; InstQUal$_{it}$ is the rescaled the rescaled civil liberties score, from 0 to 6 where 0 denotes least respect for civil liberties and 6 highest respect for civil liberties; and OPENNESS$_{it}$ is the trade openness measured as the ratio of sum of exports and imports to GDP; DevDum is a dummy; 1 for upper middle income and high-income countries, and 0 for low and lower middle income. No. of Instru'ts is number of instruments. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$