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Do Independent Central Banks Exhibit Varied Behaviour in Election and Non-Election Years?: The Case of Fiscal Policy in Africa

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ABSTRACT

The study primarily investigates if the behavior and effectiveness of CBI on fiscal policy varies between non-election and election years. It also examines whether the effectiveness of CBI in improving fiscal performance is enhanced by higher institutional quality. Using recent CBI data from 48 African countries, 90 other developing countries and 40 developed countries over the period 1970–2012, we apply a two-stage system GMM with Windmeijer small sample robust correction estimator and find that due to the strong incentives of political authorities to influence economic outcomes in election years, CBI has stronger effects on fiscal performance in election years compared to non-election years in developed countries only. However, given higher levels of institutional quality, CBI has stronger effects on fiscal performance in election years compared to non-election years in Africa and other developing countries also.

KEYWORDS

Central bank independence; fiscal policy; Africa; institutional quality; elections

1. Introduction

Acemoglu, Johnson, Robinson, and Thaicharoen (2003) examine macroeconomic policies and institutional economics by arguing that macroeconomic variables are symptoms and not causal factors of poor economic performance. The study suggests that slow growth in countries with high inflation, large budget deficits and misaligned exchange rates is not a consequence of these macroeconomic issues but rather, these macroeconomic issues are consequences of the poor institutional environment found in these countries. Subsequently, slow growth is caused by the poor institutional development and not the mentioned macroeconomic variables. Ramlall (2015) in providing a deep analysis of different criteria used to rate central banks such as z-score, research, staff efficiency, governance indicators, central bank independence among others, developed a central bank quality rating and score from these measures for various countries for the year 2013. The study showed that institutional quality does have a say in explaining economic country data.

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Institutional and policy reforms are therefore often initiated and encouraged as a means to promote economic performance and growth in poor countries. Reforms including trade openness, financial liberalization, judicial reform, privatization of state enterprises, reduction of entry barriers, tax reforms, removal of targeted industrial subsidies, and central bank independence, have been given a great deal of attention over the past two to three decades.

Of particular interest is the trend in central bank independence, a significant feature of central bank quality, which was promoted as a way to improve the credibility of the monetary policy framework of countries with high inflation rates, fiscal deficits and unsustainable debts (Bodea & Higashijima, 2017). According to de Haan, Bodea, Hicks, and Eijffinger (2018), central bank independence (CBI) is the delegation of monetary policy to unelected officials and the restriction of government's influence on monetary policy. In both developed and developing countries, the importance of central banks in shaping and implementing monetary policy cannot be over-emphasized. The decisions of central banks have effects on interest rates, exchange rates and the development of private banks in their economies. Ramlall (2016) show that central bank quality which, to an extent, has a repercussion on the decisions the central bank makes, does impact on country risk level. This study aims to examine the behavior of independent central banks in sub-Saharan Africa in countering fiscal pressures in election and non-election years and to determine to what extent political institutions affect the effectiveness of central bank independence in achieving fiscal discipline in sub-Saharan African countries.

The theoretical case for CBI rests on countering inflationary biases that may occur for various reasons in the absence of an independent central bank (Fischer, 2015). One reason for such a bias is political pressure to boost output in the short run for electoral reasons irrespective of longer term costs (Drazen, 2000). Another reason is the incentive for politicians to use the central bank's power to issue money as a means to finance government spending. The inflationary bias can also result from the time-inconsistency problem of monetary policy making. In a nutshell, the problem is that policymakers are not credible, i.e. they have an incentive to renege in the future on their promise made today to keep inflation low

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

Electorally motivated fiscal spending, vote buying, or simply money printing, 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. 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.

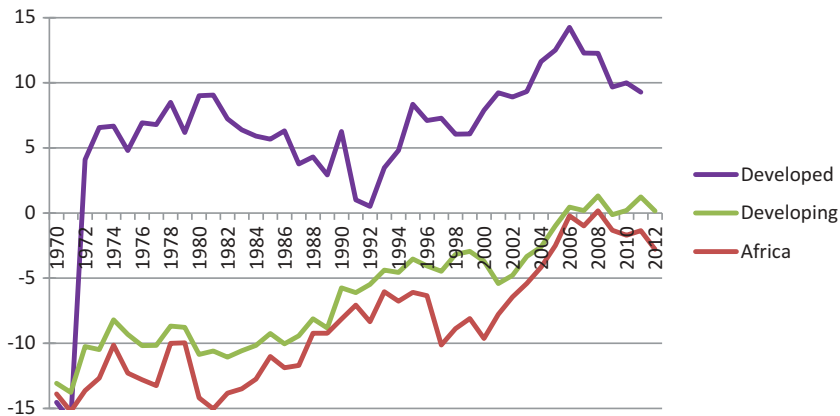


Figure 1. Fiscal balance 1970–2016.

Source: World Bank (2017)

Sargent and Wallace (1987) argue that a dominant monetary policy compels fiscal authorities to properly manage fiscal balances by reducing government debt. However, when there is fiscal dominance, it is difficult for monetary authorities to influence fiscal authorities in this manner. On the assumption that there will no more be purchase of government bonds by the market, the fiscal authorities have to resort to seigniorage. With a more independent central bank, political authorities have low influence in pressurizing the central bank to finance budget deficits.

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 its presence allows free access to information by voters (Shi & Svensson, 2006) and when there is a high level of fiscal policy transparency (Alt & Lassen, 2006).

In this study, we analyze to what extent and how differently independent central banks are successful in countering fiscal pressures, originating particularly in non-election and election years. Does central bank independence offset spending pressures originating from the electoral cycle? We argue that since fiscal pressures are higher in election years than in non-election years, the impact of independent central banks on fiscal policy should be higher in the years when pressure to spend is high, which in this case, is expected to be election years. This is because in most African countries, these years are associated with political authorities desiring to fulfil promises and influence the outcome of elections in their favour through huge projects, and in some cases sharing money and other gifts to party delegates and some of the electorate.

We provide evidence that, unlike other developed countries, CBI's effect on fiscal performance in election years does not significantly vary from that in non-election years in Africa and other developing countries. However, institutional quality significantly enhances the effectiveness of CBI more in election years than in non-election years in Africa, and other developing and developed countries.

The rest of the study is structured as follows. Section 2 reviews extant literature. In section 3, we outline the methodology and analyze and present the results in section 4. Section 5 concludes the study based on our findings.

2. Literature review

A potential effect of CBI is the link between fiscal deficits and price stability that comes from having an independent central bank. Earlier studies were of the view that an independent central bank is a remedy for high inflation, which leads to lower cost of capital and improved fiscal performance, without harming economic growth (Alesina & Summers, 1993; Grilli, Masciandaro, & Tabellini, 1991). The other link is the limits on central bank credit to government. Tests of the direct link between CBI and fiscal deficits have provided mixed results both in developed (Franseze, 2002; Grilli et al., 1991; Leone, 1991; Burdekin & Laney, 1988; Barnhart & Darrat, 1988) and developing countries (Bodea & Higashijima, 2015; Bodea, 2013; Sikken & Haan, 1998).

According to Garriga and Rodriguez (2017), it is assumed that central banks and governments have contrasting preferences. While the central bank is conservative and desires to achieve price stability, political authorities also desire price stability, but they are motivated by the quest to retain power (Ames, 1987; Bueno de Mesquita, Morrow, Siverson, & Smith, 2003). This is because, for the politician, remaining in power is necessary for them to achieve all the other policy goals including price stability. Therefore, the central bank's decisions intended 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 through the government embarking on an expansionary fiscal policy (Bodea & Higashijima, 2015, Clark & Hallerberg, 2000; Treisman & 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 in 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. Thus, the test of true central bank independence emerges in election years. Garriga and Rodriguez (2017) argue that the inability of previous studies to identify inflationary opportunistic cycles precisely is as a result of these studies failing to account for the fact that central bank independence will have stronger inflation-curbing effects during elections. One of such effects is through fiscal discipline achieved by restrictions on central bank credit to government. Muscatelli (1998), states that 'the most obvious advantage a fully independent central bank has is that of not being influenced by electoral deadlines'.

The impact of elections on central banks' behavior, however, is uncertain. While some literature identifies similar central banks' policies in both election and non-election years, (Alesina & Stella, 2010, Allen; McCrickard, 1991; Beck, 1987; Leertouwer & Maier, 2002), others such as Abrams and Iossifov (2006) and Clark and Arel-Bundock (2013) find an accommodative behavior by central banks of pressures from political authorities during elections.

The effect of CBI on fiscal deficits in countries with rule of law and impartial contract enforcement is derived from various central bank behaviors. 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 favorable times. Secondly, 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.

In general, high institutional quality environments are associated with strong democracies, which secure property rights and contract enforcements, which are all characterized by an independent judiciary, respect for rule of law and individual rights (Bodea & Higashijima, 2015). Therefore, in poor institutional quality environments such as dictatorships, there is high uncertainty that legislation aimed at tying the hands of government would be enforced. In democracies, the rule of law prevails because there are strong constraints on the power of government. The opposition parties are interested in the independence of the central banks, as this 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. Also, in countries with coalition parties in government, protecting the independence of the central bank is paramount, as such an institution provides useful information of government policies (Crowe & Meade, 2008). It is most unlikely for central banks' decisions on financing government expenditure to be overridden, or for the central bank laws to be easily amended, in governments where there are two or more veto players (Bodea & Higashijima, 2015). Consequently, the credibility of independent central banks to pursue price stability and abide by legal limitations on providing finance to government is enhanced in such situations (Keefer & Stasavage, 2003).

Studies which have suggested that central bank independence is more significant in election years have either examined this only in democracies or have neglected developing countries including Africa (Franzese, 1999, p. 681 and Clark, 2003). Incipient studies by Bodea, Garriga, and Higashijima (2016), Garriga and Meseguer (2017) and Johnson (2016) suggest, however, that central bank independence may be credible in autocracies under certain circumstances. 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 policy (Schuknecht, 1996; Shi & Svensson, 2006). In relatively weak institutional environments, there is an observed vastly greater level 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 & Riedl, 2013, pp. 344, 1348).

In Africa and other developing countries, relatively weaker institutions make it easier for politicians to manipulate monetary and fiscal policy (Shi & Svensson, 2006). Garriga and Rodriguez (2017) argue that although it seems counterintuitive, developing countries have reasons to respect central bank independence especially when it is very costly – i.e., during elections. This is because there are significant reputational and signaling 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 & Hicks, 2015; Maxfield, 1997; Polillo & 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 central bank independence provisions. Based on these considerations, it is

possible to have a stronger anti-fiscal indiscipline effect of central bank independence in election years in Africa and other developing countries.

Studies have shown that incumbents manipulate the economy in election years, and as such, these periods are not ideal for the central bank to press for budget balances (Drazen & Eslava, 2005). Bodea and Higashijima (2015) using Polity IV scores to measure democracy, political rights and civil rights find that CBI restrains deficits only in democracies, during non-election years and under left government tenures.

This study argues that, in countries where the quality of institutions is generally high, there is respect for rule of law and there are mechanisms through which political authorities are held accountable for the outcome of their decisions which include flouting central bank independence laws and spending in a way that generates excessive deficits. With this advantage for jurisdictions where institutional quality is high, there is an enhancement in the credibility of monetary policy delegated to an independent central bank, and therefore the possibility of the central bank initiating a monetary policy that is retaliatory in response to fiscal policy to deter fiscal deficits is high. Secondly, in countries with high institutional development, low levels of corruption mean that government expenditures 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 differences in effect of CBI and institutional quality on fiscal policy in election and non-election years, we utilize 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. In addition to the CBI index from Garriga (2016) who computes the CWN index for the period 1970–2014, and institutional quality measures from Freedom House, we include 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 urbanization and the proportion of agriculture in GDP.

3.2. Dependent variable

The dependent variable, fiscal policy, is measured as the net central bank claims on government ($NetCBClaims_{it}$) which 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 (World Bank, 2015)

We also measure the dependent variable as the ratio of the difference between revenues and expenditures as a share of the GDP (*Fiscal Balance_{it}*). These are taken from the World Economic Outlook (International Monetary Fund, 2018). Though central banks may find of more interest other operationalisations of fiscal policy such as the primary deficit which 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 government is in getting deficits monetised by monetary authorities, the smaller the degree of CBI. We therefore adopt an estimation technique that will address the issue of potential endogeneity.

3.3. Explanatory variables

CBI_{it} which is our principal explanatory variable, is measured as the annual legal central bank independence 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, since 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 Cukierman, Webb and Neyapti. 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, 1992, Cukierman, Web, & Neyapti, 1992, De Haan & Siermann, 1996) has been shown to be endogenous to inflation (Dreher, Sturm, & Ursprung, 2008). According to the theoretical rationale for CBI, we would expect an increase in CBI to result in better fiscal balance and a reduction in central bank claims on government.

We identify election years (*Election_{it}*) from the Database of Political Institutions (DPI) (da Cruz, Tavares, Marques, Jorge, & de Sousa, 2016). We code elections as a dichotomous variable equal to 1 to indicate the occurrence of an election for the executive or legislative branches, respectively, in a given year and 0 for non-election years. Based on this, we sort our sample into election year sample and non-election year sample for each country.

In this study, as a measure of institutional quality (*InstQual_{it}*), we use civil liberties score variable obtained from the Freedom House database. The score for the variable ranges from 7 to 1, with 7 representing the lowest 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 formula $-1 * (CLS - 7)$, where CLS is the civil liberty score as given by Freedom House.

We also include other control variables namely the log of real GDP per capita (*LGDP_{Cit}*) to capture the differences in the level of economic development among countries. We include real annual GDP growth rate (*GDPR_{it}*) in the regression to proxy

for economic activity as a result of the fact that government budget balance is sensitive to fluctuations in the economy. According to Edwards and Tabellini (1991), the urban population ratio (URB_{it}) variable is introduced in the model because authorities find it easier and more cost effective in collecting taxes in urban areas where there are higher concentrations of the formal sector than in the rural areas, where there is a high degree of tax evasion and avoidance (Ansari, 1982).

Tanzi (1992) notes that the economic structure of a country is an important determinant of the level of taxation. This study therefore uses the ratio of Agriculture to GDP ($AGRIC_{it}$), to capture the structure of the economy of a country. In developing countries, where the agricultural sector is mainly subsistence in nature due to the presence of many small farmers, most governments are reluctant in taxing staple food items (Stotsky & WoldeMariam, 1997). We measure the level of financial development ($FinDev_{it}$), using the ratio of private credit to GDP due to the availability of this data for most countries in our sample. According to Woo (2006), “countries with highly developed financial markets can more easily finance the fiscal deficit by issuing bonds without having to resort to inflationary finance”. We measure trade openness ($OPENNESS_{it}$), as the ratio of the sum of exports and imports of goods and services to GDP.

3.4. Model and estimation technique

Following Garriga and Rodriguez (2017), this study seeks to answer whether the effects of central independence varies based on the political authority’s incentives to manipulate macroeconomic outcomes, particularly during election years. The argument made is that if delegating monetary policy to central banks is a means to curb politically induced inflation as a result of central bank financing of government projects in election years, then we should clearly see this during election years where the motivation to manipulate economic outcomes is high. The assumption is that these incentives are high in election years compared to non-election years. If this assumption is true, then the magnitude of the effect of CBI on fiscal performance should be higher in election years than in non-election years.

The theory this study tests is that central bank independence matters differently in election and non-election years. As such, including controls for election years would not capture the effect of independent central banks facing stronger pressures to finance government spending. Subsequently, following Garriga and Rodriguez (2017), depending on the occurrence of national executive or legislative elections in a given year, we split the African, other developing and developed countries samples into election and non-election years. Doing this allows for the possibility that the effects of the determinants of fiscal balance vary during election and non-election years. Having done this, we are able to examine the impact of CBI and institutional quality in both election and non-election years. It also enables us to better assess the impact of elections and institutional quality on the behaviour of the central bank in election and non-election years.

We use a Two-step system GMM (2SSGMM), with Windmeijer (2005) small sample robust correction estimator for various reasons. First, due to 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, respectively, who are in the sample for relatively few years ranging between 7–17 years, which does not allow the diminishing over time of shocks to fixed effects (the Nickell bias, Beck & Katz, 2004; Wooldridge, 2010). Secondly, because both the CBI index and institutional quality, measured as the political rights score vary little within countries, the SGMM leads to a more efficient estimation than fixed effects models (Plümpner & 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 realizations of the budget surplus/deficits. However, they must have no relation or correlation with future realizations 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 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 instruments should be less than the number of countries in the sample.

Our preferred model based on Ramlall (2016), Bodea and Higashijima (2015), Acemoglu et al. (2008) and Romer (1993) can be summarized as follows:

We examine if the behaviour of CBI varies in election and non-election years by separating our sample based on whether there was an election or not. Here, the focus will be on the magnitude of the CBI coefficient in both samples.

The specification is given as follows:

$$Fiscal\ Policy_{it} = \beta_1 Fiscal\ Policy_{it-1} + \beta_2 CBI_{it} + \beta_3 Inst.\ Qual_{it} + \beta_4 X_{it} + \beta_5 (CBI * Inst.\ Qual_{it}) + \varepsilon_{it} \text{ (if } Election_{it} = 1; \text{ for election year sample)} \quad (1)$$

and

$$Fiscal\ Policy_{it} = \beta_1 Fiscal\ Policy_{it-1} + \beta_2 CBI_{it} + \beta_3 Inst.\ Qual_{it} + \beta_4 X_{it} + \beta_5 (CBI * Inst.\ Qual_{it}) + \varepsilon_{it} \text{ (if } Election_{it} = 0; \text{ for non-election year sample)} \quad (2)$$

where i denotes the country and t denotes the time, ε_{it} is the error term, and the variables are defined as:

$Fiscal\ Policy_{it}$ is a covariate variable measured firstly as net central bank claims on government as a percentage of GDP ($NetCBClaims_{it}$), secondly as fiscal balance calculated

as government revenue minus government expenditure as a percentage of GDP (*Fiscal Balance_{it}*).

CBI_{it} is the central bank independence measured by the CWN index

InstQual_{it} is the rescaled civil liberties score (0 for least respect for civil liberties and 6 or highest respect for civil liberties)

GDPGR_{it} is the real GDP annual growth rate

URB_{it} is the degree of urbanization

AGRI_{it} is the share of agriculture in the GDP

FinDev_{it} is the ratio of private credit to GDP

LGDPCC_{it} is log of real GDP per capita, and

OPENNESS_{it} is the trade openness measured as sum of exports and imports as a percentage of GDP.

Consistent with Brambor, Clark, and Golder (2006) and contemporary literature (Asongu, Le Roux, & Biekpe, 2017; Asongu & Nwachukwu, 2018; Tchamyou & Asongu, 2017), we compute the total effect of CBI which is the sum of the unconditional effect of CBI (β_1) and the conditional effect (β_3) (modulated by the mean value of the interacting variable). This is in order to avoid a misleading interpretation of the conditional and unconditional effects of CBI (i.e. independently) brought about by interactive regressions. Thus the overall effect of a change in CBI on fiscal policy conditioned on the level of institutional quality is given as:

$$\frac{\partial \text{Fiscal Policy}_{it}}{\partial \text{CBI}_{it}} = \beta_1 + \beta_3 \text{Inst.Qual}$$

4. Analysis and discussion of results

4.1. Data description

In Table 1, we present summary descriptive statistics of the key variables for the regions of our study. Average net central bank claims on government as a percentage of GDP is 8.9% in Africa which is the least compared to developed and other developing countries' figures of 9.3% and 9.56%, respectively. The country with the highest net central bank claims to government as a percentage of GDP of 39.629 however, is in Africa. On average, Africa has a higher expenditure to GDP ratio (16.2%) compared to other developing countries (15.1%). The average fiscal balance in Africa is 7.2% while that of other developing and developed countries is 7.3% and 12.9%, respectively.

The highest fiscal deficit is found in developed countries (−67.8%). Africa has lower median and mean fiscal balances (5.2% and 7.2%) compared to other developing countries (5.1% and 7.4%), respectively. Developed countries have better mean and median fiscal balances (12.9% and 12.4%) compared to other developing (7.3% and 6.05%) and African (7.3% and 5.2%) countries. This highlights the fiscal challenges that confront Africa and other developing countries in particular. Africa though has relatively higher median and mean CBI values (0.50 and 0.51) compared to developed (0.45 and 0.48) and other developing countries (0.48 and 0.49). The quality of institutions is highest in developed countries with an average score of 4.85 compared to Africa's 2.19 and other developing countries' score of 2.76.

Table 1. Descriptive Statistics.

Variable		Mean	Median	Max	Min.	SD.	Obs.
NetCBClaims	Africa	8.895	5.9	39.629	-88.541	22.526	1850
	Developing	9.562	5.601	38.711	-88.541	22.423	2369
	Developed	9.313	7.732	37.617	-62.961	17.863	1770
FiscalBalance	Africa	7.266	5.1610	101.985	-18.523	10.602	1556
	Developing	7.337	6.0577	129.282	-37.951	10.077	1857
	Developed	12.95	12.422	78.169	-67.850	12.209	1595
CBI	Africa	0.509	0.501	0.866	0.137	0.183	1597
	Developing	0.491	0.482	0.979	0.016	0.198	2773
	Developed	0.483	0.450	0.894	0.0971	0.222	1872
Inst.Qual	Africa	2.190	2	6	0	1.434	1991
	Developing	2.759	3	6	0	1.604	2408
	Developed	4.854	6	6	0	1.598	1842
URB	Africa	32.41	36.52	86.367	2.845	16.621	1587
	Developing	42.759	45.23	56.23	5.523	1.604	2408
	Developed	70.52	65.21	100	8.534	20.117	1894
AGRIC	Africa	27.37	32.54	79.04	0.718	16.345	1200
	Developing	32.28	0.21	56.23	0.721	0.419	2058
	Developed	3.65	6.215	29.48	0.035	3.22	1292
FinDev	Africa	19.892	14.736	160.125	0.491	19.347	1769
	Developing	29.219	20.193	115.783	0.491	80.527	2328
	Developed	68.671	58.178	312.154	0.059	44.925	1654
GDPC	Africa	1362.7	1568.5	14,749.2	113.7	2129.5	1429
	Developing	2045.7	2254.3	15,912.5	111.7	2179.6	3127
	Developed	23,951.3	32,154	87,772.7	589.14	14,956	1703
OPENNESS	Africa	43.58	45.2	92.9	22.5	16.5	1569
	Developing	33.82	54.23	85.27	21.6	36.7	4480
	Developed	91.9	89.52	217.4	21.38	19.42	1912

$NETCBCLAIMS_{it}$ denotes 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. $FiscalBalance_{it}$ 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 urbanization, $AGRIC_{it}$ is the share of agriculture in the GDP, $FinDev_{it}$ is the ratio of private credit to GDP, $GDPC_{it}$ is the real GDP per capita, $InstQual_{it}$ is the rescaled the rescaled civil liberties score, from 0–6 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. Developing refers to other developing countries.

4.2. Main results

The results in Table 2 indicate that in Africa and other developing countries, there is no direct significant impact of CBI on net central bank claims on government either in election or non-election years. This means that central bank independence is not effective in significantly constraining credit to governments in Africa and other developing countries. This could be attributable to the lack of respect for central bank provisions that characterize countries in developing regions. We also observe that in Africa, the magnitudes of the CBI coefficients are smaller in election years than in non-election years. This is shown in models (2) and (4) for non-election and election years where the CBI coefficient in non-election years is 0.178 and that for election years is 0.152. This means that the impact of CBI on reducing net central bank claims on government is lower in election years than in non-election years, though not significantly. In developed countries, however, CBI has a significantly negative direct impact in both election and non-election years as seen in models (9) – (12) with a stronger impact in election years (0.206 and 0.244) than in non-election years (0.202 and 0.231). This shows that independent central banks in developed countries are able to more effectively deal with the higher fiscal pressures in election years. This can be attributable



Table 2. CBI, Elections, Institutional Quality and Net Central Bank Claims on Government (Non-Election vs Election Years).

	AFRICA				DEVELOPING				DEVELOPED			
	NON-ELECTION		ELECTION		NON-ELECTION		ELECTION		NON-ELECTION		ELECTION	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NetCBIclaims _{t-1}	0.245*** (0.05)	0.225*** (0.07)	0.434*** (0.06)	0.465*** (0.08)	0.567*** (0.012)	0.677*** (0.042)	0.321*** (0.007)	0.568*** (0.015)	0.782*** (0.012)	0.765*** (0.001)	0.897*** (0.006)	0.856*** (0.011)
CBI	-0.198 (0.14)	-0.178 (0.120)	-0.201 (0.172)	-0.152 (0.143)	-0.104 (0.091)	-0.125 (0.210)	-0.111 (0.125)	-0.145 (0.17)	-0.202*** (-0.022)	-0.231** (0.09)	-0.206** (0.06)	-0.244*** (0.02)
InstQual	-0.096 (0.11)	-0.087 (0.081)	-0.077 (0.08)	-0.116 (0.14)	-0.087** (0.016)	-0.076 (-0.062)	-0.086 (0.07)	-0.079* (0.042)	-0.048*** (0.021)	-0.042 (0.06)	-0.071 (0.066)	-0.086** (0.014)
CBI*InstQual		-0.078* (0.021)	-0.088* (0.022)	-0.088* (0.022)	-0.101* (0.045)	-0.101* (0.045)	-0.101* (0.045)	-0.124*** (0.08)	-0.059*** (0.005)	-0.059*** (0.005)	-0.059*** (0.005)	-0.066** (0.02)
GDP	-0.101** (0.06)	-0.098*** (0.001)	-0.112* (0.065)	-0.085 (0.22)	-0.054*** (0.002)	-0.058** (0.016)	-0.065*** (0.003)	-0.098*** (0.005)	-0.052* (0.02)	-0.035* (0.01)	-0.052 (0.05)	-0.047 (0.32)
URB	-0.025** (0.01)	-0.032** (0.01)	-0.048 (0.32)	0.036 (0.047)	-0.069** (0.011)	-0.075 (0.16)	-0.086*** (0.003)	-0.053 (0.147)	-0.036 (0.11)	-0.015** (0.005)	-0.023** (0.005)	-0.018 (0.110)
AGRIC	0.023 (0.02)	0.018 (0.02)	0.042** (0.01)	0.026 (0.32)	0.008 (0.22)	0.012 (0.15)	0.013* (0.009)	0.022 (0.026)	0.026** (0.01)	0.035* (0.01)	0.038 (0.05)	0.058** (0.005)
FinDev _{t-1}	-0.065* (0.03)	-0.072** (0.01)	-0.048** (0.03)	-0.059 (0.24)	-0.036*** (0.005)	-0.026** (0.015)	-0.036* (0.013)	-0.042* (0.015)	-0.051** (-0.013)	-0.047 (-0.045)	-0.056 (0.05)	-0.069*** (-0.005)
OPENNESS _{t-1}	-0.115** (0.04)	-0.103** (0.025)	-0.156 (0.25)	-0.147 (0.13)	-0.116** (0.039)	-0.084 (0.112)	-0.058*** (0.02)	-0.066 (-0.058)	-0.124*** (0.030)	-0.116 (0.11)	-0.214 (0.28)	-0.118 (0.29)
LGDP	-0.065*** (0.01)	-0.077 (0.14)	-0.089 (0.077)	-0.085 (0.12)	-0.068*** (0.003)	-0.084** (0.044)	-0.080** (0.013)	-0.076*** (0.005)	-0.022*** (0.002)	-0.026*** (0.001)	-0.031 (0.11)	-0.035** (0.01)
Total CBI Effect ($\beta_1 + \beta_3$)		-0.256* (0.078)	-0.24* (0.09)	-0.24* (0.09)	-0.226* (0.065)	-0.226* (0.065)	-0.226* (0.065)	-0.269** (0.042)	-0.29*** (0.02)	-0.29*** (0.02)	-0.29*** (0.02)	-0.31*** (0.02)
Observations	179	179	88	88	1,048	1,048	465	465	175	175	126	126
Number of Countries	29	29	22	22	90	90	61	61	36	36	32	32
No. of Instruments	22	22	18	18	66	66	54	54	26	26	21	21
AR (1)	0.038	0.041	0.025	0.021	0.044	0.042	0.031	0.024	0.055	0.054	0.05	0.053
AR (2)	0.132	0.121	0.134	0.143	0.165	0.176	0.143	0.144	0.132	0.146	0.167	0.178
Hansen test	0.332	0.246	0.365	0.376	0.455	0.541	0.505	0.523	0.446	0.487	0.466	0.552

Robust standard errors in parentheses * p < 0.01, ** p < 0.05, * p < 0.1**

Non-Election represents sample for all years in which elections were not held in a country within the sample period. Election represents sample for all years in which elections were held in a country within the sample period. $NetCBIclaims_{it}$ is the dependent variable and is measured as central bank credit to government less government deposits with the central bank as a percentage of Gross Domestic Product. CBI_{it} is the central bank independence variable, measured by the Cukierman Webb and Neyapti index and ranges between 0 and 1, with 0 being most dependent bank and 1 representing most independent bank. GDP_{it} is the real GDP annual growth rate, URB_{it} is the degree of urbanization measured as the percentage of population in urban areas, $AGRIC_{it}$ is the share of agriculture in the Gross Domestic Product, $FinDev_{it}$ is financial development and is measured as the ratio of private credit to Gross Domestic Product, $LGDP_{it}$ is log of real Gross Domestic Product per capita measured as real GDP divided by a country's population, $InstQual_{it}$ is institutional quality measured as the rescaled the civil liberties score, from 0–6 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 Gross Domestic Product. Total CBI Effect is the overall or net effect of CBI which is the sum of the unconditional and the conditional effect ($\beta_1 + \beta_3$) (modulated by the mean value of the interacting variable). AR(1) and AR(2) are Arellano–Bond test for first and second order autocorrelation respectively. Hansen test is the Hansen over-identifying restriction test

to the respect for independent central bank provisions that allow the central bank to restrain governments effectively in election years which are characterized with higher demand for more financing for government expenditure.

Institutional quality has no significant impact on net central bank claims on government in Africa. In other developing countries, it is significant and negative in model (5) and model (8), thus showing its effectiveness in reducing net central bank claims on government. As argued by the literature, high institutional environments lower corruption and the subsequent demand for central bank finance to make up for low revenues and inflated government expenditure.

When we introduce the *CBI*Inst.Qual* interactive term in models, the interactive term is however significant in both non-election years and in the election years samples across Africa (models 2 and 4), other developing countries (models 6 and 8) and developing countries (models 10 and 12). The interactive terms also have a higher magnitude in election years than in non-election years across all three samples. This means that particularly for Africa and other developing countries, independent central banks can more effectively rise up to curbing fiscal pressures in election years more than in non-election years given higher levels of institutional quality.

When we proxy fiscal policy with fiscal balance in Table 3, we observe similar findings as seen in Table 2. The results in Table 3 indicate that in Africa and other developing countries, there is no direct significant impact of CBI on fiscal balance in either election or non-election years. Also, the magnitudes of the CBI coefficients are smaller in election years than in non-election years in Africa as seen in models (14) and (16). When we introduce the *CBI*Inst.Qual* interactive term, the interactive term is, however, significant in both non-election years and in the election years samples (models 14 and 16 for Africa and 18 and 20 for other developing countries). The magnitude of the interactive term is also higher in election years than in non-election years, thus indicating that higher institutional quality enables CBI to more effectively deal with electoral cycle pressure on fiscal balance in Africa and other developing countries.

In developed countries, CBI has a direct impact in both election and non-election years as seen in models 21 to 24 with a stronger impact in election years (0.156 and 0.227) than in non-election years (0.142 and 0.182). Institutional quality also enhances this effect as indicated by the higher magnitude of the interactive term coefficients in election years (0.198) than in non-election years (0.190) as seen in models 24 and 22.

As a robustness check, in Table 4, we introduce a dummy variable *Dev*, measured as 1 for developed countries and 0 for developing countries in order to capture the level of development feature of the sample of countries. We find that in models 21 and 26, CBI has a positive significant impact on fiscal policy in non-election and election years. However upon the introduction of the dummy variable *Dev*, CBI is not more significant, while the *Dev* variable is. This could be mean that the significant impact of CBI in fiscal policy is driven by the level of development of a country. For election years, CBI has no direct significant impact on fiscal policy. We proceed to interact the CBI and *Dev* variables and discover that CBI in developed countries significantly improves fiscal policy more than in developing countries in both election and non-election years (models 24 and 29). Furthermore, an interaction of CBI, *Dev* and institutional quality reveals that CBI in developed countries and higher institutional quality environments


Table 3. CBI, Elections, Institutional Quality and Fiscal Balance (Non-Election vs Election Years).

	AFRICA						DEVELOPING						DEVELOPED					
	Fiscal balance		ELECTION		NON-ELECTION		Fiscal balance		ELECTION		NON-ELECTION		Fiscal balance		ELECTION		NON-ELECTION	
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Fiscal Balance $t-1$	0.671*** (0.07)	0.615*** (0.08)	0.915*** (0.07)	0.964*** (0.07)	0.997*** (0.002)	0.875*** (0.072)	0.450*** (0.009)	0.798*** (0.05)	0.981*** (0.02)	0.970*** (0.01)	0.985*** (0.16)	0.964*** (0.013)						
CBI	0.201 (0.281)	0.195 (0.230)	0.204 (0.262)	0.177 (0.121)	0.089 (0.070)	0.119 (0.420)	0.132 (0.146)	0.142*** (0.177)	0.142*** (-0.059)	0.152*** (0.08)	0.156** (0.06)	0.227*** (0.02)						
Inst.Qual	0.124 (0.12)	0.721 (0.57)	0.072 (0.94)	0.385 (1.23)	0.157*** (0.020)	0.172 (-0.232)	0.059 (0.02)	0.063* (0.01)	0.310*** (0.04)	0.04 (0.04)	0.664 (0.46)	0.082*** (0.04)						
CBI*Inst.Qual		0.155* (0.053)		0.234* (0.052)	0.213* (0.064)			0.221*** (0.06)		0.190*** (0.012)		0.198*** (0.03)						
GDP $t-1$	0.219*** (0.01)	0.207*** (0.03)	-0.281* (0.15)	-0.198 (0.16)	0.095*** (0.001)	0.143*** (0.056)	0.085*** (0.006)	0.115*** (0.027)	0.032* (0.02)	0.028* (0.02)	0.062 (0.05)	0.03 (0.02)						
URB	0.056** (0.02)	0.068** (0.03)	1.534 (1.38)	-1.002 (0.877)	0.010*** (0.002)	0.018 (0.026)	0.055*** (0.006)	0.017* (0.005)	0.001 (0.007)	0.009** (0.004)	0.054** (0.02)	-0.006 (0.00)						
AGRIC	-0.014 (0.03)	-0.047 (0.05)	0.117** (0.05)	-0.65 (0.50)	0.001 (0.002)	0.037 (0.029)	0.017* (0.01)	0.005 (0.016)	0.061** (0.02)	0.083* (0.04)	0.069 (0.04)	0.103** (0.05)						
FinDev $t-1$	0.023*** (0.01)	0.032** (0.01)	0.060** (0.03)	0.076 (0.22)	0.019*** (0.001)	0.025** (0.012)	0.013 (0.003)	0.012 (0.005)	0.009** (-0.004)	0.006 (0.005)	-0.02 (0.02)	0.055*** (-0.015)						
OPENNESS $t-1$	0.189** (0.03)	0.114** (0.07)	0.199 (0.01)	0.158 (0.08)	0.107** (0.049)	3.076 (2.245)	0.063*** (0.03)	0.018 (-0.02)	0.30 (0.30)	-0.822*** (0.54)	1.416 (1.18)	-0.032 (0.69)						
LGDP $t-1$	0.587*** (0.10)	0.224 (0.46)	0.056 (0.04)	0.087 (0.02)	0.094*** (0.008)	0.108** (0.049)	0.348*** (0.033)	0.206*** (-0.075)	0.012*** (0.00)	0.014*** (0.00)	0.124 (0.20)	0.011** (0.01)						
Total CBI Effect ($\beta_1 + \beta_3$)		0.35* (0.11)		0.411* (0.29)		0.332** (0.15)		0.353** (0.086)		0.372*** (0.011)		0.425*** (0.013)						
Observations	188	188	92	92	1,057	1,058	470	470	176	176	129	129						
Number of Countries	29	29	22	22	90	90	61	61	36	36	32	32						
No. of Instruments	24	24	19	19	65	65	54	54	25	25	20	20						
AR (1)	0.047	0.043	0.031	0.03	0.063	0.046	0.012	0.025	0.067	0.052	0.03	0.05						
AR (2)	0.183	0.182	0.101	0.103	0.239	0.234	0.115	0.116	0.462	0.459	0.231	0.231						
Hansen test	0.403	0.406	0.455	0.452	0.58	0.67	0.42	0.434	0.258	0.256	0.135	0.231						

Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Non-Election represents sample for all years in which elections were not held in a country within the sample period. Election represents sample for all years in which elections were held in a country within the sample period. $FiscalBalance_{it}$ is the dependent variable and is measured as government revenue less government expenditure as a percentage of Gross Domestic Product. CBI_{it} is the central bank independence measured by the Cukierman Webb and Neyapti index and ranges between 0 and 1. With 0 being most dependent bank and 1 representing most independent bank; GDP_{it} is the real Gross Domestic Product annual growth rate, URB_{it} is the degree of urbanization measured as the percentage of population in urban areas, $AGRIC_{it}$ is the share of agriculture in the Gross Domestic Product, $FinDev_{it}$ is financial development and is measured as the ratio of private credit to Gross Domestic Product, $LGDP_{it}$ is log of real Gross Domestic Product per capita measured as real Gross Domestic Product divided by a country's population, $InstQual_{it}$ is institutional quality measured as the rescaled the civil liberties score, from 0–6 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 Gross Domestic Product. Total CBI Effect is the overall or net effect of CBI which is the sum of the unconditional and the conditional effect ($\beta_1 + \beta_3$) (modulated by the mean value of the interacting variable). AR(1) and AR(2) are Arellano–Bond test for first and second order autocorrelation respectively. Hansen test is the Hansen over-identifying restriction test.

Table 4. CBI, Elections, Institutional Quality and Fiscal Balance (Non-Election vs Election Years).

	NON-ELECTION						ELECTION					
	Fiscal balance						Fiscal balance					
	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)		
Fiscal balance $t-1$	0.588*** (0.045)	0.576*** (0.042)	0.547*** (0.039)	0.533*** (0.032)	0.521*** (0.036)	0.569*** (0.025)	0.554*** (0.036)	0.542*** (0.032)	0.536*** (0.033)	0.540*** (0.038)		
CBI	0.087*** (0.011)	0.065 (0.072)	0.063 (0.131)	0.049* (0.262)	0.051* (0.121)	0.088* (0.020)	0.067 (0.101)	0.065 (0.112)	0.060** (0.025)	0.058** (0.025)		
InstQual	0.055** (0.011)	0.045* (0.033)	0.026 (0.032)	0.044* (0.025)	0.041 (0.031)	0.122*** (0.020)	0.108*** (0.020)	0.111 (0.232)	0.087 (0.02)	0.055 (0.061)		
Dev		0.025** (0.009)	0.023** (0.008)	0.012 (0.018)	0.01 (0.012)		0.029** (0.008)	0.025** (0.008)	0.023 (0.031)	0.017 (0.027)		
CBI*InstQual			0.041** (0.013)					0.044** (0.016)				
CBI*Dev				0.043** (0.012)					0.056* (0.014)			
CBI*InstQual*Dev					0.087** (0.023)					0.092*** (0.06)		
GDPR $t-1$	0.112*** (0.02)	0.101*** (0.011)	0.105*** (0.021)	0.115*** (0.032)	0.121* (0.075)	0.087*** (0.002)	0.088*** (0.003)	0.101** (0.056)	0.074*** (0.011)	0.058*** (0.012)		
URB	0.034** (0.018)	0.032** (0.012)	0.028** (0.001)	0.112 (0.13)	0.124 (0.118)	0.054** (0.012)	0.046** (0.011)	0.033* (0.018)	0.025*** (0.009)	0.027* (0.011)		
AGRIC	-0.011 (0.02)	-0.016 (0.02)	-0.017 (0.016)	-0.025* (0.011)	-0.022* (0.01)	-0.009** (0.01)	0-008* (0.002)	-0.005 (0.014)	-0.017* (0.01)	-0.005 (0.011)		
FinDev $t-1$	0.032*** (0.005)	0.038*** (0.007)	0.034* (0.021)	0.045*** (0.008)	0.057 (0.141)	0.022*** (0.001)	0.017*** (0.002)	0.021** (0.008)	0.019* (0.009)	0.016* (0.005)		
OPENNESS $t-1$	0.075** (0.025)	0.066** (0.021)	0.054** (0.018)	0.087* (0.043)	0.056 (0.061)	0.058** (0.017)	0.069** (0.022)	0.055 (0.067)	0.061*** (0.007)	0.048* (0.02)		
LGDP $t-1$	0.112*** (0.007)	0.115*** (0.005)	0.104** (0.032)	0.039 (0.048)	0.082** (0.031)	0.063*** (0.001)	0.031*** (0.002)	0.025*** (0.001)	0.041*** (0.001)	0.039** (0.011)		
Total CBI Effect ($\beta_1 + \beta_3$)			0.104** (0.028)	0.102** (0.029)	0.142** (0.031)			0.109** (0.035)	0.116** (0.033)	0.15*** (0.011)		
Observations	1233	1233	1233	1233	1233	599	599	599	599	599		
Number of Countries	126	126	126	126	126	92	92	92	92	92		
No. of Instruments	98	98	98	98	98	75	75	75	75	75		
AR (1)	0.025	0.028	0.031	0.033	0.035	0.058	0.061	0.062	0.059	0.063		
AR (2)	0.155	0.161	0.165	0.168	0.167	0.145	0.136	0.134	0.112	0.111		
Hansen test	0.222	0.231	0.225	0.254	0.263	0.352	0.361	0.325	0.336	0.348		

Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

FiscalBalance_{it} is government revenue less government expenditure as a percentage of GDP. *CBI_{it}* is the central bank independence measured by the CWN index, *GDP_{it}* is the real GDP annual growth rate, *URB_{it}* is the degree of urbanization, *AGRIC_{it}* is the share of agriculture in the GDP, *FinDev_{it}* is the ratio of private credit to GDP, *LGDP_{it}* is log of real GDP per capita, *InstQual_{it}* is the rescaled civil liberties score, from 0–6 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. Dev is a dummy, 1 for developed countries, and 0 for developing countries.

significantly improve fiscal policy more than in developing countries. The impact of CBI is higher also in election years than in non-election years (models 24 and 29, 25 and 30), as seen earlier in [Tables 2](#) and [3](#). Similarly, the magnitude of impact of the interactive terms is higher in election years than in non-election years.

5. Conclusion

Thus, we show that central bank independence has stronger fiscal policy effects in election years compared to non-election years only in developed countries. However, in higher levels of institutional quality, central bank independence effectively curbs politically induced fiscal pressures across Africa, other developing and developed countries. Thus, the importance of respect for the rule of law, good governance, free press and expression for the effectiveness of CBI is paramount to the stronger deterring fiscal pressures effect in election years compared to non-election years.

Disclosure statement

No potential conflict of interest was reported by the authors.

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APPENDIX I: List of Countries

Africa (48)		Other Developing (90)		Developed (40)	OECD (35)
Algeria	Afghanistan	Malaysia	Australia	Australia	
Angola	Albania	Maldives	Austria	Austria	
Benin	American Samoa	Marshall Islands	Belgium	Belgium	
Botswana	Argentina	Mexico	Bermuda	Canada	
Burkina Faso	Armenia	Micronesia, Federated States of	Canada	Chile	
Burundi	Azerbaijan	Moldova	Cyprus	Czech Republic	
Cabo Verde	Bangladesh	Mongolia	Czech Republic	Denmark	
Cameroon	Belarus	Montenegro	Denmark	Estonia	
Central African Republic	Belize	Myanmar	Estonia	Finland	
Chad	Bhutan		Finland	France	
Congo, Democratic Republic of	Bolivia	Nauru	France	Germany	
Congo, Republic of	Bosnia and Herzegovina	Nepal	Germany	Greece	
Côte d'Ivoire	Brazil	Nicaragua	Greece	Hungary	
Djibouti	Bulgaria	Pakistan	Hong Kong	Iceland	
Egypt	Cambodia	Panama	Iceland	Ireland	
Equatorial Guinea	China (does not include Hong Kong or Taiwan)	Papua New Guinea	Ireland	Israel	
Eritrea	Colombia	Paraguay	Israel	Italy	
Ethiopia	Comoros	Peru	Italy	Japan	
Gabon	Costa Rica	Philippines	Japan	Korea	
Gambia, The	Croatia	Romania	Latvia	Latvia	
Ghana	Cuba	Russian Federation	Lithuania	Luxembourg	
Guinea	Dominica	Samoa	Luxembourg	Mexico	
Guinea-Bissau	Dominican Republic	São Tomé and Príncipe	Macau	Netherlands	
Kenya	Ecuador	Serbia	Malta	New Zealand	
Africa	Other Developing	Developed	OECD		
Lesotho	El Salvador	Solomon Islands	Netherlands	Norway	
Liberia	Fiji	Sri Lanka	New Zealand	Poland	
Libya	Georgia	St. Lucia	Norway	Portugal	
Malawi	Grenada	St. Vincent and the Grenadines	Portugal	Slovak Republic	
Mali	Guatemala	Suriname	Puerto Rico	Slovenia	
Mauritania	Guyana	Syrian Arab Republic	San Marino	Spain	
Mauritius	Haiti	Tajikistan	Singapore	Sweden	
Morocco	Honduras	Thailand	Slovakia	Switzerland	
Mozambique	India	Timor-Leste	Slovenia	Turkey	
Namibia	Indonesia	Tonga	South Korea	United Kingdom	
Niger	Iran, Islamic Republic of	Turkey	Spain	United States	

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Africa (48)	Other Developing (90)	Developed (40)	OECD (35)
Nigeria	Iraq	Turkmenistan	Sweden
Rwanda	Jamaica	Ukraine	Switzerland
Senegal	Jordan	Uzbekistan	Taiwan
Sierra Leone	Kazakhstan	Vanuatu	United Kingdom
Somalia		Venezuela, RB	United States
South Africa	Kiribati	Vietnam	
Tanzania	Korea, Democratic People's Republic of (North Korea)	Yemen, Republic of	
Togo	Kosovo		
Tunisia	Kyrgyz Republic		
Uganda	Lao PDR		
Zambia	Lebanon		
Zimbabwe	Macedonia, FYR		
Madagascar			