



## Political business cycle and fiscal discipline in Sub-Saharan Africa

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**Abstract.** We tested the Political Business Cycle theory in Sub-Sahara Africa. To provide an empirical explanation for this nexus, this paper used unbalanced panel data from thirty-six (36) Sub-Saharan African countries between 1990 and 2018. The system Generalized Method of Moment (GMM) developed by Arrelano-Bover/Blundell-Bond was employed to analyze the collected data. The results of the system GMM revealed that the fiscal deficit is significantly large in election years and the deficit spending spills into the year after the election, though not as high as in the election year. We could not, however, find a significant effect in the pre-election year. In addition, we found evidence suggesting that though democracy significantly lowers the fiscal deficit, it promotes higher deficit spending in the election year and the year after the election. Hence, the study established the existence of a political business cycle in Sub-Saharan African countries. The study thus recommends that sound economic policies should be put in place to reduce the persistent deficit in SSA so as to maintain sustainable fiscal health, as well as the sustainability of macroeconomics, particularly enhanced industrialization, as the study found that countries' fiscal deficits are lower in more industrialized countries in the region.

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### 1. Introduction

The role of the fiscal deficit in developed and developing countries has re-emerged in public debates. On one hand, the fiscal implications in industrialized and developing countries appear to be vastly different. Existing literature, on the other hand, shows that fiscal outcomes and traditional macroeconomic factors are closely linked. There are several studies that examine the impact of budget deficits on macroeconomic variables such as inflation rates and unemployment, including Anderikopolous (2004), Grier (2008), Krause (2005) and Batool and Sieg (2009). According to these studies, while there are several points of divergence on this nexus, the central point of convergence is that the fiscal deficit is an essential expansionary policy used by the government to shape the outcome of macroeconomic objectives (Drazen and Eslava, 2010).

However, the position that the country's fiscal plan takes is a function of the government's macroeconomic plans during and after a specific fiscal year. As a result, there are arguments for and against the effects of fiscal deficits on economies. Surplus budgets rarely drive economic growth, according to the development literature. Thus, Nayab (2015)'s submission demonstrates that relying on yearly fiscal revenue does not support long-term development plans and cannot guarantee desired macroeconomic outcomes. This is premised on the reality that the government,

like other economic agents, does not have all of the resources required to meet unlimited wants. Thus, while fiscal deficits are difficult, if not impossible, to prevent in some cases, their persistence has been characterized as fiscal indiscipline (Aidt, Asatryan, Badalyan, & Heinemann, 2015). Because of its long-term effects on the exchange rate, inflation, and interest rates, as well as an unfavorable current account balance, a persistent budget deficit has proved detrimental to development.

It is evidenced by the trend of fiscal deficit that many economies, especially in SSA countries, ignore the developmental and welfare implications of persistent fiscal indiscipline. This informed a concern about whether the influence of political variables on fiscal indiscipline pulled more weight than economic variables. Thus, there are occasions when the incumbent government might not be rational in deploying fiscal policy because of selfish goals, especially in the build-up to the forthcoming election. This birthed the political business cycle (PBC), and according to Nordhaus (1975), incumbent governments tend to retain office and therefore use every apparatus to achieve this goal. Voters, on the other hand, are misled by economic prosperity prior to the election period, without taking into cognizance the tax or inflationary consequences. This is exacerbated when the country's fiscal and political institutions are weak, allowing politicians to pursue their unscrupulous goals at the expense of people's well-being (Alesina and Paradisi, 2017).

Thus, the emergence of political-institutions space within the context of macroeconomic variables appears to have altered the narrative of factors that shape macroeconomic variables. The emergence of democratic regimes in most developing countries has piqued the interest of academics and policymakers. Against the backdrop of the political-institution-macroeconomic nexus, scholars hypothesized a link between democratic rule and the outcome of the fiscal component. Among these scholars are North (1990) and Acemoglu (2001). Notably, since the return of SSA countries to democratic rule, the region's fiscal deficit has had a significant negative impact on the economies, worsening public debt, crowding out investment, and slowing economic development. And, over time, it's worth considering whether politically timed macroeconomic interventions actually explain these economies' deficit spending.

During the years of presidential/parliamentary or state/provincial gubernatorial elections, politicians possess political power and incentives to increase government expenditures (without raising taxes) to improve their chances of re-election. Such manipulation has a strong likelihood of leading to political business cycles (PBCs). Theories in line with these assertions predicted that budget deficits could disappear during a more prosperous period, but in SSA they persist (Obinyeluaku, 2006; Bhatia, 2003). The trajectory of the consistent fiscal deficit of SSA countries over the last three decades has worsened the performance of macroeconomic outcomes. For instance, inflation targeting policies, exchange rate and interest rate policies aimed at stabilizing the economy usually fall short of expectations, and in most cases fail. This has raised concern among researchers about whether the consistent fiscal deficit in SSA economies has a link with the transition to democratic rule or if the quality of democracy in this region is below the threshold. For instance, during 2000-2015, the SSA region recorded an annual average of a 9 percent fiscal

deficit.

On the other hand, as revealed by Mosley and Chripanhura (2016) in several African countries, there are always cases of an incumbent from a coalition of parties or, in some cases, a dominant party, which has an edge over the opposition or rival parties at the poll. This may allay the fear of stiff competition and, consequently, reduce the likelihood of incumbents indulging in election-induced spending. Thus, the political business cycle may be at a minimum or even non-existent. These possible scenarios have created assumptions and uncertainty regarding the bedrock of fiscal indiscipline in Africa. And some scholars seem to attribute the fiscal deficit to what was bequeathed to the region by the colonial masters (Acemoglu, 2000). Most countries in the SSA region inherited budgetary frameworks which empowered spending outside the approved budget. These brought about a rapid expansion of overspending and extra-budgetary spending. The former emanates from an excess of approved contingency votes, while the latter from an excess of off-budget resources (Adeyi, 2014).

In light of these political and economic concerns, researchers are concerned and suspicious about whether the problem of fiscal indiscipline in Sub-Saharan Africa (SSA) is political or coincidental. This apprehension informed why voters and political actors campaigned for the rotation of political offices such as president, governor, and legislative, among others, to reflect fairness. This is particularly typical in multiethnic countries like Nigeria, where ethnic supremacy is a serious concern. As a result, the political structure in place in SSA countries encourages mediocrity rather than merit and sound ideas (Obinyeluaku, 2006 and Arowolo, 2011). Consequently, the region's electoral system has been marred by tumultuous elections, widespread fraud, vote-buying, and corruption (Adeyi, 2014; De Haan & Klomp, 2013; Hassan and Hassan, 2011).

Given the pervasiveness of fiscal indiscipline in Sub-Saharan Africa, it is critical to continue to investigate the reasons for the indiscipline and how it might be alleviated in the region. Because of its implications for the region's development, this is critical. Against this backdrop we investigated whether SSA has a political business cycle. And the purpose of this research article is to add to the existing empirical literature by answering the following research questions: Is there a difference between election years and non-election years in terms of fiscal discipline? What impact does democracy have on budgetary discipline in Sub-Saharan Africa?

The rest of the paper is arranged as follows. Section two discusses the literature review which includes theoretical and empirical literature. Section three presents the methodology. The presentation and discussion of results is presented in section four, while section five is the conclusion.

## **2. Literature review**

There is a plethora of literature on PBC and fiscal deficits. Most theoretical studies define fiscal discipline as avoiding or reducing fiscal deficits to the bare minimum. However, following Nordhaus (1975), studies discovered a mixed relationship between certain macroeconomic

variables and the budget deficit (Odhiambo, Momanyi, Othuon, and Fredrick, 2013; Buscemi and Yallwe, 2012). The majority of studies for developing and emerging economies support Nordhaus' theory, whereas similar studies for developed economies were found to be insignificant. We divided this part into two sections: theoretical literature and empirical findings.

### *2.1. Theoretical framework*

We based this study on the opportunistic political business cycle theory as pioneered by Nordhaus (1975), and we took cognizance of the modified version by Royoff (1990). According to the pioneer version of PBC, re-election-minded incumbent executives knew of the trade-off between unemployment and inflation as encapsulated in the Phillips curve, its macroeconomic implications, and the asymmetric knowledge of the voters. The incumbent politicians indulge in fiscal deficits to boost economic prosperity. Consequently, it results in the welfare illusion of economic agents, and boosts the chances of the incumbent being re-elected. Hibbs (1977) and Brender and Drazen (2008) refuted opportunistic theory. The former is premised on the heterogeneity of the political parties' ideologies. The argument of Hibbs (1977) was premised on the assumption that there are variations in political parties' ideology. The latter is premised on the likelihood of voters having learnt from the previous PBC. Thus, Brender and Drazen (2008) assumed a rational expectation hypothesis, which is different from the adaptive hypothesis of Nordhaus (1975).

The following factors influenced the choice of Nordhaus' PBC theory for this study: First, the high level of corruption in SSA, combined with the prevalence of multidimensional poverty, has over time ruled out the possibility of a "learning effect," as proposed by Brender and Drazen (2008). Second, the multiethnic nature of SSA countries, as well as religious bigotry rather than national allegiance, may facilitate cases of PBC in the region. In order to gain large voter support for the next election, incumbents often engage in pre-election spending for the benefit of dominant ethnic groups. In most situations, however, the godfathers are the beneficiaries of election or post-election-induced expenditure, while the voters face the financial burden. The 2015 and 2019 general elections in Nigeria, for example, exemplify this point. Finally, Block (2001) claims that the quantum of PBC decreases over time. However, no research has established a time frame for the diminishing return. SSA countries are, above all, young democracies undergoing both economic and political reforms.

### *2.2. Empirical studies*

The interaction of macroeconomic and political-institutional variables has been studied in the past. However, researchers and policymakers have recently become more interested in the major impact of both political-institution and macroeconomic variables on fiscal deficits. Scholarly disputes have resulted in mixed views and opinions over the years, particularly on the political-budget nexus. Different opinions formed are centered on the pioneered political business cycle developed by Nordhaus (1975). These opinions either refute or validate the PBC theory. Thus,

we reviewed empirical studies on both macroeconomic and political-institutional issues that influence fiscal discipline.

Many academics have argued that fiscal deficits can be used to accelerate growth by investing in public infrastructure and human capital. Some argue that it provides a platform for influencing macroeconomic outcomes, such as economic growth, unemployment, and inflation (Odhiambo, Momanyi, Othuon, and Fredrick, 2013; Nayab, 2015; Cinar, Ilhan, and Baki, 2014). According to Hussain and Haque (2017), the outcome of these variables is dependent on the allocation of expenditure to productive projects. On the contrary, numerous studies have found that fiscal deficits reduce economic growth, crowd out investment, and worsen inflationary pressures (Arjomanda, Emamib and Salimic 2016; Mohanty, 2012; Navaratnam and Mayandy, 2016; Rana and Wahid, 2016; Odhiambo et al. 2013; Haider, Shakil, Fatema & Rezaul, 2016). However, according to these studies, the impact of fiscal deficits on targeted outcomes is largely a function of the economic and political environment where the policies operate.

Aside from the fact that politically motivated fiscal spending has both positive and negative consequences, there is the possibility of endogeneity between the fiscal deficit and the relevant macroeconomic variables. Among these are unemployment, economic growth, and foreign aid among others. For example, Arjomanda, Emamib, and Salimic (2016) discovered that economic growth has a positive impact on the fiscal deficit. Sucharita and Sethi's (2012) submission was contradictory. Moschovis (2010), on the other hand, attributed the disparities in findings to institution quality. And according to political economists, the impact of fiscal policy and other economic policies on the target or outcome variable is largely determined by the efficiency of the intermediate (political) variable.

According to empirical studies, politically motivated fiscal deficit spending revolves around the age of democracy, pre-election, during-election, and post-election year spending, election competition, the party system, and party dominance, corruption, the government system, and institutions, among other things. However, the central question is whether the fiscal deficit in SSA can be traced back to pre-election or during-election spending by the incumbent to increase the likelihood of re-election. The relationship established by Nordhaus (1975) between pre-election or during-election spending and the likelihood of incumbents being re-elected has been validated by Alesina and Paradisi (2017), Balaguer-Coll, Brun-Martos, Forte, and Tortosa-Ausina (2015), Chortareas, Logothetis, and Papandreou (2016), Lilly (2012), Wyplosz and Kostrup (2010), Drazen and Eslava (2010) and Maltritz (2015). However, the findings of studies conducted in developed and developing countries differ significantly.

A number of empirical investigations revealed that Nordhaus' Opportunistic model was extremely unusual in developed economies, and that those rare instances gradually faded away over time. For instance, Lewid-Beck (1990) and Drazen (2000) found no convincing evidence of PBC using a panel dataset. In addition, there was no evidence of a significant positive impact of incumbent governments' pre-election or election-year expenditure on economic growth and employment in industrialized economies. In furtherance of that, Kneebone and McKenzie (2001) used data from Canadian provinces, while Alesina et al. (1997) used data from the United States

from 1947 to 1994. The former found evidence of opportunistic political cycles, while the latter supported partisan theories of the political system as a whole. According to Alesina et al. (1997), the OECD and virtually all developed democracies, particularly those with a two-party system, tend to align with partisan models. However, Persson and Tabellini (2003) claimed that the quantum of PBC is a decreasing function of institutional quality, which is, of course, a concern in developing democracies, and SSA in particular. Khmedov and Zhuravskaya (2004) and Aidt et al. (2011), for example, discovered a high degree of time elasticity of magnitude of PBC in Russia and Portugal, respectively. The rate and magnitude of decline with time, however, have not been addressed in the literature. Such a decreasing function of time was attributed to Brender and Drazen's "learning effect" (2008).

On the contrary, cases and quantum of the fiscal deficit and PBC are common in developing economies. But were still mixed findings in developing countries and even in the SSA region. Shi and Svensson (2006) studied both developed and developing economies, and their findings were consistent with Rogoff's (1988) version of the opportunistic model. However, it was higher in developing countries, but African countries were underrepresented in the study. Other studies in developing countries that supported Nordhaus' version of the opportunistic model are Barberia and Avelino (2011), Ebeke and Içer (2013), and Koksai, Ahmet, and Kan (2012). Barberia and Avelino (2011) sampled Latin American democracies, while Ebeke and Ölçer (2013) and Koksai, Ahmet and Kan (2012) sampled developing countries. Also, Jones et al. (2012) collected 136 cases of elections for three Argentine cities (Buenos Aires, Corrientes and Tierra del Fuego), whereas Gonzalez (2002) sampled Mexican data. Their findings suggested the occurrence of PBC in these countries. And on a greater dimension across this research, pre-election year spending showed a favorable impact on budget deficits. Also, Klomp and de Haan (2012) discovered evidence of PBC in 65 democratic countries, but in a modest dimension. Klomp and de Haan (2012b) further divided democratic countries into old and young democracies, with evidence of PBC increasing in young democracies but decreasing in more mature democracies. Both studies supported the findings of Akhmedov and Zhuravskaya (2004) and Aidt et al (2011).

Following the return of most African countries to democratic rule, several countries experienced various levels of political instability before embarking on political and economic reforms. As a result, the pace of democratic maturation has slowed and retarded in some countries, particularly in Sub-Saharan African countries. However, there aren't many studies on this topic in African political and economic literature. And, for the most part, the few studies on Africa, particularly in Sub-Saharan Africa, supported the opportunistic model. However, the political and economic experiences of these countries following these studies may have changed the narrative. The PBC model was tested in 51 African countries by Mosley and Chiripanhura (2016), who used Fixed Effect Estimation (FEE). They found existence of variation in the quantum of PBC among African countries, and was lower in countries with dominant-party systems, where the incumbent's re-election is less threatened by the opposition. While analyzing 36 nations from 1980 to 2010 using Arellano-Bond dynamic panel data, Neumann and Ssozi (2016) explored the relevance of political business cycles, as well as the magnitude of fiscal deficits' effects on money

growth and inflation in Sub-Saharan Africa. However, there was evidence that the fiscal deficit positively and significantly affected the inflationary level. But there was no substantial evidence to support the existence of PBC in the region.

Block (2002) and Block, Ferree, and Singh (2003), for example, used the GMM estimation technique to test for the presence of PBCs in 44 Sub-Saharan African countries from 1980 to 1995. The former focused on both fiscal and monetary pro-cycles, whereas the latter focused on fiscal pro-cycles. The findings revealed evidence of PBC in SSA, and even higher in the region's young emerging democracies. The inclusion of multiparty competition by Block, Ferree, and Singh (2003) made it unique, and the findings were strongly aligned with PBC theory and the founding-elections hypothesis. Similarly, Ifere and Okoi (2017) used descriptive statistics and the Ordinary Least Square regression technique to investigate the political economy of Nigeria's fiscal deficit. The findings revealed that fiscal policy in Nigeria is influenced more by political factors than by economic factors. The study, however, did not test for PBC.

Furthermore, Brender and Drazen (2005) demonstrated a distinction between authoritarian and democratic fiscal discipline trends in developing countries in their argument about the transition to democracy. Brender et al. (2005) discovered a link between democracy and fiscal discipline, while the years of democracy were a decreasing function of the PBC. Higashijima (2016) and Bohn (2018) found high cases of PBC in new and young democracies. In addition, Higashijima (2016) found a non-linear result, and was higher in authoritarian governments. Bohn (2018) convincingly attributed PBC cases to in-transparencies. De Haan (2012) and Klomp and De Haan (2012b) found an increase in the fiscal deficit and rising cases of PBC in young democracies, but less in old democracies and none in matured democracies. Studies by Udoh, Joshua, and Etok (2012) and Fabrizio and Mody (2006), showed that Nigeria recorded higher fiscal deficits during the democratic dispensation than during the military regime. These studies backed up Alesina and Tabellini's claims (1990). Also, Yaru, Mobalaji, Kilishi, and Yakubu (2014) supported Udoh et al. (2012) and Fabrizio et al. (2006); the study found that the fiscal deficit defiled budgetary institutions in Nigeria. But that does not negate the efficacy of budgetary institutions.

Rising cases of election-induced fiscal deficits in developing economies may be difficult to decouple from the prevalence of weak fiscal rules and electoral manipulation, combined with institutional weakness, which gives incumbent governments more power to veto policies that are not welfare-driven. These political deficiencies are practically common in developing countries (Acemoglu, 2001). As a result, it is important to consider the impact of these inefficient variables on the fiscal deficit and PBC cases. More importantly, Brender et al. (2005), De Haan (2012) and Klomp and De Haan (2012b) suggested that fiscal deficits and PBC are common in young democracies.

Block et al. (2003) and Higashijima (2016) found fewer or no cases of fiscal deficits in democracies with highly competitive elections. According to Mosely and Chiripanhura (2016), less competitive elections in a one-party democracy reduce the likelihood of cases of election-induced fiscal spending. According to Mosely and Chiripanhura (2016), in a one-party democracy, less

competitive elections reduce the likelihood of election-induced fiscal spending. Mosely et al. (2016), on the other hand, found African PBC heterogeneous. Thus, it is myopic to generalize previous studies of PBC in Africa.

North (2005) and Acemoglu (Acemoglu, Robinson, James, and Thaicharoen, 2003) demonstrated that institutions are inextricably linked to macroeconomic variables. Furthermore, empirical studies have shown that weak fiscal institutions account for a large portion of the indiscriminate fiscal deficit in developing countries. For example, Fatas and Mihov (2006) and Onye and Okon (2017) investigated the impact of strict fiscal constraints on fiscal policy. The findings revealed that adhering to a deficit benchmark reduces the volatility of the fiscal deficit. However, it could be very damaging to the economy if the situation necessitates a spontaneous response of fiscal policy adjustment to deal with economic shocks. Similarly, Manasse (2006) discovered that fiscal rules reduce PBC cases, but not as effectively as institutional quality.

Similarly, we were concerned about whether the types of government could affect the cases and quantum of the opportunistic model, particularly in the SSA region. According to Mandon and Cazals (2019), the increase in fiscal deficit caused by pre-election spending is less in a presidential system of government than in a parliamentary system. Although there was evidence of fairly PBC in the former, a shift in expenditure composition in favor of recurrent expenditure was recorded, as opposed to the expansionary aggregate spending found in other studies. This suggests that the incumbent's re-election campaign strategy could include a trade-off between recurring and capital projects. On the expenditure trade-off between recurrent and capital spending, Mandon and Cazals (2019) agreed with Enkelman et al. (2013) and Drazen and Eslava (2010). Furthermore, Drazen and Eslava (2005), Potrafke (2010), Klomp and de Haan (2012b), and Chortareas et al. (2016) found evidence of a shift in expenditure towards road construction, health, agriculture, and street works. This suggests that the incumbent may decide not to engage in election-induced fiscal deficits, but rather use an expenditure-switching strategy to increase their chances of retaining political office.

We paid equal attention to the party system, being a pillar of democracy. Chortareas et al. (2016) and Jochimsen & Nuscheler (2011) discovered evidence in favor of PBC in a multi-party system. It was stronger in the former, and aligned with the common pool hypothesis. It was found weak in the latter, resulting in massive debt, as is commonly seen in the case of a single-party system. Klompa and De Haan (2013), on the other hand, supported the party system but ignored the government system. According to Klompa et al. (2013), the existence and the quantum of a PBC is determined by the degree of transparency, development, and democracy in the government, the country's political system, and the degree of political polarization. This appears to be related to the maturity of democracy advocated by Brender and Drazen (2005).

The reviewed literature revealed extant of studies on fiscal discipline and the existence of opportunistic model, particularly in developing countries. Although, there are relatively few studies (Neumann and Ssozi, 2016; Block, 2002; and Block, Ferree, and Singh, 2003) that actually focused on testing for PBC in Africa, and in particular, SSA, there are evidences of PBC aggravated by ethnicity and vote buying (Collier and Vicente, 2012; Van de Wallance, 2003;

Jensen and Justesen, 2014; Vicente, 2014). However, the period covered by these studies raised concerned whether the generalizations deduced are still relevant to current reality in SSA. For instance, Neumann and Ssozi (2016) studied the years 1980-2010, while Block (2002) and Block et al (2003) both studied the years 1980-1995. Given the time frame and the fact that the SSA region is undergoing both political and economic reform, it may be naive to assume that the findings of these studies still represent the current reality in the region.

We equally gave a consideration to examining the quality of democracy as suggested by Akhmedov and Zhuravskaya (2004) and Aidt et al (2011). Their findings in Russian and Portugal respectively, shown PBC to be a decreasing function of quality of democracy which is also a function of time. Furthermore, during the time period covered by Neumann and Ssozi (2016), Block (2002) and Block et al (2003) among others, elections in Africa, and particularly in SSA, were less competitive. As a result, there is a possibility that the narrative of PBC in the region might have changed. And perhaps, Brender and Drazen's (2005) "learning effect" might be gaining momentum in the region. Thus, this study tends to fill this gaps.

### 3. Methodology

#### Model Specification

This study is rooted on Political business cycle theory pioneered by Nordhaus (1975). Therefore, following Udoh et al. (2012); and Neumann and Ssozi, (2016) the model specification is as follows:

$$FSD_{it} = \tau + \beta FSD_{it-1} + \alpha GDPG_{it} + \gamma ODA_{it} + \delta UMP_{it} + \theta ELEC_{it} + \varphi DEM_{it} + \omega OPN_{it} + \mu_{it} \quad [1]$$

where

$$\mu_{it} = \rho_i + \varepsilon_{it} \quad [2]$$

If (2) is true, equation (1) becomes

$$FSD_{it} = \tau + \beta FSD_{it-1} + \alpha GDPG_{it} + \gamma ODA_{it} + \delta UMP_{it} + \theta ELEC_{it} + \varphi DEM_{it} + \omega OPN_{it} + \rho_i + \varepsilon_{it} \quad [3]$$

The specification above is the baseline model of the study, which is a dynamic panel model. Where  $FSD_{it}$  is fiscal deficit,  $FSD_{it-1}$  is a year lagged of fiscal deficit,  $GDPG_{it}$  is the real GDP growth,  $ODA_{it}$  is the official development assistant received,  $UMP_{it}$  is the unemployment rate,  $OPN_{it}$  is trade openness,  $ELEC_{it}$  is the election year and DEM is the level of democracy all in country i at time t. While  $\rho_i$  represents individual country unobservable time invariant country-specific characteristics and  $\varepsilon_{it}$  is white noise error term which is independent and identically distributed.

For further analysis, we checked the behavior of fiscal deficit in the pre-election year, election year and post-election year within a single model given as

$$FSD_{it} = \tau + \beta FSD_{it-1} + \alpha GDPG_{it} + \gamma ODA_{it} + \delta UMPit_{it} + \pi PrELEC + \theta ELEC_{it} + \sigma PsELEC + \varphi DEM_{it} + \omega OPN_{it} + \rho_i + \varepsilon_{it} \quad [4]$$

A common problem that characterized a dynamic specification is the possibility of an endogeneity problem, since the lag of the dependent variable will be correlated with the disturbance term ( $\mu_{it}$ ). The second problem associated with dynamic model specification is the presence of country fixed effects which may be correlated with the explanatory variables. We treated these problems using the instrumental variable approach. Following Arrelano and Bond (1991) and Arrelano and Bover/ Blundell and Bond (1998), we employed the Generalized Method of Moment (GMM) technique under which the endogenous variable is instrumented by the further lag of the variables. Generally, the strength of GMM lies in the robustness estimator it offers because it does not require information about the exact distribution of the disturbances. It selects parameter estimates such that the sample correlations between the instruments and parameters are as close as possible to zero. Second, the technique requires small period (T) and large-N panels, and it is more efficient than the difference GMM (Baltagi, 2008 and Roodman, 2009).

### **Data and Variable Measurement**

The data used in the study is annual data generated from various secondary sources. The data on fiscal deficit (scaled by GDP) and unemployment as a percentage of the labour force were sourced from the World Economic Outlook on the IMF database for various years. Real GDP growth (measured by GDP per capita growth), aid received (measured by net official development assistance and official aid received scaled by GDP) and trade openness (measured by trade as a percentage of GDP) were sourced from the World Development Indicators data base for various years. Election data was sourced from the African Election Database for thirty-six (36) SSA countries. Regarding the measurement of election data, we used a binary measure of 1 for election years and 0 otherwise. Also, the pre-election year assumed 1 and 0 otherwise, and ditto for the post-election year. Democracy is measured using polity 2 from the polity IV data base, where the democracy level in a country is measured on a scale of -10 to 10, with a higher score indicating a higher level of democracy.

The data scope ranges from 1990 to 2018 based on the availability of data. The selected SSA countries include Angola, Benin, Burkina Faso, Botswana, Cote'divore, Cameroon, Congo Brazzaville, Ethiopia, Cape Verde, Eritrea, Gabon, Ghana, Gambia, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Madagascar, Mali, Mozambique, Mauritania, Mauritius, Malawi, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Swaziland, Chad, Togo, Tanzania, Uganda, South Africa and Zimbabwe.

## 4. Results and discussions

### 4.1. Descriptive analysis

The results of descriptive analysis of the variables used in the study are presented in Table 4.1. From the results, the estimated average fiscal balance of the sampled countries over the sampled period is -4.398 with a minimum and maximum of -557.499% and 31.045% respectively. The estimated average GDP growth over the period of analysis is 4.764 with a minimum of -50.248 and a maximum of 149.973. The estimated average trade openness as a percentage of GDP is 74.763%, while its minimum is 20.723% and maximum is 531.737%. In addition, the estimated average unemployment rate is 35.832 with a minimum and maximum of 10.24 and 63.54 respectively. The average foreign aid is 64.588% with a minimum and maximum of -11.967 and 691.925 percent respectively. For the democratic level in the SSA, the average score recorded by the sampled countries is 1.22, with a minimum and maximum of -9 and 10 respectively, implying that SSA countries' democratic practice is at a low level.

**Table 1.** Descriptive Statistics.

Variable	Obs	Mean	Std.Dev.	Min	Max
FSD	944	-4.398	27.533	-557.499	31.045
GDPG	944	4.764	7.85	-50.248	149.973
OPN	912	74.763	47.668	20.723	531.737
UMP	915	35.832	13.115	10.24	63.54
ODA	944	64.588	72.992	-11.967	691.925
PrELEC	944	.183	.387	0	1
ELEC	944	.176	.381	0	1
PsELEC	944	.177	.382	0	1
DEM	915	1.22	5.459	-9	10

**Source.** Author's Computation, 2021.

**Table 2.** Estimated correlation coefficients among variables.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) FSD	1.000								
(2) GDPG	-0.078	1.000							
(3) OPN	-0.192	0.396	1.000						
(4) UMP1	-0.026	-0.018	0.359	1.000					
(5) ODA	-0.085	0.042	0.105	0.151	1.000				
(6) PrELEC	0.025	0.002	-0.046	-0.018	0.020	1.000			
(7) ELEC	0.028	-0.014	-0.027	-0.027	-0.028	-0.219	1.000		
(8) PsELEC	0.041	0.026	-0.022	-0.010	-0.003	-0.204	-0.214	1.000	
(9) Polity2	0.089	-0.021	-0.163	0.077	0.220	0.054	0.115	0.117	1.000

**Source.** Author's Computation, 2021.

The results from correlation analysis of the variables are presented in Table 4.2. From the results, a weak negative relationship exists between fiscal balance and GDP growth given the estimated correlation coefficient of -0.078. A similar weak negative relationship was also found between trade openness, unemployment, foreign aid, and the fiscal deficit in SSA. On the contrary, the estimated correlation coefficient suggests that the pre-election year has a weak positive relationship with the fiscal balance. Similarly, both election years and post-election years have a weak positive relationship with fiscal balance. In addition, we found a weak positive relationship between democracy and fiscal balance.

#### *4.2. Panel regression analysis*

The estimated results of the baseline model of the study using the Arrelano-Bover/Blundell-Bond system GMM estimation technique are presented in Table 2. The results presented in the first column of the study are obtained without controlling for the democracy level in the sampled countries, while the results in column 2 are estimated by controlling for the democracy level in the countries that made up the sample of the study. From the results in column 1, the estimated coefficient of -8.025 for the election with its corresponding p value of 0.079 implies that the election year is negatively and significantly associated with lower primary fiscal balance or higher fiscal deficit. In line with the results, we find evidence suggesting that the fiscal deficit is higher in election years by 8.025 percent than in years when elections did not take place. This aligns with the theoretical proposition that governments in power who face election uncertainty may engage in more deficit financing in order to lure voters to their side through financial enticement such as vote buying. The results may also be linked to the huge electoral body budget, especially where institutions in the country give room for contract inflation.

In the results presented in column 2, we control for democracy and the results reveal that democracy improves fiscal balance given its estimated coefficient and p value of 9.027 and 0.004 respectively. This may be linked to a number of reasons, including that good democratic institutions can check the excesses of the incumbent and allow voters to punish the incumbent when they suspect frivolous spending, thereby restricting the spending behavior of the government. On the impact of the election on fiscal balance after controlling for democracy, the study still found a negative coefficient with improved significance on fiscal balance. The estimated coefficient of -13.080 indicates that the impact of elections on spending becomes more pronounced after controlling for democracy. This result may be due to the fact that elections tend to be more competitive under democracy, and thus, the incumbent may spend a huge part of the country's budget on frivolous projects whose proceeds are used to engage in vote buying to ensure victory in the election.

This is possible because of the prevalence of poverty in most developing countries. Nigeria is a case study. Improvements in Nigeria's elections conducted through improved independent electoral bodies, adoption of technology such as card readers, and pressure from international

organizations for free and fair elections have drastically reduced the incidence of physical election rigging in most parts of the country, especially in the south. This has, however, emboldened the culture of vote buying and several cases abound. One such is "dibo ko sebe in local parlance" (vote and cook a pot of soup) under which individual voters are offered a sum of 5000 Nigerian Naira to 10000 Naira (10 to 20 US dollars) to vote for a certain candidate. This aligns with the findings of Jensen and Justesen (2014) who reported in a survey of 18 SSA democracies that the incidence of vote buying is higher in competitive elections in SSA countries. Since competitive elections are a key attribute of good democracy, their results imply that vote buying is more prevalent in SSA countries with good democratic institutions. Thus, our findings indicate that good democracy can limit deficit budget financing because of good monitoring mechanisms by the voters, but it increases spending during election years.

**Table 3.** Estimated System GMM Dynamic Panel Regression Results with Election Year.

Variables	(1) 1	(2) 1
L.FSB	-0.204*** (0.001)	-0.128** (0.013)
GDPG	0.073 (0.632)	-0.142 (0.301)
OPN	0.762*** (0.000)	0.858*** (0.000)
UMP	1.580 (0.380)	0.972 (0.397)
ODA	-2.804*** (0.000)	-2.099*** (0.001)
ELEC	-8.025* (0.079)	-13.080*** (0.002)
DEM		9.027*** (0.004)
Constant	63.207 (0.285)	28.250 (0.639)
Observations	848	848
Number of PID	36	36
chi2p	0.000	0.000
Instrument	10	11
AR1 P value	0.0685	0.0790
AR2 Pvalue	0.979	0.800
Hansen p value	0.318	0.444

**Note.** pval in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. **Source.** Author's Computation 2021.

Our findings on the significant negative influence of the election year align with many other studies on the political budget cycle. Among the studies are those of Barberia and Avelino (2011), and Koksai et al. (2012) in developing countries, Klomp and de Haan (2021) in sample selected countries, and Jones et al. (2012) in Argentina.

The coefficient of the lagged values of the fiscal deficit is negative and significant in models 1 and 2, which implies that the dynamic specification in this study is justified. In addition, each of the values that are less than 1 implies stability in the dynamic system. The outcome is consistent with the findings of Tujula & Wolswijk (2007) and Maltritz (2015) and may be explained in part by the fact that the current budget reflects correct past budgetary imbalances due to debt service obligations.

The estimated coefficient of real GDP growth (an indicator of the overall economic situation) of 0.762 with a p value of 0.632 indicates that GDP growth has an insignificant impact on the fiscal balance in Sub-Saharan African countries. Similar results have been documented in some other studies, including those of Tujula and Wolswijk (2007) and Matritz (2015). Even though we expect growth to increase the fiscal balance, the over dependency of Sub-Saharan African countries on loans may be a candidate for the cause. This assertion is justified by the significant negative impact of aid with a coefficient and p value of -2.009 and p value of 0.001, which indicates that countries that rely more on aid would record more deficit spending and thus a lower fiscal balance. Our finding on official aid received contradicts that of Neumann & Ssozi (2016) who found a positive but insignificant relationship between fiscal balance and aid received. The findings here could be due to the fact that countries that receive aid, especially when it is not captured in the budget, engage in unguarded spending, which will eventually promote fiscal indiscipline in terms of higher fiscal deficits.

In addition, the study found a very significant impact of trade openness on fiscal balance with its estimated coefficient and p value of 0.858 and 0.000 respectively, implying that liberalization policy is a key policy instrument that can be deployed by Sub-Saharan African countries to drive fiscal balance and reduce fiscal indiscipline in the region. This result agrees with Udoh, et al. (2011). As for unemployment, we could not establish a significant impact of unemployment on the fiscal balance. This is contrary to Maltritz (2015) who reported a negative but significant impact of the unemployment rate on the fiscal balance.

Post estimation diagnostic test results are presented in the lower part of Table 3. From the table, the number of instruments used is 10 and 11 respectively for the results in column 1 and 2. Since the number of instruments in each case is below the number of groups, which is 36, one of the requirements for the validity of instruments in dynamic panels is satisfied. We also checked for the validity of the instrument using the Hansen test. The results of the test suggest that the instruments used in both columns 1 and 2 are valid since the null hypothesis of Hansen in both cases cannot be rejected given their respective p values of 0.318 and 0.444. In addition, the AR (1) p values of 0.0685 and 0.0790 for the results obtained in columns 1 and 2 confirm the presence of first-order autocorrelation in the results in both models. This is expected, since the lag of the dependent variable is part of the explanatory variables. The AR (2) test p value of 0.979 and 0.800

in each of the results in columns 1 and 2 fails to reject the null hypothesis of no second order auto correlation.

We conducted further analysis of the results by considering pre and post-election years, the results of which are presented in Table 4.4. The results in column 1 of Table 4.4 are obtained for only the pre-election year and the results reveal that the fiscal balance is higher in the year before the election with an estimated coefficient and p value of 12.11 and 0.039 respectively. This may be explained by the deceptive antics of the incumbent, who often tries to impress voters in the year before the election so as to gain popularity and support during the election by running a surplus budget. This is also helped by good democratic institutions which limit the ability of the incumbent to spend frivolous in the year before the election because they may be punished in the election should the vote buying option fail. Similar results have been documented elsewhere (Mosley & Chiripanhura, 2016).

**Table 4.** Estimated System GMM Dynamic Panel Regression Results With Pre and Post-Election Years.

Variables	(1) 1	(2) 2	(3) 3
L.FSDG	-0.106 (0.191)	-0.114 (0.148)	-0.131 (0.138)
GDPG	-0.126 (0.787)	-0.072 (0.875)	-0.100 (0.828)
OPN	0.838*** (0.000)	0.831*** (0.000)	0.855*** (0.000)
UMP1	1.007 (0.442)	0.937 (0.464)	0.950 (0.472)
ODA	-2.051** (0.018)	-2.063** (0.023)	-2.123** (0.025)
PrELEC	12.110** (0.039)		4.372 (0.507)
ELEC			-17.965** (0.041)
PsELEC		-7.082 (0.101)	-15.048** (0.027)
Polity2	8.904** (0.031)	8.486** (0.040)	9.138** (0.035)
Constant	21.251 (0.751)	27.512 (0.682)	32.558 (0.645)
Observations	848	848	848
Number of PID	36	36	36
chi2p	0	0	0
J	11	11	13
ar1p	0.109	0.112	0.118
ar2p	0.890	0.845	0.923
hansenp	0.442	0.486	0.474

**Note.** pval in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Source.** Author's Computation 2021.

In the second column of Table 4.4, we found a negative impact of the post-election year, albeit not significant given the estimated value of -7.082 and p value of 0.101. In the results presented in column 3 of the table, it is, however, found that the post-election year with an estimated coefficient and p value of -15.048 and 0.027 respectively, records a significant negative impact on the fiscal balance, while the estimated coefficient and p value of -17.965 and 0.041 indicate that the fiscal balance is significantly lower in the election year. On the contrary, the estimated coefficient of 4.372 with a p value of 0.507 implies that the fiscal balance increased in the pre-election though the impact is now insignificant. Hence, the results of the full model show that the fiscal deficit is highest during an election year. It is also higher in the year following the election, but not as much as in the election year. During election years, countries' spending is highest because of the expenditure on the electoral process and the spending on white elephant projects with the intent of amassing proceeds which can then be used to buy votes during elections. Also, powerful "cabals" mostly contribute to the financing of candidates' elections in developing countries, including SSA. Thus, once the election is gone, the elected administration would strive to reward their sponsors (cabals) by awarding contracts to them at a cost beyond the actual cost, the proceeds of which are the reward for sponsoring their election. Thus, the possibility of deficit spending a year immediately after the election is high and thus justifies our results.

The results obtained in Table 4.4 satisfy various post estimation diagnostic tests. In each of the results in columns 1 to 4, the null hypothesis of the Hansen test of over identifying restrictions could not be rejected. Hence, the instrument used for the analysis is valid. In addition, all the results of the AR (1) and AR (2) tests obtained suggest that there is no evidence of either first order or second order serial correlation.

### *4.3. Policy implications*

The results of our study suggest that fiscal indiscipline is highest in the election year, while this deficit spending persists till a year after the election, though the magnitude of the spending is lower compared to the election year. We further found that this fiscal indiscipline in election years is more pronounced when the democracy level is higher, which depicts the do or die attitude of politicians through vote buying, in line with the hypothesis that vote buying is prevalent when elections are competitive. The implication of this result is that indiscipline in the fiscal process is affected by politics in the region. This perfectly aligns with the theory of PBC, as politicians increase spending in election years as a means to boost their chances of being re-elected. However, due to the nature of poverty and poor press freedom in Sub-Saharan Africa, they are not likely to be punished for deficit spending by the voters. Rational expectations have failed in the region because of two factors. One, ethnicity allegiance is highly prevalent in the region. Voters prefer voting for corrupt politicians to promote ethnic dominance at the detriment of social welfare. Second, religion affiliation is an equally strong weapon that opportunistic leaders employ to enforce being reelected. The study also found that other control variables impact significantly

on the fiscal deficit, especially the level of industrialization, whose impact on the fiscal balance is positive and significant through the models. The implication of this is that, while trying to address the problem of fiscal indiscipline in the region, in addition to political variables proxy here by pre-election year, election year, and year after election, other variables such as democracy, GDP growth, and industrialization must be taken into cognizance.

## 5. Conclusions

The nexus between political business cycle and fiscal discipline proxy by election year and fiscal deficit respectively, are examined using a panel of thirty-six (36) SSA countries over the period of 1990-2018. The Generalized Method of Moments (GMM) estimation technique was used to estimate a dynamic panel model with lagged fiscal discipline. The result shows that government spending in the election year and the year after the election has a significant effect on the fiscal deficit, which implies that SSA countries expend more resources in the election year and the year immediately after the election. Based on the findings, constitutional reform is urgent in the SSA region to curtail the frivolous spending of politicians, and necessary sanctions should be enforced to reduce persistent deficits. In addition, the incident of vote-buying, which is always prevalent in developing countries with strong democratic practices, should be addressed head on as part of strategies aimed at controlling political business cycles in SSA countries.

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