POLITICAL BUSINESS CYCLES AND MACROECONOMIC PERFORMANCE IN THE EAST AFRICAN COMMUNITY

BY

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DECLARATION

This thesis is my original work, and it has not been submitted to any other university for the award of a degree.

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DEDICATION

To my dad, Mr. Jackson Muinga Njema.

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LIST OF ABBREVIATIONS AND ACRONYMS

AED: African Elections Database

AFDB: African Development Bank

CD: Cross-sectional Dependence

EAC: East African Community

FD: Fiscal Deficit

FE: Fixed Effect

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

IFS: International Financial Statistics

IMF: International Monetary Fund

LIML: Limited Information Maximum Likelihood

2SLS: Two Stage Least Squares

OLS: Ordinary Least Square

PBC: Political Business Cycle

PMG: Pooled Mean Group

SGMM: System Generalized Method of Moments

SURE: Seemingly Unrelated Regressions

WDI: World Development Indicators

WGI: World Governance Indicators

ABSTRACT

Despite the economic policies employed in the East African Community (EAC) countries, their public debt, fiscal deficits, and external balance accounts are deteriorating. Budget deficit excluding grants is over 5%, overall inflation over 5%, GDP annual growth rate lower than 7% and in some of the countries public debt is almost surpassing the set threshold. This is contrary to the set development goals as defined in the EAC development strategies and vision 2050. Leading up to and during an election, there is often an increase in public spending and budget deficits, followed by a subsequent decline. The question is whether East African countries exhibit this trend. Utilizing yearly panel data for the period 2000-2021, the study examined the prevalence of political business cycles and their effect on macroeconomic variables in the East African Community. The period marks both single-party political dispensation and competitive politics of the multi-party era in these countries. The data was sourced from various databases, including the World Bank's World Governance Indicators, the African Development Bank's socioeconomic database, World Development Indicators, the African Elections Database (AED), the International Monetary Fund's International Financial Statistics, and the East African Community Facts and Figures (2019). The analytical technique involved use of Pooled Mean Group, Differenced GMM, and System GMM estimation approaches. The findings demonstrated that political business cycles exist both at the level of EAC as a block, and in individual countries. The pre-polls election and election years were found to have high fiscal deficits, while years following an election did not. Election years exhibit lower output growth and higher inflation rate attributable to politically driven budget deficits. Therefore, there is need for governments in the EAC to adopt strict fiscal management policies including fiscal rules, fiscal consolidation, and fiscal discipline in budgeting around election periods for macroeconomic stability. Moreover, it is crucial for EAC governments to adopt strict monetary policy reforms to stabilize prices. There is also need for increased voter education programs by election bodies as well as civil society to reduce information asymmetry between voters and politicians in an effort to minimize manipulation of budgets and political business cycles.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Human development and long-term macroeconomic stability are critical for regional integration. Therefore, the East African Community (EAC) developed the 3rd Development Strategy (2006-2010) and EAC Vision 2050 to attain human and economic development (EAC, 2016). The 3rd EAC Development Strategy tasked each partner state to pursue rates of economic growth above 7 percent consistently. Other macroeconomic requirements in the Development Strategy include less than 5 per cent budget deficits, import cover of 4-months, manageable government borrowing and a single digit inflation rate. However, macroeconomic variables such as inflation rate, annual economic growth rate and fiscal balance deviate from the targets in these countries. For example, budgetary deficit as a percentage of GDP in Burundi and Rwanda for the period 2000-2021 was on average above 10 percent (EAC, 2019). Over the same period, Kenya, Tanzania and Uganda had a fiscal deficit above 5 percent and their GDP annual growth rate was consistently below 7 percent (WDI, 2022).

It is therefore clear that volatility of fiscal imbalances and the effect on macroeconomy is a key policy issue in the EAC. Fiscal deficit can have negative, positive or neutral effect on the macroeconomy. For instance, a fiscal deficit arising from productive public spending such as on construction of roads, railways, airports or rural electrification improve societal welfare and is beneficial to society. On the other hand, a high debt-to-GDP ratio may lead to intergenerational transfer of tax burden (Romer, 2019; Gruber, 2013).

EAC countries have been experiencing high rates of inflation over the years associated with high fiscal deficits among other causes such as increased supply of money, high fuel, and food prices. When fiscal deficits result in debt financing constraints, inflation or exchange rate instability, a country's credibility comes to question (Romer, 2019). EAC countries finance their fiscal deficits from domestic and foreign borrowing, seigniorage and taxation. Domestic public borrowings are feared to crowd out private capital formation when interest rates go up. Monetization of fiscal deficits is hardly used because of its negative impact on the economy through increase in money supply and inflation. This also affects these countries' local and international credibility. Thus, there is need to weigh the benefits of fiscal deficits against their adverse effects.

Fiscal deficits in the EAC countries probably emanate from the inability of these countries to collect taxes from a wide base. The countries also exhibit exaggerated public expenditures especially during elections coupled with prolonged economic downswings and inflation. Fiscal deficit is not only an economic but also a political phenomenon. Whereas the economic dimensions are well understood, the political angle gives rise to what is called "political business" or "political budget" cycles. The cycles are less understood, and they interest this study.

Political competition during elections drives public expenditure upwards given the nature of the politics in EAC countries. Most of them have embraced multi-party politics which are very competitive leading to adoption of opportunistic behaviour by the competitors. The elections are characterised by insecurity and uncertainty of winning an election. This forces contestants to deviate from party ideologies and to adopt opportunistic behaviours (Hibbs, 1977; Krause, 2005).

Opportunism is more prevalent among political players who are already in office. They tend to manipulate macroeconomic variables so as to appear better candidates in the eyes of the voters. They for instance, increase employment of would-be voters in the public service just before an election. This gives them an advantage over their competitors who do not have the opportunity to recruit their supporters in such places. Other examples include maize flour and fuel 'subsidies', quick completion of previously stalled government projects and reduction in electricity tariffs as witnessed in Kenya's 2022 general election. Because voters and politicians have different levels of information and since people are irrationally ignorant, this opportunistic behaviour thrives. Traditional theory of political business cycles predicts that to be able to maximize on votes politicians also employ economic policies that reduce unemployment but propel inflation (Nordhaus, 1975).

As in other developing countries, voters in the EAC are short-sighted and make short term decisions during elections (Shi and Svensson, 2002, 2006; Chiripanhura and Niño-Zarazúa, 2015). Their decisions are based on short term considerations of 'good' macroeconomic performance, and on wrong or imperfect information given by the politicians. Opportunistic politicians know this and employ expansionary fiscal policies to entice voters and enhance their chances of winning an election. When aggregate demand and output in an economy increase, voters become happy and view an incumbent government positively. Little do the electorates know that the increase in public goods provision would be short-lived. It does not portend a

better future since soon after an election government expenditure tends to shrink. For instance, in the 2017 general election in Kenya, the then Jubilee party government took to short term projects such as construction of bridges and completion of stalled roads even when it had failed to deliver on its year 2013 promises of rural electrification, creation of employment for youth and laptops for primary school pupils. Nevertheless, the manipulation paid off and it was re-elected. The voters re-elected the government based on what they could see at that moment rather than the incompetence of the incumbents over the previous past four years as suggested by Rogoff (1990) and Rogoff and Sirbert (1988).

In a situation of rational ignorance and information asymmetry, politicians use sub-optimal policy choices to woo voters. For instance, an incumbent government may borrow funds heavily during an election period to finance provision of public goods as a campaign strategy. This opportunistic behaviour arising from rational ignorance of the voters slides a country into indebtedness. Between 2021 and 2022 when Kenya held a general election, public debt rose by approximately Khs892 billion (National treasury, Annual Public Debt report, 2021/2022). During non-election years, economic policy manipulation is minimal, and voters take little interest in whether a government delivers. Uganda and Rwanda where there is no presidential term limit could be interesting cases in this regard.

Information asymmetry renders the electorate susceptible to political deceit. But if the voters were forward-looking and rational, they would make political choices based on political party manifesto and past experience rather than on short-term projects implemented just before an election (Rogoff, 1990). Additionally, if voters were well informed, they would look ahead and resist any attempt at economic manipulation by opportunistic politicians as often takes place just before an election in some countries. PBC trend is more prevalent in less developed states and new democracies. Voters in developed and well-established economies are better-informed and this renders PBCs less common in these countries (Shi and Svenson, 2002; Brender and Drazen, 2005, 2008). As argued by Schuknecht (1998), politicians in countries with weak governance systems in terms of media freedom, transparency and limited control of corruption manipulate economic policies effortlessly. In Uganda, media freedom was restricted during the 2020 general election (Committee to Protect Journalists (CPJ), 2020).

In developed economies, voters are well informed and rational and tend to "punish" an incumbent government perceived to have pursued an economic policy detrimental to the economy as observed by Shi and Svenson, (2002, 2006). For instance, in USA voters are

unlikely to support increased levels of public spending prior to an election and instead punish any politician pursuing such a policy by denying him votes (Peltzman, 1992; Alesina et al., 1997; Brender, 2003; Eslava 2007; Bayar and Smeets, 2009). In countries with good governance indicators such as transparent public service, press freedom and minimal corruption, expansionary fiscal policy prior to an election would be shunned. Since voters have better access to information regarding their government, an expansionary fiscal policy prior to an election would be rejected. This prevents the occurrence of political business cycles in developed countries.

Politically induced business cycles are not good for an economy. They distort prices and skew distribution of public goods in favour of certain individuals and groups in society and encourage rent seeking behaviour. The macroeconomic instability caused by PBCs could slow economic growth, with negative ripple effects on balance of trade, tax revenue and inflation as observed by Pastern and Cover (2010) and Gruber (2013).

Fiscal deficit as a ratio of GDP tends to rise in the EAC during election periods and drops immediately thereafter (Table 1 and figure 1). This is particularly evident after 2010. A similar trend is observed for state spending to GDP ratio over the similar period. Inflation and GDP growth had an unstable pattern over the years especially during election periods (see figure 2, 3, 4, 5 and 6 in chapter 2). That public expenditure and budget deficit tend to rise during elections and drop immediately thereafter suggest a policy question whether political budget cycles exist in the EAC at country and regional levels. If so, the influence of political budget cycles on both aggregate output growth and inflation rate in the EAC should be examined. This research investigated the occurrence of political business cycles within the EAC (East African Community) by utilizing fiscal deficit as a policy instrument.

Political business cycle theories do not capture situations of countries without meaningful political competition. This study sought to examine PBCs in situations where incumbent governments have perpetuated themselves for years. In the EAC, the Ugandan and Rwandese presidents have been in office for long despite elections in these countries. The macroeconomic effects of political business cycles in the EAC given different political systems, governance structures and economic performance in the member states informed the examination.

1.2 RESEARCH PROBLEM

Existing research on the causes and consequences of budgetary deficits has mostly concentrated on macroeconomic factors such as economic growth, current account deficit, inflation, foreign exchange rate and interest rates (M'Amanja and Morrissey, 2005; Odhiambo et al., 2013; Lwanga and Mawejje, 2014). Political perspectives of fiscal deficits have been overlooked. To fill the gap, this study focused on political budget cycles and their effects on inflation and economic progress in the East African Community.

Theoretical research on presence of political business cycles gives inconclusive findings on the effect. The traditional PBC theory by Nordhaus (1975) suggest that politicians are opportunistic in their behaviour. They pursue strategies to expand employment at the risk of raising inflation as postulated in the Phillips curve. Hibbs (1977) on the other hand is of the view that politicians are partisan and stick to their party ideologies and voters vote based on those ideologies. This is contrary to Krause (2005) who posits that economic expansion in the electioneering period depends on how much a politician feels secure in winning an election. Rogoff (1990) argue that politicians manipulate fiscal policies during elections to signal competence hence enhancing probability of re-election. This study used fiscal policy indicators such as fiscal deficit to examine the nature and impact of political business cycles in the EAC.

Furthermore, empirical literature on PBCs is scant particularly in economics. PBCs are likely to vary between established and developing nations, and between ancient and new democracies (Shi and Svenson, 2002; Shi and Svenson, 2006; Brender and Drazen, 2005, 2008) hence the need to bring out various case studies. Studies in African countries such as Block (2002), Ebeke and Olcer (2013), and Chiripanhura and Zaraza (2015) focus on large data sets and do not link PBCs to macroeconomic indicators like inflation and economic growth. This study sought to close this gapby analysing a small sample of EAC and further examining the influence of PBCs on inflation rate and growth of the economy at regional and individual country levels. The countries have different levels of democracy and presidential electoral terms. All of them have low-income status except Kenya and Tanzania are low-middle income economies.

Throughout the years, an ongoing debate regarding the correlation between budget imbalances and macroeconomic indicators, like inflation and economic growth has been there with no definitive consensus reached. Limited evidence supports a connection between politically influenced budget imbalances and macroeconomic indicators in the EAC nations. The main

concern is whether politically induced fiscal deficits promote or worsen economic performance and price stability in the region. Because of this, the study closely examines the relationship between the budget deficit, economic growth, and inflation to determine how much the political business cycle affects macroeconomic factors in the EAC. The institutions of governance in these countries do not appear to adequately limit expansionary fiscal policies during elections.

Findings on the influence of budget shortfall on macroeconomic performance particularly in Africa do not view fiscal deficit as a political phenomenon (see Odhiambo et al., 2013; Nkrumah et al., 2016; Edame and Okoi, 2015; M'Amanja and Morrissey, 2005). Thus, it is unclear how political budget cycles, inflation and output growth relate to one another in the regional block. This investigation sought to address this knowledge gap by examining the EAC scenario. This study interacts fiscal deficits with electioneering period dummy variables to produce political driven fiscal imbalance and analyse its influence on rate of inflation and economic performance in the EAC.

Among the goals of fiscal policy are stability of prices and positive output growth. There is no direct correlation between policy and outcome. On the other hand, it can accelerate economic growth. This study examined the effects of budget deficit on inflation and economic growth separately since theories that link price level and economic growth to fiscal shortfalls are different. The study further employed different estimation techniques to examine the link between these effects and political business cycles.

Macroeconomic indicators deviate from set targets under EAC development strategies and vison 2050. For instance, individual EAC states have run budget deficits above 5% between 2000 and 2021. Burundi and Rwanda have operated under double digit budget deficits over the study period with the highest being 20% in 2004 (EAC, 2019). GDP annual growth rate for EAC Partner States has been below 7% deviating from set targets. Most the EAC states had double digit inflation rate during the study period. Macroeconomic stability and sustainable fiscal stance are issues of concern in the EAC, and it interests this study. Therefore, this study sought to investigate the existence of political business cycles and their impact on macroeconomic performance in the EAC using Pooled Mean Group estimation technique which generates both long and short run estimates and controls for econometric problems such as endogeneity.

1.3 RESEARCH QUESTIONS

The broad study question is whether political business cycles exist in the East African Community, and if they do, how they affect macroeconomic performance in the region. The specific questions are:

i. Are political business cycles evident in the EAC as a regional block and at individual level?
ii. What is the effect of political budget deficits, if they exist, on inflation in the EAC?
iii. What is the influence of political budget deficits, if they exist, on economic growth in individual EAC states and in the EAC block?

1.4 RESEARCH OBJECTIVES

The broad objective of the study is to establish whether political business cycles affect macroeconomic performance in the EAC.

Specifically, the study sought to:

i. Examine whether political business cycles exist in the EAC at regional levels and country levels.
ii. Examine whether political business cycles, if they exist, affect inflation in the EAC.
iii. Analyse whether political budget deficits, if they exist, affect economic growth in the EAC states and regional block.

1.5 SIGNIFICANCE OF THE STUDY

The association between macroeconomic performance, PBCs, and fiscal deficits in the EAC was investigated in this study. The research broadens our understanding of the subject: first by assessing existence of PBCs in the EAC as a regional block and individual country level. The study used budget deficit as fiscal indicator and found that budget deficits in the EAC are not only economically driven but also politically driven. This means that PBCs are evident in the EAC as a regional block and country level. These findings add to the existing body of research and help in further research.

The research provides value to both researchers and policymakers by establishing connections between macroeconomic indicators, such as economic progress and inflation, and electoral cycles. Specifically, the study findings will inform people on how political factors interact with

macroeconomic performance. This study attempts to close this gap given that evidence in the literature is scant. The study results will provide valuable insights for EAC policymakers and governments to ensure fiscal discipline by critically examining public expenditure patterns especially during campaigns to maintain macroeconomic stability and fiscal accountability. Additionally, by understanding the concept of PBCs, policy makers will be able to design strategies that limit opportunistic behaviour of politicians and enforce accountability.

1.6 ORGANIZATION OF THE STUDY

While the first chapter is the introduction, chapter two is the first essay and explores the existence of PBCs in the EAC. Chapter three is the second essay, and it looks at how fiscal deficits affect inflation in the light of PBCs in EAC. Chapter four is the third essay, and it examines how PBCs, and budgetary deficits affect economic growth in EAC region. Chapter five of the research presents a concise overview of its discoveries, reaches conclusions, and offers policy suggestions based on the results.

CHAPTER TWO

POLITICAL BUSINESS CYCLES IN THE EAST AFRICAN COMMUNITY

ABSTRACT

Political business cycles (PBCs) occur during elections in some developing countries. Do individual countries and the East African Community regional block exhibit political business cycles during elections? The incidence of PBCs was explored using pooled mean group estimation technique and data drawn from five EAC Partner Statea for the period between 2000 and 2021. The data was compiled from a number of resources, including the World Development Indicators (WDI) of the World Bank, the African Election Database, and numerous publications from the East African Community (EAC). The results indicate existence of PBCs in the EAC both at individual country and regional levels. Fiscal deficits were found to be statistically higher in pre-election and election years compared to non -voting years. The deficits were observed to fall in post-election years. Improved rule of law, lack of violence and terrorism as well as political stability were found to reduce budget deficits in the region. There is need for strict fiscal discipline including constitutional constraints on public expenditure during election period to avoid the macroeconomic instabilities associated with PBCs. Governments in East Africa need to uphold rule of law, ensure political stability and control violent activities to maintain budget deficits at desirable levels.

2.1 INTRODUCTION

Political economy models argue that politicians use expansionary monetary or fiscal tool before elections to increase probability of being re-elected (Nordhaus, 1975; Rogoff,1990; Rogoff and Sirbert, 1988). Manipulation of economic policies to maximize on votes by the politicians is called political business cycle or political budget cycle (PBC). PBCs occur in the electioneering period in three phases: pre-election period, election period, and post-election period. Political business cycles entail manipulation of public expenditure and regulations relating to taxes, and creation of short-term policies that appear quite enticing to the voters (Nordhaus, 1975; Rogoff, 1990; Shi and Svenson, 2002, 2006; Ebeke, 2013).

Politicians are assumed to be opportunistic and only concerned with winning an election, whatever the cost. In competitive elections, incumbent politicians feel insecure and uncertain

about election outcomes. To tilt the balance in their favor, they signal voters that they are the better option based on feigned competence. They embark on projects of short-term economic gains to voters (Krause, 2005). For instance, since the advent of multiparty electoral system in the EAC, most political incumbents tend to manipulate voting patterns by employing expansionary fiscal policies through reduction of taxes on selected basic commodities such as electricity and fuel and subsidize farm inputs such as fertilizer and basic food commodities such as maize flour. Additionally, politicians may hurry to launch new development projects (which halt immediately after the election), or hurriedly complete stalled ones as predicted by Rogoff (1990). Politicians are also known to bribe voters directly with money to influence their choices. This is most common in most EAC partner states elections. High public spending towards and during elections involves manipulation of fiscal policies which may lead to fiscal policy based political business cycles.

Political business cycles thrive more where voter education is scant. The voters become uninformed and a good target for the politicians who through adverse selection capitalize on the information asymmetry. When voters lack information on government policies, they become short-sighted and go for short-term economic gains. Whoever appears to supply short-term public goods is preferred over a candidate with a long-term agenda. Information asymmetry and rational ignorance lead to manipulation of economic policies no matter the consequences. The consequences can be dire. For instance, when a government procures loans to subsidize consumption of basic commodities or create short-term employment, the resultant inflation and fiscal deficit lead to macroeconomic instability (Gruber, 2013; Romer, 2019).

Fiscal deficits instigated by political cycles may lead to unsustainable public debt, slow economic growth, imbalanced external account, or crowd out of private investments (Gruber, 2013, Romer, 2019). The fiscal stance of a country could also have inter-generational transfer of debt burden. Against this background, the next section examines the political economy, electoral cycles, and macroeconomic performance in the EAC.

2.1.1 Political Economy, Electoral Cycles, and Macroeconomic Performance in the EAC Regional Block.

Some EAC countries have achieved middle income status and macroeconomic stability (EAC development strategy, 2006-2010). The strategic plan approves a budget deficit of not more than 5 percent if the region is to realize long time human and economic expansion. Nonetheless,

escalating public expenditure in individual countries push fiscal deficits above the target. For example, Burundi and Rwanda had a double-digit budgetary deficit as a ratio of GDP excluding grants (see figure 1, WDI, 2022). From early 2000s EAC countries have embraced multiparty elections system which is more competitive and prone to opportunistic PBCs (Block, 2002; Krause, 2005).

Elections in EAC countries are characterised by voter manipulation through short-term public investments, ethnic affiliations, and handouts (AED, 2022). In the year just before an election, an incumbent government tends to spend on short term projects and handouts to enhance its chances of re-election. This pushes public expenditure upwards alongside budget deficits. Figure 1 depicts this situation. The deficit in Burundi rose before elections from 2000 to 2018, then fell afterward[1]. A similar trend is also observed in Rwanda, Uganda, and Tanzania[2].

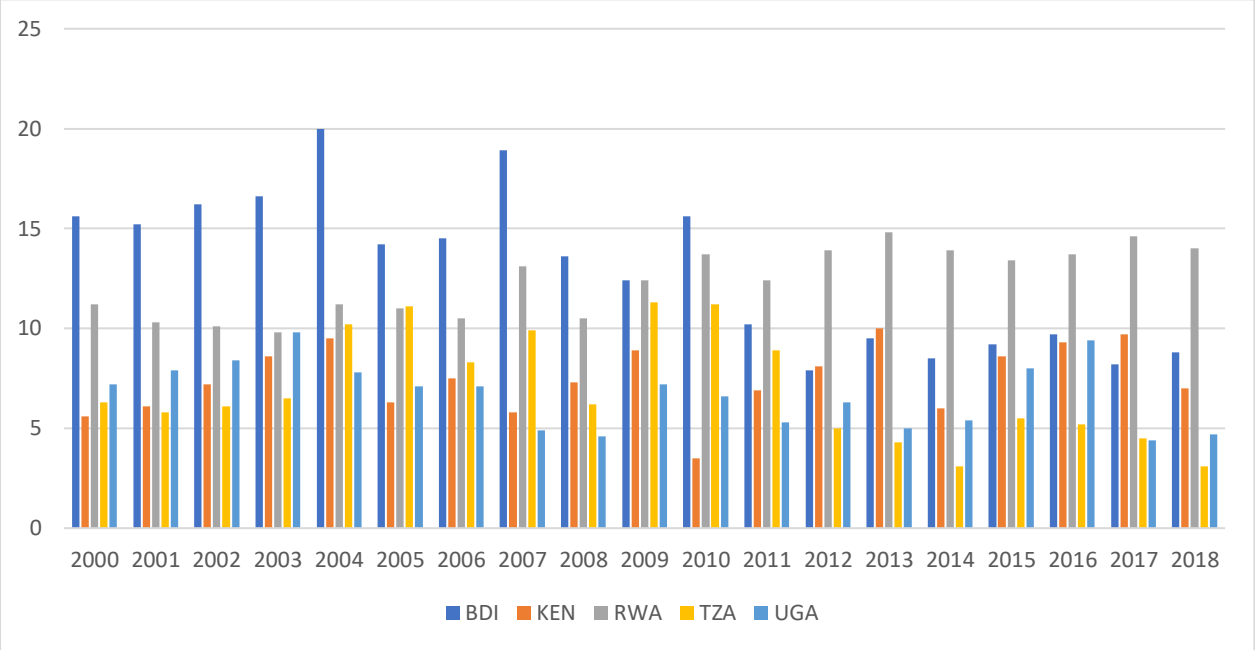

Figure 1: Trends of fiscal deficits in EAC Countries, 2000-2018

Source: Author's compilation from World economic Outlook (2022)

[1] Between 2000 and 2001 deficit declined from 15.6% to 15.2%. Just before 2005 elections deficit rose from 16.6% to 20% while general elections deficit increased by 3.2%. Likewise, in the 2015 elections deficit from 8.5% to 9.2% (WDI, 2022).

[2] Between 2000 and 2018 elections were held as follows; Kenya: 2002, 2007, 2013 and 2017, Rwanda: 2003, 2010 and 2017, Tanzania: 2000, 2005, 2010 and 2015 Uganda: 2001, 2006, 2011 and 2016 (AED, 2022).

Figure 1 suggests an upward trend of fiscal deficits in EAC countries during election years and a decline immediately thereafter. This is a common trend in developing economies where incumbent governments employ expansionary fiscal policies prior to and during elections and reverse the course immediately thereafter (Block 2002; Shi and Svenson, 2002,2006; Block *et al.*, 2003; Brender and Drazen 2008; Ebeke and Olcer, 2013). The study used HP filter of Hodrick and Prescott (1997) to smoothen data associated with business cycles. The trends in Figure 2-6 depict same pattern of political business cycles.

In the EAC, fiscal imbalance as a proportion of GDP excluding grants, was roughly 9.3% over the period 2000-2021. This is off the set target of below 5% (EAC Vision 2050 Report, 2016). Between 2000 and 2003 when most of the countries held general elections, the ratio rose from 9.2% to 10.3% (EAC, 2019). A similar trend is observed in period between 2005 and 2007 where the ratio rose from 9.9% to 10.5% [see table 1 and figure 2].

Fiscal deficit was consistently interrelated with macroeconomic indicators like rate of inflation and GDP annual growth rate. In the periods of high fiscal deficits, inflation was high and GDP low. For instance, in 2003, 2004, 2007, 2009 and 2010 when fiscal deficit was above 10%, inflation rate averaged 9.05% (WDI, 2022) (see Table 1 and Figure 2). The inflation could also be ascribed to the worldwide financial crisis of 2008. The crisis rose due to cheap credit and poor lending system that contributed to “housing bubble” that caused banks to lose money and general increase in unemployment and food prices (Mckibbin and Stoeckel, 2009).

Table 1: Trends of Fiscal Deficit, Inflation and GDP Growth Rate in the EAC, 2000-2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit	9.2	9.1	9.6	10.3	11.7	9.9	9.6	10.5	8.4	10.4	10.1	8.7	8.2	8.7	7.4	8.9	9.5	9.3	7.5
Inflation Rate	13.5	4.8	0.2	10.9	10.8	7.5	7.4	9.2	15.3	24.6	5.8	9.6	8.5	5.8	5.8	8.9	4.8	7.5	1.3
GDP Growth Rate	3.2	5.1	6.8	3.4	6.3	6.0	7.7	6.6	6.1	5.1	6.6	7.0	5.2	5.2	5.5	4.4	4.6	4.0	5.6

Source: Author's compilation from World Development Indicators (2022)

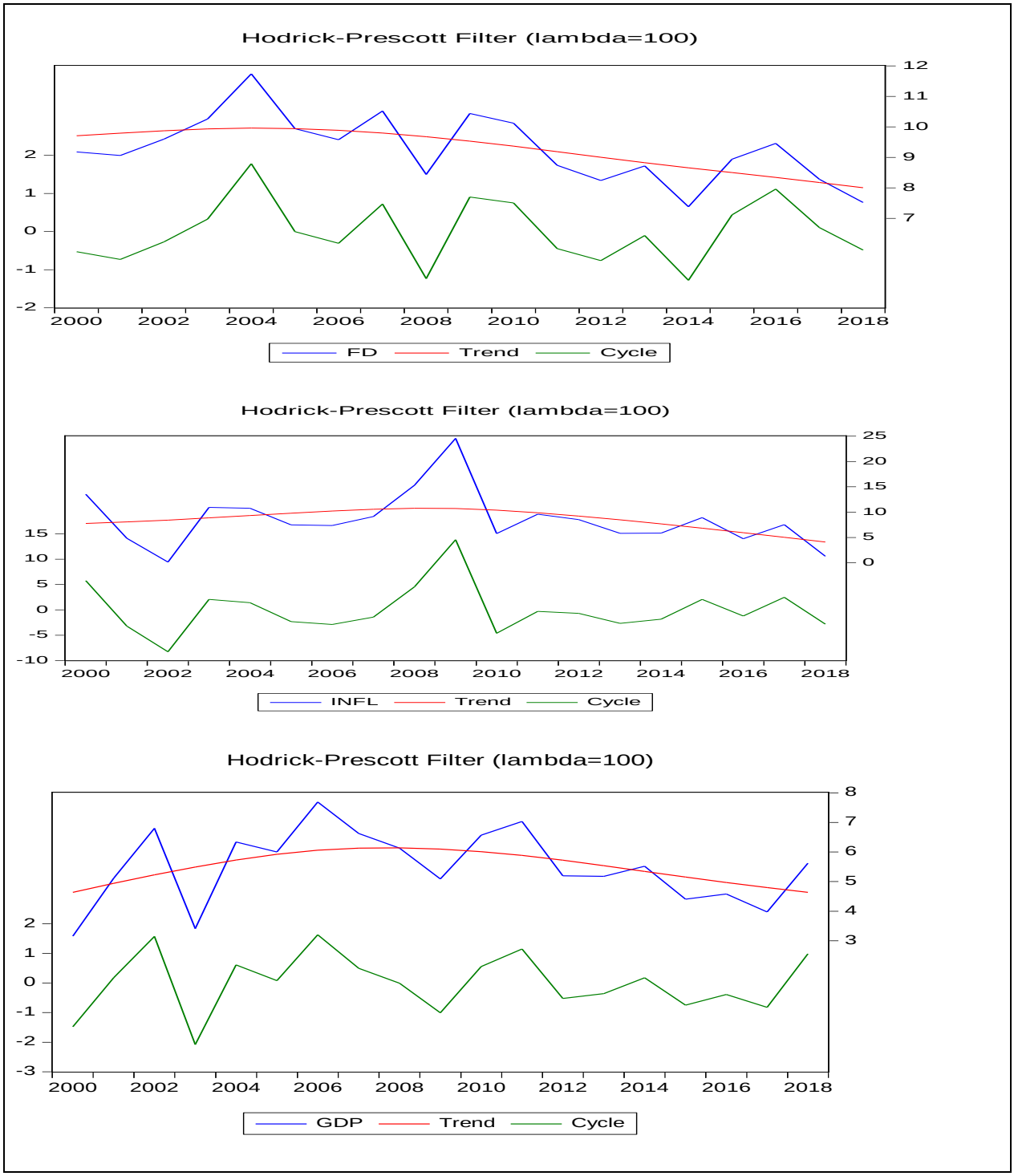

Figure 2: Trends of Fiscal Deficits, inflation and GDP growth rates in the EAC, 2000-2018

Source: Author's compilation from World Development Indicators (2022)

2.1.2 Political Economy, Electoral Cycles and Fiscal deficits in individual EAC Countries

The EAC confederation was established in 1967 and lasted up to 1978 when it was disbanded following disagreements among the then three-member states of Kenya, Uganda and Tanzania. In 2000, it was re-established through a treaty. In 2007 Burundi and Rwanda joined the union. South Sudan was admitted into the union in 2016. The community has common goals for economic and human development as summarized in EAC's vision 2050.

Most of the countries in the confederation attained independence in early 1960s except South Sudan which became independent in 2016. Their election history is heterogenous with different levels of democracy, presidential terms and election years. At present, only Kenya and Tanzania practise nearly open democracy. The other countries restrict political competition. The countries attained multiparty-ism in the 2000s. In Rwanda, presidential term is 7 years while in Burundi, Kenya, Tanzania and Uganda the term is five years. Table A1 in the appendix shows some political aspects of these countries.

The next sub-sections present a summary of macroeconomic performance in these countries for the period 2000-2021 against the backdrop of their different political systems.

i. Burundi's political economy, 2000 – 2021

In 1962, Burundi attained independence and changed name from Ruanda-Urundi to Burundi. Nevertheless, from 1966 to 1992 the country was under either military or single party rule. In 1992 the country transitioned to multiparty system of governance though a national referendum. In 1993 Burundi democratically elected their first president that is Cyprien Ntaryamira. Between 1994 and 1996 the country returned to restricted democracy under military rule after the death of the then president, Cyprien Ntaryanira in 1994. Pierre Buyoya took power through a coup d'état in 1996 and suspended the constitution. Burundi continued under restricted democracy up to early 2001. A transitional regime reigned from 2001 to 2005 when multiparty elections were held and won by Pierre Nkurunziza. However, ethnic supremacy wars broke out between the Hutu and Tutsi reversing the democratic gains (Ndikumana, 2000). Burundi has been an emerging democracy with multiparty elections in 2005, 2010, 2015 and 2020, albeit marred with some violence (AED, 2022).

From 1962 to 2000, Burundi's annual GDP growth rate was very low at an average of 1.4 % rising to around 4% between 2004 and 2014 (WDI, 2022). The growth was driven by increased production of coffee and infrastructural projects. However, in 2015 the rate declined to -3.9%

due to political instability arising from Nkurunziza's extension of the presidential term limit (AED, 2022) coupled with corruption, embezzlement of public funds and poor governance (Rufyikiri, 2016). However, since 2012, when the subsequent-generation strategic plan for inclusive growth was adopted, the nation's record for human development has been improving (EAC, 2016).

Between 2000 and 2015, Burundi's fiscal deficit and government expenditure fluctuated with election years. Overall, fiscal deficit and tax revenue declined over the period as depicted in table 2 and figure 3. Government expenditure as ratio of GDP was unstable but generally increased over the period and extending to 2018 as shown in table 2 and figure 3. Moreover, real interest rate and general price level consistently increased during polls. This may be ascribed to multi-party system of elections characterized by competition and uncertainty. However, tax revenues and GDP growth have been low during election years except in 2010. Generally, the main macroeconomic variables in Burundi had a volatile pattern over time especially during election years as per figure 3. An enquiry of the existence of PBCs in Burundi relative to the trend in other EAC partner states interested this study.

Table 2 illustrates the trend of some macroeconomic indicators in Burundi for the period 2000 to 2018. The shaded columns represent years of general elections.

Table 2: Some Macroeconomic Indicators in Burundi, 2000 – 2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit % of GDP	15.6	15.2	16.2	16.6	20	14.2	14.5	18.9	13.6	12.4	15.6	10.2	7.9	9.5	8.5	9.2	9.7	8.2	8.8
GDP Annual growth rate	-0.9	2.1	4.4	-1.2	4.8	0.9	5.4	4.8	5.0	3.5	3.8	4.2	4.0	4.6	4.7	-3.9	-0.6	4.9	6.3
Real interest rate	-16.7	2.7	18.3	5.6	4.5	-0.4	13.8	9.3	-6.0	5.4	0.10	-0.9	-1.0	1.75	6.80	8.9	9.24	2.9	16.6
Government Expenditure % of GDP	15.5	16.6	15.6	37.5	46.2	34.8	34.2	38.9	33.4	33.0	31.5	26.6	23.7	23.5	22.7	24.6	27.3	28.8	27.73
Tax Revenue %of GDP	14.8	15.8	17.2	18.6	20.7	18.5	17.5	18.3	18.0	18.1	19.7	15.2	15.8	13.9	12.32	11.81	11.43	11.8	12.4

Author's compilation from World Development Indicators (2022)

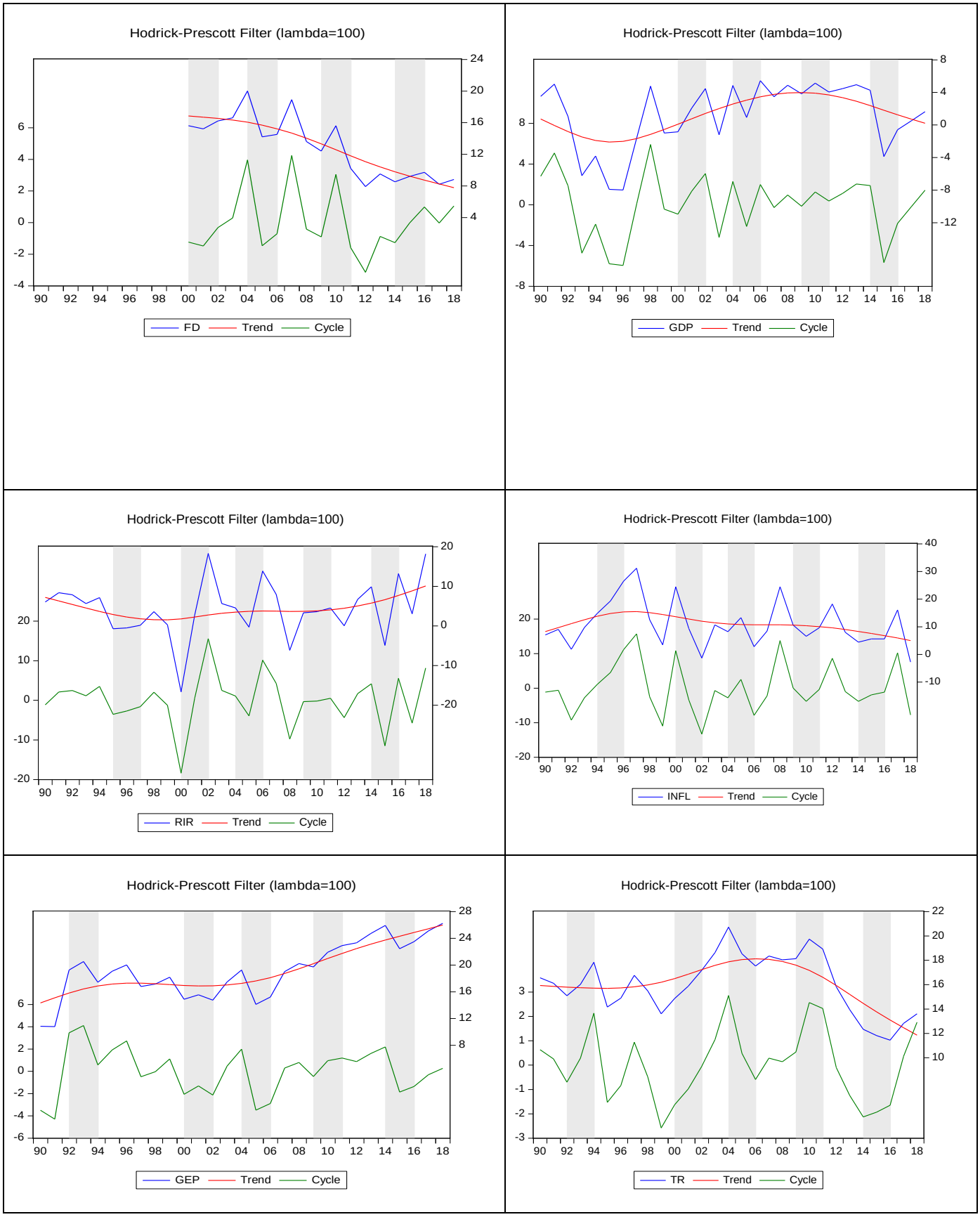

Figure 3: Trends of some macroeconomic indicators in Burundi, 2000-2018

Author's compilation from World Development Indicators (2022)

ii. Kenya

Kenya attained independence in 1963 and became a republic in 1964. The country held its first polls in May 1963 and Kenya African National Union (KANU) emerged the winner. KANU suppressed opposition and in 1969, 1974, 1979, 1983 and 1988 it was re-elected on single party basis. Multiparty system was re-introduced in 1992 after a long political struggle ushering political competition among parties and individuals. In the multiparty era, Kenya has held general elections in 1997, 2002, 2007, 2013 and 2017 (AED, 2022).

Politics in Kenya ostensibly exhibit a strong ethnic dimension and bribery. Elections here have been characterized by high competition among parties and excessive use of resources both public and private. Over the past, Kenya has experienced a rising trend in government spending unmatched by public revenues occasioning growth in fiscal deficits. Growth in public expenditure in Kenya is attributed to population growth, inflation, accumulation of public debt, and corruption (Ndung'u, 1993). The total nominal deficit in Kenya has been growing faster than nominal GDP over the last decade. For instance, between 2000 and 2018, fiscal deficit/GDP ratio was consistently above 5% except in 2010 (EAC, 2019).

Fiscal deficits surge during election periods except in 2007. During the 2002 general election, fiscal deficit to GDP ratio rose from 6.1% in 2001 to 7.2% in 2002. The growth could be attributed to the increase in the public expenditure which rose from 15.9% in 2001 to 17.4% in 2002. In the 2013 general election, the ratio jumped from 6.9% in 2011 to 10% in 2013. In the 2017 general election, the figure jumped from 9.3% to 9.7%. The fiscal shortfall substantially decreases after an election especially from 2013. For instance, in 2014 after the 2013 general elections, fiscal deficit decreased to 6% from 10%. A similar trend was observed after the 2017 general election where fiscal deficit declined to 7.0% in 2018 from 9.7% in 2017 (EAC, 2019).

Public spending as a ratio of GDP took an upward trend between 1997 and 2005 but declined from 2005 to 2018. Regime change reduced wastage and mismanagement of public resources, leading to a temporary decline in public spending. Increased GDP annual growth rate from 2002 to 2022 also contributed to a lower ratio of public spending to GDP. From 1990 to 2018, tax income to GDP ratio declined. Apart from 2007 when violence was witnessed post-election, GDP growth rate was high through election years from 1990 to 2018 (WDI, 2022). This could be attributed to hasty completion of infrastructural projects as earlier explained coupled with election-related expenditures during election periods.

The inflation rate was high during elections over the period 1990 -2013 (see figure 4). Similar trend is observed for real interest rate with exception of 2017 when the country adopted the capped interest rate policy. Table 3 and Figure 4 show the trend of some macroeconomic indicators in Kenya for the period 2000 to 2018. The shaded columns represent years of a general election. In 2010 there was a new constitution referendum whose effect was like a general election.

Table 3: Some Macroeconomic Indicators in Kenya, 2000 – 2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit % of GDP	5.6	6.1	7.2	8.6	9.5	6.3	7.5	5.8	7.3	8.9	3.5	6.9	8.1	10	6	8.6	9.3	9.7	7.0
GDP Annual growth	0.5	3.8	0.6	2.9	5.1	5.9	6.5	6.9	0.2	3.3	8.4	6.1	4.6	5.7	5.3	5.6	5.9	4.9	6.3
Real Interest Rate	15.3	17.8	17.4	9.8	5.0	7.6	-0.8	4.8	-0.9	2.8	12.0	3.8	9.5	11.3	7.9	6.4	6.1	2.8	3.1
Government Expenditure% of GDP	15.1	15.9	17.1	27.3	29.4	26.4	26.4	26.5	32.5	39.0	38.9	35.4	31.4	27.7	24.6	26.3	28.5	29.3	28.7
Tax Revenue% of GDP	16.8	17.8	17.3	15.8	16.9	18.7	15.1	15.2	15.9	15.5	15.7	15.9	15.9	15.5	15.4	15.7	15.9	15.7	15.0

Author's compilation from World Development Indicators (2022)

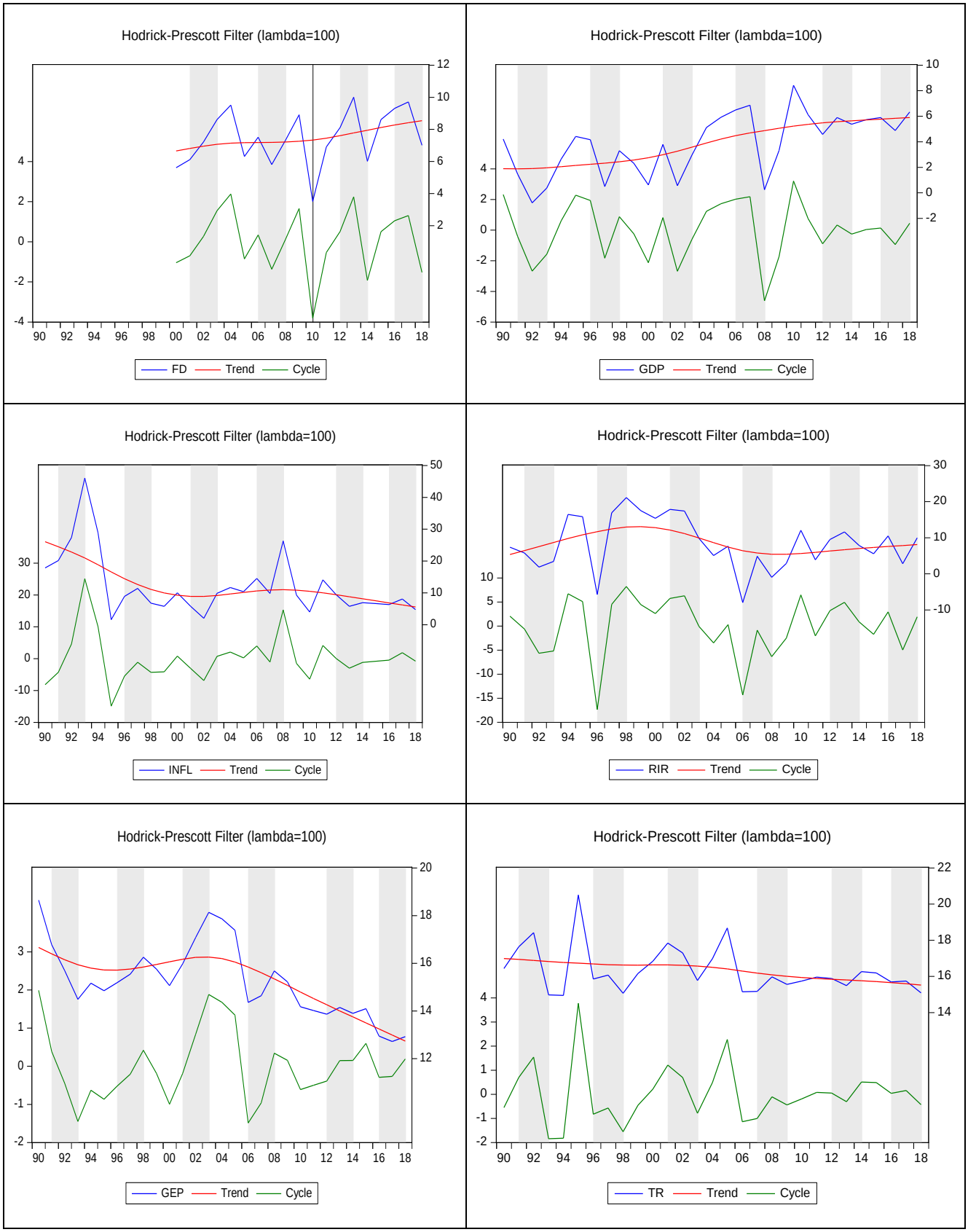

Figure 4: Trends of some macroeconomic indicators in Kenya, 1990-2018

Author's compilation from World Development Indicators (2022)

iii. Rwanda

Rwanda's history is marked by hostilities between the Hutus and Tutsis, the two communities that populate the country. The Hutus had an upper hand in government and which they used to perpetrate injustices and massive killings of the Batutsis (AED, 2022). In 1959, Rwanda's earliest mass execution occurred and subsequently, roughly in a customary way, murder of the Batutsi became a regular custom. Between April and July 1994, over one million Tutsis together with some Bahutus opposed to the operation were murdered in what has internationally been recognised as genocide (AED, 2022).

Rwanda attained independence in 1962. The country has had restricted democracy over time with uncompetitive politics and elections. When the country tried multiparty politics between 1991 and 1994, the result was genocide. The country adopted a transitional government between 1994 and 2003. Thereafter Rwanda has held multiparty elections in 2003, 2010 and 2017. Rwanda presidential term is 7 years and just as Uganda, this country has been under same leadership since the first multiparty election.

Rwanda's is a low-income, agriculture-based economy. Its long-term goals for growth are stated in its Vision 2020 blueprint. The country aspires to become a middle-income, service-oriented economy by 2050 (Republic of Rwanda, 2017). From 2005, Rwanda has been experiencing high economic growth, and rapid poverty and inequality reduction (Word Bank, 2019). From 2000 to 2014, Rwanda's growth of real GDP had a mean of 9% per annum. Despite good performance, Rwanda's budget deficit excluding grants has been widening over the last decade. For example, fiscal deficit grew from 11.2% in 2000 to 14.8% in 2013 and to 14% in 2018.

Figure 5 shows that fiscal deficit in Rwanda has been rising just before an election and declining immediately thereafter except in 2003 when the country embraced multi-party democracy. A comparable pattern can be noticed in state spending as a fraction of GDP, though the magnitude of the trend is somewhat lesser. Fiscal deficit could be attributed to high public expenditure coupled with low tax revenues as shown in figure 5.

From 2000 to 2018, real interest rate and inflation have fluctuated. However, in general terms real interest rate has been rising while inflation rate has declined since 2010 (see Figure 5). The statistics in Table 4 and figure 5 suggest that whenever inflation rate increases or decreases,

real interest rate change in the opposite course. The shaded columns in Table 4 represent years of a general election.

Table 4: Some Macroeconomic Indicators in Rwanda, 2000 – 2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit % of GDP	11.2	10.3	10.1	9.8	11.2	11	10.5	13.1	10.5	12.4	13.7	12.4	13.9	14.8	13.9	13.4	13.7	14.6	14.01
GDP Annual growth	8.3	8.7	13.5	1.5	6.9	6.9	9.2	7.6	11.1	6.3	7.3	7.9	8.7	4.6	7.0	6.9	6.3	6.06	8.79
Real Interest Rate	13.8	16.2	22.9	-4.6	2.5	3.9	6.4	3.8	1.9	6.9	13.9	8.8	9.9	11.6	15.5	15.6	16.75	9.15	17.89
Government Expenditure % of GDP	11.6	15.9	13.75	22.24	22.35	25.4	22.7	27.3	25.4	23.96	26.83	26.00	26.8	30.2	30.7	31.6	33.61	34.23	34.90
Tax Revenue % of GDP	12.3	11.1	11.21	12.01	11.81	13.5	12.7	13.0	12.6	12.10	12.42	13.15	13.2	13.4	13.5	14.0	15.34	13.62	13.02

Author's compilation from World Development Indicators (2022)

Figure 5: Trends of some macroeconomic indicators in Rwanda, 1990-2018

Author's compilation from World Development Indicators (2022)

iv. Tanzania

Tanzania attained independence in 1961 and became a republic in 1962 under a single party regime. Chama Cha Mapinduzi (CCM) was the main party as it is today. The country embraced multi-party democracy in 1965 but backtracked until 1992 when it was re-introduced. Tanzania has held multiparty elections in 1995, 2000, 2005, 2010, 2015 and 2020 with CCM emerging victorious in each case. Prior to the elections in 2010 and 2015, Tanzania witnessed well-publicized corruption scandals involving unauthorized payments from public funds for energy and military contracts. High-profile government officials and ministers were fired as a result (EAC facts and figures, 2016). From then onwards, fighting corruption is a major campaign issue in this country.

Tanzanian economy has been characterised by growth in education, agriculture, mining, construction, financial services and tourism sectors contributing to improved GDP levels. Exports rose by 9.4 percent between 2012/13 and 2013/14. In 2013/14, the current account shortfall was at 11 percentage of GDP. However, public expenditure has continued to expand relative to revenue collection (WDI, 2022). This results to growth in budget deficits.

From early 2000s, fiscal deficit was exceeding the 5% threshold set in EAC's 3rd Development Strategy (2006-2010). But from 2005 the trend of fiscal deficit has declined. The trend of rising deficit just before an election and a decline thereafter is also noticeable in the country. However, in 2014 the level of fiscal deficit was low despite of a general election in 2015 possibly because the incumbent president was not running for re-election. But from 2010 to 2018 the trend has been a consistent decline. Tax revenue over the period 2000- 2018 decreased during election years and rose immediately thereafter except in 2005 (WDI, 2022).

Tanzania's GDP has been increasing since early 2000s even during most election years. Real interest rate shows stability over time except in the 1998, and during elections when it increased and declined soon thereafter. However, in the 2010 and 2015 general elections real interest rate declined. Even during elections Tanzania exhibits an inverse association between rate of inflation and real rate of interest. This is seen in Table 5 and figure 6 where trends of some macroeconomic indicators in Tanzania for period 2000 to 2018 are shown. The shaded columns represent years of general election.

Table 5: Some Macroeconomic Indicators in Tanzania, 2000 – 2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit % of GDP	6.3	5.8	6.1	6.5	10.2	11.1	8.3	9.9	6.2	11.3	11.2	8.9	5	4.3	3.1	5.5	5.2	4.5	3.1
GDP Annual growth	4.94	5.99	7.2	6.9	7.8	8.2	4.7	8.5	5.6	5.4	6.4	7.9	5.1	7.3	6.9	6.9	6.9	6.8	5.2
Real Interest Rate	13.0	14.0	8.7	5.6	6.65	-8.87	-0.70	9.6	-0.8	5.3	4.9	3.1	4.3	7.6	10.7	8.9	9.4	14.5	12.9
Government exp as % of GDP	11.68	11.86	13.1	17.6	21.80	23.16	22.02	25.3	24.1	26.96	27.14	25.62	26.9	31.4	17.84	19.74	20.50	20.9	21.21
Tax Revenue % of GDP	9.84	8.06	9.6	10.0	10.62	11.01	12.50	12.8	14.9	14.84	12.06	15.62	16.1	13.2	12.42	12.68	12.14	11.82	11.60

Author's compilation from World Development Indicators (2022)

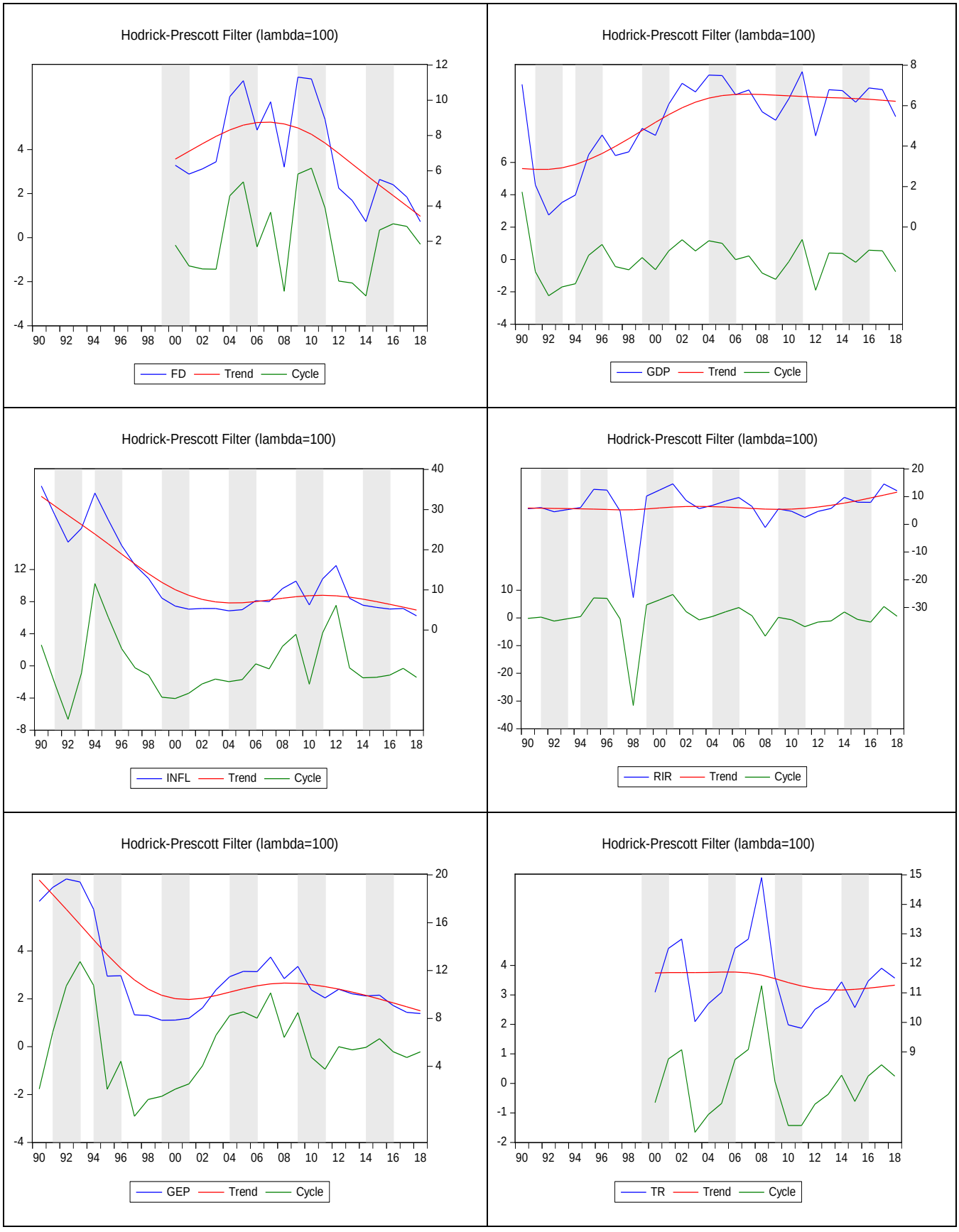

Figure 6: Trends of some macroeconomic indicators in Tanzania, 1990-2018

Author's compilation from World Development Indicators (2022)

v. Uganda

Uganda attained independence in 1962 as a multiparty democracy and held the first competitive elections. But this did not happen again until 1980 due to political instability in the country. Even with the return of multiparty politics, civil war erupted. In 1986 elections were held but soon thereafter political parties were banned, and the country operated for two decades without multiparty politics. In 2006 Uganda held multiparty elections and has since then held competitive general elections every five years (AED, 2022).

In the late 1980s, this country was amongst the first Sub-Saharan Africa economies to adopt World Bank and IMF's pro-market and liberalization policies. From the early 1990s up to 2006 the country experienced rapid economic growth with GDP growing at a mean of 7%. But from year 2006 which coincided with the first multiparty election after 25 years, the country has experienced increased economic volatility and decline in the economic performance. GDP growth dropped to an average of 5%. On average, fiscal deficit/ GDP ratio has been the above 5% which is contrary to the EAC vision 2050 set targets (EAC Vision 2050 Report, 2016; WDI, 2022).

Unlike other EAC countries as is notable from Table 6 and Figure 7, Uganda has not had increasing fiscal deficit during election years. This is because the country has been led by the National Resistance Movement (NRM) party under same leader for many years. The leader has been sure of a win each time an election is held and thus not inclined to incur huge public expenditure during elections in a bid to woo voters as predicted by Krause (2005). This interests this study as to whether countries that have had long term president experience political business cycles.

Public spending has been dropping in Uganda while the share of tax income to GDP has been increasing. However, these two fiscal variables have been volatile over the period 2000-2021. Uganda's inflation has been stable with marginal fluctuations during election periods as shown in Figure 7. Real interest rate in Uganda has been volatile and increasing since 2010 particularly just before an election. This is noticeable over the period 1994 -2018 the only exception being 2006. Table 6 shows the trends of some macroeconomic indicators in Uganda before, during and after elections for the period 2000 to 2018. The shaded columns represent years of general election.

Table 6: Some Macroeconomic Indicators in Uganda, 2000 – 2018 (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fiscal Deficit % of GDP	7.2	7.9	8.4	9.8	7.8	7.1	7.1	4.9	4.6	7.2	6.6	5.3	6.3	5	5.4	8	9.4	4.4	4.7
GDP Annual growth rate	3.1	5.2	8.7	6.5	6.8	6.3	10.8	8.4	8.7	6.8	5.7	9.4	3.8	3.6	5.2	5.1	5.3	3.9	6.1
Real Interest Rate	10.6	17.3	22.9	10.3	4.3	21.8	15.9	10.9	14.2	-1.0	8.7	14.8	3.8	18.5	17.4	16.7	17.5	14.1	16.0
Government Expenditure % of GDP	14.50	15.58	16.79	17.8	16.6	16.79	14.10	17.19	17.4	18.6	18.82	15.41	16.31	16.5	18.3	21.15	22.65	22.01	23.12
Tax Revenue % of GDP	10.44	10.44	11.18	11.3	10.7	11.75	12.25	12.39	12.9	10.4	10.27	13.26	10.86	11.0	11.4	10.32	12.15	13.7	14.1

Author's compilation from World Development Indicators (2022)

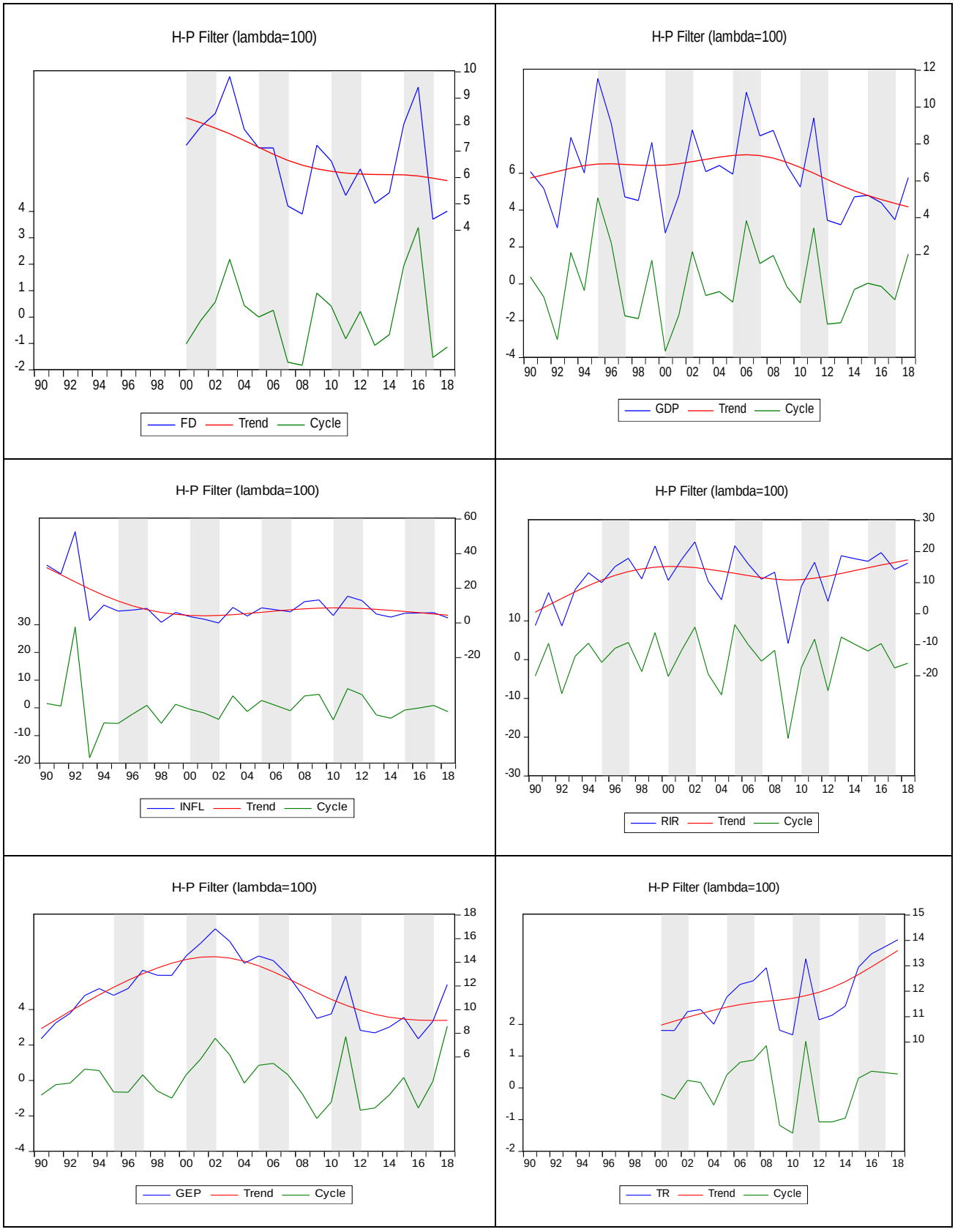

Figure 7: Trends of some macroeconomic indicators in Uganda, 1990-2018

Author's compilation from World Development Indicators (2022)

2.1.1 Research Problem

While the research on political budget cycles has advanced considerably by broadening the scope of empirical analysis to include more countries and time periods, recent political and economic upheavals have given rise to fresh concerns. It is therefore clear that fiscal deficits are political phenomena. Despite previous research focusing on differences in levels of democracy and the disparities between developed and emerging countries, there is limited knowledge regarding the prevalence of PBCs in nations with similar macroeconomic goals and political structure such as the partner states of the East African Community (EAC). Although there may be similarities in the impact experienced by similarly developed nations, the specific policy implications in developing nations remain uncertain. This study also sought to determine existence of PBCs in EAC partner states and establish which state is most likely to suffer from the manipulation of electoral policies and why.

Many current empirical studies on PBCs ignore data beyond early 2000s effectively excluding the period of uncompetitive politics in Africa (Block 2002). This research aimed to bridge this gap by exploring data from 2000 through 2021. This period is marked with multiparty elections that are prone to macroeconomic policy manipulations. Furthermore, whereas some studies use unbalanced panel data[3], this study analysed a balanced panel of 5 EAC states which enhance efficiency of results and minimize endogeneity problems. Additionally, evidence on effects of governance indicators on fiscal deficits is scant. This study investigated the effect of governance of fiscal deficits in the EAC by employed governance indicators as part of control variables.

EAC Partner States have experienced high levels of budget deficits since early 2000s especially during the election years (See Table 1-6 and Figure 1-7). The literature on the factors that influence fiscal deficits focuses on macroeconomic factors such as economic expansion, inflation, real interest rate, tax revenue deficits, and heavy government spending. Political causes of fiscal deficits have largely been ignored. The issue of whether budgetary deficits in the EAC are politically induced or not is a research issue that is unresolved. This issue interests this study.

[3] Brender & Drazen, 2005; Alt & Lassen, 2006; Shi & Svensson, 2006; Lema & Streb & Torrens, 2009

2.1.3 Research Questions

The major research issue in this chapter is whether political business cycles (PBCs) are evident in the EAC. The specific questions are:

i. Are PBCs evident in individual EAC states?
ii. Are PBCs evident in the EAC regional economic block?

2.1.4 Research Objectives

This study's major goal is to investigate whether PBCs exist in the EAC. The study specifically examines whether:

i. PBCs exist in individual EAC states.
ii. PBCs exist in EAC regional economic block.

2.1.5 Justification of the Study

First, this study examined the incidence of PBCs in EAC partner states using fiscal deficit as the PBC indicator. The study found that fiscal imbalances are not just macroeconomic variables but also political phenomenon. This augments the prevailing literature on the determining factors of budgetary deficits which include electoral cycles and governance indicators.

The study findings point out to policy makers in the EAC to design fiscal policies and electoral laws that limit unnecessary expansion of the economy and enforce accountability during elections. The study findings will help policymakers to understand how long-term priorities are compromised by short run political expediency. Additionally, this paper will make policy makers to understand effectiveness of government policies distinguishing between policies implemented for legitimate economic reasons and those motivated by political considerations.

Furthermore, the study outcomes enlighten voters in the EAC with knowledge of economic manipulation that occurs during elections and their impact on macroeconomic performance.

This implies that people can understand how economic indicators interact with political activities. The outcomes of this study will help economic agents to predict future economic behaviours thereby permitting better decision-making today. Finally, this study contributes to research work on PBCs in Africa.

2.1.4 Organization of the Chapter

This chapter consists of five sections. There is an introduction in the first section and a review of the literature in the second. The third portion, which addresses data concerns and theoretical and analytical models, is devoted to technique. Section four presents empirical results and discussions. The chapter is concluded in section five with a summary, conclusion, and policy implications.

2.2 LITERATURE REVIEW

2.2.0 Introduction

This section provides an overview of the literature review, which is categorized into three main sections: theoretical literature, empirical literature, and a general summary of the reviewed works.

2.2.1 Theoretical Literature Review

2.2.1.1 Theories of Political business cycle

The Opportunistic Cycle theory

This theory is attributed to Nordhaus (1975) based on the association between unemployment and inflation. This theory applies sequential games where politicians and votes act strategically to maximize their payoffs. The short run Philips curve compels decision-makers to choose between lowering general price level at the expense of low employment or raising inflation at the expense of lower unemployment which is a dominant strategy for the incumbents. This theory further argues that it would be a concern for a politician to maximize voters' utility to increase chances of re-election if the voters' favour low unemployment. Expansion of the

economy just before the election enables politicians to take advantage of the crumbling memory of their voters. The short-sighted voters will form a reaction function by focusing on the current developments which is their payoffs. At the equilibrium the voters forget about the worsening of the economy at the beginning of each presidential term.

This theory describes some African countries especially the EAC where leaders maybe opportunistic and willing to win elections at any cost and electorates only consider short run gains. These short-term economic gains mostly in terms of handouts and launching of public investment programmes that are never completed after the elections. However, Hibbs (1977) argued that politicians are not purely opportunistic and that party ideologies matter. Rogoff and Sibert (1988), Rogoff (1990), Persson and Tabellin (1990) incorporated rational expectations in the model. Additionally, the theory may not be applicable in developed economies as it ignores independence of central banks and fiscal policy, Drazen (2000).

The Ideological Cycle Theory

Hibbs (1977) criticised the opportunistic cycle theory, arguing that political party ideologies matter in the electioneering period. Hibbs posits that every political party can be recognized by their exceptional dogma. As a result, voters decide based on the party doctrines they support the most, and leaders uphold those ideologies. As a result, contrary to what the opportunistic cycle theory claims, politicians do not act opportunistically. In young democracies such as EAC countries party ideologies are likely not to matter what matters is whether the individual politician is going to retain power or not. The cycles may transpire once a political party that is in power changes. Nevertheless, Hibbs agrees with Nordhaus (1975) that voters are short-sighted and uninformed.

The Partisan-Opportunistic Theory

Alesina et al. (1997) combine traditional theory and ideological theory to form partisan opportunistic theory. According to this argument, an incumbent politician targets the median voter. Every political party has unique views that are held only by it, which is like Hibbs' (1977) idea of the ideological cycle. A political party's readiness to drift from its principles to capitalize on votes is what causes the difference between ideological cycle theory and partisan-opportunistic theory. This theory hypothesizes that close to an election, parties will strategically sacrifice their strict ideologies and implement favourable policies to take full advantage of voters. Therefore, the person who wins the median voter will triumph in an

election. Like Nordhaus, (1975), this theory explores the Philips curve relying heavily on monetary policy rather than fiscal policy and applies strategic interaction between voters and politicians.

Equilibrium Political Budget Cycles Theory

Unlike earlier theories of PBCs, Rogoff (1990) and Rogoff and Sibert (1988) emphasize fiscal policy aspect rather than output and inflation. In addition, they argue that electorates are not myopic as postulated by Nordhaus (1975), Hibbs (1977) and Alesina et al., (1997) but rational in their choices. The study posits that public expenditure depends on competence of a political leader and subsequently electorates have incomplete information about competence of the leaders. Therefore, to maximize on their economic wellbeing, voters rely on past fiscal choices of an incumbent to make their political choices. The leader with highest provision of public goods (which signals his or her competence), then has vast political support. By implication, the incumbents react by increasing public spending hence high levels of deficits. At the end of elections equilibrium is achieved where voters benefit from short-term economic gains and hope that credibility of the politicians will be sustained while politicians maximize votes. Eslava (2006) argues that for this theory to hold voters must have incomplete information about the fiscal balance. This is because voters would have perfect information about incumbent's competence if they knew the underlying cost of government projects. Furthermore, Shi and Svensson (2006) argue that opportunistic cycles are likely to occur if not all voters have knowledge of government budget.

Extension of the Partisan Theory

Blomberg and Hess (2003) broaden the partisan approach by incorporating the party's competence as a solution to information asymmetry among voters. According to this theory of PBCs, good leaders will promote economic expansion in the run-up to an election, which sets them apart from inept ones. The voters will make political decision based on the short-term economic gains. Furthermore, Blomberg and Hess (2003) argued that if there is expansion of the economy just before the elections, then the incumbents and their political parties will be re-elected. This theory's argument is like Rogoff (1990), and Rogoff and Sibert (1988) that magnitude of political business cycle indicates leader's competence. On contrary, Block (2002) argues that magnitude of PBC may be detrimental to the economy hence signals incompetence of the politician.

Electoral Security and Electoral Uncertainty Theory

This theory is analogous to the opportunistic cycle theory except that it considers the competitiveness of the election. Krause (2005) posits that pre-election economic policy manipulations are inversely related with government's security towards the election. The contender will not forfeit their principles in the pursuit of additional immaterial votes, if the likelihood of winning an election is higher despite the policy they take. Nonetheless, candidates adopt a more opportunistic approach if the election's outcome is expected to be unfavourable. Thus, PBCs may be caused by expansion of the economy just before the elections by the politicians' quest for more opportunistic policies as a dominant strategy to win competitive elections. Consequently, as the elections become extra competitive the magnitude of PBCs will be larger. The incumbents choose between enhancing the likelihood of re-election and sticking to their principles and choose what maximises the payoffs. Block (2002) findings on African countries concur with this theory.

2.2.1.2 Theories of Fiscal deficit

Tax smoothing theory

According to Barro (1979), the state functions as a public planner with the goal of maximizing the utility function of the representative agent. This objective is achieved by funding a specific level of expenditure through labour income taxes within a defined time frame. Barro proposes that governments aim to minimize the changes caused by tax hikes, which can lead to or influence budget deficits. This theory posits that budget imbalances are caused by expected variations in the share of public purchases to the overall national GDP. In the presence distortionary taxation, the best possible approach by the state is to employ government deficits and surpluses to stabilize the economy. The model implies that budget deficits decline during economic upswing and rise in periods of economic downturn. It remains a gap if budget deficits are affected by political cycles.

Theory of Government as a Leviathan

Brennan and Buchanan (1980) argue that governments earn excess rent from citizens through taxes and running fiscal deficits beyond set targets to fund the public goods and services provision. The leviathan theory states that administrations strive to control the economy as much as possible. Moreover, it implies that widening government expenditure would be experienced when the maximum size of public sector has been achieved. Temporarily and over time, this might cause the budget deficit to increase, which would then skew economic activity.

Political Theory of Government Debt

The intergenerational restructuring aspect of government debt serves as the foundation for Cukierman and Meltzer's (1989) theory of budget deficits. The study findings reveal that negative inheritance-inhibited people move their assets from future cohort to fund present expenditure. These people support present-day tax rate cuts without complementary reduction in contemporary public spending. Consequently, in an independent political system, if share of inheritance-inhibited individuals in the population is large, then it would be appropriate to have large fiscal deficits.

Positive Theory of Government Budget Deficit

According to Alesina and Teballini's (1987) argument, governments strategically exploit public debt to influence the decisions made by their successors. As a result, the public debt time course is the outcome of calculated relationships between various regimes in power at various times, which leads to various fiscal policies. According to the hypothesis, there is a tendency for the ideal public debt stock to be higher when an altruistic social planner is confident in winning future re-election. The incumbent party is inherently prevented from completely internalizing the responsibility of transferring liability to its successors because of differences in alternating regimes and uncertainty about election results. This hypothesis specifically suggests that variations in the fiscal policies adopted by several economies or by the same economy at various points in time are attributable to disparities in political institutions.

Strategic Debt Accumulation Theory

Persson and Svenson (1989) formalized this model, which Tabellini and Alesina (1990) amended to account for the factors that affect fiscal deficits. Tabellini and Alesina (1990) argued that electoral outcomes are influenced by individual voters' preferences and behaviour. The current policymakers are likely to know that future policies may be settled on by people whose views conflict with theirs. Consequently, the current policy makers may opt to restrict future policy makers' expenditure by accumulating debt in the current period. So long as elevated level of public debt reduces public expenditure, the current policymakers will accumulate more debt. Therefore, politicians will accumulate fiscal deficit based on the future fiscal policies.

2.2.2 Empirical Literature Review

Most studies indicate that PBCs happen in developed and less developed nations. There is conflicting evidence in the empirical literature on incidence of PBCs. The empirical review has three segments: the first reviews empirical work on developed economies. The second presents findings from developing countries and the third focuses on studies that compare developed democratic economies with less developed fragile economies.

PBCs in Developed Countries

Granados (2003) estimated a linear model using OLS and data for the period 1970-2001 to assess the economic and political determining factors of budgetary consolidation in 15 European Union (EU) partner states. The study tested ideological theory of PBCs using the following variables: budget cyclically adjusted, cyclically adjusted budget balance minus interests, inflation rate (CPI), unemployment rate and political variables. The results support the ideas that, in addition to economic conditions, party in government manifestos, decision-making breakdown, and closeness to elections have an influence on fiscal policy in general and adjustment techniques. The incumbent's party ideology was the most authoritative forecaster of strategies of adjustment and fiscal policies. The results showed that socialist governments favoured balanced budgets in the new framework to support supply-side objectives of capital development and to preserve public employment and that they are hesitant to reduce these expenditures despite public spending and transfers. However, this study considered months to election to capture political aspects of budget deficit and OLS estimation technique which might be biased for large T and small N. Instead, this study employed PMG estimation

technique which controls for endogeneity and suitable for small sample (N) with large time (T) (Pesaran et al., 1999).

Akhmedov and Zhuravskaya (2004) analysed the presence of political business cycles (PBCs) and their impact on the likelihood of governors' re-election in Russia. They utilized monthly regional panel data from 1996 to 2003 and employed the GMM estimation technique for their investigation. The study also established whether political cycles were affected by democracy, voter awareness, transparency and timing of elections. The study examined the opportunistic political business cycle theory by employing budgetary expenditure such as expenditure on culture, education, industry, industrial subsidies, health care and mass media, budget revenues and deficits, election dummies and income. The study findings reveal strong evidence of PBC in budget expenditure and its composition. The authors conclude that the degree of political business cycle was influenced by level of democracy, freedom of regional media, transparency, education and urbanization study. The panel data analysis with advanced estimation technique known as the PMG estimation approach used in this work allows for both short- and long-term analysis as well as variability in the model's short-term coefficients. Several governance indicators are also added.

From 19 OECD nations in the 1990s, Alt and Lassen (2006a) explore the consequences of fiscal restraint and political interference on the presence of electoral seasons in fiscal deficit. The GMM study results indicate that a small magnitude of PBC is also associated with increased openness in public spending. The study authors also show that political polarization causes political business cycles. The preferences for various sorts of spending, especially those forms of public spending that voters desire, are a characteristic of unobserved characteristics of politicians posited in Drazen and Eslava's (2006) signalling model of structural cycles with rational voters.

Bayar and Smeets (2009) using panel data investigated the contributory factors of budgetary shortfalls in EU countries for the period 1971-2006. Political and institutional variables, the budgetary deficit, the unemployment rate, the growth rate of GDP, were all used in the study. Using PCSE (Panel-Corrected Standard Errors) estimation technique, the study findings revealed existence of PBCs caused by opportunistic behaviour of policymakers but no evidence of partisan behaviour. The results suggest that variations in unemployment significantly influenced budget shortfall as a product of expanded public expenditure. Political

fragmentation had insignificant influence on budget imbalance while government stability had inverse statistically significant relationship with budget deficit.

PBCs in Developing Countries

Employing data collected from a sample of 24 developing nations for the years 1973–1992, Schuknecht (2000) examined fiscal policy instruments that governments employ to influence outcomes of elections. The author considered nation- wide elections based on countries' political systems under study. Estimates of static fixed effects model indicate that around the election public spending tend to increase significantly. The study also found that governments used increase in public spending as a tool for fiscal policy more than lowering taxes.

Block (2002a) also looked at the influence of elections on government policy using GMM regressions and a panel data set of 44 SSA nations over the years 1980 to 1995. According to the study's results, the budget deficit surges by 1.2 % points during voting seasons covered in the study. Similarly, Block (2002 b) analysed data employing a sample of 69 states for the period 1975-1990. Using GMM estimation technique, the evidence showed that government spending tends to move away from planned public investment in competitive elections and toward higher visible current consumption spending. The findings suggest that PBCs are not only evident in industrialized economies, but also prevalent in economies where competitive elections are held.

Subsequently, Block et al. (2003) uses panel data of 44 African countries to analyse the extent of PBCs. The study examined the link between PBCs, multiparty competition and founding elections. System GMM estimates reveal strong presence of PBCs especially in multiparty competitive elections. furthermore, the estimates show that the extent of political cycle is enhanced by founding multiparty elections. The study concluded that transitioning democracies ought to adopt economic and political reforms to manage the extent of PBCs.

Pasten and Cover (2010) examined time series model for the period 1833-1999. The study explored effect of politics on economic strategies of Chile. Specifically, Pasten and Cover (2010) examined whether political instability could cause large budget deficits using data covering 1833 to 1999. The study found that Chile government solves electoral uncertainty by shifting current tax obligations to the future. The implication is that the government would increase current budget deficit hence weakening the country's fiscal stance sustainability. The

study also made the case that political unrest may make it more tempting for governments to alter their budgetary policies to increase their chances of winning re-election.

Anwar and Ahmad (2012) examined the party-political factors influencing Pakistan's budgetary deficits. The Autoregressive Distributed Lag (ARDL) model and 1976–2009 data were used in the study. The research paper explored the connection between the fiscal deficit, cabinet size, and democracy across the short- and extended-term. The results demonstrate a significant extended-term correlation between the budget deficit and particular political factors. The study also discovered a relationship between public sector size and the budget shortfall, suggesting that a bigger government would result in significant deficits. The study established that while the effect was less significant, democracy could lower budget deficits. This study makes use of control variables including rule of law, political stability, voice and accountability, absence of violence/terrorism, and government performance to ascertain the consequences of governance indicators on the budgetary deficit in the EAC.

Ebeke and Olcer (2013) examine the fiscal behaviour of 68 Low-income economies from 1990 to 2010 using a panel dataset. The research indicates that during electioneering years, there is a substantial growth in public expenditure, leading to higher deficits. Additionally, two years before elections, these countries experience fiscal changes, characterized by increased revenues from trade taxes and reduced government investments, without major cuts in public expenditure. The study concluded that elections not only have impact in the macroeconomic environment of a country but also cause fiscal alteration that adversely affect the government investment. Nevertheless, the study find that fiscal rules and IMF programs could be used to reduce the extent of the PBCs in these countries.

Chiripanhura and Niño-Zarazúa (2015) studied 31 countries for the period of 1980 to 2009 to determine the connection between PBCs, African aid, and economic growth. Using system GMM, OLS, 2SLS, LIML, CUE, Fuller’s modified LIML and FE estimation techniques for robust check, the author studied the importance of financial aid in enabling economic progress and PBCs. The results indicate presence of PBCs in African economies implying that opportunistic political leaders pursue exploitative policies to enhance their likelihood of being re-elected or furthering the party supremacy. The findings also suggest that aid is likely to increase the incidence of PBCs.

Additionally, applying a sample of 51 countries, Mosley and Chiripanhura (2016) analysed the occurrence and influence of PBC in African economies. Employing fixed effects (FEs) estimator and country case studies the empirical outcomes suggest that PBCs in Africa are not homogenous and are mainly in countries with dominant party systems. The findings also indicate that PBCs do not essentially cause institutional harm where they happen, and whether PBCs are harmful to institutions depends on whether a political cycle affects the allocation of resources.

Nguyen and Tran (2023) investigate the presence of political budget cycles in emerging and developing economies for the period 1992-2019. The study employed a sample of 91 countries and a pooled ordinary least squares estimation technique with clustered standard errors. The study outcomes reveal existence of PBCs in developing and emerging states. The findings suggest an increase in public expenditure in the pre-election and election years and a decline immediately after elections.

A Comparison of PBCs in Developed versus Developing Countries

Shi and Svensson (2002) explored the association between voting seasons and fiscal policy using panel data for a period of 21 years for 123 developed and less developed countries. The study's findings, which were obtained using the GMM estimation technique, provide clear evidence of PBCs in macroeconomic policy, namely that public spending increases soon before elections but revenue declines, leading to a significant budget imbalance in the election year. The study also discovered that PBCs are more common in developing nations than in wealthy nations. The study also found discrepancies in the size and structure of the PBC between low- and high-income nations using the moral hazards model of elections.

Using GMM estimation method, Brender and Drazen (2005) investigated existence of PBCs in new and established democracies. The study employed a panel of 74 democracies between 1965 and 2001. PBCs have been found in nations that have only recently achieved democracy, based on the study's conclusions. Moreover, the results indicate that Political Business Cycles (PBCs) exhibit statistical significance only during the initial elections following a country's transition from non-democracy to democracy. The results further indicate that manipulation of fiscal policies may dominate in newly established democracies because the voters may lack experience of electoral politics or may have imperfect information on evaluation of fiscal manipulation. This may entice the political leaders to engage in manipulations of fiscal policies

to enhance their likelihood of emerging victorious. However, in established democracies voters tend to punish the fiscal manipulations since they can identify them and consequently politicians shun away from it.

Using probit model and a sample of 60 democracies Persson and Tabellini (2003) investigated economic impact of constitutions between 1960 and 1998. The results of the study show a political revenue cycle in which the public revenues to GDP ratio fall just before elections. For many political systems or nations, there was no indication of a PBC in transfers, expenditure, or budget balance. The study concluded that the important determinant of the political revenue cycles across economies is the electoral system and the governmental system.

By use of 74 democracies between 1960 and 2003, Brender and Drazen (2008) tested whether economic growth and budget deficits affect re-election prospects of a political candidate. A probit model was constructed using fiscal and other macroeconomic variables to determine the likelihood of an incumbent being re-elected. The results imply that fiscal deficits do not boost re-election chances in rich or developing nations, new or old democracies, nations with various forms of government or electoral processes, or nations with various degrees of democracy. The study concluded that election year deficits lower the likelihood of a leader being elected in industrialized economies, particularly the old democracies. Both statistically and economically, this effect was considerable. However, the impact of budgetary deficits on electoral success in emerging nations is negligible and statistically insignificant. In contrast, the probability of being re-elected exhibits a favourable and statistically substantial link with economic progress.

Additionally, Shi and Svenson (2006) examined the existence of PBCs and their extent across countries, using a sample of 85 nations for the period between 1975 and 1995 using panel ARDL. The results show strong evidence of PBCs across countries. The study results also revealed that during the elections fiscal deficit grows by approximately 1% of GDP. They also found a systematic difference between developed and less economically advanced nations: the scope of PBCs in developing republics is larger than developed countries. Moreover, contrary to Rogoff (1990), the authors concluded that PBCs may occur even when voters are fully informed about government economic activities but at least some electorates are not aware of budget deficit.

2.2.3 Overview of the Reviewed Literature

The theoretical literature on the nature and existence PBCs is mixed. For instance, the opportunistic cycle theory and electoral security and uncertainty theory posit that politicians are always opportunistic, and their main objective is to remain in power. These theories further view voters as myopic and short-sighted in their voting behaviour. This implies that, electorates form adaptive expectations and are prone to pre-election economic policy manipulation. However, a few studies criticize ideas of opportunistic and myopic behaviour theories. The theories argue that political parties' ideologies and competence of the political candidates influence the voting behaviour of the electorates. However, political candidates may deviate from strict party ideologies to increase probability of winning an election through voter-friendly economic policies. This is witnessed in the EAC countries where incumbents expand the economy in electioneering period and sometimes party ideologies may not matter. The core goal of this research was to establish the pertinence of these theories in the EAC countries.

The level of electoral competition will determine how intense a political business cycle is. If an election is competitive the incumbent is likely to employ expansionary economic policies to win elections. This is probably the case in EAC countries especially during multiparty electoral system where elections more competitive and therefore politicians in desperation to maximize votes may opportunistically deviate from their ideologies and employ expansionary fiscal policies. This study examines existence of PBCs in the EAC countries where some countries like Kenya and Tanzania elections are very competitive while in Burundi, Rwanda and Uganda are not very competitive. Using country-specific short run analysis the study finds the variation of PBC magnitude across these countries.

Additionally, PBCs theories use different indicators for PBCs that is, some theories such as the traditional theory use monetary policy instruments as indicator for a PBC while others use fiscal policy tools such as public expenditure. Theories that use fiscal policy tools contend that voters support the candidate with highest competence[4]. This theory of equilibrium political budget cycles is different from the other PBCs theory because is based on expansionary fiscal policy rather than monetary policy. It posits that incumbents pursue expansionary fiscal policies in the electioneering period to maximize votes. This study is pinned on this theory by using a small sample of five EAC countries and fiscal deficit is employed as fiscal indicator.

[4] High provision of public goods or level of public expenditure erroneously signals government's competence in the eyes of an uninformed voter.

On the other hand, by extending the partisan model to include competence, voters would elect competent leader regardless of party affiliations hence no economic policies manipulations during elections. This theory is not likely to hold in African economies especially in Kenya where electorates may vote based on political party and tribal inclinations and award incompetence. This study seeks to establish where PBCs exist in the EAC countries despite the differences in terms of presidential term limits and democracy level. However, in developed nations with longstanding democracies since voters are well informed and rational, are likely to award competence.

Furthermore, political business theory can be linked to game theory. Game theory involves strategic interactions between various players including the sitting candidates, opposition leaders or parties, voters and autonomous institutions such as central banks. Politicians are presumed to be keen on reaction functions of voters, independent institutions as well as the voters when deciding on which macroeconomic policies to manipulate. Consequently, voters are assumed to be rational and react to economic policy manipulations either positively or negatively (Rogoff and Sirbert, 1988; Rogoff, 1990). This is a sequential game. For the payoffs, politicians' successful policy manipulation leads to winning elections while voters maximise their wellbeing based on their political decision. At Nash equilibrium politicians choose policies that bring about short-term economic gains while maintaining long term credibility based on reaction functions of the voters.

Theories on determinants of fiscal deficits indicate scarcely on the link between budget deficits and election cycles, political manipulation, and governance levels. Barro (1979) suggests that budget deficits result from governments' objective of minimizing distortions associated with raising taxes. Moreover, the tax smoothing model propose that government deficits follow economic cycles: low during a boom, high during economic downswing. The leviathan theory argues that the extent of public sector will also determine the intensity of fiscal deficit as well as intergenerational redistributive perspectives of public debt which causes budget deficits to rise as an economy expands over time. This study fills this gap by examining existence of PBCs in the EAC using fiscal deficits as a proxy and governance indicators as control variables.

More recent theories improve on theories of fiscal deficits by examining political and institutional drivers of government deficits. However, they use public debt and suggest that the burden of public borrowing is passed from one electoral government to another. Furthermore, they emphasize that governments strategically employ government debt to sway the economic

policies of the successors. The theory suggests that a benevolent social planner's re-election certainty in future positively influenced optimal public debt stocks. These theories do not explain the political determinants of fiscal shortfalls especially election timings and policy manipulations by the incumbents and relevance of governance indicators. This study sought to close this gap.

The empirical evidence on existence of PBCs differs across countries and democracies and is scanty especially in countries like the EAC Partner States. For examples, studies on developed countries give mixed evidence on existence of PBCs. While some find no evidence of PBCs in the EU, others find evidence of PBCs in developed economies (Shi and Svensson 2002, 2006; Granados, 2003; Bayar and Smeets, 2009; Chiripanhura and Niño-Zarazúa, 2015; Mosley and Chiripanhura, 2016). Studies in developing economies including African countries suggest PBCs are evident, and the magnitude is large. When comparing developing with developed countries, PBCs are more prevalent in the former than the latter[5]. PBCs have been observed to be more prevalent in recent democracies compared to older republics. It remains a research gap on whether PBCs exist in the East African countries at country specific level and regional economic block. This is because the countries have same macroeconomic goals but very different in political and democracy systems.

Most of research reviewed employed used large data sets coupled with comparing countries in terms of economic progress and democracy. This study used a small sample of 5 EAC partner states for a period 2000-2021 to close the gap in the literature. These EAC countries are peculiar in several ways: first, they have same macroeconomic goals, same budgeting procedure and have similar commodities. These countries are however different in terms of income level, democracy, political system and presidential terms. This study examined existence of PBCs in the EAC at individual country and regional level using PMG estimation technique.

This study is pinned on theories of PBCs that emphasize on use of fiscal policy tools as policy manipulated variables by politicians. It is also based on studies which examine fiscal policy instead of monetary PBCs[6]. Furthermore, the study employs PMG estimation technique to show short run and long run evidence of PBCs in the EAC. PMG estimator permits short-term parameters to fluctuate between cross-sectional units but enforces equality of the long-run

[5] Shi and Svensson (2002, 2006) posit that PBCs are prone to developing countries compared to developed countries.
[6] Older PBC models, such as those by Nordhaus and Tufte from 1975, presuppose that PBC was caused by expansionary monetary policy before elections.

parameters between cross-sectional units. Furthermore, the study employs governance indicators to capture democracy level and show their impact on fiscal deficits. This adds to the body of literature already in existence.

2.3 METHODOLOGY

2.3.1 Theoretical Framework

2.3.1.1 The Model

According to Rogoff and Sibert (1988), Rogoff (1990) individuals derive satisfaction from consuming a government good (*g*) and a private good (*c*). Assuming the individuals to be voters seeking to maximize utility, and two political candidates, a and b, the satisfaction function of a median voter *i* in period t could be given by,

$$U_t^i = \sum_{s=t}^{T} \beta^{s-t} [g_s + u(c_s) + \theta^i z_s \qquad 2.1$$

u is a concave utility function and z is a binary variable with values of $-\frac{1}{2}$ if candidate *a* is elected and $\frac{1}{2}$ if candidate *b* is elected. The voters consumption preferences are assumed to be homogeneous and only vary in the parameter θ^i. θ^i represents the influence of a politician's personal attributes on the utility of the voters. It is assumed that voters with $\theta^i < 0$ prefer *a*, while voters with $\theta^i > 0$ prefer candidate *b*. θ^i is assumed to be evenly distributed on $-\frac{1}{2}, \frac{1}{2}$ space and β is the discounting element supposedly equal to 1.

In addition, it is assumed that all nationals earn a predetermined income y at the commencement of each period. A lump sum tax τ is utilized to provide social good (g). Therefore, consumption expenditure function for private good in period *t* is givens as,

$$c_t = y - \tau \qquad 2.2$$

As politicians are also residents, they maximise utility from both social and private goods in the same manner as other members of the population. Nevertheless, it is assumed that every time a politician is in office, power provides them with additional "ego rents" of $X_t = X > 0$ (Rogoff, 1990). These rents can be conceptualised in various ways; abuse of state office for personal gain, or non-monetary gain due to the great reputation that comes with being a politician.

Therefore, the utility function for a politician j is,

$$V_t^j = \sum_{s=t}^{T} \beta^{s-t} [g_s + u(c)_s + X_s \quad 2.3$$

Where j=[a,b].

Assume that elections are held after every presidential term and current government taxes (τ_t) and borrowings (d_t) at every given period t are as illustrated in equation 2.4. μ_t^j captures the index of administrative competence required for provision of public goods, for example the ability to minimize wastage in the budget process and stabilize exogenous shocks. Public good (g_t) equation is then written as,

$$g_t = \tau_t + d_t - R(d_{t-1}) + \mu_t^j \quad 2.4$$

R(d) is a continuous government debt's cost function with $R(0) = 0 \;\; R'(0) = 1$ and $R''(d) > 0 \quad \forall \; d > 0$.

Additionally, Shi and Svenson (2006) indicated that the competency of politicians is predicated on a first order moving average process

$$\mu_t^j = \vartheta_t^j + \vartheta_{t-1}^j \quad 2.5$$

Where each ϑ_t^j is an impartial, identically distributed (i.i.d) arbitrary variable with a restricted variance, a distribution function $f(\vartheta)$, a null mean, and density function $f(\mu)$ with$f(\mu) > 0$. This implies that, politician's competence may vary with time. This assumption is based on the idea that situations adjust over time and therefore a politician who is adept in one period may be incompetent in another period. In addition, it is assumed that politicians and voters have perfect knowledge of past competence shocks. Therefore, at the beginning of time *t*, the candidate in office determines levels of taxes (τ_t) and public borrowing (d_t). The competence shock μ_t takes place during period t, and voting takes place at the conclusion of time t. This means that, the candidate in the office is faced by various policy difficulties on how to use the available resources to produce public good which signals competence level. In other words, the state may have complete knowledge of the rate of tax but may be unsure about the expected tax incomes.

The electorate capability to evaluate an incumbent's policy options vary from one voter to another. A fraction σ of the voters is assumed to have perfect information (informed) and $1-\sigma$ have imperfect information (uninformed). Those who are informed know the election year expenditure (g_t) and taxes (τ_t) as well as the levels of government debt (d_t) before voting. On the other hand, uninformed voters only have information on the policy tools that influence their utility, that is, (g_t) and (τ_t).

2.3.1.2 An incumbent candidate's equilibrium during non-election period

The equilibrium in the model is first solved in the absence of elections as a reference point. It is assumed that a randomly drawn politician occupies office for an extended period. Since public debt is expensive in an equilibrium state and the marginal value of social consumption is stable or equal to 1, there is no borrowing. Thus $d_t = 0$ for period *t=1, 2…, T.* The politician's gain problem could be solved by using a production technique and quasi-linear preferences as follows.

$$\max_{\{\tau_t\}} E_t\,[g_t + u(c_t) + X] \qquad 2.6$$

$$s.t \quad g_t = \tau_t + \mu_t \qquad 2.7$$

E_t is the anticipation operator based on the knowledge at period *t.* The first order condition demonstrates that the additional value of spending is greater than the extra utility of taxation, hence the equation for τ_t becomes,

$$\tau_t = \tau^* = y - u_c^{-1}(1)\ \forall\ t \qquad 2.8$$

Where τ^* is the optimal tax rate. The competence shock (μ_t) will only have effect on the public expenditure and therefore the resultant expenditure is given as, $g_t = \tau^* + \mu_t$ for t = 1, 2…T.

2.3.1.3 An incumbent politician's equilibrium considering a political budget cycle.

Shi and Svenson (2006) state that the model also presupposes that polls take place at the conclusion of each presidential term. The optimization problem can be treated as a two-period maximization problem under the assumption of quasi-linear preferences and a first order moving mean process for competence.

The model begins with the issue facing a politician after an election following a term in office, or time t+1, and works backwards from there. In period t+1 a politician has no reason to influence the electorates' discernment about him or her since they have the knowledge of past competence. This suggests that the politicians' level of competence in period t+3, which affects the outcome of the subsequent ballot vote at the end of period t +2, is unrelated to period t+1 competence shock. That is, $E_{t+1}[\mu_{t+3}|\mu_{t+1}] = E_{t+1}[\mu_{t+3}] = 0$. Additionally, given that public consumption's marginal utility is invariable and public debt is expensive, there will be no debt in time t+1. An administration finances its debt by running a primary surplus. Therefore,

$$g_{t+1} = \tau^* - R(d_t) + \mu_{t+1} \qquad 2.9$$

Consequently, there won't be any borrowing during the post-polls period t+1, therefore the budgetary restriction during period t is,

$$g_t = \tau^* + d_t + \mu_t \qquad 2.10$$

During an election in period t, the electorate will elect a politician who will produce the most desirable anticipated outcome in period t+1 according to their precise preferences. Assuming that candidate a is the incumbent in period t and d_t^* is the candidate's maximization problem result, the voter is uninformed about the competitor's competence, the expected result if the competitor is elected is,

$$\tau^b = \tau^* \qquad 2.11$$

$$E_t[g_{t+1}^b] = \tau^* - E_t[R(d_t^*)] \qquad 2.12$$

Since $E_t[\mu_{t+1}^b] = E_t[\vartheta_{t+1}^b] + E_t[\vartheta_t^b] = 0$ the expected result if incumbent is re-elected is

$$\tau^a = \tau^* \qquad 2.13$$

Where each ϑ_t^b *and* ϑ_{t+1}^b is an impartial, identically distributed (i.i.d) arbitrary variable with a restricted variance in period *t* and *t+1* respectively. It measures competence level of candidate *b.*

$$E_t[g_{t+1}^a] = \tau^* - E_t[R(d_t^*)] + E_t[\vartheta_t^a] \qquad 2.14$$

Because $E_t[\vartheta_{t+1}^a] = 0$, comparing equations 10-11 and 12-13, the conclusion is that the voter i would only vote for the incumbent candidate given that,

$$E_t[\vartheta_t^a] - \theta^i \geq 0 \qquad 2.15$$

As a result, this candidate's expected allocation of the votes is.

$$\Pr\left(E_t[\vartheta_t^a] - \theta^i \geq 0 = E_t[\vartheta_t^a] + \frac{1}{2}\right. \qquad 2.16$$

The electorate's capacity to evaluate the current competence shock may differ. The share of those who have complete information (σ) will monitor the election year expenditure (g_t), taxes (τ^*) and the level of borrowing (d_t) before voting. Using equation 2.3b it means that the electorates have ability to know the current competence shock of an incumbent candidate before the election. Thus, it is given as,

$$\vartheta_t^a = g_t - \tau^* - d_t - \vartheta_{t-1}^a \qquad 2.17$$

Additionally, Shi and Svenson (2006) suggest that the proportion of electorates with imperfect information must form an estimate about a sitting politician's competence shock. They estimate d_t as $\hat{d}_t$ based on recognizable government expenditure, taxes and information of an incumbent's equilibrium strategy. Hence,

$$\hat{\vartheta}_t^a = g_t - \tau^* - \hat{d}_t - \vartheta_{t-1}^a = \vartheta_t^a + d_t - \hat{d}_t \qquad 2.18$$

Integrating the information of the two categories of the electorates on an incumbent candidate's competence shock, the likelihood that a candidate retains political office or gets more than half of the votes is computed as,

$$P_t = Pr\left(\sigma\left[\vartheta_t^a + \frac{1}{2}\right] + (1-\sigma)\left[\vartheta_t^a + d_t - \hat{d}_t + \frac{1}{2}\right] \geq \frac{1}{2}\right) = \Pr\left(\vartheta_t^a \geq (1-\sigma)\left(\hat{d}_t - d_t\right)\right) = 1 - F\left((1-\sigma)\left(\hat{d}_t - d_t\right)\right) \qquad 2.19$$

According to Shi and Svenson (2006), in period t, an elected politician will set τ_t and d_t to make the most of total anticipated utility in the coming two periods. When calculating the likelihood of re-election, an incumbent uses discretionary rules in budgeting and takes d_t as given. To estimate the best possible tax rate, an incumbent's maximization problem is given as

$$\max_{\{d_t\}} E_t[\tau^* + d_t + \mu_t^a + \mathrm{u}(\mathrm{y} - \tau^*) + \mathrm{X}] + E_t\left[1 - F\left((1-\sigma)\left(\hat{d}_t - d_t\right)\right)\right][\tau^* - R(d_t) + \mu_{t+1}^a + \mathrm{u}(\mathrm{y} - \tau^*) + \mathrm{X}] + E_t F\left((1-\sigma)\left(\hat{d}_t - d_t\right)\right)[\tau^* - R(d_t) + \mu_{t+1}^b + \mathrm{u}(\mathrm{y} - \tau^*)] \quad 2.20$$

The solution for first order condition is given as,

$$1 + (1-\sigma)F'\left((1-\sigma)\left(\hat{d}_t - d_t\right)\right)X - R'(d_t) \leq 0 \quad 2.21$$

The resolution of the first-order condition in equation 2.21 involves comparing the incremental utility of heightened public consumption during an election period, the probability of re-election multiplied by the value of re-election, and the additional advantage of significant pre-election expenditure with the marginal cost of government debt, represented as R'(d t). At steady state an incumbent's ideal level of debt d_t^* must match the expectations of the electorates and therefore $d_t^* = d_t$.

The first order condition stands as equality based on the assumptions of $f(0)$ (function of zero value of explanatory variable) and R. Therefore, at equilibrium,

$$1 + (1-\sigma)f(0)X - R'(d_t^*) = 0 \quad 2.22$$

Equation 2.21 gives a positive equilibrium with some budget deficit, d_t^*. This implies that, despite the rationality and forward looking of the electorates, a sitting politician will borrow prior to an election to increase government expenditure. Moreover since $d_t^* = d_t$, his/her optimal choice equals the voters expected choice at equilibrium. The chosen public debt level will not affect the politician's likelihood of being re-elected. The model's central result is that a government's budget deficit cycle is determined by the schedule of elections.

2.3.2 Analytical Model

Following Nordhaus (1975), Rogoff (1990), Akhmedov and Zhuravskaya (2004), Shi and Svensson (2002, 2006) and Alt and Lassen (2006a), this study assumes that the level of governance in a nation and substantial macroeconomic variables (real interest rate and broad money) are key influencing determinants of the fiscal imbalance of a state. Therefore, analytical model could be written as

$$\mathrm{FD} = \mathrm{f}(\mathrm{RIR}, \mathrm{BM}, \mathrm{RL}, \mathrm{GE}, \mathrm{VA}, \mathrm{PS}, \mathrm{ED}_1, \mathrm{ED}_2, \mathrm{ED}_3) \quad 2.23$$

Where FD is primary fiscal deficit (as a proportion of GDP with exclusion of grants) because it shows government spending which can easily be manipulated for electoral gain, RIR real interest rate, BM broad money supply, RL for rule of law, GE government effectiveness, VA accountability and voice, PS political stability combined with absence of terrorism, and DUM_1 and DUM_2 and DUM_3 stand for pre-voting, voting and post-voting years, respectively. The three dummy variables were employed to bring out the concept of opportunistic PBC which is explained by economic policy manipulation prior and during elections and a reverse occurring immediately after elections.

Based on modified Shi and Svenson (2006, 2008) model to include governance indicators, equation 2.23 could be re-written as follows:

$$FD_{i,t} = a_0 + \sum_{k=1}^{p} b_k FD_{i,t-k} + \sum_{k=0}^{q} c_k\, RIR_{i,t-k} + \sum_{k=0}^{r} d_k\, BM_{i,t-k} + \sum_{k=0}^{s} e_k\, RL_{i,t-k} + \sum_{k=0}^{u} f_k\, GE_{i,t-k} + \sum_{k=0}^{v} g_k\, VA_{i,t-k} + \sum_{k=0}^{w} h_k\, PS_{i,t-k} + \sum_{k=-2}^{2} \alpha_k\, ED_{i,t-k} + \mu_i + \varepsilon_{i,t} \quad 2.24$$

Where?

$FD_{i,t}$ are Fiscal imbalance for state *i* in time *t*

$RIR_{i,t}$ is Real Interest Rate for nation *i* in period *t*

$BM_{i,t}$-Broad Money for nation *i* in period *t*

$RL_{i,t}$ – Rule of Law for nation *i* in period *t*

$VA_{i,t}$ - Voice and Accountability for country *i* in period *t*

$GE_{i,t}$ - Government Effectiveness for country *i* in period *t*

$PS_{i,t}$- Political Stability and Absence of Violence or Terrorism for country *i* in period *t*

$ED_{i,t-k}$ -Election Dummies for one year before an election; during election; and one year after election.

$ED_{i,t}$ - Election dummy during an election

$ED_{i,t+k}$ - Election dummy for one year after an election

μ_i – Unobserved individual country effects

$\varepsilon_{i,t}$–error term

2.3.3 Definition and Measurement of Variables

Table 7 summarizes the variables' definitions and methods of measurement.

Table 7: Definition and Measurement of Variables

Variable	Definition	Measurement
FD	Total government income (excluding grants) less aggregate spending.	Fiscal deficit expressed as a percentage of the nominal gross domestic product (GDP)
RIR	Borrowing interest rate that has been inflated.	Nominal interest rate minus the GDP deflator
BM	Quantity of money in circulation including, demand deposits, term deposits, foreign cash deposits made by resident bank and travellers' checks, and other securities including commercial papers and certificates of deposit.	BM as percentage of GDP.
RL	How much a population preserves and respects societal norms, especially those that concern property rights, the efficiency of contract execution, the function of law enforcement and the judicial system, and the probability of criminal activities and violence.	Range between -2.5 (low) and 2.5 (high).
GE	Performance of public sector independence from partisan influences, excellence of strategy creation and execution, and legitimacy of the authority's adherence to such procedures.	Rangebetween-2.5 (low) and 2.5 (high).
VA	Democratic freedom ability of citizens to freely select their government, express themselves, associate with others and media freedom.	Range between -2.5 (minimum) and 2.5 (maximum).
PS	Predictions of potential political unrest and/or political violence, including terrorism.	Range between -2.5 (low) and 2.5 (high).
ED_1	Dummy for the year before election.	1= pre-election year 0= otherwise
ED_2	Dummy for election year.	1= election year 0= otherwise
ED_3	Dummy for the post-election year.	1= year after an election 0= otherwise

Notes on data sources:

FD: Fiscal deficit sourced from International Financial Statistics (IFS), EAC countries Statistical abstracts (Several).

RIR: Real interest rate sourced from World Bank, World Development Indicators.

BM: Broad money supply obtained from World Bank, World Development Indicators.

RL: Rule of law from World Bank, World Governance Indicators.

GE: Government effectiveness from World Bank, World Governance Indicators.

VA: Voice and accountability from World Bank, World Governance Indicators.

PS: Political stability and absence of violence or terrorism from World Bank, World Governance Indicators.

ED_1: Pre-election year dummy variable sourced from African Elections Database (AED).

ED_2: Election year dummy variable sourced from African Elections Database (AED).

ED_3: Post-election year dummy variable sourced from African Elections Database (AED)

2.3.4 Estimation Issues

2.3.4.1 Pre-estimation Tests

Pre-estimation tests were carried out to identify any econometric issues associated with the variables and which could invalidate the estimated results. They are discussed below.

2.3.4.1.1 Correlation Test

The Pearson test created by Pearson in 1895, was utilized to ascertain the magnitude and direction of the connection between the variables. The test generates a coefficient known as Pearson correlation coefficient denoted *r* which is calculated as follows.

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \qquad 2.25$$

Where

$$\sum x^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

$$\sum y^2 = \sum Y - \frac{(\sum Y)^2}{n}$$

$$\sum xy = \sum XY - \frac{(\sum X)(\sum Y)}{n}$$

A coefficient of -1 points to a perfect negative linear correlation while +1 implies a perfect direct linear correlation among variables. A zero value implies no association between any two variables. The null hypothesis for this test is “no association between variables” while the alternate hypothesis is “correlation among variables”. Table 9 shows results for the correlation test.

2.3.4.1.2 Panel Unit Root Tests

Levin, Lin and Chu (2002) test

The test was originally developed by Levin and Lin (1992) and improved by Levin, Lin and Chu (2002). Panel unit root test is an expansion of Dickey-Fuller test. When first order autoregressive parameters are similar, the test permits for heterogeneity of particular deterministic effects as well as heterogeneous serial association error terms' structure. The test is more suitable for data panels of moderate size. Levin, Lin and Chu test is modeled as follows:

$$\Delta Y_{i,t} = \alpha_i + \rho Y_{i,t-1} + \sum_{k=1}^{n} \emptyset_k \, \Delta Y_{i,t-k} + \sigma_{i,t} + \theta_t + u_{i,t} \qquad 2.26$$

The alternative and null hypotheses of LLC test are given as:

H_O: $\rho = 0$

H_a: $\rho < 0$

In addition, this test assumes that autoregressive parameters are identical across the panel which limits its suitability. Maddala and Wu (1999) argued that the null made sense, but alternative hypothesis was too strong for any interesting empirical analysis.

Im, Pesaran and Shin (IPS) Test

Im Pesaran Shin (1997, 2003)[7] test is an extension of Levin, Lin and Chu test. The IPS test provides independent estimations for each of the *i* sections in order to take into consideration residual sequential connection, heterogeneity of the changing characteristics, and variances of errors across cross sectional units. IPS test model is given as;

$$\Delta Y_{i,t} = \alpha_i + \rho_i Y_{i,t-1} + \sum_{k=1}^{n} \emptyset_{ik} \, \Delta Y_{i,t-k} + \sigma_{i,t} + u_{i,t} \qquad 2.27$$

The alternative and null hypotheses of IPS test are given as;

H_O: $\rho i = 0 \;\; \forall \, i$

H_a: $\rho < 0 \;\; for \; at \; least \; one \; i$

[7] IPS thereafter

The alternative hypothesis states that all series are stationary while the null posit that a small proportion of the series in the panel is believed to be non-stationary.

Hadri (2000) Test

Hadri's (2000) Lagrange Multiplier (LM) test proposes parametrization. Lagrange Multiplier test allows heteroscedasticity of disturbance terms across *i* cross-sections. In addition, Hadri (2000) test enables the calculation of the moments of the asymptotic distribution of the LM test precisely.

2.3.4.1.3 Cross-Sectional Dependence Test

The Pesaran (2004) cross-sectional dependence test was used to determine whether the error terms were cross-sectionally dependent. Cross-sectional dependence on error terms may be caused by frequent but undetected shocks and components. The null hypothesis posits the absence of cross-sectional dependence, while the alternative hypothesis suggests the presence of cross-sectional dependence. Pesaran (2004) suggests the statistic below for a balanced panel,

$$CD = \sqrt{\frac{2T}{N(N-1)}}\left(\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\right) \qquad 2.28$$

2.3.4.1.4 Cointegration Tests

Cointegration tests were employed to test long-run link between study variables. It was also used to identify and investigate spurious regression problems that occur in case of non-stationarity. This study employed Pedroni tests and Kao tests for robustness check as discussed below.

The Kao Test

To run cointegration of panel data variables, Kao (1999) suggested the Augmented Dickey-Fuller and Dickey-Fuller types of tests. Kao test considers a null hypothesis of homogeneity across cross-sectional units and the nonexistence of cointegration. This residual-based test does not permit heterogeneity across individuals for alternative hypothesis. Kao suggested the following four types of Dickey-Fuller type tests.

The case where the association between error terms and regressors is strongly exogeneous:

$$DF_{\rho} = \frac{\sqrt{NT}(\hat{\rho}-1)+3\sqrt{N}}{\sqrt{10.2}} \quad 2.29$$

$$DF_{t} = \sqrt{1.25t_{\rho}} + \sqrt{1.875N} \quad 2.30$$

The case where the link between regressors and error terms is powerfully endogenous:

$$DF_{\rho}^{*} = \frac{\sqrt{NT}(\hat{\rho}-1)+3\sqrt{N\hat{\sigma}_{v}^{2}/\hat{\sigma}_{0v}^{2}}}{\sqrt{3+36\hat{\sigma}_{v}^{4}/(5\hat{\sigma}_{0v}^{4})}} \quad 2.31$$

$$DF_{t}^{*} = \frac{t_{\rho}+\sqrt{6N\hat{\sigma}_{v}}/(2\hat{\sigma}_{0v})}{\sqrt{\hat{\sigma}_{0v}/(\hat{\sigma}_{v}^{2})+3\hat{\sigma}_{v}^{2}/(10\hat{\sigma}_{0v}^{2})}} \quad 2.32$$

The Kao's Augmented Dickey-Fuller test statistic is given by:

$$ADF = \frac{t_{ADF}+\sqrt{6N\hat{\sigma}_{v}}/(2\hat{\sigma}_{0v})}{\sqrt{\hat{\sigma}_{0v}^{2}/(2\hat{\sigma}_{v}^{2})+3\hat{\sigma}_{v}^{2}/(10\hat{\sigma}_{0v}^{2})}} \quad 2.33$$

The cointegration test by Kao permits homogeneity of the Auto Regressive coefficients and cointegrating vectors but restricts the number of independent variables that can be present. Additionally, the test is unable to detect cointegrating vectors or situations in which there are numerous cointegrating vectors.

The Pedroni Co-Integration Tests

Different cointegration tests were recommended by Pedroni (1997,1999, 2000, 2004) for panel data models that support significant heterogeneity. It assumes that there is no co-integration between variables, unlike McCoskey and Kao tests. The advantage of Pedroni tests is that the panel's numerous regressors, individual heterogeneity of error terms, and cointegration vectors vary across different cross-sectional units.

Pedroni put up 7 distinct statistics to account for the panel's within- and between-effects. The statistics for the test itself are as follows:

The panel *v*-statistic: $T^{2}N^{3/2}Z_{\hat{v}NT} = \frac{T^{2}N^{3/2}}{(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\hat{u}_{it}^{2})}$ 2.34

The panel ρ-statistic: $T\sqrt{NZ_{\hat{\rho}NT}} = \frac{T\sqrt{N}(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}(\hat{u}_{it-1}^{2}\Delta\hat{u}_{it}^{2}-\hat{\lambda}_{i}))}{(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11}^{-2}\hat{u}_{it}^{2})}$ 2.35

The panel t-statistic (non-parametric):

$$Z_{tNT} = \sqrt{\hat{\sigma}_{NT}^2 \sum_{i=1}^{N}\sum_{t=1}^{T} \hat{L}_{11i}^{-2}\hat{u}_{it-1}^2}\left(\sum_{i=1}^{N}\sum_{t=1}^{T} \hat{L}_{11i}^{-2}\left(\hat{u}_{it-1}^2 \Delta\hat{u}_{it}^2 - \hat{\lambda}_i\right)\right) \quad 2.36$$

The panel t-statistic (parametric):

$$Z_{tNT} = \sqrt{\hat{\sigma}_{NT}^{*2} \sum_{i=1}^{N}\sum_{t=1}^{T} \hat{L}_{11i}^{-2}\hat{u} *_{it-1}^2}\left(\sum_{i=1}^{N}\sum_{t=1}^{T} \hat{L}_{11i}^{-2}\left(\hat{u}_{it-1}^{*2} \Delta\hat{u}_{it}^{*2} - \hat{\lambda}_i\right)\right) \quad 2.37$$

The between statistic tests are given as.

The group ρ-statistic:

$$\tilde{Z}_{\hat{\rho}NT^{-1}} = \sum_{i=1}^{N} \frac{\sum_{t=1}^{T}(\hat{u}_{it-1}^2 \Delta\hat{u}_{it}^2 - \hat{\lambda}_i)}{(\sum_{t=1}^{T} \hat{u}_{it-1}^2)} \quad 2.38$$

The group t-statistic (non-parametric):

$$\tilde{Z}_{tNT} = \sum_{i=1}^{N} \frac{\sum_{t=1}^{T}(\hat{u}_{it-1}\Delta\hat{u}_{it} - \hat{\lambda}_i)}{\sqrt{\hat{\sigma}_i^2(\sum_{t=1}^{T} \hat{u}_{it-1}^2)}} \quad 2.36$$

The group t-statistic (parametric):

$$Z^*{}_{tNT} = \sum_{i=1}^{N} \frac{\sum_{t=1}^{T} \hat{u}^*{}_{it-1}\Delta\hat{u}^*{}_{it}}{\sqrt{\hat{\sigma}_i^2(\sum_{t=2}^{T} \tilde{\sigma}_i^{*2}\hat{u}_{it-1}^{*2})}} \quad 2.37$$

2.3.4.2 Estimation Technique

The dynamic panel data model was used to estimate equation 2.24 due to the lagging of dependent variable and the existence of unobserved individual country effects. One of the reasons for dynamic panel analysis is to capture dynamic relationships between variables over time and address endogeneity. Estimating the model using ordinary least-square (OLS) method would produce biased estimates. The bias depends on the time series' length and can only be minimal if the length is towards infinity (see Nickell, 1981; Kiviet, 1995).

The GMM estimation approach, which was created by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), could be used to handle some of the econometric shortcomings with the non-static panel models. The problem of unobserved country-specific effects and bias from lagged dependent variables are effectively handled by

the GMM estimator. However, GMM estimators are most appropriate for panels with small T dimensions (Asteriou and Hall, 2016). Since the sample size in this study is smaller than the series length (5 countries and 17 years), the GMM estimation method would be biased unless instrumental variables proliferation is corrected (Roodman, 2009).

The study, therefore, adopted the ARDL and Pooled Mean Group (PMG) estimators of dynamic heterogeneous panels as suggested by Pesaran and Shin, (1996) and Pesaran et al. (1999). While allowing for the homogeneity of long-run coefficients, the PMG estimation technique can allow the short-term non-static parameters to differ each cross-sectional unit. Since the equality of the short-run slope coefficients is not guaranteed, the non-static specification can be changed.

For the period t= 1, 2,…,T and countries i=1,2,….N, the panel Autoregressive Distributed Lag (ARDL) model is specified as follows.

$$FD_{i,t} = \sum_{k=1}^{p} \gamma_{i,k} FD_{i,t-k} + \sum_{k=0}^{q} \lambda'_{i,k} X_{i,t-k} + \sum_{k=-2}^{r} \delta_{ik} ED_{i,t-k} + \mu_i + \varepsilon_{i,t} \qquad 2.38$$

The Vector Error Correction Model (VECM) can be expressed as follows when Equation 2.38 is rewritten:

$$\Delta FD_{i,t} = \emptyset_{i,t} FD_{i,t-1} - \beta' X_{i,-1} - \alpha' ED_{i,t-1} + \sum_{k=1}^{p-1} \gamma_{i,k} \Delta FD_{i,t-k} + \sum_{k=0}^{q-1} \lambda'_{i,k} \Delta X_{i,t-k} + \sum_{k=-2}^{r} \delta_{i,k} \Delta ED_{i,t-k} + \mu_i + \varepsilon_{i,t} \qquad 2.39$$

Where

i=1, 2, …, N countries

$\emptyset_{i,t} = -\left(1 - \sum_{k=1}^{p} \gamma_{i,k}\right)$, $\gamma_{i,k} = -\sum_{n=k+1}^{p} \gamma_{i,n}$, $k = 1,2,\dots,p-1$, $\lambda'_{i,k} = -\sum_{n=k+1}^{p} \lambda_{i,n}$ and $\delta_{i,k} = -\sum_{n=l+1}^{q} \lambda_{i,n}$

$k = 1,2,\dots,p-1 \; and \; l = 1,2,\dots,q-1$

$\beta_i = \beta \; \forall i$ is the extended period coefficients' homogeneity restriction.

$FD_i = (FD_{i1}, \dots, FD_{iT})'$ is a $T \times 1$ vector that contains T observations of the fiscal deficit for panel unit *i*.

$X_i - T \times 5$ is matrix of inputs, specifically real interest rate (RIR), government effectiveness (GE), rule of law (RL), broad money (BM), accountability and voice (VA) and political stability and absence of violence or terrorism (PS).

ED_{i-} $T \times 3$ matrix of election dummies namely, ED_1, ED_2 and ED_3.

$\emptyset_{i,t} -$ Coefficients which capture adjustment speed towards the long-run equilibrium.

$t -$ Vector of 1s of measurement $T \times 1$

The error correction coefficient $(\emptyset_i)$ gauges how quickly model variables reaches long-term equilibrium. A significant negative coefficient shows that the variables in the model have stabilized over time. If its value is zero, there will be no indication of a long-run association.

This model presupposes that error terms have independent distributions across nations (*i*) and time (t), with positive variances and zero means. In addition, the model assumes that $\emptyset_i < 0, \forall i$. Therefore, the existing long-term link between fiscal shortfall and the independent variables in the model is as follows:

$$FD_{it} = \omega' X_{it} + \sigma_{it} \quad i = 1,2,\dots,N; \quad t = 1,2,\dots,T$$

Where $\omega_i = -\beta'_i/\omega_i$, is a $k \times 1$ vector of the long-run coefficients, and σ_{it} are non-stationary with possibility of non-zero means. Therefore, re-writing equation 2.39, we have:

$$\Delta FD_{i,t} = \emptyset_{i,t}\sigma_{i,t-1} + \sum_{k=1}^{p-1}\gamma_{i,k}\Delta FD_{i,t-k} + \sum_{k=0}^{q-1}\lambda'_{i,k}\Delta X_{i,t-k} + \sum_{k=-2}^{r}\delta_{ik}\Delta ED_{i,t-k} + \mu_i + \varepsilon_{i,t} \qquad 2.40$$

Where $\sigma_{i,t-1}$ is an error correction term in equation 2.40. $\emptyset_{i,t}$ is an error correction term coefficient that measures the rate of change toward the long-run equilibrium and is used to remedy errors. It is assumed to be significantly negative to allow variables in the model to return to long-term balance.

The PMG estimator enforces equality among long-term coefficients while allowing variations in short-term intercepts, error variances, and coefficients across different cross-sectional units, which implies that $\omega_i = 0 \; \forall \; i's$.

The projected PMG equation is given as:

$$\Delta FD = -\emptyset_i\left(FD_{i,t-1} - \omega_1 RIR_{i,t} - \omega_2 BM_{i,t} - \omega_3 RL_{i,t} - \omega_4 GE_{i,t} - \omega_5 VA - \omega_1 PS - \sum_h^m \omega_i \, ED_{i,t}^h - \alpha_{m+1} t - \omega_{0,i}\right) + \beta_{1,i}\Delta RIR_{i,t} + \beta_{2,i} BM_{i,t} + \beta_{3,i} RL_{i,t} + \beta_{4,i} GE_{i,t} + \beta_{5,i} VA_{i,t} + \beta_{6,i} PS_{i,t} + \sum_h^m \beta_{h,i} \, \Delta ED_{i,t}^h + \varepsilon_{i,t} \quad 2.41$$

2.3.5 Data

This study employed secondary panel data for the period 2000-2021 and a sample of five EAC partner nations, namely Rwanda, Burundi, Tanzania, Kenya, and Uganda. South Sudan was excluded because it attained independence in 2016 and some its macroeconomic data is not available. Data availability and dynamics were an important consideration in the selection of the sample. In addition, the study period covers the time when most EAC countries attained multiparty system of elections that is, between 1990s and early 2000s (AED, 2022). To meet study objectives, macroeconomic and election data was sourced from World Bank (WDI and WGI), International Financial Statistics (IFS), African Elections Database (AED) and East African Community publications (EAC facts and figures).

2.4 EMPIRICAL RESULTS AND DISCUSSION

2.4.1 Pre-estimation Test Results

2.4.2.1 Correlation test

The Pearson correlation test was utilized to establish a substantial connection between the research variables. When the coefficient of correlation is negative, the variables move in opposite direction. When positive, they move in the same direction. A value of zero implies that there is no association between the variables. Table 8 provides the correlation coefficients.

Table 8: Correlation coefficients and significance Test Results

	FD	RIR	BM	RL	GE	VA	PS
FD	1.00						
RIR	-0.18	1.00					
BM	-0.20	-0.08	1.00				
RL	-0.21**	0.28*	-0.45**	1.00			
GE	-0.01	0.21**	0.12	0.81*	1.00		
VA	-0.56*	-0.11	0.47*	0.26**	0.12	1.00	
PS	-0.20**	0.121	-0.22**	0.85*	0.64*	0.29*	1.00

Notes: * and ** indicate correlation is significant at 1% and 5% level, respectively.

Fiscal deficit had negative and statistically significant correlation with governance indicators. Rule of law and political stability were negatively correlated with fiscal deficit at 5% level of significance. Government effectiveness was significantly and negatively correlated to rule of law at 1% level of significance. This indicates that good governance in EAC is positively associated with fiscal deficit.

2.4.1.2 Unit root tests

The aim of the tests was to investigate the stationary nature of the time series data. A series is considered stationary when its auto-covariance and mean remain constant over time. Three panel root tests were employed to establish stationarity, viz., Hadri (1999), Levin, Lin, and Chu (2002) and Im, Pesaran and Shin (2003). This entailed panel stationarity tests on level and first differencing of each study variable. As stated by Levin, Lin, and Chu (2002) and Im, Pesaran, and Shin (2003), the test's null hypothesis is that the panel data contains a unit root. The alternate hypothesis is that it has no unit root. However, null hypothesis as proposed by Hadri

(1999) has no unit root while the alternate has a unit root. Tables 9 and 10 present the results of unit root tests at level and first difference, respectively.

Table 9: Panel Unit Root Tests at Level

Variable	HLM		LLC		IPS	
	Statistic	P value	Statistic	P value	Statistic	P value
FD	9.2655	0.0000	-1.0452	0.1480	-2.1380	0.0863
RIR	0.2104	0.4167	-2.8793	0.0020	-3.2268	0.0005
BM	10.0092	0.0000	-1.6854	0.1242	-1.9307	0.3165
RL	16.1330	0.0000	-0.5931	0.2766	-1.5110	0.4568
GE	15.6145	0.0000	-3.0331	0.1675	-1.4307	0.5519
VA	7.2932	0.0000	-2.8121	0.0025	-2.0406	0.0850
PS	14.8369	0.0000	-2.1077	0.0175	-1.2998	0.0968

From the three tests, real interest rate is stationary at 1% level of significance. This suggests that the real interest rate series remains unchanged or is not influenced by time. Voice and accountability, and political stability are stationary using LLC and IPS tests. Fiscal deficit, broad money supply, rule of law and government effectiveness were not stationary suggesting that their series changed over time. The next section tested for stationarity after first differencing.

Table 10: Panel Unit Root Tests After First Differencing

Variable	**HLM**		**LLC**		**IPS**		**Order of integration**
	Statistic	**P value**	**Statistic**	**P value**	**Statistic**	**P value**	
D.FD	-1.5583	0.9404	-7.2216	0.0000	-4.9105	0.0000	(1)
D.BM	0.2448	0.4033	-5.4080	0.0000	-4.0425	0.0000	(1)
D.RL	-0.5958	0.7244	-3.8336	0.0001	-4.2479	0.0000	(1)
D.GE	-1.1549	0.8759	-0.0305	0.0000	-4.2380	0.0000	(1)

Table 10 illustrates that fiscal deficits (FD), rule of law (RL), broad money supply (BM) and government effectiveness (GE) were stationary at 1% level of significance after first differencing. They were integrated order I (1).

2.4.1.3 Test of Panel Cross-Sectional Dependence

Table 11 presents the results of the Pesaran (2004) panel cross section dependence test.

Table 11: Pesaran's Test of Panel Cross-Sectional Dependence

		P-value
Pesaran CD test	0.957	0.9569
Mean	0.286	

The null hypothesis indicating absence of cross-sectional dependence was not rejected at a significance level of 5%. This indicates that the estimation model was not affected by cross-sectional dependence.

2.4.1.4 Test of Panel Co-integration

After determining the unit root, the I (1) variables were then tested for co-integration. The test[8] results are shown in Tables 12 and 13.

Table 12: Pedroni Residual Co-Integration Test Outcomes

Test Statistic	Statistic	P-Value
	Within Group	
V-Statistic	-0.816743	0.9701
Rho- Statistic	1.158727	0.9831
PP- Statistic	-2.659794	0.0219*
ADF- Statistic	-0.770926	0.0048*
	Between Group	
Group rho-Statistic	2.410141	0.9920
Group pp-Statistic	-5.407721	0.0000*
Group ADF-Statistic	-1.419769	0.0778*

Notes: * Denotes statistical significance at 1 percent level.

[8] Refer to section 2.3.4.1.4

Table 13: Kao Residual Co-Integration Test Results

	t-Statistic	Probability
ADF	-0.962696	0.0000*
Residual variance	4.499443	
HAC variance	1.964100	

Notes: * denotes statistical significance at 1%.

The Pedroni test results indicate that the null hypothesis of no long-term cointegration between variables was rejected at both the 1% and 5% levels of significance. The outcomes demonstrate a long run association between the I (1) variables. The Kao test results show a similar trend at 1% level of significance. From the two tests, we rejected the null hypothesis that there is no cointegration between the variables. After cointegration tests, the next section shows estimates of political business cycles (PBCs) in the EAC using Pooled Mean Group (PMG) estimator.

2.4.2 Descriptive Statistics

Table 14 illustrates the summary statistics of all variables used in the study.

Table 14: Summary Statistics Fiscal Deficits and Political Business Cycle Relationship in the EAC (% except the indices)

Variable	N	Lowest	Highest	Average	Standard Deviation	Skewness		Kurtosis	
	Statistic			Statistic	Statistic	Statistic	Std Error	Statistic	Std Error
FD	110	2.8	20.00	9.037182	3.70329	0.53496	0.230	-0.15186	0.457
RIR	110	-16.6792	22.9956	8.64952	7.05440	-0.66420	0.230	1.06606	0.457
BM	110	15.32158	49.75123	25.14200	8.50571	1.112964	0.230	-0.048980	0.457
RL	110	-1.53741	0.201180	-0.63887	0.41384	-0.32940	0.230	-0.456071	0.457
GE	110	-1.45599	0.30845	-0.60892	0.40429	-0.27159	0.230	-0.05084	0.457
VA	110	-1.72457	-0.11429	-0.73851	0.45437	-0.37571	0.230	1.92229	0.457
PS	110	-2.52379	0.170439	-0.96894	0.62031	-0.09515	0.230	2.41488	0.457
ED_1	110	0.00	1.00	0.1909	0.39482	1.595	0.230	0.553	0.457
ED_2	110	0.00	1.00	0.2000	0.40183	1.521	0.230	0.318	0.457
ED_3	110	0.00	1.00	0.1909	0.39482	1.595	0.230	0.553	0.457

Budgetary deficit excluding grants as a ratio of GDP was 2.8 % at the minimum and 20% maximum for the period under study, 2000-2021. This implies that the lowest fiscal deficit (FD) experienced was 2.8% in 2019 and 2020 while the highest was 20% in 2004 with a mean

of 9.04%. lowest values of budget deficit were observed in Tanzania and new leadership of President Dr. John Magufuli while highest values were in Burundi during the civil unrests in the country. These figures go against EAC vision 2050 and 3rd development strategy (2006-2010) goal of budget deficit below 5%. Fiscal deficits deviated from the mean by 3.7% suggesting that the data points were close to the mean. They were positively skewed at roughly 0.5. High deficits were experienced close to year 2000. Moreover, the deficits had a negative kurtosis of -0.15 suggesting a platy-kurtotic distribution (flatter peak and thin tail). This indicates the outliers in the data did not deviate far from normal distribution.

Over the study period, the lowest and highest real interest (RIR) experienced in EAC countries was -16.7% and 23% respectively. Negative real interest rate indicates that at some point, inflation rate exceeded nominal interest rate. RIR averaged 8.6% over the same period with a standard deviation of 7.4 signifying volatility in most cases. Further, the rate of interest was negatively skewed with a value of -0.550 implying that higher interest rates were experienced in close to year 2018 but dropped thereafter. The distribution had a positive kurtosis of 0.668 meaning a lot of data is concentrated on the tails.

In the period between 2000 and 2021, the minimum and maximum broad money supply as a ratio of GDP were 15.3% and 49.8%, respectively. The average broad money supply in EAC was 25.1% with a standard deviation of 8.5%. Broad money supply is positively skewed and has a platy-kurtotic distribution (flatter peak and thin tail) with values of 1.1 and -0.05. The positive skew indicates that high money supply was experienced between 2010-2018.

Governance indicators that include rule of law, government effectiveness, accountability and voice and political stability had low values ranging from -2.52 to 0.31. Over the study period RL had a mean of -0.64, GE -0.61, VA -0.74 and PS 0.97. That governance indicators collectively had a mean of zero suggests that EAC governance record is on the whole unimpressive. Rule of law, government effectiveness, accountability and voice and political stability had a standard deviation of 0.41, 0.36, 0.46 and 0.61, respectively, with a negative skew of -0.2, -0.3, -0.4 and 0.1, respectively. Governance was poorer in around 2000 than around 2018. In addition, the governance indicators had negative kurtosis implying platy-kurtotic distribution with the exception of the government effectiveness.

2.4.3 Estimation Results and Analysis of PBCs in EAC Using PMG Estimator.

Evidence of PBCs in the EAC

To examine whether PBCs exist in the EAC regional block, the Pooled Mean Group (PMG) econometric method was employed as shown in equation 2.23. Pooled Mean Group estimator yields both short and long run coefficients' estimates. The short-term coefficients indicate the immediate influence of explanatory variables on dependent variable (in this case, a period less than a year). Long term coefficients indicate long term influence of explanatory variables on dependent variable usually more than one year. These coefficients help to understand the direction and magnitude of the effects of independent variables on dependent variable. Following Schwarz Bayesian Criterion (SBC), the maximum lag employed in the variables is 1. Employing election dummies, the equation proved useful in analysing pre-poll, poll, and post-poll determinants of fiscal deficits. The pattern of deficits indicates presence of PBC. We first present the pre-poll pattern.

Fiscal Deficits during Pre-Election-Year in the EAC, 2000 - 2021

Table 15 shows determinants of fiscal deficits (FD) in the year just before an election in the EAC over the period 2000 to 2021.

Table 15: Pooled Mean Group Estimation Results of Fiscal Deficits during Pre-Election-Year in the EAC, 2000 - 2021

LONG RUN RESULTS				
FD	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
ED_1	4.251448	1.118079	3.802459	0.0003*
RIR	-0.167547	0.079950	-2.095639	0.0405**
BM	0.877778	0.218790	4.011960	0.0002*
RL	-5.660878	3.024212	-1.871852	0.0663***
GE	9.152352	2.940877	3.112116	0.0029*
VA	-5.732362	2.350267	-2.439026	0.0178**
PS	-1.121382	1.018841	-1.100645	0.2756
SHORT RUN RESULTS				
ECT	-0.496229	0.155307	-3.195149	0.0023*
(ED_1)	-1.366746	0.629405	-2.171489	0.0340**
D(RIR)	0.044195	0.038958	1.134429	0.2613
D(BM)	-0.146798	0.114280	-1.284540	0.2041
D(RL)	0.097500	4.797165	0.020324	0.9839
D(GE)	-5.555124	5.031498	-1.104070	0.2741
D(VA)	1.736008	3.102287	0.559590	0.5779
D(PS)	-0.686061	0.635105	-1.080232	0.2845
CONST	-8.325970	3.441955	-2.418966	0.0187**
Mean dependent variable	-0.104667	S.E. of regression		2.047567
S.D. dependent variable	2.256918	Number of observations		105
Model selection method: Schwarz Bayesian Criterion (SBC)				

Notes: ECT is the error correction term and D denotes first differencing of the variable. *, ** and ***suggest 1%, 5%and 10% level of significance, respectively.

The findings indicate that fiscal deficit and pre-election year events (ED_1) are significantly and positively associated in the long term. The deficit was approximately 4.3% greater in the pre-poll's year in comparison to other years at 1% level of significance. The direct relationship between fiscal deficit and pre-election year events ascends from a rise in the current state spending prior to an election. However, in the short term, there was a substantial negative correlation between the budgetary deficit and the pre-election year dummy. This implies that, at a 5% significance level, the fiscal deficit in the EAC was approximately 1.4% lower before an election compared to other years.

This evidence validates the general theoretical pattern of PBC where public expenditure rises in the year before an election and drops thereafter. The finding aligns with the traditional theory of PBCs by Nordhaus (1975) and political equilibrium theory by Rogoff (1990) that politicians expand the economy by incurring fiscal deficits prior to an election. Many governments in developing countries initiate visible development projects before elections in the guise of appearing competent and worthy for re-election.

The long-term outcomes are consistent with those of Shi and Svenson (2002, 2006) who find that prior to an election fiscal deficit as ratio of GDP tend to increase especially in developing countries. Furthermore, Schuknecht (1998), Block (2002a, 2002b), Granados (2003), Brender and Drazen (2005), Brender and Drazen (2008), Shi and Svenson (2006), Pasten and Cover (2010), Anwar and Ahmad (2012), Ebeke and Olcer (2013), Chiripanhura and Niño-Zarazúa (2015) and Mosley and Chiripanhura (2016) concur that fiscal deficits increase during an election period especially in young democracies or the developing countries. The EAC deficit rises prior to and during elections. The findings differ from Persson and Tabellini (2003) who find no evidence of economic manipulation in the run-up to an election in both emerging and developed nations.

Table 15 shows an inverse and statistically substantial connection between real interest rate (RIR) and fiscal deficit/GDP ratio over time. A 10% rise in real rate of interest results in a long-term reduction in fiscal deficit of 1.7% at 5% level of significance. High interest rates discourage government borrowing and reduces budget deficits. It also forces a government to look for long term concessional borrowings from IMF and World Bank that come with conditionalities on reducing fiscal deficit. Fiscal deficit was found to be positively correlated with broad money supply (BM) in the long run at 1% level of significance. When broad money supply increases by 10%, fiscal deficits also increase by 8.8% in a period of more than one year. Money supply increases inflation pushing the cost of public projects upward by the same factor.

The estimates show an inverse and significant long run association between fiscal deficit and rule of law (RL). A 10% improvement in the rule of law reduces fiscal deficit by 56% at a 10% level of significance. Similarly, an improvement in voice and accountability by 10% reduces fiscal deficit by almost 57% at 5% level of significance. Clearly, enhancement in governance reduces fiscal deficits. Political stability and absence of violence/terrorism significantly reduce fiscal deficits in the long-term. The effect of an improvement in government effectiveness in

reducing the deficit is felt almost immediately. Thus, improving governance is crucial in macroeconomic stability in the EAC. Government effectiveness was positively associated with fiscal deficits in the extended period at 1% level. An efficient government will in the long run engage in productive investments that are expansionary and increase public spending and fiscal deficit.

The short-run results of the error correction term (ECT) had a negative coefficient and was significant at 1% level of significance. This shows that the error correction model was significant. The coefficient of the ECT showed that 50% of any imbalance in the model was adjusted within one year.

Fiscal Deficits during an Election-Year in the EAC, 2000 - 2021

This study further tested the behaviour of fiscal imbalances in an election year by replacing election dummy ED_1 with election-year dummy (ED_2). The results were as follows:

Table 16: Pooled Mean Group Estimation Results of I Fiscal Deficits during an Election-Year in the EAC, 2000 - 2021

LONG RUN RESULTS				
FD	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
ED_2	2.179879	0.986426	2.209876	0.0311**
RIR	-0.209835	0.083659	-2.508215	0.0150**
BM	0.894561	0.211111	4.237389	0.0001*
RL	-3.778867	2.757901	-1.370197	0.1759
GE	5.937892	2.821094	2.104819	0.0397**
VA	-7.007306	2.390288	-2.931574	0.0048*
PS	-0.850401	1.016552	-0.836555	0.4063
SHORT RUN RESULTS				
ECT	-0.530357	0.177752	-2.983695	0.0042*
(ED_2)	0.313933	0.364515	0.861234	0.3927
D(RIR)	0.079702	0.032569	2.447180	0.0174**
D(BM)	-0.138149	0.160407	-0.861236	0.3927
D(RL)	-1.901236	3.236973	-0.587350	0.5592
D(GE)	-4.910772	4.574640	-1.073477	0.2875
D(VA)	3.200712	2.692214	1.188877	0.2393
D(PS)	-1.125730	0.889739	-1.265237	0.2108
CONST	-9.800929	4.639565	-2.112467	0.0390**
Mean dependent variable	-0.104667	S.D. dependent variable		2.256918
S.E. of regression	2.073006	Number of observations		105
Model selection method: Schwarz Bayesian Criterion (SBC)				

The findings show a positive and statistically significant influence of election year events (ED_2) on fiscal deficits. The fiscal deficit was approximately 2.2% higher during election years. The increase might be attributed to the increase in government expenditure on election-related activities. The fiscal deficit incurred during an election-year was negative and insignificant in the extended period.

The study findings agree with Nordhaus (1975) and Rogoff and Sibert (1988) theories of PBCs.[9] The pattern is also consistent with the partisan-opportunistic theory and the strategic debt accumulation model and the positive theory of fiscal deficits. The empirical findings of Svenson (2002), Block (2002), Shi and Svenson (2006), Pasten and Cover (2010), Anwar and Ahmad (2012), Ebeke and Olcer (2013), Chiripanhura and Nio-Zaraza (2015), and Mosley and

[9] See table 3 and 2.6 in chapter 2.

Chiripanhura (2016) also agree with these findings which are peculiar to developing countries and young democracies.

The empirical results point to existence of PBCs in the EAC. Budget deficits rise during and immediately before a general election. According to the estimations, there is a long-term, substantial, and detrimental association between real interest rate and fiscal deficit at 5% level of significance. This suggests that for every 10% increase in real interest rate, the budget deficit as a percentage of GDP declines by 2.1%. But in the near run, this association is positive and substantial. In the short term, governments must borrow even at high cost of borrowing to finance their activities. But in the longer term they look for cheaper sources of credit.

Broad money supply is positively related with fiscal deficit in an election year at 1% level of significance. This may be related to inflation as earlier discussed. Government effectiveness has a long-term positive influence on fiscal deficit. The model's error correction term is significant suggesting that almost 53% of any EAC disequilibrium is fixed within one year.

Fiscal Deficits in the Post-Election Year in the EAC, 2000-2021

After analysing fiscal deficits before and during election years in the EAC, we now analyse the situation after elections. Using Pooled Mean Group (PMG) estimator, the link between fiscal deficit and post-election year dummy is analysed. The results are provided in table 17.

Table 17: Pooled Mean Group Estimates of Fiscal Deficits in the Post-Election Year in the EAC, 2000-2021

LONG RUN RESULTS				
FD	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
ED_3	-1.098465	1.063743	-1.032642	0.3061
RIR	-0.218565	0.090612	-2.412098	0.0190**
BM	0.636878	0.240708	2.645854	0.0105**
RL	-2.099163	2.709775	-0.774663	0.4417
GE	5.446757	2.739244	1.988416	0.0515***
VA	-5.904823	2.795209	-2.112480	0.0390**
PS	-0.829339	1.276296	-0.649801	0.5184
SHORT RUN RESULTS				
ECT	-0.532416	0.134623	-3.954861	0.0002*
(ED_3)	-0.417617	0.450969	-0.926045	0.0583***
D(RIR)	0.056889	0.021024	2.705898	0.0089*
D(BM)	-0.053227	0.123992	-0.429275	0.6693
D(RL)	-1.205883	3.387747	-0.355954	0.7232
D(GE)	-2.776929	3.567710	-0.778350	0.4395
D(VA)	2.859592	2.001320	1.428853	0.1584
D(PS)	-0.914233	0.677397	-1.349627	0.1824
CONST	-5.030300	2.610020	-1.927303	0.0588***
S.E. of regression	2.060246			
S.D. dependent variable	2.256918		Number of observations	105
Model selection method: Schwarz Bayesian Criterion (SBC)				

The estimates in the short and long-run section of the table suggest that fiscal deficit/GDP declines one year after polls. Within one year of an election, the budget process will not have changed much, and the new government would be taking shape rather than engaging in huge public projects that drive fiscal deficits. Therefore, a decline in budget deficits is expected in the year preceding elections.

The findings conform to theory and empirical findings that show that the cycle of public expenditure manipulation wears out soon after an election. PBCs theories by Nordhaus (1975), Hibbs (1977), Alesina et al. (1997), Rogoff (1990), Rogoff and Sibert (1988) and Krause (2005) argue that expansionary monetary and fiscal manipulations cease soon after an election.

Instead, the reverse occurs where a government increases taxation while reducing public expenditure in a bid to recover from the pre-election and election-year extravagance. Empirical studies by Anwar and Ahmad (2012), Pasten and Cover (2010), Shi and Svenson (2006), Ebeke and Olcer (2013) and Block (2002a) find no evidence of fiscal manipulations after an election in developing countries which are notorious in PBC.

According to the long-run model findings, real interest rates were statistically significant and inversely correlated with budget deficits at the earlier observed 5% level. However, in the short term, the connection is positive and has a statistically significant impact. Broad supply of money had a positive and substantial relationship with fiscal deficits in the long run. This implies that, at 5% level of significance, a 10% increase in money supply would increase fiscal deficit by approximately 6.4%. Fiscal deficits in the EAC were found to be considerably and favourably influenced by government effectiveness over longer time periods. The relationship between budgetary deficits and government effectiveness was, however, adverse and significant in the near term. The implication is what was previously discussed. Additionally, the long-term estimates show a detrimental association between budgetary deficits and political stability, voice, and responsibility. In the short-run, ECT coefficient is negative and statistically significant. at 1% level. This implies that 53.2% of any imbalance in the model is adjusted within one year.

2.4.3.2 Political Business Cycles (PBCs) in individual EAC Countries, 2000 – 2021.

Pooled Mean Group (PMG) estimator permits country-specific analysis of PBCs in each EAC country. The estimation results are presented here below.

Table 18: Pooled Mean Group Estimation Results of Fiscal Deficits during Pre-Election-Year in the individual EAC Countries, 2000 - 2021

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.070195*	-0.704499*	-0.562604*	-0.934726*	-0.242889*
	(0.0016)	(0.0002)	(0.0001)	(0.0000)	(0.0001)
ED_1	-1.573799	-1.628915***	-1.406205**	-3.072058**	0.847247**
	(0.4129)	(0.0503)	(0.0437)	(0.0188)	(0.0405)
ΔRIR	0.051003*	-0.043808*	0.106252*	0.149995*	-0.042516*
	(0.0017)	(0.0038)	(0.0000)	(0.0001)	(0.0000)
ΔBM	-0.044447	-0.310334**	-0.138443	-0.016423	-0.501226*
	(0.6470)	(0.0222)	(0.1003)	(0.8496)	(0.0008)
ΔRL	-6.512898	-9.519122	-1.223037	-0.30414***	18.04670
	(0.8662)	0.5890	(0.8227)	(0.0925)	(0.3337)
ΔGE	7.893100	-9.106305	-1.831027	-22.5199***	-2.211454
	(0.7795)	(0.7525)	(0.5713)	(0.0565)	(0.8057)
ΔVA	-4.359948	6.278561	3.563915	9.701514***	-6.504001
	(0.8674)	(0.6378)	(0.8765)	(0.0662)	(0.6244)
ΔPS	-0.002215	-1.304011	0.432319	0.344398***	-2.900795
	(0.9997)	(0.8219)	(0.9125)	(0.0188)	(0.4069)
CONSTANT	-1.246763	-20.22536	-5.640164	-11.4860	-3.031542
	(0.4384)	(0.6634)	(0.6941)	(0.7216)	(0.3615)

Notes: the error correction term is ECT and Δ shows first differencing of the variable that the variable. *, **and *** indicate 1%, 5% and 10% level of significance, respectively.

The findings in table 18 show that, fiscal deficit/GDP ratio had a negative relationship with pre-election events (ED_1) in Kenya, Rwanda and Tanzania. The parameter estimates of ED_1 in the three countries were significant at 10% and 5% level, respectively. Kenya's, Rwanda's and Tanzania's fiscal deficits were respectively 1.6%, 1.4% and 3.1% lower in pre-election year compared to other years. In Uganda, fiscal deficit tends to expand over time and 0.85% higher during year before an election than in preceding years at 5% confidence level. This outcome supports the study of Block (2002a) who finds that public expenditure and fiscal deficits increase during electioneering periods in Africa. Similarly, Ebeke and Olcer (2013), Chiripanhura and Niño-Zarazúa (2015) and Mosley and Chiripanhura (2016) note expansionary fiscal policies in Africa prior to an election.

In the short-term, the connection between real rate of interest and fiscal deficit in Burundi, Rwanda and Tanzania is positive and statistically substantial at 1%. Government domestic borrowing could raise real interest rate. For Kenya and Uganda real rate of interest had an inverse and significant link with fiscal deficit. This implies that real interest rates could remain low even with government domestic borrowing in the presence of expansionary monetary policies. For Kenya and Uganda, broad supply of money has an inverse and statistically significant negative effect on fiscal deficits.

In Rwanda, the relationship between governance indicators and fiscal deficit was notable. A 1% improvement in the rule of law and government effectiveness resulted in a decrease of 1.7% and 2.1% in Rwanda's budget deficit, respectively. This indicates that good governance supports a favourable fiscal stance in Rwanda. Voice and accountability and political stability have a positive impact on the fiscal deficit in Rwanda, fostering responsible fiscal policies, lowering borrowing expenses, and strengthening the long-term viability of government finances. In all instances, the coefficient of the ECT is negative and statistically substantial, indicating the significance of the error correction model for the reasons mentioned earlier.

Table 19: Pooled Mean Group Estimation Results of Fiscal Deficits during an Election-Year in the individual EAC Countries, 2000 - 2021

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.083072 (0.0008)	-0.746104* (0.0001)	-0.534441* (0.0003)	-0.926832* (0.0003)	-0.183889* (0.0031)
ED_2	1.483712 (0.2344)	1.211175** (0.0162)	0.581536** (0.0475)	0.300929 (0.5814)	-0.079795 (0.8330)
ΔRIR	0.073744* (0.0007)	-0.096310* (0.0011)	0.115729* (0.0000)	0.164848* (0.0001)	-0.032650* (0.0010)
ΔBM	-0.109746 (0.3016)	-0.267662* (0.0012)	0.208693* (0.0072)	0.129883 (0.2661)	-0.220244** (0.0480)
ΔRL	-6.147982 (0.8616)	-5.486299 (0.6320)	-2.293299** (0.0168)	-1.988313 (0.9613)	9.953724 (0.7174)
ΔGE	6.759796 (0.7915)	-7.751076 (0.7984)	-1.123886 (0.7128)	-20.76507 (0.7417)	-1.834296 (0.9054)
ΔVA	-2.874509 (0.8908)	4.923548 (0.5450)	1.902972** (0.0363)	10.16779 (0.7800)	-1.969679 (0.9228)
ΔPS	-0.855703 (0.8140)	0.538586 (0.9250)	-1.240240 (0.7195)	0.361199 (0.9254)	-4.415445 (0.4572)
Constant	-1.479450 (0.4450)	-5.967046 (0.6604)	-5.990497 (0.6810)	-12.32547 (0.7110)	-2.475703 (0.6021)

Notes: * and ** indicate 1% and 5% level of significance, respectively.

The increase is mostly felt in Kenya and Rwanda. The fiscal deficit/GDP ratio is approximately 1.2% and 0.6% higher in Kenya and Rwanda during an election year. The outcome is in line with empirical works of Shi and Svenson, (2002, 2006); Brender and Drazen (2005, 2008) who find dominance of election-driven fiscal manipulations in developing countries and emerging democracies. Similar conclusions are reached by Pasten and Cover (2010), Anwar and Ahmad (2012), Ebeke and Olcer (2013), Chiripanhura and Nio-Zaraza (2015), and Mosley and Chiripanhura (2016).

In Burundi, Rwanda, and Tanzania during the election year, the real rate of interest has a positive and considerable impact on the government deficit. Kenya and Uganda have different dynamics, in contrast. An increase in the overall supply of currency is linked to a reduction in

the budgetary shortfall in Rwanda during election years. However, in Kenya and Uganda, the relationship is reversed, with broad money supply having a negative impact on the fiscal deficit. Additionally, it was discovered that while voice and accountability had a positive and substantial impact, the rule of law had a negative influence on Rwanda's budget deficit. The error-correction model's coefficient was significant in all cases.

Table 20: Pooled Mean Group Estimation Results of Fiscal Deficits during Post-Election-Year in the individual EAC countries, 2000 - 2021

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.154772	-0.890722*	-0.503174*	-0.768170*	-0.345241*
	(0.0005)	(0.0002)	(0.0007)	(0.0006)	(0.0005)
ED_3	-2.19296***	-0.257261**	0.045404*	0.235848	0.080880**
	(0.0791)	(0.0211)	(0.0025)	(0.6526)	(0.0394)
ΔRIR	0.078897*	-0.028803**	0.091095*	0.097603*	-0.011954*
	(0.0003)	(0.0200)	(0.0000)	(0.0009)	(0.0071)
ΔBM	-0.20319***	-0.306202**	0.158885	0.323074***	-0.238701**
	(0.0762)	(0.0241)	(0.1120)	(0.0538)	(0.0116)
ΔRL	-7.722958	-4.516335	-1.624969	-3.938567	11.77341
	(0.8050)	(0.8594)	(0.8027)	(0.9487)	(0.4601)
ΔGE	9.506029	-9.746195	-1.255165	-10.03209	-2.357218
	(0.6873)	(0.7678)	(0.7563)	(0.8644)	(0.8573)
ΔVA	-0.770024	8.381204	1.208572	6.843271	-1.365066
	(0.9666)	(0.5640)	(0.9669)	(0.8702)	(0.9370)
ΔPS	-1.429588	-1.467808	0.452349	0.766347	-2.892467
	(0.6351)	(0.8205)	(0.9035)	(0.8861)	(0.6010)
Constant	-0.921157	-15.17939	-2.223967	-4.688487	-2.138495
	(0.6630)	(0.8377)	(0.8794)	(0.8626)	(0.6871)

Notes: * and ** indicate 1% and 5% level of significance respectively.

Post-election, fiscal deficit/GDP ratio (FD) had a positive relationship with post-election events (ED_3) in Rwanda and Uganda at 1% and 5% level of significance, correspondingly. The contrary is the case in Kenya and Burundi where fiscal deficits tend to significantly decline after a general election. Rwanda and Uganda have had same political leadership for years unlike the latter countries and budget deficits are likely to rise throughout the electioneering period.

2.5 SUMMARY OF STUDY FINDINGS, CONCLUSION AND POLICY IMPLICATIONS

2.5.1 Summary of Study Findings

This study sought to examine the existence of PBCs in the EAC. This was examined at regional and country levels for the period 2000-2021 utilizing pooled mean group (PMG) estimation technique. The study's sample comprised of the EAC countries including Tanzania, Burundi, Rwanda, Kenya and Uganda. The study did not include South Sudan and the Democratic Republic of Congo due to insufficient data regarding their macroeconomic indicators. The dependent variable was fiscal imbalance as a percentage of GDP (FD) excluding grants, while the main explanatory variables were election year dummies (ED_1 ED_2 and ED_3), real interest rate (RIR), broad money supply as ratio of GDP (BM), governance indicators including government effectiveness (GE), rule of law (RL), accountability and voice (VA) and political stability (PS) were control variables. The estimates indicate that fiscal deficit/GDP ratio is significantly influenced by all these explanatory variables. The study finds evidence on the existence of political business cycles (PBCs) in the EAC block, and in the states that make the confederation. The evidence is that fiscal deficits vary significantly over an election cycle in the region as well as in individual countries.

In the EAC block, fiscal deficits are about 4.3% larger during pre-election years at 1% level of significance. Election year budget deficits were also approximately 2.2% higher compared to other years. However, pre-election events influence fiscal deficits unfavourably only in the short run. This could be credited to increase in government spending on short term projects such as rural roads, electricity connections, water supply and election related expenditures. The increase in public expenditure is unmatched with revenue collection resulting into wider fiscal deficits in the short run.

In the post-election year, fiscal deficit/GDP ratio tend to go down by about 1.1%. After elections politicians sober up and approach expansionary macroeconomic policies cautiously. The trend of high fiscal deficits before elections that fizzle out thereafter is evidence of existence of political business cycle in the EAC. Country-specific short run results also indicate existence of PBCs with the exception of Burundi. Pre-election year budget deficit is significantly lower in Kenya, Rwanda and Tanzania. Additionally, in Kenya and Rwanda fiscal deficit/GDP ratio is higher during an election year by about 1.2% and 0.6%, at 5% significance

level. Post-election year fiscal deficit is lower for Burundi and Kenya and higher in Rwanda and Uganda. The trend of rising budget deficits in the electioneering period suggests existence of political business cycles.

The findings agree with theory. The opportunistic theory of Nordhaus (1975) says politicians expand the economy prior to an election and reverse the course immediately thereafter. Alesina and Tabellini (1997) using partisan-opportunistic theory argue that politicians deviate from party ideologies and opportunistically manipulate macroeconomic variables to win elections. Rogoff (1990) and Rogoff and Sibert (1988) observe that public expenditure could be used to dupe voters into believing that a political leader is competent even when this is not the case. Voters are assumed to be imperfectly informed, and politicians take advantage of that.

Empirical studies on developing countries obtain similar findings. Schuknecht (2000) using a sample of 24 emerging democracies across the globe find that public spending rises during elections. Block (2002a) find fiscal deficits to be about 1.2% higher during election years from a dataset comprising 44 nations from Sub-Saharan Africa. The study further finds that PBCs are prevalent in competitive elections. Block et al. (2003) finds PBCs to be more prevalent in multiparty elections. Shi and Svenson (2002, 2006) observe that PBCs are more prevalent in emerging nations than in developed economies after analysing data containing from both developed and developing economies. Other studies that find evidence on PBCs include Ebeke and Olcer (2013), Chiripanhura and Nino-Zarazua (2015) and Mosley and Chiripanhura (2016).

The real interest rate and governance indicators also explain fiscal deficit/GDP ratio in the EAC. Budget deficit/GDP ratio and real interest rate show negative long-term correlation. The long-term association between ratio of broad money supply/GDP and budget deficit was significant and positive at 1% significance level. Growth in money supply causes demand-pull inflation and a rise in fiscal deficits if not accompanied by more tax measures. The ability to tax in the EAC is, however, constrained.

Governance indicators influence primary budgetary deficit/GDP ratio in the EAC. Improvements in political climate, accountability and voice and rule of law lower the budget deficit/GDP ratio. On the other hand, government effectiveness worsens the budget imbalance in the long term. An effective government's development projects demand resources over and

above the tax revenue, and this widens the fiscal deficit. It is also true that a wasteful ineffective government could also have a widening fiscal deficit.

2.5.2 Conclusion

This study estimated the existence of PBCs in the EAC, both regionally and nationally. The analysis focused on the ratio of fiscal deficit/GDP (excluding grants) in the period preceding national polls, the voting year, and the year following an election. The deficit is higher before and during elections, and comparatively lower after elections. The trend where fiscal deficits rise before and during an election but fall thereafter, also referred to as political business cycle, was confirmed to be present in the EAC at both regional and country levels. The evidence of political business cycles was significant in the individual EAC Partner States such as Kenya, Rwanda and Uganda. The finding is in line with Nordhaus (1975), Alesina and Taballini (1997), Rogoff (1990) and Rogoff and Sibert (1988) theories. It also agrees with empirical findings of Block, (2002a), Block et al., (2003), Shi and Svenson, (2002, 2006), Brender and Drazen, (2008), and Ebeke and Olcer, (2013).

2.5.3 Policy Implications

In this research, secondary panel data from 2000 to 2021 were utilized to explore the existence of PBCs in both the EAC region as a whole and individual countries. The pooled mean group (PMG) method was employed for the analysis. The primary focus was on presidential elections rather than parliamentary or municipal elections. It is in presidential elections where the executive branch of government manipulates macroeconomic variables.

Given that fiscal deficits can cause macroeconomic instability and hamper long-term development of country, there is need for legal constraints on government expenditure especially during elections. This is through putting debt ceiling on government borrowing during election periods. This would also help to minimize misuse and theft of public resources that often occurs prior to a competitive presidential election in not only the EAC but also Africa. Additionally, strengthening of independent institutions such as monetary authorities will ensure stability of macroeconomy and minimize economic policy manipulations.

To cure the problem of widening long run fiscal deficits in an effective government scenario, there is need for fiscal reforms on the tax systems in the EAC. Tax reforms to expand tax base and to seal tax loopholes such as tax avoidance and evasion are needed. These measures would

increase tax revenues and narrow the gap in government expenditure effectively reducing fiscal deficit. Furthermore, there is need for policy makers to form policies that ensure fiscal sustainability, responsible spending by government officials as well as proper debt management.

Since PBCs thrive in imperfect information environments where voters do have less information than politicians, decisive steps should be taken to reduce rational ignorance. This may be achieved through periodical updates on the current state of public projects as well as the economy as a whole, as well as crafting of performance appraisal tools for government. There is need for full disclosure of the progress of government development activities at various stages coupled with incentives for public participation in budgeting and monitoring of these projects. Some countries have these requirements in their constitutions, but the implementation is wanting. There is need for more civic education to enlighten voters on their watchdog roles. These measures would curb the opportunistic behaviour of the incumbent governments during elections.

2.5.4 Suggestions for Future Research

This study area is yet to be explored exhaustively in developing economies especially Africa and much more needs to be done. Since higher deficits are linked with higher levels of government expenditure and it would be vital for future researchers to focus on the components of expenditure that are affected before and during the election periods. This will assist policy makers to formulate policies on how to manage such expenditures during the elections periods.

The study mainly focused on the general election years especially the presidential elections years. It should be noted that not all the countries in EAC elect the presidential candidates and parliamentary candidates at the same years. Moreover, these countries have different office terms for presidents and members of parliament, there is need to separate the two in future. Additionally, it is advisable for researchers to explore the underlying factors contributing to political business cycles in the East African Community (EAC) and the broader African context.

CHAPTER THREE

FISCAL DEFICITS AND INFLATION IN THE EAST AFRICAN COMMUNITY: DO POLITICAL BUSINESS CYCLES MATTER?

ABSTRACT

One of the primary goals of macroeconomic policies is price stability. However, high fiscal deficits and inflation continue to raise concern in the East African region. It is not clear how price changes drive fiscal deficits, or how fiscal deficits drive inflation at an empirical level. This study investigated these situations against the background of political business cycles in the East African Community. The Differenced GMM and system GMM estimators were employed on panel secondary data sourced from WDI of the World Bank, and from the IFS of the International Monetary Fund, African Election Database and various EAC publications for the period between 2000-2021. The findings show a direct and statistically substantial association between budget deficit and inflation rate. The effect of fiscal deficits in the electioneering period is inflationary. There is also a positive connection between past inflation and current inflation. Partner states in the region need to tighten their fiscal discipline and rules to minimize fiscal deficits and check inflation.

3.1 INTRODUCTION

Some of the major macroeconomic policy goals in developing economies include favourable external balance, favourable external balance, economic progress and price stability (Bernanke et al., 2011). In keeping inflation low and stable, fiscal deficits must be maintained at sustainable levels (Romer, 2019). Nevertheless, high inflation remains a policy issue across the globe and more so in developing countries such as the EAC states. The EAC Vision 2050 and development agenda dictate that the partner states maintain a single digit inflation rate, but this remains a mirage in several of the countries.

The macroeconomic effects of inflation vary depending on magnitude and severity. Prolonged and severe inflation is harmful, whereas a moderate pace of inflation is beneficial for growth and price stability. Elevated inflation diminishes a currency's buying capacity and lowers individual investment and consumption expenditures. When domestic prices are high, international position of a country may deteriorate. Imported products become relatively

expensive which may lead to decline in net import of inputs and aggregate output (Romer, 2019; Wickens, 2013).

Money supply expansion, fluctuations in rates of exchange, increasing pay rates, and expectations and production costs are some of the factors that cause inflation (Romer, 2019). Inflation rates are also influenced by shifts in monetary and fiscal policy, as well as changes in aggregate demand. For example, low rates of interest and an increase in the supply of money are examples of expansionary monetary policies that could raise prices. This makes inflation a monetary phenomenon. Aggregate demand and, eventually, price level may rise as a result of expansionary fiscal policies like raising public spending through welfare and subsidy programs. Furthermore, raising prices through money creation to finance debt and deficits could do so.

Common across the EAC Partner States are high levels of real interest rates, inflation, fiscal deficits, and growth of supply of money as seen in figure 8-11 below. These factors differ across the countries based on the political system, volume of food imports and oil, economic significance of agriculture, access to trade, susceptibility to weather shocks, and regulatory regime (Nguyen et al., 2015). Inflation rate and fiscal deficits tend to rise during electioneering period in the EAC (see figure 8-11).

During early 2000s majority of EAC countries attained multiparty political system which has made elections to be competitive. Knowing voters are poorly informed on election matters, politicians opportunistically pursue off-budget expenditures that please voters and entice them to vote for them. During campaigns, they offer voters cash handouts which increase the volume of money in circulation raising inflation as posited by Heckelman and Berument (1998). The expansionary fiscal policies pursued during elections could cause inflationary pressure in an economy (Romer, 2019). This study sought to examine whether fiscal deficit, election-related fiscal deficits and election timings impact on price stability in the East African Coast.

3.1.1 Trends of inflation and Fiscal Deficits in the EAC Regional Block

For the period 2000-2021, EAC countries had levels of fiscal deficits and inflation above five percent which is contrary to what fiscal deficits and development strategy and dictates. For instance, during the study period, inflation rate was consistently above 5% with exception of year 2011, 2010 and 2002. The year 2008 saw the greatest average inflation rate of 17.7%, and the years 2009 to 2012 saw a consistent double-digit pace. This could be related to the 2008

financial crisis, which originated with US asset bubbles. The spill over impact was experienced across the globe with resulting cash crunch and high inflation. Moreover, during the same period Burundi experienced civil unrest, while Kenya went through post-election violence in 2007/2008. Fiscal deficits, on the other hand, were consistently above 6% during the study period. For instance, mean fiscal deficit for the year 2003,2004, 2007 and 2008 was above 10% (WDI, 2022). The highest average fiscal deficit observed between 2000 and 2018 was 11.74% in year 2004. This was triggered by the civil unrests in Burundi between 2001 and 2004 which led to a fiscal deficit of 20% in 2004 (AED, 2022).

Notably, during the electioneering period, the average fiscal deficit in the EAC increased. The average budget deficit rose from 9.18% to 10.26%, for instance, between 2000 and 2003. Between 2005 and 2007 and 2012 to 2016, a comparable pattern was noted where fiscal deficit rose from 9.94% to 10.54% and from 8.24% to 9.46% respectively (WDI, 2022). On the other hand, average inflation rate for the EAC rose from 1.5% in 2002 to 9.2% in 2005. During this period, polls were held in Kenya, Rwanda, Burundi and Tanzania in 2002, 2003 and 2005 respectively. Additionally, between 2010 and 2013 inflation rate increased from 4.1 to 6.5% with a highest of 13.3% in 2012. Again, there were elections across the regional block between 2010 and 2013. The trends of rate of inflation and fiscal deficit were negative in early 2000s but later from year 2014 the link was positive. Figure 8 shows that inflation and fiscal deficits in the region have been unstable over time.

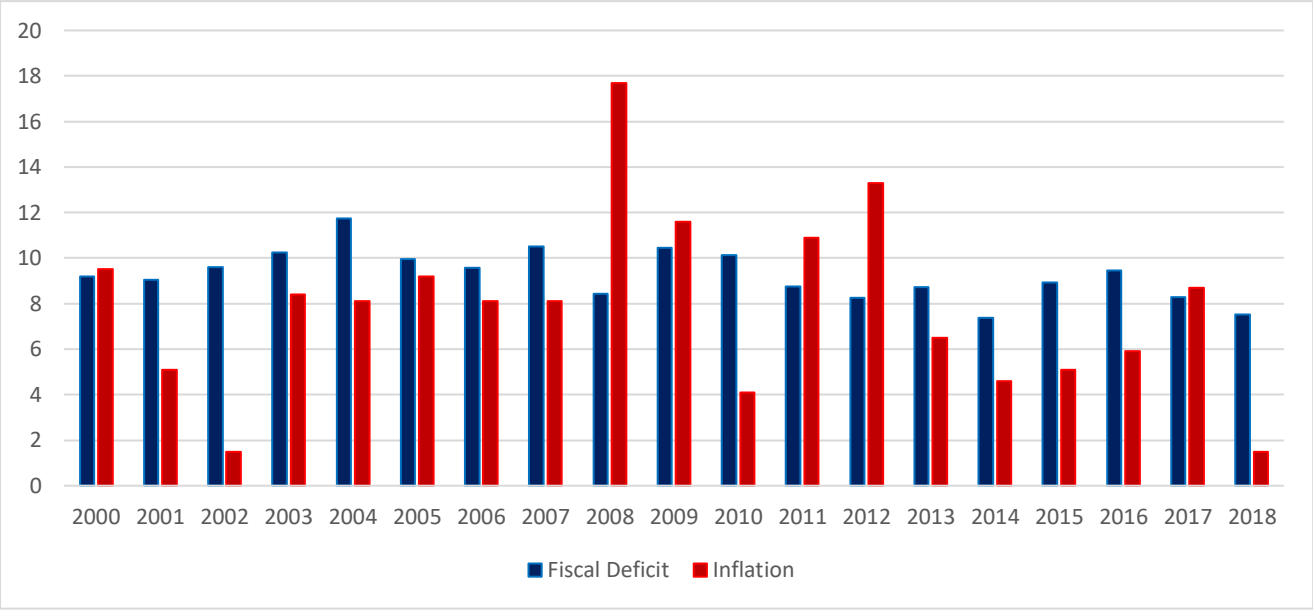

Figure 8: Trend of fiscal deficit and inflation in the EAC, 2000-2018

Author's compilation from World Development Indicators (2022)

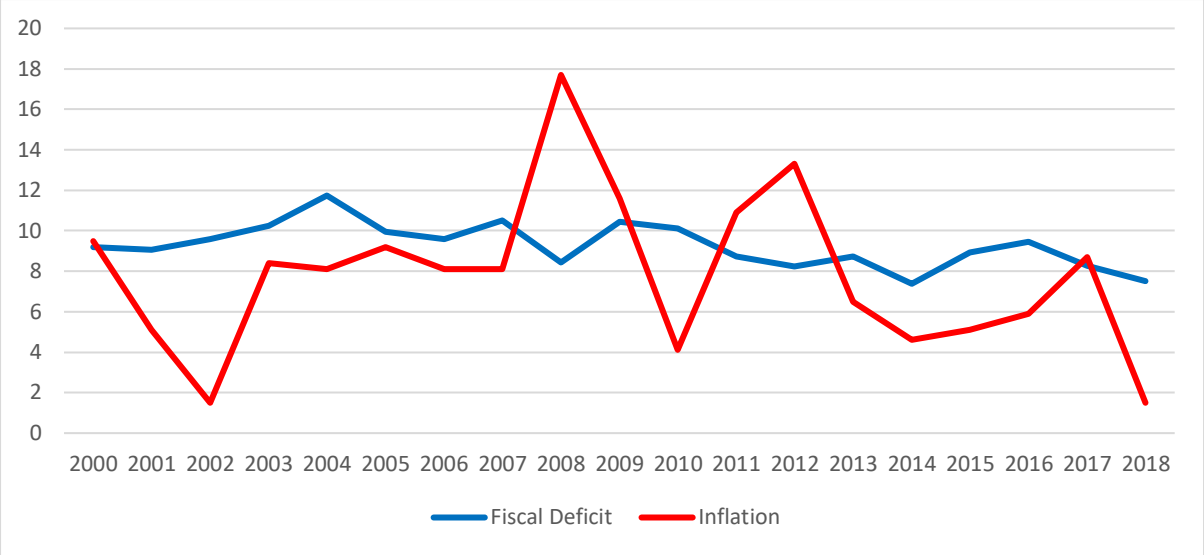

Figure 9: Trend of Budgetary deficit and Rate of inflation in the EAC, 2000-2018

Author's compilation from World Development Indicators (2022)

3.1.2 Trends of Rate of Inflation and Fiscal Deficits in the EAC States

Budgetary shortfall as ratio of GDP (excluding grants) in the EAC States has been consistently above the set targets. Rwanda and Burundi have operated a double-digit fiscal balance over time especially in early 2000s. This can be attributed to civil unrests witnessed in these countries in 1990s and early 2000s. Fiscal deficits in the EAC increased either before or during the elections across the EAC Partner States in the study period. For instance, between 2000 and 2004 when elections were held, a rise in fiscal deficits was experienced in Kenya and Uganda in election year while in Rwanda was in the year before an election. Also, between 2004 and 2008, Burundi, Kenya and Uganda experienced high deficits before elections while in Tanzania it was in the voting year. Notably, between 2015 and 2018 all EAC countries observed a rise in budget deficits just before elections.

Inflation rate in individual EAC countries was also observed to change during electioneering period. That is, it increased before an election and declined during, or it was high in the election year and low after. For example, inflation rate rose during elections in Burundi, Tanzania and Rwanda between 2000 and 2003 while over same period it increased in the year before elections for and Uganda. Between 2004 and 2008 inflation rate increased during the election in Burundi and Tanzania while in Kenya and Uganda the rise was just before the voting year. From 2009 to 2018 Tanzania's inflation rate increased in the year before elections while in Uganda it rose during elections. Under the same period, inflation rate in Rwanda, Burundi and

Kenya rose before elections from 2009 to 2014 and during elections from 2015 to 2018. Figure 10 and 11 show trends of budgetary deficits and rate of inflation in individual EAC countries between 2000-2018.

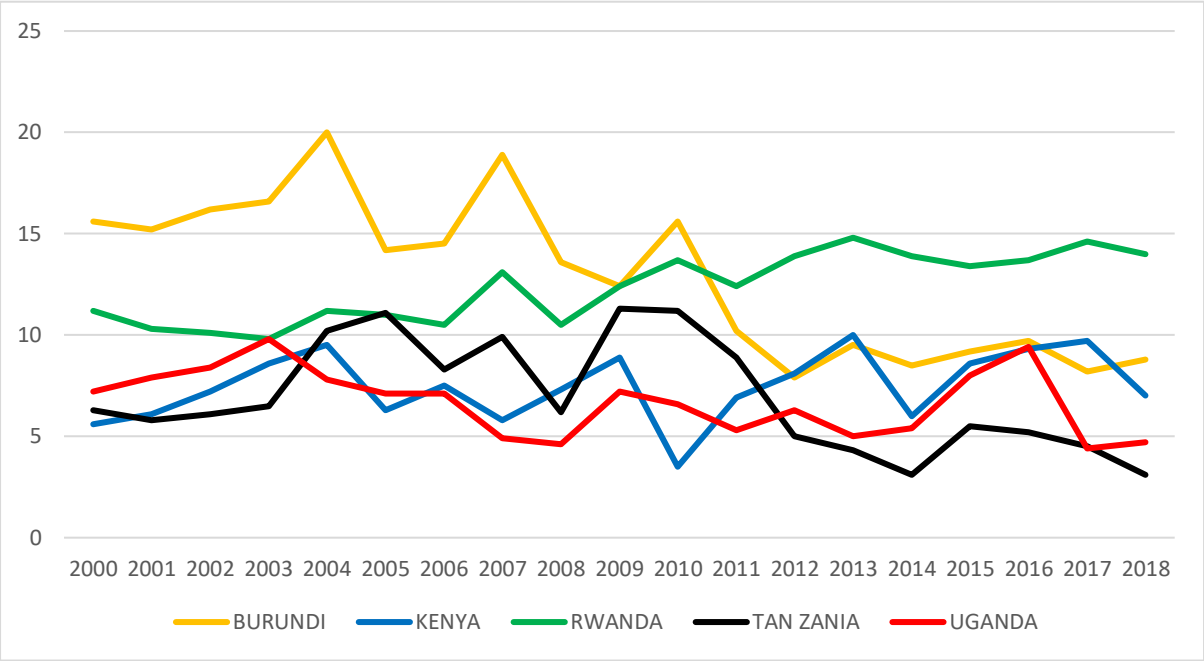

Figure 10: Trend of fiscal deficits in individual EAC States, 2000-2018

Author's compilation from World Development Indicators (2022)

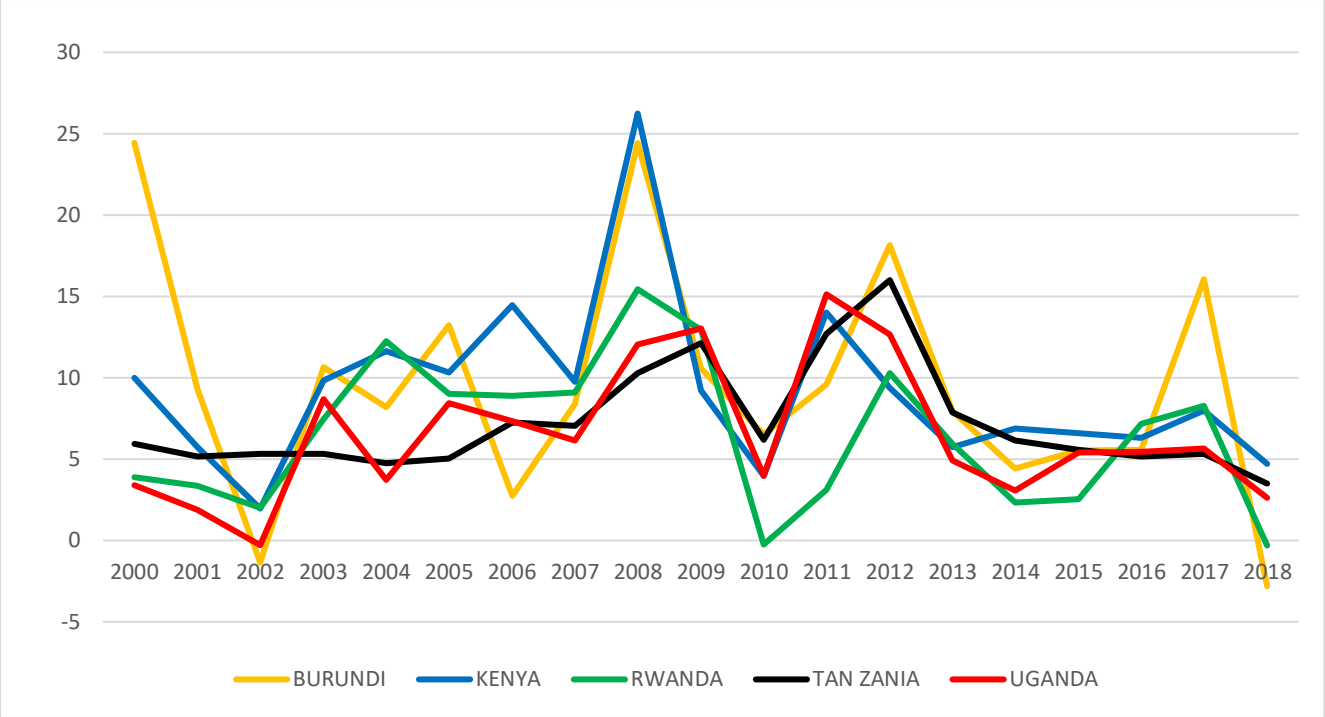

Figure 11: Trend of Inflation Rate in individual EAC States, 2000-2018

Author's compilation from World Development Indicators (2022)

3.1.1 Research Problem

The EAC Vision 2050 and 3rd development strategy sets the target of single digit inflation and budget deficit of less than five percent. This has not been achieved by most of the countries as shown in figures 3.1, 3.2 and 3.3. Rwanda and Burundi continue to maintain primary deficits at double digit. The rate of inflation is still high, and the budget deficit is still expanding. It's unclear if budget deficits in these nations are the cause of inflation.

Moreover, budgetary deficits rise during elections as noted in the previous chapter. What does this say about inflation during election periods? Little empirical research has been done on the political aspects of price changes. Do budget deficits driven by politics affect inflation in the East African Community? Does election-related inflation change? Whether rising budget deficits during election seasons affect inflation rates is a research subject. This study looked at how election-related fiscal deficits affect inflation in an effort to bridge this gap.

Furthermore, theoretical and empirical evidence of determinants of inflation yield conflicting findings. For example, the fiscal theory of price level, developed by Carlstrom and Fuerst (2000), contends that inflation is fiscally driven, whereas Friedman's monetarist theory (1968)

suggests that inflation is a monetary phenomenon. According to empirical data, fiscal imbalances cause inflation in developing and high-inflation nations (Catao and Terrones, 2005; Fischer et al., 2002). Similarly, Kwon et al. (2009) find that in developing countries the link between budget deficits and high price level is quite strong. Ndanshau (2012), Wolde-Rufael (2008), Lin and Chu (2013), Keho (2016), Raji et al. (2014) and Aslam and Lebbe (2016) find inflation and budget deficit to be positively correlated. Nevertheless, Tekin-Koru and Ozmen (2003) fail to find a link between inflation and budgetary deficit.

Trends in inflation and fiscal deficits in individual EAC countries seem to be different. This is because each EAC partner state has unique political system as well as macroeconomic characteristics and challenges. Examining how budget imbalances affect inflation was the aim of this study and whether political budget cycles matter in the EAC regional block.

3.1.2 Research Questions

The question of this chapter is whether politically related fiscal deficits impact on inflation in the EAC?

i. What is the impact of fiscal deficits on inflation in the EAC?
ii. What is the effect of election-driven fiscal deficits on inflation in the EAC?

3.1.3 Research Objectives

This study's main goal was to determine the influence of fiscal deficits on rate of inflation in the EAC and whether PBCs if they exist impact inflation. The specific goals are.

i. To examine the influence of fiscal deficits on inflation in the EAC.
ii. To examine the effect of election-driven fiscal deficits on inflation in the EAC.

3.1.4 Significance of the Study

This study looked at the connection between political budget cycles, inflation, and fiscal deficits in the EAC from 2000 to 2021. First, the study advances empirical literature in macroeconomics by examining the connection between inflation and macroeconomic policies. Second, by investigating the relationship between inflation and political budget and electoral cycles, the study adds to the body of knowledge. Thirdly, this research will provide policymakers in the East African Community (EAC) region with an improved comprehension

of fiscal frameworks and effective management which will ensure macroeconomic stability. It will also help them to uphold fiscal discipline, mitigate possible impacts of inflationary fiscal deficits as well as ensure price stability.

Economic agents, particularly households and businesses, will benefit from this study's better understanding of the consequences of election-driven budget deficits on price stability, enabling them to make more informed decisions throughout the election phase. This study will be useful to the economic agents in the EAC in understanding dynamics of electoral cycles and impacts of political actions on fiscal policies and general prices.

3.2 LITERATURE REVIEW

3.2.0 Introduction

This segment reviews literature on government deficits, inflation and PBCs. The section covers theoretical literature, empirical literature and overview of the literature.

3.2.1 Theoretical Literature Review

Monetarist theory

According to this theory, inflation is a phenomenon related to money (Friedman,1968). However, fiscal policies can still affect inflation level through their interaction with monetary policies. The idea further asserts that the country's monetary authority oversees controlling the amount of inflation. As a result, the size of an economy's budgetary shortfall and how they are financed, such as through monetization, are the main factors that influence inflation. Monetized fiscal deficits lead to an upsurge in the supply of real money balances. An upward trend in money supply without subsequent increase in aggregate output is likely to cause ascending pressure on general price level and crowding out of planned private investment as posited by Friedman in 1968. The fact that this theory ignores the inverse causation from inflation to the budget deficit this remains a gap. Budget deficits might result from the economy's high pricing levels. Additionally, the theory fails to explain other than monetary and fiscal perspectives, whether electoral cycles and election-related budgetary deficits influence inflation. This study investigated the association between political budget cycles, election timing and inflation level in the EAC.

Fiscal theory

This theory, which is also referred to as a weak variant of fiscal theory, was developed initially by Sargent and Wallace in 1981 and later expanded upon by Carlstrom and Fuerst (2000). This theory questioned the conventional wisdom that inflation is a monetary phenomenon and emphasised the role that fiscal policy plays in setting the level of prices. Using this argument, the theory further indicates that, though money supply and inflation are closely related as put forward by monetarists, monetary authority's regulation over inflation is limited to some extent. Furthermore, if monetary policy is dominant in the economy, then inflation is entirely managed by monetary authority. However, if an economy fiscal policy is dominant then the fiscal authority creates budget deficit and sets the seigniorage amount required from the monetary authority. Therefore, under fiscal authority the monetary authority prints notes which in turn increases inflation and limits its control over price stability. This hypothesis claims that because the rise in supply of real money balances is a direct outcome of fiscal activity, inflation is a fiscally motivated phenomenon. Furthermore, according to fiscal theory, budgetary deficits are the fundamental source of demand-pull inflation. Fiscal theory, however, does not connect inflation to governmental budget cycles. The study set out to close this research gap.

Fiscal theory of price level (FTPL)

This theory is also known as the strong variant of fiscal theory (Carlstrom and Fuerst, 2000). This theory of price determination was pioneered by Woodford (1994, 1995, 1996) and Leeper (1991) and Sims (1994, 1997). It argues that monetary authority's activities such as printing money has no role in determination of prices and hence overrules the dominance of monetary policy as argued by monetarists. Nonetheless, fiscal authorities control the economy's inflation through debt, government spending, and revenue. FTPL theory also posits that in non-Ricardian equivalence economy, where fiscal authority is dominant the price level is influenced by individuals' wealth effect. This means that when fiscal deficit is high citizens consider it beneficial increases their wealth. The implication of this is that the aggregate spending increases, and the result is increased price levels (inflation).

Theories of Political Business Cycles as they affect Inflation and Fiscal Deficits.

There is scant evidence demonstrating a connection between elections, inflation, and fiscal deficits. There are two theories that account for this association. Political candidates manipulate economic policies by use of the short-run Phillips curve during campaigns to increase their chances of winning elections, according to the opportunistic theory of political

business cycle (Nordhaus, 1975). This theory predicts that during electioneering period politicians will create short term jobs which lower unemployment rate. A lower unemployment rate suggests a higher inflation rate given the trade-off between the two variables in the short term. Therefore, general price level may rise during campaign and election period.

The equilibrium political budget cycle theory by Rogoff (1990) and Rogoff and Sibert (1988) emphasize fiscal policy aspect rather than unemployment and inflation. The equilibrium political budget cycle theory argues that voters are not myopic and naïve as viewed by Nordhaus (1975) but rational in their political choices. Additionally, the theory posits that due to incomplete information about fiscal activities, voters tend to reward the political candidate who offers the most significant provision of social goods. High provision of public goods means high public expenditure and fiscal deficit. High fiscal deficit may be inflationary as argued by Carlstrom and Fuerst (2000) and Wallace (1981).

3.2.2 Empirical Literature Review

Cottarelli et al. (1998) investigated the determining causes of inflation for the period 1993-1996 using Seemingly Unrelated Regression Estimation (SURE) model in 47 countries. Consumer Price Index, current account deficit, fiscal deficit, import ratio, pegged rate of exchange system, open market operations, wage indexation, monetary authority independence, banking system issues, and local public debt were the variables used. According to the study's outcomes, pay indexation had little to no impact on inflation, however fiscal imbalance had a major impact. Additionally, there was little evidence that a current account deficit influences inflation. The presence of a pegged rate of exchange system and an autonomous central bank significantly impacted general price level. This study employs dynamic panel model like Cottarelli et al. (1998) but estimates it with modern estimation techniques that is, differenced GMM and SGMM. In addition, this study links inflation to not only fiscal deficits but also politically driven fiscal deficits in the EAC.

Darrat (2000) studied the impact of government budgetary shortfall on rate of inflation from 1957 to 1993 in Greece using the cointegration technique. The study goes against the conclusions of Hondroyiannis and Papapetrou (1997), who discovered a direct correlation between the budget shortage and inflation. Using the Johansen-Juselius co-integration test, the study finds that there is only one co-integrating association between fiscal shortfall, supply of real money balances, and the price level. Contrary to the findings of Hondroyiannis and

Papapetrou (1997), the results demonstrate a direct association between the government budgetary deficit and elevated general level of price.

Tekin-Koru and Ozmen (2003) use cointegration technique over an extended time to evaluate the association between budgetary gap, growth of money supply and price level in Turkey for the years 1983 to 1999. According to the study's findings, inflation and Turkey's fiscal imbalance have an indirect rather than a direct relationship.

Using panel VAR, Loungani and Swagel (2003) used a sample of 53 developing nations for the years 1964–1998 to explore the factors that determine inflation. The study developed a model that considered changes in non-oil commodity prices, oil prices, exchange rates, the production gap, money growth, and the inflation rate from earlier time periods. Almost two thirds of the fluctuation in inflation over both short- and long-term periods may be attributed, according to the research, to the expansion of money and rate of exchange. Additionally, the study discovered evidence that inflation expectations in the studied countries have an impact on the inflation process. The results demonstrate that only huge fiscal deficits matter when looking at the impact of shocks to the shortfall on increase in general price level. According to the research's findings, the budgetary imbalance and inflation have both positive and substantial relationship.

Solomon and Wet (2004) used co-integration analysis and a vector autoregressive (VAR) model to assess the effect of a budget shortage on inflation in Tanzania from 1970 to 2001. The research outcomes of the analysis demonstrated a relationship between Tanzania’s budget shortfall and inflation that was favourable. Price level and the budget shortfall are directly related, according to the causality findings. Due to monetisation, it has been discovered that budget deficit considerably raises inflation.

For the period 1960–2001, Catao and Terrones (2005) explored whether fiscal deficits are inflationary using panel data regression and a sample of 107 countries. Developed, developing, minimal inflationary and high-inflationary nations were further differentiated from the sample. According to the findings, budgetary deficits cause persistent rise in general price level in both high-inflation and emerging economies, but not in low-inflation or developed ones. This analysis is comparable to one by Fischer et al. (2002), which used data from 94 industrialized and developing nations between 1960 and 1995. According to the study, there is only a substantial correlation between the budget imbalance and inflation during high inflation

seasons in high-inflation countries, and there is no correlation between the two during low inflation periods in both high-inflation and low-inflation states.

Domac and Yucel (2005) used a pooled probit model to investigate the factors that contributed to inflation in 15 developing market nations between 1980 and 2001. The study claims that persistent budget deficits, the food production index, and widening output gaps are the main causes of inflation in these countries. The study concluded that government consumption expenditures should be reduced and that policies to increase food production should be implemented in order to achieve one-digit inflation, which is necessary for these countries to experience sustained economic growth. We use a different GMM in this study to look at the political ramifications of budgetary deficits in the EAC nations.

For the years 1964 to 2003 in Ethiopia, Wolde-Rufael (2008) assessed causal association between the budgetary deficit, growth of money supply, and inflation using the cointegration technique. The study utilized the consumer price index, the fiscal balance as a proportion of GDP, and money growth as a proportion of GDP. The findings showed significant connection between the government fiscal imbalance and rate of inflation over time, but that this association was trivial in the short term. Granger causality tests reveal no indication of reverse causation. Granger causality test's outcomes using variance decomposition suggested that shocks to the fiscal deficit account for between 43% and 65% of the variation in inflation.

Kwon et al. (2009) used GMM to investigate the association between fiscal policy, money supply and inflation between 1963 and 2014 in 71 nations. The focus was on the influence of state debt on inflation rather than how budget deficits affected inflation and inflation expectations. Both the differential GMM and the dynamic fixed effect were applied in the study. The outcomes demonstrated proof of a consistent and favourable influence of public debt on inflation in developing nations as opposed to wealthy nations. A rise of 1% in public debt led to a consistent inflation increase of 0.2% in developing nations whereas it resulted in an inflation increase of 0.1% for wealthy countries. The results demonstrate that public debt growth significantly affects highly indebted emerging countries, which were further separated into soaring debt economies and moderate debt economies.

Oladipo and Akinbobola (2011) conducted a study in Nigeria from 1970 to 2005, investigating the causal link between fiscal deficit and inflation. The research utilized four variables, namely the real exchange rate, fiscal deficit as a percentage of GDP, Consumer Price Index (CPI), and

real GDP growth. The study's variables appeared to have a cointegrating relationship, according to the findings. The outcomes of the Granger causality test showed a unilateral causal association between the budgetary deficit and inflation and that there was no indication of a causal loop going the other way.

Additionally, Ndanshau (2012) empirically explored the association between Tanzania's supply of real money balances, budgetary shortage and price increase using data for the years 1967 to 2010. The findings of the Engel-Granger causality test showed that inflation had a single-direction causal impact on the monetary base and budget shortfall. The study also shown that inflation has a long-term causal influence on supply of money, the budgetary shortfall, and the high-powered money. In addition, there was a significant amount of inflation inertia, which had a short-term causal influence on the budget imbalance. The adjustment in monetary policy management has a major effect on both the government deficit and price stability.

Jayaraman and Chen (2013) studied the empirical correlation between the government deficit and rate of inflation in the 4 Pacific Island nations using panel data set (PICs). To be able to eliminate the bias associated with omission of relevant variables, a multivariate econometric technique was employed. The study further used Westerlund error correction-based panel co-integration technique to establish the long-term connection between inflation and budgetary shortfall. The empirical outcomes established a direct and statistically substantial connection between fiscal imbalance and rate of inflation in all 4 PICs.

Lin and Chu (2013) used DGMM[10] and DPQR[11] to examine the link between fiscal deficit and price increases in 91 states during the years 1960–2006. The study was divided into four groups: group one included all the study's sample; group two included 81 economies with different regimes of exchange rate; group three included 24 OECD nations; and group four included 67 non-OECD nations. Using Dynamic GMM and Dynamic Panel Quantile Regression from 1 to 9 quantiles, the study looked at the association between the first group's price level and budget deficit over the years 1960 to 2006. The authors learnt from first group analysis that the effects of both the current and lag deficits are favourable, indicating that the inflationary nature of fiscal deficits. The DPQR estimates from quantiles 1 through 9 likewise show a consistent increase in magnitude and significance, suggesting that fiscal imbalances are more inflationary in periods of high inflation than they are in seasons of low inflation. The

[10] DGMM stands for Dynamic Generalized Method of Moment
[11] DPQR stands for Dynamic Panel Quantile Regression

study came into a conclusion that fiscal shortfalls caused inflationary pressures in high-price level and emerging economies alike, but not in developed or nations with moderate inflation.

Using time series data for Nigeria, Raji et. Al. (2014) estimated connection between real supply of money balances, fiscal imbalance and inflation for the period 1970-2010. The study applied multivariate granger causality tests. The long-term findings reveal two-way causality between price level and supply of real money balances. Moreover, the results show indication of short-term causality from budget deficit and supply of real money balances to price level.

Nguyen (2015) studied the association between fiscal imbalance and M2 supply on price changes using a sample of 9 Asian economies from 1985 to 2012. The study discovered that the M2 had a significantly favourable influence on inflation by using the PMG estimation technique and the panel differenced GMM estimator. The study outcomes from both estimation techniques indicated that, statistically noteworthy causes of inflation were interest rates, fiscal deficits, and public spending.

Keho (2016) uses data from the West African Economic and Monetary Union to investigate the impact of the availability of real money balances and budgetary shortfall on price level for the years 1970–2013. In this study, the autoregressive distributed lag (ARDL) bounds test, as developed by Pesaran et al. (2001), was employed to investigate the extended-term association amongst the variables. The findings indicate that in Togo and Niger, price level and budget deficit are inversely related. Cote d'Ivoire and Burkina Faso did not have a substantial link, but this relationship was unfavourable in Benin and Senegal. The findings also showed that direct link between the supply of money and inflation lacked, proving that deficits in WAEMU countries did not cause inflation.

Using yearly time series data, Aslam and Lebbe (2016) investigate the influence of the fiscal imbalance in Sri Lanka for the period 1959 - 2013. The study used a model with several regressions. The analytical findings indicated a noteworthy positive correlation between inflation and the budget shortfall. The inflation rate, however, was significantly negatively impacted by the currency rate. The analysis concluded that Sri Lanka's high pricing levels were caused by an expanded budget imbalance. This was in line with a study by Albert (2008) that discovered a connection between Zimbabwe's budget deficit and inflation.

3.2.3 Overview of the Reviewed Literature

Theoretical evidence on fiscal deficit and inflation produces mixed results. While certain theories contend that inflation is primarily linked to monetary factors, others suggest that it is a fiscal problem. Traditional theory by monetarists argue that the only way fiscal deficits impact inflation is through the interplay of monetary policy and fiscal policies. According to the monetarist theory, funding fiscal deficits by printing money can cause inflationary burdens due to the upsurge in the money supply. However, this theory does not consider the reciprocal relationship between fiscal deficits and inflation, nor does it account for the influence of political actions on inflation. This is what interests this study.

The significance of fiscal policy in setting price level and its control over monetary policy are both emphasized in the other theoretical strand. The Fiscal Theory of Price Level is separated into two theories: the Weak Fiscal Theory and the Strong Fiscal Theory. The former argues that under fiscal control, central banks print money which raises money supply in the economy. Consequently, aggregate demand increases pulling up prices in the economy and therefore inflation is a monetary phenomenon that is fiscally driven. Fiscal theory of price level on the other hand overrules dominance of monetary policy and connect fiscal deficits, inflation and government budget constraint. It argues that inflation is influenced by fiscal stance, government credibility and wealth effect. Still, theories on budgetary deficits and inflation fail to link the two to political budget cycles. Theoretical literature doesn't explain how fiscal deficits incurred in the electioneering period impact inflation. By studying the effects of political-related fiscal imbalances on inflation in the EAC, this analysis attempted to bridge this gap.

Theories linking increase in the general price to elections and election-related fiscal deficits are scant. The link between inflation and electoral cycles was explained by opportunistic or traditional theory of political business cycles (Nordhaus, 1975). This theory predicts a rise in inflation prior to and during elections in pursuit of high employment levels. These theories overlook political aspects of inflation and fiscal deficits. For example, theoretical literature does not explain whether fiscal deficits incurred in the electioneering period have similar impact on inflation as non-election years' budget deficits. Therefore, it remains a research issue whether politically driven fiscal deficit impacts inflation in the EAC partner states. This research set out to fill this gap.

Additionally, empirical investigation on the connection between inflation and the fiscal deficit has not been compelling. According to some studies, budget shortfalls only cause substantial price changes in developing and extreme inflation-prone countries. Several other studies demonstrate that there exists statistically substantial and direct relationship between the fiscal shortfall and inflation. However, empirical evidence fails to link inflation to political budget cycles which is what this study set out to do.

Furthermore, the adoption of various approaches is probably one reason why the research is equivocal. For example, some studies examined the unit root aspects of inflation and the budget deficit while focussing on other factors, such as the long run and causality testing. Additionally, some research established the dynamic relationships between fiscal deficits and inflation using a single equation, whereas others employed numerous equations. Unlike earlier research, this one used panel data covering the years 2000–2018. The capacity to regulate multicollinearity among variables, granting additional degrees of freedom, and providing more insightful data are only a few benefits of panel data over times series (Baltagi 2013). For robustness, system GMM and differenced GMM estimation methodologies were also used. Particularly in the EAC, it is yet unknown how political budget cycles and inflation are related. In order to establish this connection, this study combined the equilibrium PBC theory of Rogoff and Sibert (1988) and Rogoff (1990) with Nordhaus (1975) opportunistic business cycle theory.

3.3 METHODOLOGY

3.3.0 Introduction

This section covers theoretical framework, analytical model, estimation technique and data.

3.3.1 Theoretical Framework

The theoretical framework and analytical strategy were adopted from Catão and Terrones (2005), and Solomon and Wet (2004).

According to Catão and Terrones (2005) the economy is assumed to be small and open comprising of government and households. The households allocate their time between transactions (shopping) and leisure time. Holding money is assumed to decrease shopping time (transaction costs) at equilibrium. The model is further characterised as follows,

The lifetime utility function of a representative household is given as,

$\sum_{t=0}^{\infty} \beta u(c_t, l_t)$ 3.1

Where?

β is the discounting factor $(0 < \beta > 1)$

c_t is planned consumption spending in period t.

l_t is leisure in period t.

The utility function in period t is assumed to be both strictly concave and increasing with respect to its two variables.

The household is presumed to receive a positive quantity of goods y_t at the start of each period and to utilize income y_t to pay taxes, hold risk-free bonds and to consume. Any remaining fund income is transferred into the future. The household budget constraint is therefore stated as,

$$c_t + \frac{b_{t+1}^p}{R_t^*} + \frac{m_{t+1}}{p_t} = y_t - \tau_t + b_t^p + \frac{m_t}{p_t} \quad 3.2$$

Where.

b_t^p represents the actual value of one-period risk-free bonds held by the household, and these bonds mature at the start of period t.

m_{t+1} represents the amount of money held by the household during the period from t to t+1.

τ_t is lump-sum tax, p_t is the level of price and R_t^* is the global real gross rate of return for bonds issued for a single time. The original stocks of bonds (b_0^p) and money balances (m_0) are predetermined and $y_t \ll \infty$.

A household's unit time is allocated between leisure time(l_t) and shopping activities(s_t) in each period t. This implies that, $l_t + s_t = 1$. Furthermore, s_t is assumed to have a positive correlation with consumption (c_t) and negatively associated with the real balances held by the household in time between t+1 and t $\left(\frac{m_{t+1}}{p_t}\right)$. Therefore, shopping activities equation in time t is given by,

$$s_t = S\left(c_t, \frac{m_{t+1}}{p_t}\right) \qquad 3.3$$

where, $S, S_c, S_{cc}, S_{m/p,m/p} > 0$ and $S_{m/p}$ and $S_{c,m/p} < 0$. Since the relationship between the money holdings and transaction costs is negative, the earnings on money can be lower than the earning on bonds according to Baumol-Tobin theory for money demand.

The household utility maximization problem is to maximise equation 3.1 subject to household's budget constraint, equation 3.2. Using first order conditions with respect to c_t, l_t, b_{t+1} and m_{t+1}, the resulting function for money demand is written as,

$$\frac{m_{t+1}}{p_t} = M^d\left(c_t, \frac{1}{R_t^*(1+\pi_t)}\right) \qquad 3.4(a)$$

Where money demand (M^d) is a direct function of consumption(c_t), a reverse function of international real interest rate (R_t^*) and domestic inflation rate $\pi = \frac{p_{t+1}}{p_t} - 1$. From equation 3.4 (a) it follows that domestic inflation rate can also be written as,

$$\pi_t = \frac{p_t}{m_{t+1},} \frac{R_t^*}{c_t} \qquad 3.4(b)$$

Government spending in period t is assumed to be financed through taxes, one-period issuance of bonds or by currency issuance. Therefore, real public budget constraint is expressed as,

$$\frac{b_{t+1}^g}{R_t^*} = \tau_t + b_t^g - g_t + \frac{M_{t+1} - M_t}{p_t} \qquad 3.5$$

Where b_t^g is the net bonds' real value issued by a government in time t, and M_t is broad money supply at the commencement of period t. The initial stocks of government bond (b_0^g) and currency (M_0) are assumed exogeneous. $b_t^g < 0$ implies that in time t, the government is a net borrower. Thus, $\frac{b_{t+1}^g}{R_t^*}$ is equivalent to government debt.

According to Catão and Terrones (2005), with money market at equilibrium $(m_t = M_t)$ and $b_{t+1} = b_{t+1}^p + b_{t+1}^g \forall\, t$, the overall government constraint is given as,

$$\frac{b_{t+1}}{R_t^*} = y_t - c_t - g_t + b_t + \frac{M_{t+1} - M_t}{p_t} \qquad 3.6$$

Given that households spend their income y_t on taxes τ_t and consumption expenditure c_t, then

$y_t - c_t = \tau_t$

Therefore, equation 3.6 can be rewritten as

$\frac{b_{t+1}}{R_t^*} = \tau_t - g_t + b_t + \frac{M_{t+1}-M_t}{p_t}$ and further rearranged to yield

$$\frac{M_{t+1}-M_t}{p_t} = g_t - \tau_t + \frac{b_{t+1}}{R_t^*} - b_t \qquad 3.7$$

$b_{t+1}$is the economy's net holding of bonds (total debt). b_0 is predetermined and therefore $(b_{t+1} - b_t)$ gives the current account balance. $\frac{M_{t+1}-M_t}{p_t}$ gives the seignorage and $g_t - \tau_t + \frac{b_{t+1}}{R_t^*} - b_t$ is the fiscal deficit.

The model assumes absence of taxes and trade barriers. Thus, interest rate and purchasing power parity conditions hold and by implication the domestic real rate of interest (R_t) is equated to the real rate of interest (R_t^*). The resulting steady state (stationary) equilibrium implies,

$R = R^* = \beta^{-1}$ and therefore, real money demand equation is given by

$$\frac{M}{p} = M^d\left(c, \frac{1}{R(1+\pi)}\right) = f(\pi) \qquad 3.8$$

By substituting 3.8 into 3.5 gives:

$$\frac{\pi}{1+\pi} = \frac{p\left[g-\tau+b^g\frac{(R-1)}{R}\right]}{M} \qquad 3.9$$

Equation 3.9 captures the extended period correlation between fiscal shortfall and inflation rate. It suggests that rate of inflation is directly related to rate of interest, budget deficit and average stock of narrow money in a period. Since transaction money demand is inversely related to price level, the tax base will decline as inflation rises and vice versa.

Catão and Terrones (2005) further allow generality and utilize the approximation $\pi \approx {\pi}/{(1+\pi)}$ to form the inflation counterpart of equation 3.9 as follows,

$$\pi = \omega\frac{(G-T)}{M} \qquad 3.10$$

$G - T \approx p\left(g - \tau + b^{g}\frac{(R-1)}{R}\right)$ is the budget deficit and ω is the semi-elasticity parameter.

3.3.2 Econometric Model

This study used a modified version of Cato and Terrones' (2005) model to examine the relationship between electorally motivated budgetary deficits and rate of inflation in the East African Community region.

Assuming a causal relationship between general price increase and budget shortfall, inflation may rise if a fiscal deficit is bridged through monetisation (Friedman, 1968). Inflation may also be influenced by elections. Thus, the following may be expressed for a functional analytical model of inflation: $INFL = f(FD, BM, RIR,\ OPN, \text{RGDP}, \text{ED}_1, \text{ED}_2, \text{ED}_3, FD * \text{ED}_1, FD * \text{ED}_2, FD * \text{ED}_3)$ 3.11

Where;

INFL is Rate of Inflation.

FD is budgetary deficit.

BM is supply of money.

RIR is real interest rate.

OPN is Openness of Trade.

RGDP is Real GDP Annual Growth Rate.

ED_1 is dummy variable for the pre-election year.

ED_2 is dummy variable for year of election.

ED_3 is dummy variable for the post-election year.

The study's model could explicitly be written as follows.

$$INFL_{i,t} = A_0 + B_k INFL_{i,t-k} + C_k FD_{i,t-k} + D_k RIR_{i,t-k} + E_k BM_{i,t-k} + F_k OPN_{i,t-k} + G_k RGDP_{i,t} + H_k ED_{i,t-k} + I_k (FD * ED)_{i,t-k} + \mu_i + \varepsilon_{i,t} \quad 3.12$$

Where.

$INFL_{i,t}$- Inflation Rate as measured by CPI

$FD_{i,t}$- Primary Budgetary deficit / GDP ratio excluding grants

$BM_{i,t}$-Broad Supply of Money /GDP ratio

$RIR_{i,t}$ – Real Interest Rate

$OPN_{i,t}$ – Trade Openness

$RGDP_{i,t}$ – Real GDP Annual Growth Rate

$ED_{i,t-k}$ -Election Dummy Variables for the pre-election, voting and post voting year.

$(FD * ED)_{i,t-k}$ – interaction term between fiscal deficit and election dummy.

μ_i – Unobserved country-specific effect.

$\varepsilon_{i,t}$– error term

3.3.3 Definition and Measurement of Variables

Table 21 presents an outline of the variables' definitions and measurements.

Table 21: Definition and Measurement of Variables

Variable	Definition	Measurement
INFL	The percentage variation in the price of a standard consumer basket of goods and services, which can be either fixed or adjusted annually.	Consumer price index
FD	Total government revenue excluding grants, minus total expenditure as a percentage of GDP	Percentage of nominal gross domestic product (GDP).
BM	The aggregate value of money circulating within an economy, comprising physical currency held outside of banks, various types of deposits checks, and other financial instruments like certificates of deposit and commercial papers, expressed as a proportion of the Gross Domestic Product (GDP).	The ratio of broad money supply to the gross domestic product.
RIR	Nominal rate of interest adjusted for effects of price change or inflation	Nominal interest rate minus the GDP deflator
OPN	The proportion of GDP represented by the combined value of goods and services imports and exports.	Value of imports and exports as a ratio of GDP.
Real GDP Annual Growth Rate (RGDP)	The total market worth of all final goods produced by domestic residents within an economy.	Based on constant local currency and expressed as annual percentage at market values.
ED_1	Dummy for pre-election year.	1= year before an election 0= otherwise
ED_2	Dummy for presidential election year.	1= election year 0= otherwise
ED_3	Dummy for the post-election year.	1= year after an election 0= otherwise

NOTES:

1. INFL: Inflation rate measured by CPI data sourced s from World Bank's World Development Indicators (WDI)
2. FD: Fiscal deficit as ratio of GDP including grants data sourced from African development bank (AFDB)
3. BM: Broad money supply as percentage of GDP data sourced from World Bank, World Development Indicators (WDI)
4. RIR: Real interest rate data obtained from World Bank, World Development Indicators (WDI)
5. OPN: Trade openness data obtained from World Bank, World Development Indicators (WDI)
6. RGDP: Real GDP Annual Growth Rate obtained from World Bank, World Development Indicators (WDI)
7. ED_1: Pre-election year data sourced from African Elections Database (AED)
8. ED_2: Election year data sourced from African Elections Database (AED)
9. ED_3: Post-election year data sourced from African Elections Database (AED)

3.3.4 Estimation Issues

3.3.4.1 Pre-estimation Tests

Correlation Test

The Pearson product-moment correlation coefficient test, developed by Pearson in 1895, was used in this investigation to ascertain the degree and direction of relationship between the variables. This test verifies linear association among the study variables. The correlation test generates Pearson correlation coefficient denoted as *r* which is written as.

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \qquad 3.13$$

Where.

$$\sum x^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

$$\sum y^2 = \sum Y - \frac{(\sum Y)^2}{n}$$

$$\sum xy = \sum XY - \frac{(\sum X)(\sum Y)}{n}$$

The correlation coefficient can lie between -1 and +1. $r = -1$ implies a perfectly negative linear association while $r = +1$ implies a perfectly positive association among any two variables. Zero implies no association between a binary of variables. The alternative hypothesis proposes that there is a correlation between the variables, contrary to the null hypothesis, which states that there is no link at all. Table 23 presents the findings of the correlation test.

Unit Root Tests

Levin, Lin and Chu (2002) test

Levin and Lin (1992) developed the LLC test, which Levin, Lin, and Chu later enhanced. It's a development of the Dickey Fuller test. The Levin, Lin, and Chu test, when assuming comparable first-order autoregressive parameters, accommodates variations in specific deterministic effects and the presence of distinct serial correlation structures in the error terms.

The test is more suitable for panels of moderate size. Levin, Lin, and Chu test is modeled as follows.

$$\Delta Y_{i,t} = \alpha_i + \rho Y_{i,t-1} + \sum_{k=1}^{n} \emptyset_k \, \Delta Y_{i,t-k} + \sigma_{i,t} + \theta_t + u_{i,t} \qquad 3.14$$

The alternative and null hypotheses of LLC test are given as.

H_O: $\rho = 0$

H_a: $\rho < 0$

Since cross-sectional independence between variables is assumed in LLC, it could not be relevant in cases of cross-sectional correlation. Additionally, the LLC test's applicability is constrained by its assumption that a panel's autoregressive parameters to be uniform. The alternative hypothesis, according to Maddala and Wu (1999), was too powerful for any relevant empirical study, even though the null made sense. Im, Pesaran, and Shin (1997, 2003) introduced a panel unit root test that addresses the limitation of assuming identical first-order correlation and allows for disparities in the lagged endogenous variable to overcome the limitations of LLC's approach.

Im, Pesaran and Shin (1997, 2003) Test

The panel root test by Im, Pesaran, and Shin (1997, 2003) is an extension of the LLC test. The unit root testing approach presented by Im, Pesaran, and Shin is simple, based on the mean of the single unit root test results, and it considers variability in the lagged dependent variable's coefficient. This test provides separate estimates for each of the individual sections, taking into account issues such as residual serial correlation, differences in dynamic patterns, and varying error rates across groups. The Im, Pesaran, and Shin test model is as follows:

$$\Delta Y_{i,t} = \alpha_i + \rho_i Y_{i,t-1} + \sum_{k=1}^{n} \emptyset_{ik} \, \Delta Y_{i,t-k} + \sigma_{i,t} + u_{i,t} \qquad 3.15$$

The alternative and null hypotheses of the test are given as.

H_O: $\rho i = 0 \;\; \forall \, i$

H_a: $\rho < 0 \;\; for \; at \; least \; one \; i$

The alternate theory assumes that a component of the series in the panel has a constant covariance and mean over time. The assertion that all of the series are non-stationary is the null hypothesis in this situation.

Hadri Test

Hadri (2000) advocates parametrization because it enables both stationary and non-stationary variables to be adequately represented and to calculate residuals. Heteroscedasticity of disturbance terms across i tested using the Lagrange Multiplier (LM) test. Additionally, the Hadri test enables accurate calculation of Lagrange Multiplier (LM) test's asymptotic distribution moments.

3.3.4.2 Estimation Technique

The research utilizes a dynamic panel data equation as its analytical framework, examining data from a sample of five EAC countries over a 22-year timeframe. The lagged dependent variable may have a connection with the country's fixed effects included in the model. The model might therefore be endogenous. Taking into account of this, the research used differenced Generalized Methods of Moments (diff GMM) as the appropriate estimation approach, drawing influence from the studies of Arellano & Bover (1995) and Blundell & Bond (1998, 2000). Differenced GMM is suitable for dynamic panel models because of its ability to correct econometric issues such as endogeneity and non-stationarity. Lagged differences of exogenous variables are used as instruments for their levels in differenced GMM.

For consistency of model and to reduce any bias associated with differenced GMM, we employed system GMM which combines regression in differences with level regression. One of advantages of system GMM is that it can control for endogeneity, autocorrelation and country-specific effects. This estimation method combines lagged instruments of the dependent variable for equations in first differences with lagged differences of the dependent variable as instruments for level equation (Allerano and Bover, 1995; Blundell and Bond, 1998). If autocorrelation between these variables and the country-specific impact is absent, the estimates become valid. When using system and differenced GMM the problem of instrumental variable proliferation may arise. To eliminate the problem of many instrumental variables the analysis of Xtabond2 as proposed by Roodman (2009) was employed.

The study estimated the following dynamic linear equation:

$$INFL_{i,t} = \sum_{k=1}^{p} \gamma_{i,k} INFL_{i,t-1} + \sum_{k=0}^{q} \lambda'_{i,k} X_{i,t} + \mu_i + \varepsilon_{i,t} \quad 3.16$$

Where

$INFL_{i,t}$- is general price level measured as CPI

$X_{i,t}$- is k × 1 vector of explanatory variables namely, budgetary deficit, real interest rate, trade openness, broad supply of money, real GDP annual growth rate, election dummies and interaction terms.

$\gamma_{i,k}$- is a scalar of coefficients of consumer price index

$\lambda'_{i,k}$- is a k × 1 vector of the explanatory variables' coefficients

μ_i- is country-specific fixed effects

Taking first difference of equation 3.13 to take care of country-specific effects yields equation (3.17) which is is the differenced GMM estimator.

$$INFL_{i,t} - INFL_{i,t-1} = \sum_{k=1}^{p} \gamma_{i,k} (INFL_{i,t-1} - INFL_{i,t-2}) + \sum_{k=0}^{q} \lambda'_{i,k} \left(X_{i,t} - X_{i,t-1}\right) + \varepsilon_{i,t} - \varepsilon_{i,t-1} \quad 3.17$$

3.3.5 Data

The information for this study was gathered from five EAC States: Burundi, Kenya, Rwanda, Tanzania, and Uganda. However, due to the unavailability of their macroeconomic data, South Sudan and Congo DRC were not included in the sample. The data was an annual panel for the years 2000 to 2021. During this period, the chosen countries shifted from a single-party system to a multi-party electoral system. Data sources included the African Elections Database (AED), the East African Community (Facts and Figures), the World Bank (WDI and WGI), and the IMF International Financial Statistics (IFS).

3.4 ANALYTICAL RESULTS AND DISCUSSION

3.4.0 Introduction

This section presents descriptive statistics, diagnostic tests and discussion of study findings and discussion.

3.4.1 Descriptive Statistics

Table 22 provides a summary of the statistics for all the variables utilized in the estimations.

Table 22: Statistical Summary of Variables Employed in the Estimations

Variable	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	**Statistic**	**Statistic**	**Std Error**	**Statistic**	**Std Error**
INFL	-2.81	26.24	7.3110	5.08128	1.204	0.230	2.616	0.457
FD	2.8	20.00	9.037182	3.70329	0.53496	0.230	-0.15186	0.490
RIR	-16.6792	22.9956	8.64952	7.05440	-0.66420	0.230	1.06606	0.457
BM	15.32158	49.75123	25.14200	8.50571	1.112964	0.230	-0.04898	0.457
OPN	20.96	64.48	39.8479	10.13435	0.246	0.230	0.706	0.457
RGDP	-3.90	13.19	5.2128	2.96393	-0.459	0.230	0.826	0.457
ED_1	0.00	1.00	0.1909	0.39482	1.595	0.230	0.553	0.457
ED_2	0.00	1.00	0.2000	0. 40183	1.521	0.230	0.318	0.457
ED_3	0.00	1.00	0.1909	0.39482	1.595	0.230	0.553	0.457
Number of Observations					110			

Notes: INFL= inflation rate, FD=fiscal deficits/GDP ratio, RIR= real interest rate, BM= broad money supply/GDP ratio, OPN= trade openness and RGDP=Real GDP annual growth rate.

Table 22 shows that inflation rates in EAC as measured by CPI varied from a least of -2.81% to a highest of 26.24 with an average of 7.31%. These figures are of policy concern since they deviate from the East African Community's set target of a single digit. The inflation rates deviate from the mean by 5.08% implying price volatility in most cases. Inflation rate in the

EAC is positively skewed with a value of 1.20 implying that higher inflation rates experienced around 2021 compared to 2000. The rate is leptokurtotic or has a positive kurtosis of 2.62.

The budgetary deficit/GDP ratio in EAC over the period 2000-2021 ranged from a low of 2.8% to a high of 20% with a deviation of 3.7%. The highest budgetary deficit was recorded in Burundi in 2004 while the lowest was observed in Tanzania in 2018. EAC Vision 2050 set target for fiscal deficit is less than 5% and therefore these statistics deviate. The deficits have a kurtosis of 3.79 implying a leptokurtotic (negative kurtosis) distribution.

Real interest rates in the EAC varied over the period of the study, ranging from -16.68% to 23%, with an average of 8.65% and a standard deviation of 7.05%. The rate was volatile in most cases and negatively skewed at -0.66 meaning that high interest rates were experienced towards 2021. In addition, the rate was leptokurtotic (positive kurtosis) with a value of 1.07. Trade openness had a score that fluctuated from a lowest of 20.96% to a extreme of 64.48 % with a mean of 39.85% and standard deviation of 10.13%. Trade openness was positively skewed and leptokurtotic with values of 0.25 and 0.71, respectively.

The ratio of broad money supply/GDP in the EAC over the period 2000 - 2021 was ranged from 15.05 % to 49.75% with a mean of 25.14% and a standard of 8.51%. The ratio was positively skewed and platy kurtotic (negative kurtosis) with values of 1.11 and -0.05, respectively. Real GDP annual growth rate had a minimum and maximum of -3.90% and 13.19% respectively. The average GDP growth rate during the study period was 5.2 while standard deviation was 3.0.

3.4.2 Variable Correlation Test Results

Correlation test is important in verifying whether there is association between any two variables. When the correlation coefficient is positive, it signifies that the binary variables change in a consistent direction. Conversely, a negative coefficient implies that the variables change in opposing directions. A value of zero implies no association. Table 23 provides Pearson correlation test results.

Table 23: Pearson Correlation Test Results

	INFL	FD	RIR	BM	OPN	RGDP
INFL	1.00					
FD	0.111	1.00				
RIR	-0.673**	-0.234**	1.00			
BM	0.097	-0.166*	-0.103	1.00		
OPN	0.241**	-0.126	0.045	-0.260**	1.00	
RGDP	-0.180*	-0.093	0.189*	-0.302**	0.192*	1.00

** significant correlation at 1% level

* Significant correlation at 5% level

Different relationships are suggested by the test results. At the 5% significance level, openness of trade (OPN) is positively connected with the inflation rate, while the real interest rate (RIR) has a negative correlation with the inflation rate. Real rate of GDP is adversely connected with inflation rate at 1% level of significance. Broad supply of real money and rate of interest are negatively correlated with fiscal deficit at 1% and 5% level of significance respectively. GDP growth rate is negatively related to broad money supply and positively related to trade openness.

3.4.3 Diagnostic Test Results

3.4.3.1 Tests on Panel Unit Roots

The panel unit root test was utilized to ascertain whether variables were stationary. If a time series' mean and auto-covariances are not dependent on the passage of time, it is said to be stationary. Levin, Lin, and Chu (2002) and Im and Pesaran have the null hypothesis that panel data has a unit root, whereas in the alternative panel data has no unit root indicating that it is stationary. In contrast to the alternative that the panel data has a unit root, Hadri's (1999) null hypothesis states that the autocovariance and mean of a time series data collection are independent of time. Tables 3.4 and 3.5 present the results of the panel unit root test for the level and the first difference, respectively.

Table 24: Panel Unit root Test Results at Level

Variable	H. LM		LLC		IPS	
	Statistic	**P value**	**Statistic**	**P value**	**Statistic**	**P value**
INFL	1.6771	0.0468	-3.1555	0.0008	-3.7002	0.0001
FD	13.4901	0.0000	-1.4374	0.0753	-2.2626	0.0118
RIR	0.2104	0.4167	-2.8793	0.0020	-3.2268	0.0005
BM	10.0092	0.0000	-1.6854	0.1242	-1.9307	0.3165
OPN	14.8120	0.0000	-0.1497	0.4405	0.4860	0.6865
RGDP	1.4945	0.0675	-1.2189	0.1114	-4.6665	0.0000

Notes: HLM stands for Hadri Lagrange Multiplier test, LLC for Levin-Lin-Chu test, and IPS for Im-Pesaran-Shin test.

Table 24 presents the results of the panel stationarity test using three different methods of Hadri LM, Levin-Lin-Chu, and Im-Pesaran-Shin Inflation rate (INFL) and real interest rate (RIR) were stationary at level with l % level of significance. Fiscal deficit was stationary at 5% level of significance from LLC and IPS tests, but nonstationary using Hadri LM test. At the level, both broad money supply and trade openness were found to be non-stationary. The next section provides results for panel unit tests after first differencing BM and OPN.

Table 25: Unit Root Test Results After First Differencing for Fiscal Deficit, Broad Money Supply and Trade Openness.

Variable	H. LM		LLC		IPS		
	Statistic	P value	Statistic	P value	Statistic	P value	Order of integration
DFD	-1.5583	0.9404	-7.2216	0.0000	-4.9105	0.0000	(1)
D. BM	0.2448	0.4033	-5.4080	0.0000	-4.0425	0.0000	(1)
D.OPN	0.5631	0.2867	-4.5605	0.0000	-4.6286	0.0000	(1)

Once subjected to first differencing, both broad money supply and the trade openness ratio were determined to have a constant mean and covariance over time at a significance level of 1%. These variables exhibit an integrated order of one, denoted as I (1).

3.4.4 Post Estimation Tests Results

3.4.4.1 Arellano-Bond's Zero Autocorrelation Test Result

Arellano-Bond's zero autocorrelation test confirms whether first-differenced disturbances lack serial correlation (Arellano and Bond, 1991). The alternative to the null hypothesis, which asserts the absence of serial correlation in first-differenced error terms, is the presence of autocorrelation. At a 5% level of significance, the results in Table 26 do not permit the denunciation of the null hypothesis. The model in equation (3.17) is therefore appropriate for system GMM estimation.

Table 26: Arellano-Bond Test for Zero Autocorrelation in First-Differenced Errors

ORDER	Z	PROB>0
1	-1.7723	0.0763
2	-1.7816	0.0748

H_0: no autocorrelation

3.4.5.2 Sargan Test of Overidentifying Restrictions

Sargan test (Sargan, 1958) is used to verify whether a model and its identifying conditions are correctly specified. It determines whether the overidentifying limits are valid in order to validate the instrumental variables of the model. It helps assess the instrumental variables' validity as well as the overall model's reliability. In this test, identifying restrictions are said to be valid by the null hypothesis, while they are said to be invalid by the alternative. In light of Table 27's findings, the null hypothesis could not be rejected at the 5% level of significance.

Table 27: Sargan's Overidentifying Restrictions Test Result

chi2 (76) = 83.15403	Prob > chi2 = 0.0351

H_0: overidentifying restrictions are valid

3.4.5 Estimation Results

The estimation results present pre-election, election and post-election situations. For robust check two dynamic panel data estimation techniques, that is, differenced GMM and system GMM estimation techniques.

3.4.5.1 Effect of Pre-election-year Fiscal Deficits on Inflation in the EAC

The analysis examined importance of pre-polls timing in the EAC and the impact of the fiscal imbalance in the year before elections on inflation. By combining the budget deficit with the pre-election-year dummy, the pre-election impacts of the deficit on inflation were determined. The outcomes of the pre-election year analysis are shown in Table 28.

Table 28: Effect of Pre-election-year Fiscal Deficits on Inflation in the EAC, 2000 - 2021.

	Diff GMM			System GMM		
Variable	**Coefficient**	**Std. Error**	**Prob.***	**Coefficient**	**Std. Error**	**Prob.***
$INFL_{L1}$	0.0358237	0.060012	0.000	0.0398465*	0.0644324	0.000
FD	-0.185067	0.0913814	0.046	0.1730901	0.1357238	0.202
ED_1	1.532052*	0.26801	0.000	1.884431***	0.7654784	0.014
FD_1	0.2355886*	0.1269705	0.010	0.2544313**	0. 1700814	0.135
RIR	-0.4779622*	0.1076646	0.002	-0.4857101 *	0. 1214361	0.000
ΔBM	-0.1090431*	0.202857*	0.000	-0.1542651*	0.0540817	0.004
ΔOPN	0.1373582*	0.0516684	0.011	0.1530926*	0.0674435	0.023
ΔRGDP	-0.1209704	0.1543261	0.433	-0.1875749	0.1482938	0.206
CONST	10.44575 *	2.923618	0.000	11.98066*	3.686938	0.001
Number of Observations	105			Sum of Observations	105	
Number of Instruments	20			Number of Instruments	21	
Wald Chi2	75.29			Wald Chi2	38.53	
Prob > chi2	0.0000			Prob > chi2	0.0000	

The outcomes suggest a positive and substantial link between rate inflation (INF) and pre-voting year dummy variable (ED_1). From the differenced GMM estimator, inflation rate was roughly 1.53% higher in the year before an election at 1% level of significance. Inflation rate significantly rises just before an election in EAC countries. System GMM estimator produces similar findings at 5% level of significance. Inflation results from campaign money's expansion of the money supply in an economy. The results support Nordhaus' (1975) assertion that elections always result in higher inflation because governments running for re-election boost employment without considering the potential inflationary effects.

The difference GMM estimation results indicate that there is a direct and significant correlation between inflation and a budgetary imbalance that is incurred during a pre-voting period (FD_1). In comparison to previous years, the pre-election year's fiscal deficit had an about 0.24%

greater impact. This is explained by the fact that campaigns raise overall economic spending, which leads to a brief period of demand-pull inflation. The observation aligns with Carlstrom and Fuerst's (2000) fiscal theory, which posits that inflation may have budgetary motivations. Empirical research also shows that fiscal deficits could be inflationary. Catao and Terrones (2005) using a sample of 107 industrialized and developing countries show that budget deficits cause inflation in both developing and high-inflation countries. Lin and Chu (2013) came to the same conclusion. Solomon and Wet (2004), Ndanshau (2012) and Wolde-Rufael (2008) from East African studies find strong support for the association between fiscal deficits and inflation.

Darrat (2000), Tekin-Koru and Ozmen (2003), Raji et al. (2014), Oladipo and Akinbobola (2011) and Aslam and Lebbe (2016) using time series data, and Cottarelli et al. (1998), Loungani and Swagel (2003), Domac and Yucel (2005), Fischer et al. (2002), Kwon et al. (2009) and Jayaraman and Chen (2013) using panel data come to the same conclusion. However, none of these studies examine fiscal deficits during election time.

The findings suggest that real interest rate inversely impact rate of inflation in the EAC. An upsurge in real rate of interest by 10% results in a fall in the general price level by approximately 4.8% according to differenced GMM estimation results at 1% level of significance. Credit is restricted by high interest rates, and this lowers aggregate demand and inflation. High interest rates also encourage savings with similar effect on aggregate demand.

Broad money supply was likewise found to correlate with inflation negatively and significantly in the EAC. According to differenced GMM outcomes, an increase in money supply 10% increases inflation by 1.1% at 1% level of significance. Furthermore, the findings show a positive link between current inflation (INFL) and preceding period inflation. The results of the system GMM estimator show that a 10% increase in inflation from the prior year is correlated with a 0.3% increase in inflation from the current year. This correlation is statistically substantial at the 1% level of significant. The results of differenced GMM and system GMM estimation indicate that trade openness impacts inflation positively and statistically significantly. At the 1% significance level, a 10% rise in trade openness causes rate of inflation in the EAC to rise by roughly 1.4%. When crude oil prices rise on global markets, fragile non-oil producing nations experience severe shocks and internal inflation.

3.4.4.2 Effect of Election-year Fiscal deficits on inflation in the EAC.

The research also investigated the influence of election-induced fiscal deficits on inflation during election years in the East African Community (EAC). The effect of election-year fiscal deficit on inflation is attained from interacting fiscal imbalance (FD) and election year dummy (ED_2). Table 29 presents outcomes of the effect of election-related budgetary imbalance on rate of inflation in an election year in the EAC.

Table 29: Effect of Election-year Fiscal Deficits on Inflation in the EAC, 2000 – 2021

	Diff GMM			**System GMM**		
Variable	**Coefficient**	**Std. Error**	**Prob.***	**Coefficient**	**Std. Error**	**Prob.***
$INFL_{L1}$	0. 0244252*	0. 0706918	0.000	0.0257532*	0.0707534	0.002
FD	0. 0219379	0. 0584077	0.707	0.0548069	0.091848	0.551
ED_2	2.746183	2. 912852	0.346	2.736643	2.961225	0.355
FD_2	-0. 4105163*	0. 1704597	0.016	-0.4661221	0.1744432	0.032
RIR	-0.4880107*	0. 1168117	0.008	-0.4972594**	0.1278003	0.000
ΔBM	-0.0862191*	0. 0326602	0.000	-0.1377742*	0.0563463	0.014
ΔOPN	0.1423803 *	0. 0613062	0.020	0.1529521*	0.0617298	0.013
RGDP	-0.1483603	0.1705276	0.384	-0.2003683	0.1561482	0.199
CONST	9.283926*	3.356437	0.006	10.76804*	3.594781	0.003
Number of Observations		105		Number of Observations		105
Number of Instruments		20		Number of Instruments		23
Wald Chi2		42.01		Wald Chi2		129.72
Prob > chi2		0.0000		Prob > chi2		0.0000

The findings show that the effect of fiscal deficits in the election year is around 0.41% lower compared to other non-election years. Additionally, the relationship between inflation and other control variables during an election year remains as discussed earlier in section 3.4.4.1.

3.4.4.3 Effect of Post-election-year Fiscal Deficits on Inflation in the EAC.

This research extended the analysis into the impact of fiscal deficit on inflation in post-election-year in the EAC. The fiscal deficit is interrelated with post-election-year dummy. The results are presented in Table 30.

Table 30: Effect of Post-election-year Fiscal Deficits on Inflation in the EAC, 2000 – 2021

	Diff GMM			System GMM		
Variable	**Coefficient**	**Std. Error**	**Prob.***	**Coefficient**	**Std. Error**	**Prob.***
$INFL_{L1}$	0. 026427*	0. 0626375	0.000	0. 0201282*	0. 0812248	0.004
FD	0. 0869855	0.1621898	0.209	0. 0819575	0. 075427	0.277
ED_3	1.882414	1.675468	0.254	2.065132	1.566131	0.369
FD_3	0. 2507289 ***	0.1741736	0.051	0.1757116 **	2.299396	0.048
RIR	-0.4734672*	0.0966487	0.000	-0.4811011 **	0.2542098	0.000
DBM	-0.0930229**	0.1612933	0.012	-0.1460849 *	0.1244233	0.003
DOPN	0.1471176**	0.0319468	0.011	0.1501149 *	0. 0621409	0.016
RGDP	-0.090241	0.1566966	0.565	0. 1623485	0.1454351	0.264
CONST	9.295948*	2.753788	0.001	10.71144*	3.222184	0.001
Number of Observations		105		Number of Observations		105
Number of Instruments		20		Number of Instruments		21
Wald Chi2		33.20		Wald Chi2		19.27
Prob > chi2		0.0000		Prob > chi2		0.0000

The findings demonstrate a meaningful and positive correlation between inflation and the fiscal deficit during post-election years within the EAC. The effect of fiscal deficit in the post-election year is approximately 0.25% more than other years at 5% level of significance. In comparison to pre-election and election years, any fiscal deficit occurring in the year following an election leads to a greater increase in inflation. Other results in the model remain as discussed in section 3.4.4.1.

3.5 SUMMARY OF STUDY FINDINGS, CONCLUSION AND POLICY IMPLICATIONS

3.5.1 Summary of Findings

This study investigated the effect of politically motivated budgetary deficits on inflation within the EAC. The analysis was conducted using a sample of five EAC countries: Rwanda, Burundi,

Tanzania, Kenya, and Uganda. Due to data scarcity concerning macroeconomic variables, South Sudan and Congo DRC were not included in the sample. The study utilized data for the period between 2000 and 2021 and a structural econometric model that was estimated using differenced GMM and system GMM techniques. The primary variables utilized in the model were the rate of inflation rate based on consumer price index (CPI), fiscal deficit/GDP ratio (FD), election cycle dummies (ED_1 ED_2 and ED_3) and election-driven fiscal deficits (FD_1 FD_2 and FD_3) derived from interacting an election dummy with fiscal deficit. The model also incorporated control variables, namely the real interest rate (RIR), the proportion of broad money supply to GDP (BM), and trade openness (OPN). The findings showed that election-driven fiscal deficits impact on inflation rate, and inflation rate in the EAC also vary with election time.

The results indicated that pre-election-year fiscal deficit is likely to increase inflation rate by about 0.24%. The differenced GMM technique was more precise on this estimation than system GMM. A fiscal imbalance is likely to result from a government's increased public spending attempts to maximise its chances of re-election during the pre-election period. Additionally, the results revealed that pre-election year inflation rate was significantly higher than in other periods. This outcome agrees with traditional theory of political business cycles which predicts an increase in inflation in favour of low unemployment during electioneering period. Shi and Svenson (2002,2006), Block (2002a) and Ebeke and Olcer (2013) find public expenditure to rise during election causing fiscal deficits.

The finding that pre-election-year deficit cause inflation to rise agree with the theory of inflation and fiscal deficit by Carlstrom and Fuerst (2000). The theory suggests that expansionary fiscal policies could increase price level. Catao and Terrones (2005) find that fiscal deficit is inflationary in both developing and high-inflation countries.

Fiscal deficits in the years following an election were also found to be positively correlated with inflation in the EAC. A 10% increase in fiscal deficit incurred during a post-election period raises inflation in the EAC by approximately 0.25% at 10% level of significance. Nonetheless, fiscal deficits have little effect on price stability in the EAC during an election year compared to non-election years. Real interest rate and broad supply of money was established to have negative and substantial impact on inflation while trade openness accelerates inflation rate in the EAC.

3.5.2 Conclusion

The EAC's inflation grows as a result of pre- and post-election fiscal deficits. The rise is higher in the latter period. Using differenced GMM and system GMM techniques the study also found that inflation rate in the EAC significantly rises in the year before an election. Trade in the regional was also found to cause inflationary pressures in the region. However, low real interest rate and volume of supply of real money balances have negative influence on general price level in the EAC.

3.5.3 Policy Implications

The findings of the study demonstrate that the EAC has higher inflation when there is a fiscal imbalance before and after elections. Therefore, in order to realize stable prices, EAC Partner States must continue to exercise fiscal restraint and maintain a sustainable fiscal posture. Checks should be made on public spending during elections, efficient tax collection, and sustainable debt management. To reduce unnecessary public expenditure in the electioneering period, there is need to adhere to fiscal rules and setting attainable fiscal goals. Since election-driven fiscal deficits are inflationary, there is need to prepare fiscal policy planning frameworks that go beyond every election cycle.

There is need for governments to ensure fiscal transparency and accountability especially on campaign expenditure so as to limit wastage of resources. This will also limit inflationary pressures that arise from high government expenditure. There is need to implement fiscal rules such as debt ceiling and fiscal deficit capping so as to limit public expenditure during campaigns. There is need to promote institutional independence especially for monetary authorities in order to attain price stability by inflation targeting.

Furthermore, there is need to promote public awareness by sharing fiscal information to reduce information asymmetry that may cause increase in political budget cycles. Economic actors must comprehend the effects of political budget cycles and how they affect price stability. This may be achieved by providing periodical fiscal reports to citizens so that they can have a glimpse of what is happening in the economy. Civic education by both the civil society and electoral bodies should be upscaled so that voters could become enlightened on how to pick competent leader and avoid making choices during elections based on rational ignorance.

CHAPTER FOUR

POLITICAL BUDGET CYCLES AND ECONOMIC GROWTH IN THE EAST AFRICAN COMMUNITY

ABSTRACT

In this chapter, the analysis delved into the link between fiscal deficits and economic growth, examining how elections influence this association in the East African Community (EAC) from 2000 to 2021. The analysis relied on Pooled Mean Group (PMG) estimation technique and panel secondary data obtained from World Bank WDI, African Elections Database (AED) and EAC Publications (Development strategy documents, Facts and Figures). The study reveals that fiscal deficits exert a negative impact on economic growth in election years, although this impact is transient and short-lived. Overall, the EAC's economic growth is impacted by elections, political budget cycles, and fiscal deficits. Pre-election budget deficits were discovered to be worse for Kenya's economic expansion than for other EAC states at the national level.

4.1 INTRODUCTION

The promotion of economic stability and economic growth is one of the primary goals of any government. Fiscal deficit and economic instability have grown to be major policy concerns for many emerging nations. To achieve development goals EAC has set a goal of fiscal deficit of less than 5% of GDP and annual GDP growth rate of more than 7% as defined in EAC's 3rd vision 2050 and development strategy.

Government expenditure on health, education, infrastructure may exceed tax revenue hence deficit financing. Whenever public spending exceeds collected revenue budget deficit occurs. Many EAC countries are inefficient in tax collection in terms of low tax rates, narrow tax base, tax evasion and tax avoidance. When this is coupled with corruption in the process, sustained mismanagement of budget and poor budget controls often falls short of budget. Additionally, EAC countries are often faced economic downswings and unplanned events such as natural disasters like drought and floods, pandemics like recently global Covid-19 and Ebola which require off the budget expenditures. These are likely to rise budget deficits in the region. Furthermore, debt servicing in the region coupled with social welfare needs have left these countries with huge public budget deficit.

Fiscal deficits may be beneficial, detrimental or have no impact on the economy. Fiscal deficits to finance productive investments such as infrastructure projects (road networks and railway lines) lead to long term economic growth. Additionally, employing a budget deficit to stimulate the economy through welfare enhancement and subsidies can improve aggregate spending, thus promoting economic growth in an economy (Gruber, 2013). On the other hand, budget deficits to finance recurrent expenditure or service corrupt deals may be harmful to an economy. Additionally, persistent fiscal deficits can lead to volatile exchange rates as well as inflationary pressures in the economy. Deficits can also lead to intergenerational transfer of debt burden. Considering generational distribution of tax burden and resources, a budget deficit may have neutral effect in an economy as posited by Barro (1988). Therefore, fiscal sustainability and economic growth could be intertwined.

Economic growth is determined by various factors. For example, public and private investment contribute to growth of economic activity through higher productivity. Additionally, technological progress increases productivity and efficiency in production which can lead to increased level of aggregate output. Accumulation of human capital through education and acquiring skills and knowledge as well as good health is essential for economic growth. Sound macroeconomic environment that has sustainable macroeconomic policies that ensures price stability, favourable external balance and business environment is conducive for economic growth. Positive economic performance is essential as it results to low levels of unemployment, improved standards of living, reduction in poverty rates and other positive spill over effects.

Fiscal deficits are not only macroeconomic but also political phenomena. EAC elections are competitive and uncertain which induces politicians to manipulate fiscal expenditure to increase their probability of winning votes. These manipulations at times result in fiscal deficits. These deficits if they are not well managed, they can lead to macroeconomic instability and reduce investor confidence. On the other hand, they can provide a short-run economic stimulus hence a rise in aggregate demand. The question to ask is whether budget deficits opportunistically created during elections influence on output growth in the EAC at regional and individual country levels.

4.1.1 Trends of Fiscal Deficits and GDP Growth Rate in the EAC Regional Block, 2000-2018.

Fiscal deficits in the EAC have been consistently higher than the set targets as discussed in the earlier chapter. The rate of GDP growth in the EAC has been unstable over the study period, 2000-2021. Average GDP annual growth was lowest in 2002 and highest in 2011 at 3.2% and 7.7% respectively. Fiscal deficit and GDP in the EAC region seem to move in opposite direction over the study period with exception of early 2000s. For example, 2000-2001 during elections in Uganda and Tanzania fiscal deficits were rising while GDP growth rose from 3.1 % to 5.1 %. Between 2014 and 2016 average fiscal deficit rose from 7.38% to 9.46% while GDP growth decline to 4.59% from 5.20%. Average fiscal deficit observed in the EAC between 2017 declined from 8.28% to 7.52% while GDP growth rose from 3.97% to 5.62%. Similar trends were experienced in the period between 2004 and 2008 and 2009 and 2011.

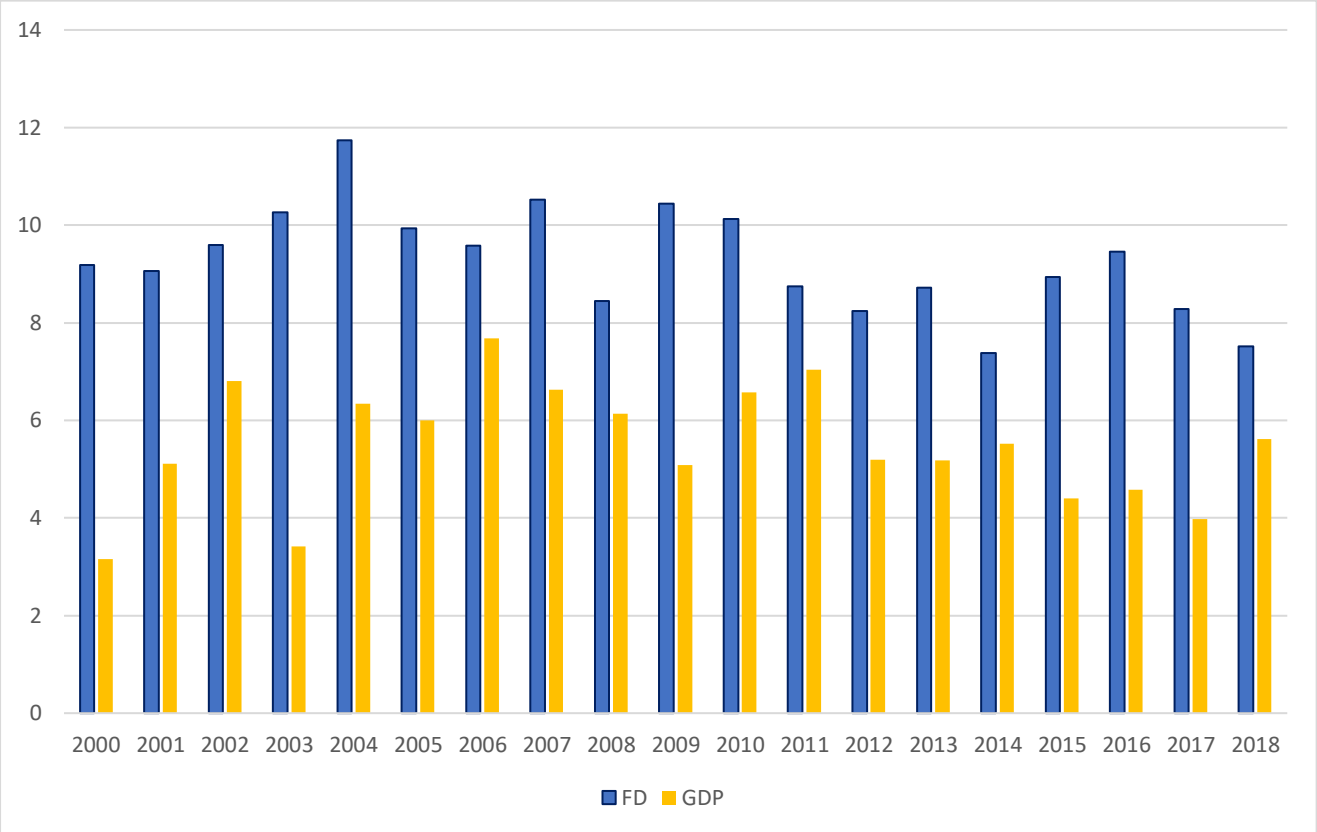

Figure 12: Trends of Fiscal Deficits and GDP Growth Rate in the EAC Regional Block, 2000-2018.

Author's compilation from World Development Indicators (2022)

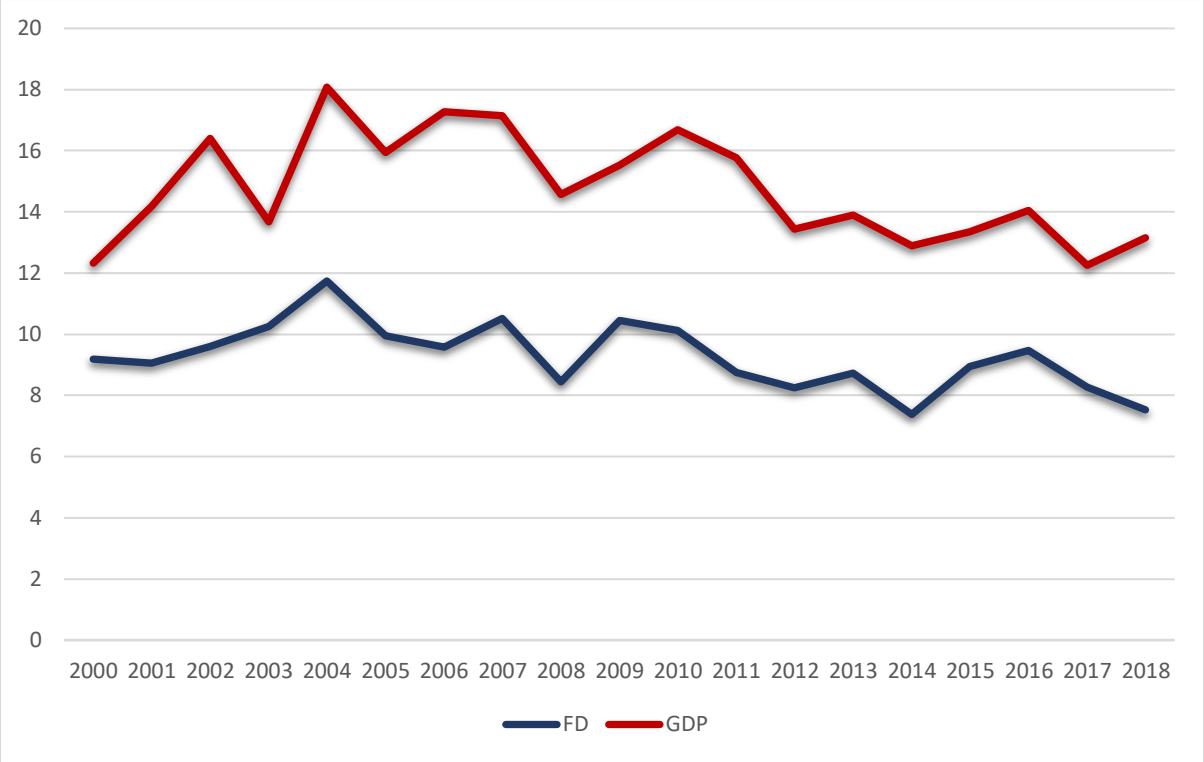

Figure 13: Trends of Fiscal Deficits and GDP Growth Rate in the EAC Regional Block, 2000-2018.

Author's compilation from World Development Indicators (2022)

4.1.2 Trends of Fiscal Deficits and Annual GDP Growth Rate in Individual EAC Countries, 2000-2018.

The trends of fiscal imbalance in the EAC partner states as discussed in the earlier chapter show that tend to change during electioneering period. Uganda GDP registered positive growth during election years while in Kenya, Tanzania, Burundi and Rwanda there was no clear pattern. GDP could increase during some elections and fall in others. For instance, During Uganda's general elections in 2001, 2006 and 2011, GDP growth had a high of 5.1%, 10.8% and 9.39% respectively. During Kenya's 2002 and 2017 elections, GDP growth rate declined by 0.6% and 4.9%, respectively while during the 2007, 2010 and 2013 elections it rose by 0.4%, 5.1% and 1.1% respectively.

Rwanda observed low rates of GDP growth during elections between 2000 and 2018 with exception of year 2010 when it rose from 6.25% in 2009 to 7.33%. Burundi elections are characterised by civil unrests and post-election violence which has caused GDP growth rate to decline in the election years with exception of year 2010. Year 2005 and 2015 recorded the worst growth in Burundi of 0.9% and -3.9% respectively. Generally, between 2000 and 2018

budget deficits were significantly high during election periods and in most cases GDP growth registered a negative trend with exception of Uganda. It remains a research question whether elections and election-driven budget deficits are favourable or harmful to economic progress in the EAC countries. This is the question that this study aimed to address.

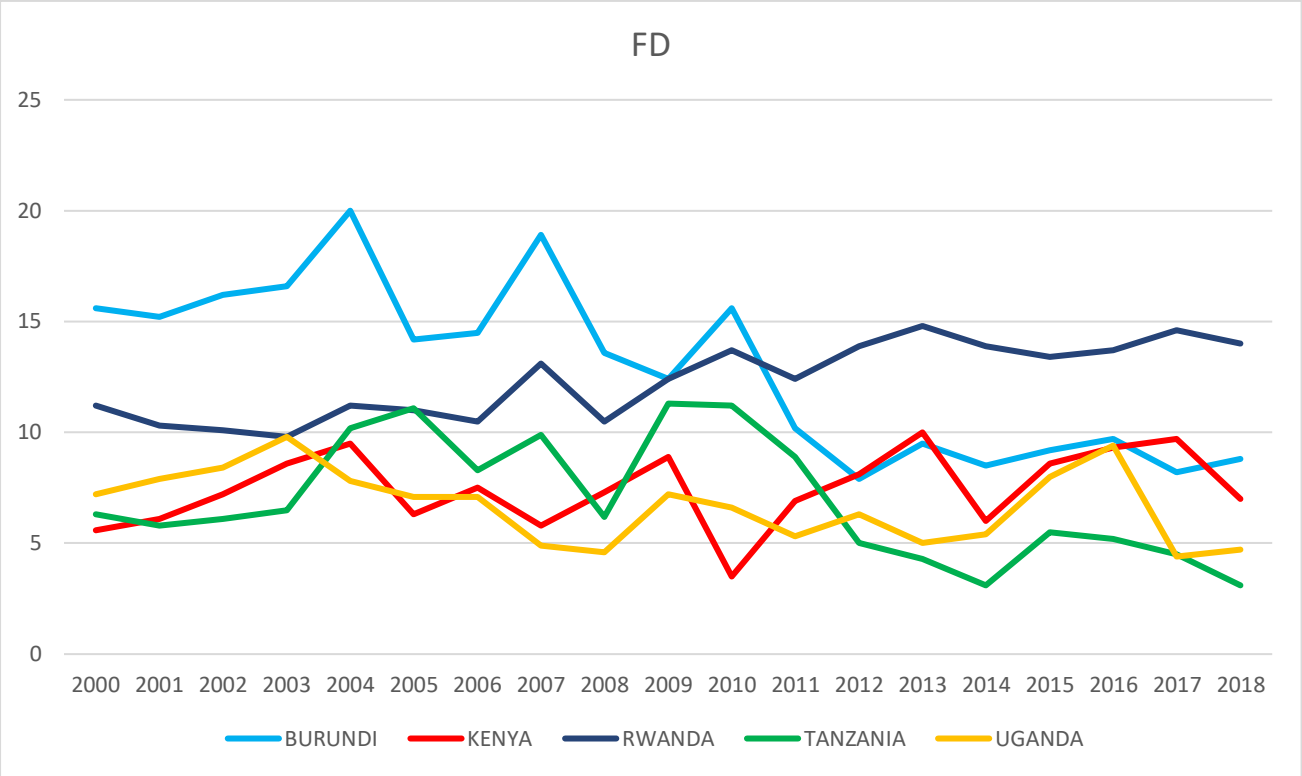

Figure 14: Trends of Fiscal Deficits in the EAC States, 2000-2018.

Author's compilation from World Development Indicators (2022)

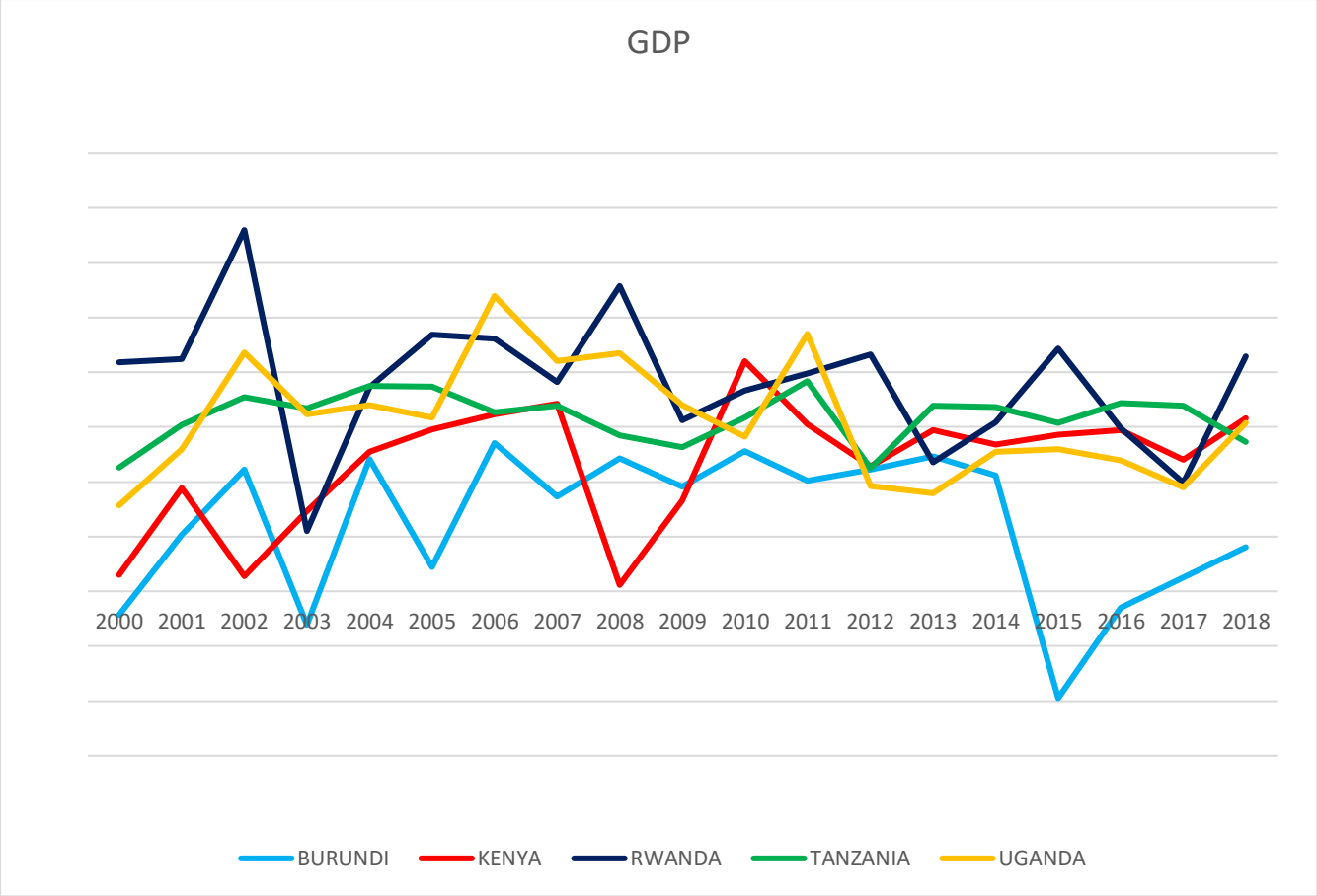

Figure 15: Trends of GDP Growth Rate in the EAC Partner States, 2000-2018.

Author's compilation from World Development Indicators (2022)

4.1.1 Research Problem

EAC development strategy and vision 2050 dictate that fiscal deficit should be less than 5% and GDP more than 7%. However, this is yet to be achieved in these countries despite the efforts made to achieve a stable fiscal stance and favourable economic growth in the region. Most of the EAC countries are still operating with double digit primary fiscal balance (Burundi and Rwanda) with unstable annual GDP growth e of less than 7%. This investigation sought to establish the influence of fiscal shortfall on output development as well as consequence of political budget cycles on economic performance.

The outcomes of both theoretical and empirical investigations into the link between fiscal deficits and economic growth present conflicting results. Neoclassical theory suggests an inverse link between budget deficits and economic growth, while Keynesian theories suggest a positive connection (Sablik, 2019; Furman and Summers, 2019). Gupta et. al. (2006), Brender and Drazen (2008) and Eminer (2015) opine that high fiscal deficit is not always harmful to an

economy if higher public expenditure is used on productive purposes. Adak (2010), Fatima et al. (2012), Mohanty (2012), Rahman (2012), Nkrumah et al. (2016) and Rana and Wahid (2017) argue to the contrary that fiscal imbalances are detrimental to economic progress. The empirical and theoretical literature exploring the influence of fiscal shortfall on economic growth does not extensively delve into the influence of political processes in this context. Consequently, the link between political budget cycles and economic growth remains insufficiently understood. This main goal is to investigate the influence of political budget cycles on growth of aggregate output in the EAC at regional and individual country levels.

4.1.2 Research Questions

The main question of the study is, what is the impact of political budget cycles on economic growth in the EAC? The specific questions are:

i. What is the effect of fiscal deficits on economic growth in the EAC?
ii. What is the effect of election-driven fiscal deficits on economic growth in EAC at a regional level?
iii. What is the effect of election-driven fiscal deficit on economic growth in EAC at country-specific level?

4.1.3 Research Objectives

The primary goal of this study is to evaluate how political budget cycles affect economic growth within the EAC. The precise goals consist of:

i. To analyse the effect of fiscal deficits on economic growth in EAC countries.
ii. To analyse the effect of election-driven fiscal deficits on economic growth in the EAC at a regional level.
iii. To analyse the effect of election-driven fiscal deficits on economic growth in the EAC at country-specific level.

4.1.4 Justification for the Study

This study adds to the body of knowledge that already exists in certain areas. The study started by examining how political fiscal deficits affected the expansion of the EAC's economy. There is little research on the connection between political budget deficits and output growth, particularly in emerging nations. Additionally, this research included interaction terms between

the major government deficit and dummy variables for election years to determine the influence of political budgetary shortfalls on output growth. Previous studies have not used this strategy. The study outcomes will enable economic and political researchers to have deeper understanding of fiscal policy, political and economic outcomes dynamics. This study contributes to economic theory by determining the impacts of political actions on economic outcomes.

Policy makers will find the study advantageous in understanding macroeconomic consequences of fiscal choices that are made during electioneering period. This study will help them to develop policies that uphold fiscal discipline and ensure macroeconomic stability. This study will be helpful to investors understand consequences of fiscal decisions by the government on economic activity especially during elections. Investors in the EAC will be able to make informed decisions regarding when to invest and expand their operations.

The results of this research will provide voters and citizens in the EAC with new insights into the effects of fiscal policies, particularly public spending, on economic outcomes during campaign periods. Electorates in the EAC regional will be able to make political choices based on competence of political candidates but not short-term economic gains.

4.2 LITERATURE REVIEW

4.2.1 Theoretical Literature Review

Fiscal deficits and Economic growth

The classical era of economics, based on David Ricardo's work, is when arguments of budgetary deficits and economic growth first appeared (Ricardo,1817). Ricardo argued that it does not matter if governments finance their operations by tax revenue or through issuing bond to citizens; the mode of financing the public expenditure is irrelevant (Wickens, 2013). Theories that link fiscal deficits to economic growth include neoclassical, Keynesian and Ricardian school of thought. They are reviewed as follows.

Neoclassical Theories of Economic Growth and Fiscal Deficits

The neoclassical views of economic growth and fiscal deficits focus on the long run effects and posit that fiscal deficits negatively affect investments and economic performance. A reduction in public saving or an increase in government dissaving due to revenue deficit component of

fiscal deficits could reduce aggregate output if the decrease in public saving is not fully countered by an increase in private savings. The result could be a decline in general savings rate accompanied by high interest rates (Bernhein, 1989). The rise in interest rates that follow high budgets deficits reduce planned private investment expenditure, and fuel inflation. Gross output declines due to crowding out effect.

The neo-classical economists assume that markets have self-equilibrating mechanism for attainment of full employment. Thus, fiscal deficits advance lifetime consumption due to tax shifting to the future generations. In a closed economy with full employment, higher spending reduces savings. Real interest rates and investment may not change in an open economy, but the decline in national saving is funded by increased foreign borrowing, which is accompanied by a strengthening of the local currency and a decline in exports. Both scenarios see a fall in net national saving, a rise in consumption, a decline in investment, and a decline in exports.

Furthermore, neoclassical theory postulated that high fiscal deficits are harmful to future generations because of the tax burden. However, this theory does not explain effects of politically driven fiscal deficits on the economic growth and whether short run or long run fiscal deficits matter.

The Keynesian Theory of Economic Growth and Fiscal Deficits

This school of thought emphasizes short-term outcomes and serves as a fundamental policy prescription. The Keynesian approach asserts that in the absence of full employment, an increase in autonomous government spending, whether consumption or investment, backed by borrowing, would result in a rise in output through a multiplier effect (Keynes, 1936). Further Keynesian theory predicts that multiplier-based output expansion will lead to expansion in demand for money. If the supply of real money balances remains unchanged and deficit is financed by issuing bonds, there will be a partial increase in interest rates, which will partially counteract the multiplier effect. The Keynesians assert, however, that an increase in total demand encourages private investment profitability and leads to greater investment at a given interest rate. Therefore, higher investment profitability may somewhat offset the effects of rising interest rates (Eisner,1989).

Keynesians maintain that deficits can enhance investment and savings even with increase in interest rates, due of the employment of previously underutilised resources. However, even in the Keynesian model, deficits would cause crowding out at full employment. According to

Keynes, if people believe that a budget deficit increases their wealth, it will actually raise output and employment and enhance people's wealth. The Keynesian model disregards any direct impact on the interest rate of government borrowing, in contrast to the loanable funds theory (Ball and Mankiw, 1995). Keynesian theory fails to link politically induced deficits to economic growth and their overall effects on the macroeconomy.

Ricardian School of Thought

Ricardian equivalence theory was initiated by Ricardo (1817) and further developed by Barro (1989). According to this view, which concentrated on long-term impacts, fiscal deficits only really matter when it comes to smoothing the adjustment to spending or revenue shocks. According to Ricardian view, fiscal deficits are considered as neutral to output growth. Budgets financing by shortages results only to tax postponement. The current fiscal gap precisely matches the present value of the future taxes required to cover the increasing debt stemming from the deficit. The inference is that all government spending, whether done now or in the future, must be paid for, and that spending today must equal today's non-tax and tax income.

The funding of fiscal deficits by taxation can be distributed out over a specific time, which is crucial for minimizing the effects of revenue shortfalls or for addressing the needs of erratic spending. Nevertheless, these fiscal deficits have no effect on total spending on goods and services if household consumption expenditure is based on the present value of their wages, which also considers the present value of their future tax payments. Nevertheless, a rise in private saving may offset a decline in current government saving brought on by the budget deficit, keeping the overall level of saving and, consequently, investment steady. As a result, real rate of interest remains unchanged.

The presumption underlying Ricardian equivalence is that people in an economy are far seeing, have rates of discount on expenditures that are comparable to those of authorities, and have exceptionally extended time horizons for estimating the present value of future taxes. Particularly, such a time frame may possibly spread past their own lives, in which case they give to charities to fulfil tax obligations of their future generations while saving. Feldestein (1976) offered a critique of this theory, pointing out its failure to account for the impact of fiscal deficits on economic and population growth. The author argued that the accumulation of government debt has adverse consequences for national savings and economic growth.

Furthermore, political effects of fiscal imbalances and how they affect economic performance are not considered by the Ricardian equivalence hypothesis.

Election-driven Fiscal Deficits and Economic Growth

According to Nordhaus' (1975) opportunistic political business theory, politicians are opportunistic and frequently influence macroeconomic policies during election campaigns to boost their chances of winning. Further, Nordhaus proposed that in order to maximize their chances of gaining votes, political candidates implement expansionary economic policies just before elections, whereas the opposite happens just thereafter. According to this paradigm, voters have myopia and short-sightedness, which allows politicians to take advantage of them. Nordhaus (1975) further argues that politicians tend to adopt short run Philips curve to reduce unemployment temporarily at cost of high inflation rate. This artificial expansion of the economy is achieved by increasing public spending hence increased fiscal deficit. This election-driven government deficit is harmful to the output growth because it arises from non-productive public spending. This theory is applicable in most African economies especially EAC block where voters are naive, and politicians manipulate their voting behaviour using expansionary fiscal and macroeconomic policies.

By incorporating competence and rational expectations, the opportunistic cycle theory was further advanced by Rogoff & Sibert (1988), Rogoff (1990), and Persson & Tabellini (1990). The authors argue that voters are rational and may punish any incompetence portrayed by political candidates. However, if voters view pre-election economic expansion as sign that candidate is competent then they make choice based on that. Nevertheless, this particularly possible in developed economies where voters are well informed of government fiscal activities as compared to developing countries where information asymmetry is present. In addition, most African countries voters make political choices based on short-term economic benefits and ethnic lines and therefore the competence of political candidates may not be of value.

4.2.2 Empirical Literature Review

Fiscal Deficits and Economic Growth

The empirical literature on the link between budgetary deficit and economic growth is categorised into three sections: Neoclassical, Keynesian and Ricardian empirical studies.

Fischer (1991) analysed the influence of macroeconomic variables (fiscal deficits, external debt and inflation rate) on output using 73 developing nations. By employing a simple panel data regression, the findings showed an inverse link between government deficit and progress in output per capita. Similar to this, Easterly and Rebelo (1993) defined the productive expenditure as spending on communication and transportation. The same study discovered a link between budget surplus and growth and concluded that severe budget deficits would hurt output. Similar to Fisher (1993), this study described how the budget deficit and output growth have a negative relationship and how this will result in an unstable macroeconomy.

With the help of various models, both stationary and non-stationary, and the regression technique, Adak (2010) examined the effect of the budget shortfall on economic performance in Turkey. The study results indicated that government fiscal imbalance was harmful to the output progress. However, the short run results where statistically insignificant implying budget deficit in present year has no effect on output of the subsequent years. This paper sought to add to the existing literature by examining both short and extended term effect of political fiscal deficits and economic progress.

The short and long-term connection between India's fiscal shortfall and economic performance was examined by Mohanty (2012) using the Granger Causality test, Vector Error Correction Model (VEM), and Johansen Cointegration test. The study's findings showed a long-term, favourable, and significant association between economic progress and fiscal imbalance. The connection between the budget deficit and output, however, was inconsequential in the short term. The results further indicated that the pre-reform deficit had a comparatively less detrimental effect on output compared to the fiscal deficit observed after the reform. This study investigated how fiscal shortfalls affected economic performance during election season.

Fatima et al. (2011) explored the correlation between Pakistan's budget deficit and output between 1978 and 2009 using a straightforward OLS model. The findings of the study demonstrated a negative link between budgetary shortfall and growth in output. The adverse influence of the budget deficit on output growth can be attributed to governments facing limitations in financing their expenses over an extended duration. Other control variables also had impact on GDP, for example inflation were also found to have a negative effect on GDP. They concluded that there was need for governments to manage the deficit to attain a given level of output growth through full utilization of resources.

Using quarterly data, Nkrumah et al. (2016) examined the connection between Ghana's budget deficit and economic growth from 2000 to 2015. For time series quarterly data, the autoregressive distributed lag (ARDL) model and trend analysis were both used in the study. Furthermore, the econometric findings unearthed a harmful connection between output growth and fiscal shortfalls. This study employed dynamic panel data estimation procedure to establish the influence of politically induced fiscal deficits in the EAC.

A similar study by Rana and Wahid (2017) investigated effect of budget deficit on output growth in Bangladesh between 1981 and 2011. The outcomes suggested a negative link between public budget shortfall and economic progress. A unidirectional connection linking the budget deficit and economic expansion was also discovered.

According to a 2005 study by Gupta et al., a budget discrepancy has a favourable immediate and extended period effect on output. The impact of productive and unproductive budget spending on output was also examined. They noticed that while countries with more productive spending had greater growth rates than those with a budget deficit yet spent public funds on non-productive activities. They concluded that a reasonable budget deficit will encourage growth in both scenarios. Using a PMG dynamic panel estimating technique, this study investigated the effect of politically induced budget shortfalls on EAC output growth.

Similar findings were made by Bose et al. (2007) in their study of 30 developing countries, which showed that if the budget imbalance was brought on by productive spending, it would positively affect growth. Similar to this, Odhiambo et al. (2013) examined the link between Kenya's budget deficits and aggregate economic activity from 1970 to 2007 using OLS estimation. Based on Keynesian theory, the study outcomes showed that budget shortfalls were favourable for output growth in Kenya.

Taylor et al. (2012) explored how the fiscal deficit affected debt and economic progress in the USA from 1961 to 2011. Co-integration analysis and a Vector Auto-Regression (VAR) framework were used in the investigation. The study's findings demonstrated that the deficit/income ratio, which reacts counter-cyclically to growth, can be affected positively or negatively by growth of output. Econometric findings indicate that the fiscal shortfall has a favourable and substantial influence on growth.

Ahmad (2013) analysed the effect of budget deficit on economic performance between 1971 to 2007 for Pakistan. Furthermore, the study employed the budget deficit and foreign direct

investment as explanatory factors, while GDP was the dependent variable. The results showed a positive, albeit insignificant, relationship between budget deficit and output. The Granger causality results showed that the variables had a two-way causal link.

Another study by Edame and Okoi (2015) looked at the connection between Nigeria's budget imbalance and output growth from 1986 to 2013. The chow testing approach was employed, and annual country data were used. The outcomes indicate a strong correlation between Nigeria's fiscal deficit and output. The results are consistent with the study conducted by Awolaja and Osefo (2020). The study examined the association between budget deficit and output growth for 20 SSA nations from 1991 to 2018. According to the PMG methodology employed by the researchers, the short-term effect of the budgetary deficit on output growth was positive and statistically significant. This link, however, ultimately turned out to be statistically unfavourable.

Cinar et al. (2014) examined how budgetary deficit policies affected European Union's output growth. The study separated the data into two groups based on their amounts of debt (the best 5 and worst 5 EU countries) using quarterly data from the years 2000 Quarter1 to 2011 Quarter 4. The panel ARDL results showed that effective fiscal policy influenced growth in the short term favourably. However, long-term consequences of budget deficit policies on growth of output in EU nations were inconsequential.

Similarly, Molocwa et al. (2018) investigated the political economy of the budget deficits in the BRICS (China, Brazil, India, Russia, and South Africa) member states for the period of 1997–2016. The study used a panel cointegration approach to establish the long-term correlation between output, government deficits, gross investment, and inflation. The findings of the study validated that there exists a persistent and favourable connection between budget deficit and output within the BRICS nations. The findings also showed a bidirectional causal link between budget shortfalls and growth of output.

Eminer (2015) examined the connection between North Cyprus's budget deficit and growth of output from 1983 to 2010. Time series and secondary data were applied in the study. The ARDL technique was also utilized to assess the association between all the variables, and the Granger causality test was performed to examine the long-term causation between the key variable. The results indicate a direct link between all types of public expenditure and output. Furthermore, the study revealed that increased productive spending increases economic

growth. In conclusion, Eminer (2015) argued that high public expenditure or increased budget deficits do not always result to decreased economic growth. Furthermore, the study contended that elevated government expenditures might result in a fiscal deficit, yet the influence on output could be positive contingent upon the nature of the spending.

Aslam (2016) examined the dynamic association between Sri Lanka's budget deficits and output using data from 1959 to 2013. The findings provided strong support for an extended period dynamic connection between budget deficits and output growth. Nevertheless, there was no indication of a short-term relationship. Additionally, the study found a connection between output and budgetary deficits.

M'Amanja and Morrissey (2006) employed time series methods to assess the impact of Kenya's fiscal measures on economic performance, utilizing data covering the period from 1964 to 2002. According to the study, inefficient spending and non-distortive tax revenue had no negative effects on growth as defined by economic theory. While distortionary taxes had little influence on output, productive spending had a large negative impact. Nevertheless, the research discovered a link between public investment and output that was favourable.

In an analysis of the Malaysian economy from 1966 to 2003, Tan (2006) explored the short- and long-term connection among fiscal deficit, output, and inflation. The study found no enduring relationship between fiscal deficits and output, and no indication of a linkage between the two variables. Keho (2010) estimated the link between budget deficits and output for 7 West African countries covering 1980-2005. The study found conflicting results, with 3 of the 7 nations reporting no evidence of causality, one revealing a one-way causal relationship going from deficit to output, and the others demonstrating a two-way causal relationship between output and budgetary shortfalls.

Velnampy and Achchuthan (2013) examined the effect of fiscal shortfall on output for Sri Lanka and found no indication of a connection between budget deficit and output growth. Rahman (2012) employed quarterly data spanning from 2000 to 2011 in Malaysia to assess the correlation between budget deficit and output through the ARDL approach. The outcomes corroborated the Ricardian Equivalence Hypothesis, suggesting that a budgetary discrepancy does not have a lasting influence on output. Furthermore, the study discovered a clear connection between long-term production and productive spending.

Election-driven Fiscal Deficits and Economic Growth

Block (2002) uses a sample of 44 nations covering the years 1980 to 1995 to investigate the occurrence of PBCs in SSA. To further accomplish study goals, Block employed Generalized Method of Moments (GMM) regression procedure. The findings show convincing evidence of PBCs in emerging democracies. The research discovered that the SSA frequently altered its fiscal and monetary policies during election years. This was consistent with the rational opportunistic theory of the political business cycle, which holds that political candidates manage macroeconomic policies to win the support of rational retrospective electorates in order to win re-election.

Additionally, using annual data for 44 African economies, Block et al. (2003) examine extend of PBCs in Africa. To realize the aims of study a panel estimation technique was employed. The empirical results reveal strong evidence that PBCs thrive in multiparty system of governance. The study concluded that PBCs have impact on economic performance of young and emerging democracies.

Brender and Drazen (2008) posit that politics and election process can lead to increased public expenditure and by implication increased budget deficit. This would affect the economic growth negatively. The authors argued that increased budget deficits in country would hint to the electorates that the incumbent is incompetent in terms of managing the country's resources. By implication the political candidate may not be re-elected during the elections. The incompetent political leaders may not be able to grow the country economically due to reduced confidence among the nationals, investors and other trading partners. This may result to low levels of economic growth.

Lessem and Urban (2013) investigate whether primary election-driven expenditure impact economic growth in local states of United States utilizing a sample of 50 states for the years 1976-2008. To achieve the objective of the study they employ Instrument variable estimation technique and consumption expenditure that is, campaign spending on party's presidential primary nomination. The study findings show that primary campaign expenditure increases per capita income in the states.

Iddrusu and Bokpin (2018) look at the effect of PBCs using a sample of 39 African nations from 1990 to 2014. In order to thoroughly scrutinize the impact of public spending on the real money supply and its influence on output growth in Africa, the researchers utilized fixed and

random effects models in their study. The study findings showed that, during an election year, government spending had a favourable connection with the money supply. The supply of money and per capita GDP were negatively correlated in the election year. Based on the study's results, PBCs are prevalent in Africa and exert an adverse influence on economic performance.

4.2.3 Overview of the Reviewed Literature

Theoretical perspectives on the fiscal deficit and growth of output are not clear. While Keynesians maintain that there is a positive link between the two, neoclassical economists contend that fiscal imbalances are detrimental to output growth. The Ricardian equivalence hypothesis (REH) also contends that the budgetary deficit has no appreciable impact on output. Theories linking political budget cycles and economic output are scant. Based on Keynesians' predictions on budgetary deficit and output growth this study was carried out and modified to include political budget cycles.

Moreover, empirical research on fiscal imbalances and output growth presents conflicting views. Certain studies are in accordance with the neoclassical viewpoint, indicating that fiscal deficits have an adverse effect on economic growth. The Keynesian viewpoint, on the other hand, is supported by other research, which contends that fiscal shortfalls could have a beneficial effect on output expansion. Some analytical studies also suggest that fiscal shortfalls have neutral effects on economic growth. These studies do no link economic growth to political activities. This is a gap this analysis sort to bridge by studying impact of election-related budget deficits on economic growth in the EAC.

Studies on PBCs reveal that political candidates may stimulate the economy just before elections to enhance their chances of winning elections. This may be achieved by increasing public expenditure in the periods near elections to boost their campaigns. Voters on the other hand, may see this artificially stimulation of the economy as a signal of competence and make decisions based on short-term conclusions. This fiscal policy manipulation may result in huge deficit that have long term impact on output. Empirical studies show that election-driven fiscal policies may have adverse effects on the economy. Majority of these studies used large data sets of different countries in terms of economic advancement and democracy. This study employs a small sample of five EAC partner states which have similar macroeconomic goals but different characteristics to examine the consequence of political budget cycles on economic growth at regional and individual country level.

The differences in empirical literature may be attributed to be various factors, such as level of economic development, time period, nature of governments, level of deficits, as well as the methodology used in the studies. Notably, most of studies on influence of fiscal deficit on output growth in Africa do not consider political factors (M'Amanja and Morrissey, 2006; Edame and Okoi, 2015; Nkrumah et al., 2016). Additionally, some of the studies we analysed considered sectoral election-related spending but not fiscal imbalance (Ebeke and Olcer, 2013). The study aims to close this gap by utilizing pooled mean group (PMG) estimation, a cutting-edge methodology that will reveal both short- and long-term correlations between study variables.

4.3 METHODOLOGY

4.3.1 Theoretical Framework

This section analyses how budgetary deficits affect economic progress in country. The theoretical framework is built on the Keynesian theory economic growth and models in Mohanty (2012), Eminer (2015) and Nkrumah et al. (2016). Following the Keynesian framework, total income or output in an economy is given as

$$Y = C + I + G + (X - M) \qquad 4.1$$

Where the behavioural functions are specified as follows.

$$C = \alpha + \beta Y^{d},\ \beta > 0$$

$$Y^{d} = Y - T$$

$$I = \sigma + \lambda i,\quad \lambda > 0$$

$$G = \overline{G}$$

$$X = \rho + \gamma e,\ \gamma > 0$$

$$M = m + \varpi Y^{d}, \varpi > 0$$

In this context, the variables are defined as follows: Y represents aggregate income, C stands for expenditure on consumption, I represents planned investment spending, G corresponds to government purchases, while X and M denote exports and imports, respectively. Y^{d} is

disposable income, T is tax revenue, i is rate of interest and e is the rate of exchange. α , σ, ρ and m are autonomous variables for C, I X and M, respectively.

Substituting the behavioural functions into equation 4.1, the equilibrium output (income) is given by.

$$\overline{\mathrm{Y}} = \frac{\mathrm{A}}{\phi} + \frac{1}{\phi}(\lambda \mathrm{i} + \gamma \mathrm{e} + \mathrm{G} - (\beta - \varpi)\mathrm{T}) \qquad 4.2$$

Where$\phi = 1 - \beta + \varpi, \qquad A = \alpha + \sigma + s - m$

From equation 4.2, a rise in tax revenue leads to a fall in output while a growth in government spending increases output.

Any discrepancy between government expenditure and collected tax indicates unbalanced budget. If the imbalance is such that government expenditure is more than collected tax revenue, there is a fiscal deficit (FD) which could be written as

$$\mathrm{FD} = \mathrm{G} - \mathrm{T} \approx \mathrm{G} - (\beta - \varpi)\mathrm{T} \qquad 4.3$$

Suppose that the state gets all its finance from taxation. Then, $G - T$ gives the government deficit. If citizens do not to consume all their incomes, the revenue that the government could draw from consumption expenditure is $(\beta - \varpi)T$. Deducting $(\beta - \varpi)T$ from government expenditure G gives an estimate of the government deficit.

Substituting 4.3 into 4.2 yields

$$\overline{\mathrm{Y}} = \frac{\mathrm{A}}{\phi} + \frac{1}{\phi}(\lambda \mathrm{i} + \gamma \mathrm{e} + \mathrm{FD}) \qquad 4.4$$

By further assuming an-open economy, the model is further expanded to include the balance of payments and money market as follows.

The money market is represented by the following functions:

$$\text{Real money demand function: } \frac{\mathrm{M^d}}{\mathrm{P}} = \mathrm{kY} + \mu \mathrm{i}, \quad \mathrm{k} > 0, \ \mu, < 0 \qquad 4.5$$

$$\text{Real money supply function: } \frac{\mathrm{M^s}}{\mathrm{P}} = \mathrm{m}_1 \frac{\mathrm{B}}{\mathrm{P}} + \mathrm{m}_2 \mathrm{i}, \ \ \mathrm{m}_1, \mathrm{m}_2 > 0, \qquad 4.6$$

The money market equilibrium condition is stated as $M^d = M^S$

4.7

P is the general price level, B is foreign reserves held by a monetary authority, $k, \mu, m_1 \; and \; m_2$ are coefficients.

From 4.5, 4.6 and 4.7, the LM (Liquidity-Money) equation could be written as

$$i = \chi\frac{B}{P} + \omega Y, \qquad \chi < 0, \omega > 0 \qquad 4.8$$

Additionally, the balance of payments (BOP) schedule could be written as

$$B = A_2 - \rho_0 Y + \rho_1 e + \rho_2 i, \quad \rho_0, \rho_1, \rho_2 > 0 \qquad 4.9$$

Where A_2 is the cumulative of predetermined components in the net export function, and ρ_0, ρ_1, ρ_2 are coefficients.

Substituting equation 4.8 into 4.3 yields

$$Y = A_1 + \delta_1\frac{B}{P} + \delta_2 Y + \gamma e + FD \qquad 4.10$$

Where $\delta_1 = \frac{\chi\lambda}{\rho}$ and $\delta_2 = \frac{\varpi\lambda}{\rho}$

Furthermore, substituting equation 4.9 into 4.10 gives,

$$Y = A_1 + \frac{\delta_1}{P}(A_2 - \rho_0 Y + \rho_1 e + \rho_2 i) + \delta_2 Y + \gamma e + FD \qquad 4.11$$

Putting like terms together and re-arranging equation 4.11 produces

$$Y = C + \frac{1}{P}(\eta_1 e + \eta_2 i) + \eta_3 e + \eta_4 FD \qquad 4.12$$

Where $\omega = 1 + \delta_1\rho_0 - \delta_2$, $C = \frac{A_1 + \delta_1 A_2}{\omega}$, $\eta_1 = \frac{\delta_1\rho_1}{\omega}$, $\eta_2 = \frac{\delta_1\rho_1}{\omega}$, $\eta_3 = \frac{\gamma}{\omega}$, $\eta_4 = \frac{1}{\omega}$

Transforming the second term in equation 4.12's right-hand side into logarithmic term yields

$$Y = C + \psi e + \eta_2 i - \pi + \eta_3 e + \eta_4 FD \qquad 4.13$$

Where π is inflation and $\psi = \eta_1 + \eta_2$

Equation 4.13 suggests that at the steady state, output is positively impacted by a fiscal deficit and negatively influenced by the inflation rate.

Economic theories of growth assert that output is determined by accumulated capital stock (Romer, 2019 and Wickens, 2013). Therefore, gross capital formation is used to proxy private investment in the model. Moreover, following works of Brender and Drazen, (2008), Eminer (2015), Nkrumah et al. (2016) and Iddrisu and Bokpin, (2018) the theoretical model could be expanded to include total debt service, trade openness and interaction terms of fiscal deficit and election dummies.

4.3.2 Econometric Analytical Model

This study employed models based on Mohanty (2012), Eminer (2015), and Nkrumah et al. (2016) to ascertain the impact of fiscal deficit on output growth. Additionally, the research incorporated ideas from Brender and Drazen (2008) and Iddrisu and Bokpin (2018), utilizing interaction terms between the primary budget deficit and dummy variables representing election years. These helped to capture the effect of election driven fiscal deficits on economic growth. Thus, the study estimated the model below.

$$RGDP = f(FD, INF,\ GFCF, OPN, DSP, ED_1, ED_2, ED_3, FD * ED_1, FD * ED_2, FD * ED_3) \quad 4.14$$

Were,

RGDP is real GDP (annual growth rate)

FD is fiscal deficit as ratio of GDP.

INF is inflation rate measured by CPI.

DSP is total debt service payment.

GFCF is total gross capital formation.

OPN is openness of trade.

ED1 is dummy variable for the year before an election.

ED2 is dummy variable for election year.

ED3 is dummy variable for the year after an election.

Equation 4.14 could be re-specified as follows.

$$RGDP_{i,t} = A_0 + \sum_{k=1}^{v} B_j RGDP_{i,t-k} + \sum_{k=0}^{v} C_k FD_{i,t} + \sum_{k=0}^{r} D_k INF_{i,t} + \sum_{k=0}^{v} E_k DSP_{i,t} + \sum_{k=0}^{v} F_k lnGFCF_{i,t} + \sum_{k=0}^{v} G_k OPN_{i,t} + \sum_{k=0}^{v} H_k ED_{i,t} + \sum_{k=0}^{v} J_k FD_{i,t} * ED1_{i,t} + \sum_{k=0}^{v} K_k FD_{i,t} * ED2_{i,t} + \sum_{k=0}^{v} L_k FD_{i,t} * ED3_{i,t} + \mu_i + \varepsilon_{i,t} \quad 4.15$$

Where.

$RGDP_{i,t}$- Real Gross Domestic Product (Annual GDP growth rate)

$FD_{i,t}$- Fiscal deficit

$INF_{i,t}$- Inflation Rate

$DSP_{i,t}$ – Total Debt Service Payment

$lnGFCF_{i,t}$ – Log of Gross Fixed Capital Formation

$OPN_{i,t}$ – Trade Openness

$ED1_{i,t}$, $ED2_{i,t}$ and $ED3_{i,t}$- Election Dummy variables for the pre-polls year, voting year and post-election period, respectively.

$FD_{i,t} * ED1_{i,t}$ – Pre-election year fiscal deficit.

$FD_{i,t} * ED2_{i,t}$ – Election year fiscal deficit.

$FD_{i,t} * ED3_{i,t}$ - Post-election year fiscal deficit.

μ_i – unobserved individual country effects

$\varepsilon_{i,t}$– error term

4.3.3 Definition and Measurement of Variables.

Table 31 gives definitions and measurements of variables.

Table 31: Variable Definition and Measurement

Variable	Definition	Measurement
Real GDP Annual Growth Rate (RGDP)	The total market worth of all final goods produced by domestic residents within an economy.	Based on constant local currency and expressed as annual percentage at market values.
Fiscal deficit (FD)	The GDP ratio that signifies the variance between overall government revenue (excluding grants) and total expenditure.	Fiscal deficit as a percentage of nominal gross domestic product (GDP).
Inflation rate (INF)	Annual percentage change in the average price of a typical consumer's basket of goods and services from year to year.	Consumer Price Index.
Total debt service payment (DSP)	The total of all payments made in cash, goods, or services to the International Monetary Fund (IMF) and long-term debt that is publicly guaranteed.	Expressed as a percentage of primary income exports.
Gross fixed capital formation (lnGFCF)	The net growth or addition of capital during a specific time interval.	constant 2015 U.S. dollars.
Trade openness ratio (OPN)	Aggregate of all products and service imports and exports as a ratio of GDP	aggregate of imports and exports. as ratio of GDP.
Election Dummy 1 (ED_1)	Dummy variable for year before election.	1= pre-election year 0= otherwise
Election Dummy 2 (ED_2)	Post-election dummy variable	1= election year 0= otherwise
Election Dummy 3 (ED_3)	Dummy variable for the year following the election.	1= year after an election 0= otherwise

Notes on sources of data on each variable
RGDP: World Bank, World Development Indicators.
FD: International Financial Statistics (IFS), EAC countries Statistical abstracts (Several).
INF: World Bank, World Development Indicators.
DSP: World Bank, World Development Indicators.
GFCF: World Bank, World Development Indicators.

OPN: World Bank, World Development Indicators.
ED_1: African Elections Database (AED).
ED_2: African Elections Database (AED).
ED_3: African Elections Database (AED)

4.3.4 Estimation Issues

4.3.4.1 Pre-Estimation Tests

The study conducted pre-estimation tests including correlation test and unit root tests whose details are contained in the previous chapter. Other tests include Cross-Sectional Dependence Test and co-integration test as explained below.

Cross-Sectional Dependence Test

The Pesaran (2004) cross-sectional dependency approach was utilized to examine the error terms for cross-sectional dependence. Unobserved shocks may cause cross-sectional dependence. The impact may vary depending on the type of cross-sectional reliance and the degree of correlation between cross-sectional units. The counter option implies cross-sectional interdependence, while the null hypothesis posits its absence.

Pesaran (2004) suggests the following statistic to check for cross-sectional dependence in a balanced panel,

$$CD = \sqrt{\frac{2T}{N(N-1)}}\left(\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\right) \qquad 4.16$$

Co-integration Tests

Cointegration tests were employed to check for spurious regressions caused by non-stationary series. The Pedroni and Kao tests which are covered in more detail below check for co-integration.

The Kao Test

Kao (1999) proposed a Dickey-Fuller and Augmented Dickey-Fuller (ADF) type tests for panel data models cointegration. The Kao test considers a null hypothesis of homogeneity across cross-sectional units and absence of cointegration. This residual-based test does not permit

heterogeneity across individuals as in alternative hypothesis. Kao suggested the following four types of Dickey-Fuller type tests.

The case where the association between error terms and regressors is strongly exogeneous.

$$DF_\rho = \frac{\sqrt{NT}(\hat{\rho}-1)+3\sqrt{N}}{\sqrt{10.2}} \quad 4.17$$

$$DF_t = \sqrt{1.25t_\rho} + \sqrt{1.875N} \quad 4.18$$

The case where the association between regressors and error terms is strongly endogenous.

$$DF_\rho^* = \frac{\sqrt{NT}(\hat{\rho}-1)+3\sqrt{N\hat{\sigma}_v^2}/\hat{\sigma}_{0v}^2}{\sqrt{3+36\hat{\sigma}_v^4/(5\hat{\sigma}_{0v}^4)}} \quad 4.19$$

$$DF_t^* = \frac{t_\rho+\sqrt{6N\hat{\sigma}_v}/(2\hat{\sigma}_{0v})}{\sqrt{\hat{\sigma}_{0v}/(\hat{\sigma}_v^2)+3\hat{\sigma}_v^2/(10\hat{\sigma}_{0v}^2)}} \quad 4.20$$

Kao's ADF test statistic is given by:

$$ADF = \frac{t_{ADF}+\sqrt{6N\hat{\sigma}_v}/(2\hat{\sigma}_{0v})}{\sqrt{\hat{\sigma}_{0v}^2/(2\hat{\sigma}_v^2)+3\hat{\sigma}_v^2/(10\hat{\sigma}_{0v}^2)}} \quad 4.21$$

Kao test of cointegration allows homogeneity of auto-regression coefficients and cointegrating vectors but limits various exogenous factors in the cointegrating vector. However, the test does not specify the cointegrating vectors or circumstances in which there are numerous cointegrating vectors.

The Pedroni Co-Integration Tests

Cointegration tests for dynamic panel data models were recommended by Pedroni (1997,1999,2000,2004). The tests are residual based for co-integration in null hypothesis and allows for individual heterogeneity. The Pedroni test, without imposing any exogeneity restrictions on the predictors of the co-integration regressions, accommodates individual fixed effects variability and trend components. The tests adopt the null hypothesis that cointegration does not exist. Pedroni suggested several tests categorized into two groups: the within effects and between effects. The test statistics of within dimensions are as follows.

The panel *v*-statistic: $T^2N^{3/2}Z_{\hat{v}NT} = \frac{T^2N^{3/2}}{(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\hat{u}_{it}^2)}$ 4.22

The panel ρ-statistic: $T\sqrt{NZ_{\hat{\rho}NT}} = \frac{T\sqrt{N}(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}(\hat{u}_{it-1}^2\Delta\hat{u}_{it}^2-\hat{\lambda}_i))}{(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11}^{-2}\hat{u}_{it}^2)}$ 4.23

The panel t-statistic (non-parametric):

$$Z_{tNT} = \sqrt{\hat{\sigma}_{NT}^2\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\hat{u}_{it-1}^2}\left(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\left(\hat{u}_{it-1}^2\Delta\hat{u}_{it}^2-\hat{\lambda}_i\right)\right) \quad 4.24$$

The panel t-statistic (parametric):

$$Z_{tNT} = \sqrt{\hat{\sigma}_{NT}^{*2}\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\hat{u}*_{it-1}^{2}}\left(\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{L}_{11i}^{-2}\left(\hat{u}_{it-1}^{*2}\Delta\hat{u}_{it}^{*2}-\hat{\lambda}_i\right)\right) \quad 4.25$$

The between statistic tests are given as

The group ρ-statistic:

$$\tilde{Z}_{\hat{\rho}NT^{-1}} = \sum_{i=1}^{N}\frac{\sum_{t=1}^{T}(\hat{u}_{it-1}^2\Delta\hat{u}_{it}^2-\hat{\lambda}_i)}{(\sum_{t=1}^{T}\hat{u}_{it-1}^2)} \quad 4.26$$

The group t-statistic (non-parametric):

$$\tilde{Z}_{tNT} = \sum_{i=1}^{N}\frac{\sum_{t=1}^{T}(\hat{u}_{it-1}\Delta\hat{u}_{it}-\hat{\lambda}_i)}{\sqrt{\hat{\sigma}_i^2(\sum_{t=1}^{T}\hat{u}_{it-1}^2)}} \quad 4.27$$

The group t-statistic (parametric):

$$Z^*{}_{tNT} = \sum_{i=1}^{N}\frac{\sum_{t=1}^{T}\hat{u}^*{}_{it-1}\Delta\hat{u}^*{}_{it}}{\sqrt{\hat{\sigma}_i^2(\sum_{t=2}^{T}\tilde{\sigma}_i^{*2}\hat{u}_{it-1}^{*2})}} \quad 4.28$$

4.3.4.2 Estimation Technique

This chapter used panel data covering 19 years (2000-2021) for five EAC Partner States (Kenya, Tanzania, Rwanda, Burundi, and Uganda). The analytical model was a dynamic panel equation and, therefore, the dynamic panel estimation technique was used. Furthermore, since the panel period (T) was larger than the sample size (N), the Pooled Mean Group estimator was the most suitable as recommended by (Pesaran et al., 1999).

The Pooled Mean Group estimation method ensures that the long-term parameters remain consistent across all nations while permitting variations in short-term estimations. This estimator emphasizes the dynamics of adjustment between short- and long-term parameters. The estimation technique handles endogeneity by employing lagged dependent variable as a regressor. This makes the results efficient and valid.

To understand the manner in which real GDP responds to alterations in fiscal deficit, we utilized a panel Auto Regressive Distributed Lag (ARDL) model for the countries i=1, 2,.,N and time period t=1, 2,.....,T, which is expressed in the subsequent form:

$$RGDP_{i,t} = \sum_{k=1}^{p} \gamma_{i,k} RGDP_{i,t-k} + \sum_{k=0}^{q} \lambda'_{i,k} X_{i,t-k} + \mu_i + \varepsilon_{i,t} \qquad 4.29$$

Where.

$RGDP_{i,t}$ is GDP annual growth rate.

$X_{i,t}$is k × 1 vector of control variables that include: budgetary deficit (FD), inflation rate (INF), total debt service payment (DSP), Log of gross fixed capital formation (LGFCF), trade openness (OPN) and interaction terms of fiscal deficit and election dummies.

$\gamma_{i,k}$ are coefficients for the inflation rate that include lagged values.

$\lambda'_{i,k}$ are k × 1 vector of coefficients of explanatory variables.

$\mu_i$are country-specific fixed effects.

In vector error correction model (VECM) terms, equation 4.29 could be re-written as follows:

$$\Delta RGDP_{i,t} = \emptyset_{i,t}\left(RGDP_{i,-1} + X_{i,-1}\beta\right) + \sum_{k=1}^{p-1} \gamma_{i,k} \Delta RGDP_{i,t-k} + \sum_{k=0}^{q-1} \lambda'_{i,k} \Delta X_{i,t-k} + \mu_i + \varepsilon_{i,t} \qquad 4.30$$

Where i-is nations, where i=1, 2,....N

$\emptyset_{i,t} = -\left(1 - \sum_{k=1}^{p} \gamma_{i,k}\right)$, $\gamma_{i,k} = -\sum_{n=k+1}^{p} \gamma_{i,n}$, $k = 1,2,\dots,p-1$, $\lambda'_{i,k} = -\sum_{n=k+1}^{p} \lambda_{i,n}$ and $\delta_{i,k} = -\sum_{n=l+1}^{q} \lambda_{i,n}$ $k = 1,2,\dots,p-1 \; and \; l = 1,2,\dots,q-1$

X_i is a $T \times 4$ matrix of independent variables in the model, viz., fiscal deficit (FD), inflation rate (INF), total debt service payment (DSP), Log gross fixed capital formation (lnGFCF), trade

openness (OPN), election dummies and interaction terms of fiscal deficit and election dummies.

$\emptyset_{i,t}$ are coefficients that accurately represent the rate of change toward the long-run equilibrium.

t is $T \times 1$ dimensional vector of the GDP growth rate for unit *i* in the panel.

The error correction coefficient ($\emptyset_i$) measures the rate of adjustment to long-run stability. For the variables within the model to revert to the long-term equilibrium, this coefficient must display statistical significance as a negative value. As a result, if it has a value of 0, there will be no long-run relationship.

The Vector Error Correction Model (VECM) postulates that the error terms exhibit no correlation over time (*t*) and across countries (*i*) meaning that they are autonomously spread across countries. In addition, the model assumes that $\emptyset_i < 0, \forall i$. As a result, the subsequent equation outlines the enduring connection between the growth of output and the independent variables within the model:

$$RGDP_{it} = \omega' X_{it} + \sigma_{it} \quad i = 1,2,\dots,N; \quad t = 1,2,\dots,T$$

Where $\omega_i = -\beta'_i/\omega_i$, is $k \times 1$ the long-run coefficients' vector, and σ_{it} are non-stationary with possibility of non-zero means. Therefore, equation 4.30 can be re-written as,

$$\Delta RGDP_{i,t} = \emptyset_{i,t}\sigma_{i,t-1} + \sum_{k=1}^{p-1}\gamma_{i,k}\Delta RGDP_{i,t-k} + \sum_{k=0}^{q-1}\lambda'_{i,k}\Delta X_{i,t-k} + \mu_i + \varepsilon_{i,t} \quad 4.31$$

Where $\sigma_{i,t-1}$ is the error correction term in equation 4.31. $\emptyset_{i,t}$ is coefficient of the error correction term. It is expected to be substantial and negative, meaning that the variables should eventually find long-run equilibrium. The estimated Pooled Mean Group equation is given as:

$$\begin{aligned} RGDP = {} & -\emptyset_i\big(RGDP_{i,t-1} - \omega_1 FD_{i,t} - \omega_2 INF_{i,t} - \omega_3 DSP_{i,t} - \omega_4 lnGFCF_{i,t} - \omega_5 OPN_{i,t} - \\ & \omega_6\big(FD_{i,t} * ED_{i,t}\big) - \omega_7\big(FD_{i,t} * ED_{i,t}\big) - \omega_8\big(FD_{i,t} * ED_{i,t}\big) - \alpha_{m+1}t - \omega_{0,i}\big) + \\ & \beta_{1,i}\Delta RGDP_{i,t} + \beta_{2,i}FD_{i,t} + \beta_{3,i}INF_{i,t} + \beta_{4,i}DSP_{i,t} + \beta_{5,i}lnGFCF_{i,t} + \beta_{6,i}OPN_{i,t} + \\ & \beta_{7,i}\big(FD_{i,t} * ED1_{i,t}\big) + \beta_{8,i}\big(FD_{i,t} * ED2_{i,t}\big) + \beta_{9,i}\big(FD_{i,t} * ED3_{i,t}\big) + \varepsilon_{i,t} \end{aligned} \quad 4.32$$

4.3.5 Data

The estimations used panel data from five EAC states for the period 2000–2021. The data was sourced from World Bank (World Development Indicators), IMF International Financial Statistics (IFS), East African Community publications (EAC facts and figures) and African Elections Database, (AED, 2022).

4.4 EMPIRICAL RESULTS

4.4.1 Descriptive Statistics

Table 32: Summary Statistics of Variables used in the Estimations.

Variable	N	Minimum	Maximum	Mean	St. Deviation	Skewness		Kurtosis	
	Statistic			Statistic	Statistic	Statistic	Std Error	Statistic	Std Error
RGDP	110	-3.90	13.19	5.2128	2.96393	-0.459	0.230	0.826	0.457
FD	110	2.8	20.00	9.0372	3.70329	0.542	0.230	-0.151	0.457
INF	110	-2.81	26.24	7.3110	5.08128	1.204	0.230	2.616	0.457
GFCF (in millions)	110	267	26072	61113	6291	1.209	0.230	0.816	0.457
OPN	110	20.96	64.48	39.8479	10.13435	0.246	0.230	-0.706	0.457
DSP	110	0.62	134.72	11.2620	16.02097	4.950	0.230	33.115	0.457
ED_1	110	0.00	1.00	.1909	0.39482	1.595	0.230	0.553	0.457
ED_2	110	0.00	1.00	0.2000	0. 40183	1.521	0.230	0.318	0.457
ED_3	110	0.00	1.00	0.1909	0.39482	1.595	0.230	0.553	0.457

Notes: GDP, FD, INF, GFCF, OPN, DSP, ED1, ED2 and ED3 refers to GDP Annual growth rate, Fiscal deficits (excluding grants) as ratio of GDP, Consumer Price Index, Gross Fixed Capital formation, Trade Openness as ratio of GDP, Total Debt Service Payment as ratio of exports and primary income, Pre-election year dummy, Election year dummy and post-election year dummy respectively.

Between 2000 and 2021, the lowest GDP growth rate in the EAC was -3.90 percent while the highest was 13.19 percent. The lowest growth rate was observed in Burundi in 2015 while the

highest was experienced in 2002 in Rwanda. Lowest GDP growth rate could be linked to election related violence that occurred in Burundi immediately after elections in 2015 (AED, 2022). The growth had a mean of about 5.2 percent and a standard deviation of about 3.0 percent. The large deviation could be because of the huge disparities in the economies of EAC member states. GDP growth rate had a negative skew of -0.572 and kurtosis of 1.352 (leptokurtotic). The negative skewness implies that GDP growth rate in EAC was higher closer to year 2018.

The highest fiscal deficit ratio in EAC over the study period was 20 percent recorded in 2004 for Burundi. This is above the EAC set threshold of less than 6 percent of GDP. The budget deficit as a percentage of GDP had an average of 9.03 percent and a standard deviation of 3.67 percent, suggesting that, in most years, fiscal deficits relative to GDP were relatively high. With a positive skewness of 0.619, the ratio indicated that large ratios occurred in the early 2000s. It had a negative kurtosis of -0.085, implying platy kurtotic distribution.

The recorded inflation rates throughout the timeframe ranged from -2.81 percent as the minimum to 26.24 percent as the maximum, with an average approximately at 7.3 percent and a standard deviation of around 5.2 percent. The distribution was positively skewed and platykurtotic with values of 1.20 and 2.61, respectively. Over the given period, the total debt service ranged from a minimum of 0.62 percent to a maximum of 134.72 percent. On average, it stood at 11.26 percent, with a standard deviation of 16.02 percent. Its distribution was positively skewed and so was the kurtosis.

Gross capital formation over the period was a minimum of USD 267 million and a maximum of USD 26072 million with a mean of USD 61113 million and a standard deviation of USD 6291 million. GFCF distribution had a positive skew of 1.209 and kurtosis of 0.816, a leptokurtotic distribution. Trade openness varied between 20.96 and 64.48 percent with a mean of 39.85 percent and standard deviation of 10.13 percent. Its distribution had positive kurtosis and skew. This means that there was more trade openness in the 2000s and a platykurtotic distribution.

4.4.2 Correlation Test Results

The Pearson correlation coefficients are shown in Table 33.

Table 33: Pearson Correlation Coefficients of Variables used in Estimations.

	RGDP	FD	INF	LGFCF	OPN	DSP	ED_1	ED_2	ED_3
RGDP	1								
FD	-0.093*	1							
INF	-0.180*	0.111	1						
LGFCF	0.016**	-0.653**	-0.113	1					
OPN	0.192*	-0.126	0.241**	0.68	1				
DSP	-0.246**	0.428**	0.011	-0.132	-0.337**	1			
ED_1	0.046	0.032	-0.072	0.056	-0.034	0.090	1		
ED_2	-0.188*	0.042	-0.014	0.002	-0.108	-0.037	-0.243**	1	
ED_3	-0.017	-0.048	-0.011	0.030	0.004	-0.018	-0.236**	-0.243**	1
Notes: * and ** indicate significant at 1% and 5% levels, respectively									

The coefficients indicate a negative association between real GDP annual growth rate (RGDP) and fiscal deficit/GDP ratio at 1% level of significance. Inflation rate measure as consumer price index (INF) was negatively correlated with GDP annual growth rate. Gross fixed capital formation (GFCF) and trade openness (OPN) exhibited a positive correlation with the GDP growth rate, and this correlation was statistically significant at a 1% level of significance.

4.4.3 Unit Root Test Results

The outcomes of the Levin, Lin, and Chu (2002), Im, Pesaran (2003), and Hadri (1999) unit root tests are presented in Table 34. These three tests for stationarity were applied to all variables at both the original level and after the first differencing process. The results at the original level are displayed in Table 34, while the results after first differencing are presented in Table 35.

Table 34: Unit root Test at Level

Variable	H. LM		LLC		IPS	
	Statistic	P value	Statistic	P value	Statistic	P value
RGDP	1.4945	0.0675	-1.2189	0.1114	-4.6665	0.0000
FD	13.4901	0.0000	-1.4374	0.0753	-2.2626	0.0118
INF	1.6771	0.0468	-3.1555	0.0008	-3.7002	0.0001
lnGFCF	28.0152	0.0000	-2.9807	0.0014	0.0446	0.5178
OPN	14.8120	0.0000	-0.1497	0.4405	0.4860	0.6865
DSP	9.6297	0.0000	3.8898	0.9999	-1.0350	0.1503
Notes: HLM is Hadri Lagrange Multiplier test, LLC is Levin-Lin-Chu test and IPS is Im-Pesaran-Shin test.						

The results indicate that only real GDP growth rate and inflation rate were stationary at level based on the three tests. This implies that the mean and variance of real GDP and inflation rate series do not depend on time. Fiscal deficit (FD), gross fixed capital formation (LGFCF), total debt service (DSP) and openness (OPN) were non-stationary at the level. This demonstrates that the variance and mean in each series vary with time. The next step was to test for stationarity at first difference as shown in table 35.

Table 35: Unit Root Test Results after First Differencing

Variable	H. LM		LLC		IPS		Order of integration
	Statistic	P value	Statistic	P value	Statistic	P value	
DFD	-1.7288	0.9581	-7.7843	0.0000	-6.2005	0.0000	(1)
DlnGCF	-0.4596	0.6771	-4.1181	0.0001	-4.4864	0.0002	(1)
DOPN	0.5631	0.2867	-4.5605	0.0000	-4.6286	0.0000	(1)
DDSP	-1.2678	0.8976	0.5216	0.6990	-3.1849	0.0007	(1)
Notes: HLM is Hadri Lagrange Multiplier test, LLC is Levin-Lin-Chu test and IPS is Im-Pesaran-Shin test.							

4.4.4 Cross-Sectional Dependence Test Results

To examine cross-sectional dependence in the error terms that could result from unobserved individual country shocks, Pesaran (2004)'s cross dependence test was used, and Table 36 provides the results.

Table 36: Pesaran's Test Results for Cross-Sectional Dependence among Variables

	Statistic	P-value
Pesaran CD test	0.665476	0.5825
Average absolute value of the off-diagonal elements	0.231	

The null hypothesis, indicating no cross-sectional dependence, is accepted at the 5% significance level. As a result, the variables in the model are cross-sectionally independent.

4.4.5 Panel Co-Integration Test Results

The test results for co-integration based on the Pedroni (1997,1999,2000,2004) and Kao (1999) tests for panel data are presented in Table 37 and 38.

Table 37: Pedroni Residual Cointegration Test Results

Test Statistic	Statistic	Prob.
	Within Group	
V-Statistic	0.369738	0.3558
Rho- Statistic	-0.653912	0.2566
PP- Statistic	-6.389886	0.0000**
ADF- Statistic	-1.729686	0.0418**
	Between Group	
Group rho-Statistic	0.374265	0.9364
Group pp-Statistic	-5.846018	0.0008*
Group ADF-Statistic	-0.647061	0.0006*

Notes: * and ** indicate statistical significance at 1% and 10%, respectively.

Table 38: Kao Residual Cointegration Test Results

	Statistic	Probability
ADF	-4.294652	0.0000*
Residual variance	8.127425	
HAC variance	1.113582	

Notes: * indicates statistical significance at 1%.

The alternate hypothesis was evaluated against the null hypothesis which holds that cointegration does not exist. The Akaike Information Criterion (AIC) was employed to identify the optimal number of lags to be utilized. Based on the Pedroni test results, we reject the null hypothesis at the 1% significance level. Similarly, the Kao test results also lead to rejecting the null hypothesis at the 1% significance level. Consequently, these findings suggest that the cointegrated parameters exhibit a long-run relationship.

4.4.6 Pooled Mean Group (PMG) Estimation Results and Analysis

This study employed the Pooled Mean Group (PMG) method to analyze the impact of election-related fiscal deficits on output growth in the EAC. The fiscal deficit was combined with each election dummy variable for the analysis (ED_1, ED_2 and ED_3) to capture political drive. The analysis is carried out at regional and national levels. The findings are presents in terms of the impact of the fiscal deficit on economic growth prior to, during, and after an election.

4.4.6.1 Effect of Pre-Election Fiscal Deficits on Output Growth in the EAC

To capture the influence of pre-election fiscal imbalance on output growth in the EAC, pre-voting year dummy variable was interacted with budgetary deficit to meet the study objective. Therefore, variable FD_1[12] is fiscal deficit before an election obtained from interacting fiscal deficit and the pre-election year dummy (ED_1). Table 39 displays effects of pre-election year's fiscal deficit on economic growth in the EAC region.

[12] $FD_1 = FD * ED_1$

Table 39: Effect of Pre-Election Year's Budget Deficit on Economic Growth in the EAC Region

Long Run Dynamics				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob***
FD	-0.322101	0.100683	-3.199152	0.0023*
INF	-0.071013	0.049161	-1.444502	0.1541
LGFCF	1.512128	0.306974	4.925917	0.0000*
OPN	0.043853	0.023885	1.836007	0.0716***
DSP	-0.070218	0.035728	-1.965345	0.0543***
ED_1	-2.473028	1.250192	-1.978118	0.0528***
FD_1	0.361443	0.146404	2.468805	0.0166**
Short Run Results				
ECT	-0.761554	0.175455	-4.340452	0.0001*
Δ(FD)	-0.023926	0.153869	-0.155497	0.8770
Δ(INF)	-0.045741	0.067566	-0.676989	0.5012
Δ(LGFCF)	10.39641	6.767790	1.536161	0.1300
Δ(OPN)	0.144324	0.092356	1.562682	0.1237
Δ(DSP)	0.011831	0.055750	0.212224	0.8327
ED_1	6.227740	4.705419	1.323525	0.1909
FD_1	-0.539691	0.423569	-1.274152	0.2078
C	30.14853	6.903612	4.367066	0.0001*
Mean dependent variable	0.104576	Number of observations		105
S.E. of regression	1.670581	Lag selection method		AIC

Notes: ECT is the error correction term and Δ shows that the variable is first differenced. FD_1 is fiscal deficit incurred in the year before election. *, **and *** denote 1%, 5% and 10% level of significance, respectively. FD is fiscal deficit, INF is inflation rate, LGFCF is log of gross fixed capital formation, OPN is trade openness and DSP is total debt service payment.

The study's results indicate that the annual GDP growth rate in the East African Community (EAC) is expected to be lower in the pre-election year when compared to other years. Additionally, the research findings reveal that the fiscal deficit in the pre-election year had a statistically significant and positive effect on long-term economic growth at a 5% level of significance. This suggests that the effect of fiscal deficit on GDP growth rate in the EAC in the pre-election year is 0.36% stronger compared to other years. The results suggest that the EAC's long-term economic growth could experience positive effects from fiscal shortfalls occurring before elections. Pre-election public expenditure on projects such as roads, water supply and electricity connections are beneficial in the long-term.

The results support the Keynesian theory of economic expansion and budget deficit (Keynes, 1936). According to this theory, budget deficits do not hinder economic growth. In simpler terms, an increase in a nation's spending is anticipated to boost aggregate demand and output.

The results agree with Gupta et al. (2005), Bose et al. (2007), Maji and Achegbulu (2012), Taylor et al. (2012), Ahmad (2013), Edame and Okoi (2015), Eminer (2015), and Aslam (2016). All these studies find that budget deficits spur economic growth. In addition, Lessem (2013) found that public spending during a primary election increased per capita income in 50 states in the USA. However, Rogoff (1990) portray fiscal deficits incurred during elections as detrimental to the economy.

Fiscal deficit, however, was found to be unfavourable for GDP growth over the extended period in the EAC. For every unit increase in the deficit, GDP growth reduced by 0.32% at 1% significance level. This finding aligns with the neoclassical theory, positing that fiscal deficits strain interest rates and decrease private sector gross investments, resulting in a downturn in economic growth (Rahman, 2012; Nkrumah et al., 2016). The outcomes align with previous empirical studies by Fischer (1991, 1993), Easterly and Rebelo (1993), Adam and Bevan (2005), and Brender and Drazen (2008). Time series investigations by Adak (2010), Fatima et al. (2012), Mohanty (2012) and Rana and Wahid (2017) also reveal a negative correlation between output growth and fiscal deficit.

Consumer pricing index (CPI)-based inflation had a long-term inverse association with GDP expansion. A high level of inflation slows GDP growth rate while trade openness and gross fixed capital formation significantly and directly increase GDP growth in the extended period in the EAC. A unit increase in trade openness increased GDP growth rate by 0.04% while a similar increase in gross capital formation increased GDP growth rate by 1.5% at 1% level of significance. The short-term error correction coefficient is not only negative but also highly statistically significant, highlighting the importance of the error correction model at a 1% significance level. The error correction coefficient's value of ECT implies that around 76.2% of any imbalance within the model is rectified within a one-year span.

4.4.6.2 Effect of Election Year's Fiscal Deficits on Economic Growth in the EAC

By interacting voting year dummy (ED_2) with the budget deficit (FD) it was possible to measure the impact of election year's budget shortfall on output growth in the EAC. (FD_2) [13]represents fiscal deficit experienced during an election year. Table 40 shows the results.

[13] $FD_2 = FD * ED_2$

Table 40: Effect of Election Year Fiscal Deficits on Economic Growth in the EAC

Long Run Dynamics				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
FD	-0.392568	0.097311	-4.034153	0.0002*
INF	-0.065300	0.059562	-1.096332	0.2775
LGFCF	-1.137873	0.332143	-3.425849	0.0011*
DSP	-0.056701	0.043986	-1.289090	0.2026
OPN	0.040959	0.027573	1.485510	0.1429
ED_2	-6.600023	1.138373	-5.797771	0.0000*
FD_2	0.841114	0.158900	5.293352	0.0000*
Short Run Results				
ECT	-0.702501	0.132517	-5.301210	0.0000*
Δ(FD)	0.062821	0.236752	0.265345	0.7917
Δ(INF)	-0.065207	0.067889	-0.960497	0.3409
Δ(LGFCF)	12.91872	6.151555	2.100074	0.0402**
Δ(DSP)	-0.014501	0.070995	-0.204252	0.8389
Δ(OPN)	0.063343	0.053953	1.174047	0.2453
ED_2	-1.117794	3.340847	-0.334584	0.7392
FD_2	-0.131958	0.323207	-0.408276	0.6846
C	22.32040	4.229199	5.277691	0.0000
Mean dependent variable	0.104576	Number of observations		105
S.E of Regression	2.153520	Lag Selection Method		AIC

Notes: ECT is the error correction term and Δ shows that the variable is first differenced. FD_2 is fiscal deficit incurred in the election year. * and ** indicate 1% and 5% level of significance, respectively.

The findings suggest that GDP annual growth rate is approximately 6.6 lower in the election years compared to other years. This trend could be associated with the notion that public expenditure during elections might lack productivity. Also, uncertainty associated with elections reduce investments and household expenditure. This agrees with literature that says economic activities during an election are detrimental to economic growth (see Nordhaus, 1975; Block et al., 2003; Rogoff, 1990; Block, 2002; Brender and Drazen, 2008; Lessem and Urban, 2013; Iddrusu and Bokpin, 2018).

The outcomes presented in Table 49 reveal that the positive impact of fiscal deficit on GDP annual growth rate is 0.84% stronger in the election year compared to non-voting years. This is at 1% significance level. This indicates that a budget deficit incurred in an election year is likely to enhance the GDP's growth rate in the East African Community (EAC). A unit increase

in the election year budget deficit is likely to increase GDP annual growth rate by 0.8 percent. This finding agrees with theory and empirical studies as discussed.

4.4.6.3 Effect of Post-election Fiscal Deficits on Economic Growth in the EAC

The post-election year indicator was combined with the fiscal deficit to account for the influence of fiscal deficits on GDP growth in the EAC following elections. Accordingly, FD_3[14] represents fiscal deficits that occur after an election. The results are shown in Table 41.

Table 41: Effect of Post-election Fiscal Deficits on Economic Growth in the EAC.

Long Run Dynamics				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FD	-0.112204	0.079995	-1.402633	0.1661
INF	-0.058865	0.045904	-1.282338	0.2049
LGFCF	-0.974357	0.293712	-3.317388	0.0016*
DSP	-0.005934	0.023594	-0.251502	0.8023
OPN	0.064804	0.024392	2.656790	0.0102**
ED_3	1.620923	1.563972	1.036414	0.3044
FD_3	-0.111530	0.203493	-0.548080	0.0558
Short Run Results				
ECT	-0.893229	0.142732	-6.258107	0.0000
Δ(FD)	-0.054635	0.100133	-0.545627	0.5875
Δ(INF)	-0.029782	0.074483	-0.399847	0.6908
Δ(LGFCF)	12.20920	5.097853	2.394969	0.0199**
Δ(DSP)	-0.076579	0.076815	-0.996925	0.3230
Δ (OPN)	0.034707	0.065554	0.529435	0.5986
ED_3	-4.623929	0.868005	-5.327079	0.0000*
FD_3	0.520875	0.174410	2.986487	0.0042*
C	21.91002	3.813542	5.745321	0.0000*
Mean dependent variable	0.104576	Number of observations		105
S.E. of regression	2.053838	Lag selection method		AIC

Notes: ECT is the error correction term and Δ shows that the variable is first differenced. FD_3 is fiscal deficit incurred in the year before election. ***, ** and * indicate 10%, 5% and 1% level of significance, respectively.

The research findings illustrate that, over the long term, the negative effect of fiscal deficits on economic growth immediately after is 0.11% weaker compared to other years. An increase of

[14] $FD_3 = FD * ED_3$

This impact is statistically significant at a 10% level of significance. A new government may not have the capacity to manage a fiscal deficit in the short run. However, in the short term, fiscal deficits had a positive and substantial impact on GDP growth in the EAC. A unit increase in fiscal deficit in a post-election year increased economic growth by 0.52% at 1% level of significance in the short run. After an election, governments focus on building a strong economy and reverse election policies (Nordhaus, 1975; Hibbs, 1977, Alesina et al., 1997). The error correction model appeared to correct around 89% of any disequilibrium in the model and it was significant.

4.4.6.4 Effect of election-driven Fiscal Deficits in individual EAC Countries in the Short Run.

One of the advantages of PMG estimation technique is that it can generate country specific short run results. Therefore, the study examined the effect of political budget cycles on economic growth at individual country level. The analysis employed the pooled mean group (PMG) estimator, and the findings are presented in Tables 42, 43, and 44.

Table 42: Effect of Pre-election-year Fiscal Deficits on GDP in Individual EAC Countries in the Short Run.

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.291011*	-0.488365*	-0.279072*	-0.757589*	-0.993799*
	(0.0004)	(0.0005)	(0.0000)	(0.0000)	(0.0000)
ΔFD	0.070896**	-0.383710*	-0.390833*	0.312336*	0.271680**
	(0.0416)	(0.0039)	(0.0075)	(0.0000)	(0.0034)
ΔINF	-0.127646*	-0.149012*	-0.183048*	0.076261*	0.154738*
	(0.0000)	(0.0002)	(0.0005)	(0.0002)	(0.0000)
ΔLGFCF	-4.780847	-6.955186	23.09456***	16.65384***	23.96969
	(0.6861)	(0.8261)	(0.0843)	(0.0930)	(0.5499
ΔDSP	-0.027046*	0.085763*	-0.023013**	0.175996*	-0.152543*
	(0.0000)	(0.0006)	(0.0183)	(0.0003)	(0.0049)
ΔOPN	0.345287*	0.044124*	0.389554*	-0.019317*	-0.038028*
	(0.0005)	(0.0224)	(0.0021)	(0.0016)	(0.0033)
ED_1	-3.991534	12.14345	21.56183	2.638546*	-1.213597
	(0.7245)	(0.5400)	(0.3700)	(0.0070)	(0.9298)
FD_1	0.496247**	-1.322409**	-1.708383*	-0.324349*	0.160438
	(0.0179)	(0.0183)	(0.0012)	(0.0000)	(0.5747)
CONSTANT	10.68638	20.48602	50.13115	30.24940	39.18969
	(0.6777)	(0.7115)	(0.6173)	(0.5135)	(0.6459)

Notes: ECT is the error correction term and Δ shows that the variable is first differenced. ED_1 and FD_1 are pre - election year dummy variable and pre-election year fiscal deficit, respectively. *, **and *** indicate 1%, 5% and 10% levels of significance, respectively.

The short run results suggest that, in Tanzania GDP growth rate is likely to be higher in the pre-election year than in other periods. This implies that Tanzania's growth rate is likely to be 2.6% higher in the pre-election year at 1% level of significance. In Kenya, Rwanda, and Tanzania, the effect of budget deficits on GDP growth rate is weaker during the pre-election year compared to other years. This suggests that, at a 1% level of significance, Kenya, Rwanda, and Tanzania's GDP growth rates are likely to be slower when there is a fiscal deficit in the year before elections. The results conform with Keynesian theory of fiscal deficit and growth (Keynes, 1936). This theory postulates that a rise in public expenditure would stimulate economic growth by boosting aggregate demand and encouraging private investment.

Consequently, the budget deficit is expected to adversely impact the economic growth of both Kenya and Rwanda. The empirical outcomes agree with neo-classical theory of output growth and government deficit, which asserts that a government shortfall will have a negative influence on economic growth. These findings also agree with reviewed empirical research work that established a negative link between GDP and fiscal deficit (Adak, 2010; Avila, 2011; Mohanty, 2012; Rana and Wahid, 2017). Nevertheless, the impact was significantly positive for Burundi, Tanzania and Uganda.

Inflation rate has negative relationship with GDP growth rate for Burundi, Kenya and Rwanda at 1% significance level while the association was positive for Tanzania and Uganda. Gross capital formation substantially improved economic growth in Rwanda and Tanzania in the short run. Debt service payment significantly improves economic growth in Kenya and Tanzania while for other Partner States the impact is positive in the short run. In the short run, trade improved GDP growth rate in all EAC states with exception of Tanzania and Uganda.

Table 43: Effect of Election Year Fiscal Deficits on GDP in individual EAC Countries in the Short Run.

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.215163*	-0.627778*	-0.854364*	-0.885925*	-0.929275*
	(0.0009)	(0.0013)	(0.0021)	(0.0000)	(0.0000)
ΔFD	-0.014044	-0.304360***	-0.543331	0.412673*	0.763166*
	(0.5469)	(0.0511)	(0.1150)	(0.0000)	(0.0006)
ΔINF	-0.115668*	-0.127949*	-0.259825*	0.073853*	0.103555*
	(0.0000)	(0.0022)	(0.0006)	(0.0001)	(0.0003)
ΔLGFCF	-2.519272	0.979326	23.75244	13.38877*	28.99234
	(0.8596)	(0.9787)	(0.4510)	(0.0642)	(0.4900)
ΔDSP	0.054269*	0.006564*	0.022583*	0.129648*	-0.285568*
	(0.0000)	(0.5423)	(0.1294)	(0.0007)	(0.0007)
ΔOPN	0.275318*	0.029464	0.032661	-0.023233*	0.002508
	(0.0000)	(0.1630)	(0.7778)	(0.0003)	(0.5451)
ED_2	-5.427576	0.309081	-10.91299	1.594834***	8.847683
	(0.8101)	(0.9851)	(0.8838)	(0.0684)	(0.2354)
FD_2	0.349467**	-0.133430	0.626574**	-0.243659*	-1.258741*
	(0.0478)	(0.6483)	(0.0302)	(0.0001)	(0.0018)
CONSTANT	6.485214	20.71782	26.70910	28.82191	28.86798
	(0.7039)	(0.7669)	(0.8203)	(0.6178)	(0.6898)

Notes: *, **and *** indicate 1%, 5% and 10% level of significance, respectively.

According to short-term results, GDP growth rate is higher in the election years compared to other years in Tanzania. GDP growth rate in Tanzania during the election years was 1.6% higher than other years at 10% level of significance. The growth in GDP in the voting year may be related to spending that was productive both before and after the election, which is likely to boost Tanzania's economy. Also, short term injection of income through subsidies and short-term projects may have led to this positive growth. However, other EAC Partner States in the study did not find the association to be significant.

In Tanzania and Uganda, the impact of fiscal deficit (FD_2) on economic growth during election years is weaker than in other years. This suggests that, at a 1% level of significance, effect of fiscal deficit on economic growth is 2.4% and a 12.6% lower for Tanzania and Uganda,

respectively. These findings agree with opportunistic theory of PBCs which suggests that economic policy manipulations may be harmful to the economy (Nordhaus, 1975). Rogoff and Sibert (1988) and Rogoff (1990) contend that political candidates employ expansionary fiscal policies to signal competence in the electioneering period. This can hinder a nation's economic development. Empirical studies by Block et al., (2003), Block (2002), Brender and Drazen (2008), Lessem and Urban (2013) and Iddrusu and Bokpin (2018) also suggest that election driven fiscal imbalances may adversely affect the economy.

In both Burundi and Rwanda, the impact of deficit on economic growth in the election year is more substantial and positive compared to non-election years. This implies that, at 5% level of significance, the effect of fiscal deficit on economic growth was approximately 3.5% and 1.3% more in Burundi and Rwanda respectively in the election year compared to non-election years. This may be attributed to short term economic stimulus like subsidies and income distribution for welfare matters. The coefficients of the Error Correction Term were consistently negative and statistically significant in all the countries.

Table 44: Effect of Post-Election Year Fiscal Deficits on GDP in individual EAC Countries in the Short Run.

VARIABLE	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA
ECT_{t-1}	-0.524607* (0.0005)	-0.716889* (0.0005)	-0.366435* (0.0001)	-0.845533* (0.0001)	-0.412683* (0.0000)
ΔFD	-0.066004** (0.0218)	-0.373721** (0.0139)	-0.107392 (0.5950)	0.242750* (0.0001)	0.031191 (0.2209)
ΔINF	-0.138549* (0.0000)	-0.071760* (0.0123)	-0.165116* (0.0018)	-0.024808* (0.0097)	0.251325* (0.0000)
ΔLGFCF	-3.342081 (0.7978)	4.592665 (0.9096)	21.89960 (0.5391)	14.75362 (0.3925)	23.14219 (0.2270)
ΔDSP	0.035991* (0.0000)	0.031983** (0.0299)	-0.159757* (0.0009)	0.050810** (0.0412)	-0.341923* (0.0000)
ΔOPN	0.277536* (0.0000)	0.037660 (0.1067)	-0.039007 (0.7305)	0.006699*** (0.0975)	-0.109354* (0.0000)
ED_3	-3.916756 (0.7284)	-6.424728 (0.8900)	-4.504843 (0.9737)	-1.808932 (0.3728)	-6.464386** (0.0414)
FD_3	0.234390** (0.0363)	0.741510 (0.4218)	0.327083 (0.7184)	0.199937* (0.0080)	1.101453* (0.0000)
CONSTANT	11.25439 (0.6572)	17.75619 (0.7311)	34.16089 (0.7822)	21.35789 (0.7186)	25.02074 (0.6737)

Notes: ***, **and * signify 10%, 5% and 1% level of significance correspondingly.

Post-election year findings reveal that GDP growth rate decreases immediately after an election all Partner States with substantial impact in Uganda. That is, at 5% level of significance, GDP growth rate in Uganda was at a low level in post-election year compared to other years. This may as a result disruption of economic activities in the election year which reduces inducement to invest and hence aggregate output.

In the short term, GDP yearly growth rate in EAC countries was directly correlated with the fiscal deficit that was accumulated in the year following an election (FD_3). In Burundi, Tanzania, and Uganda, this association was only statistically substantial at 5% and 1% level of significance respectively. According to the results, a 10% post-fiscal deficit boosts Tanzania's and Uganda's GDP growth rates by about 2.0% and 11%, respectively. In Burundi, this

association was significant at a 5% level. The positive relationship may be linked to productive spending pre-election and election year which may increase aggregate output hence economic growth. The ECT coefficients were negative and statistically substantial implying that the error correction model was significant.

4.5 SUMMARY OF STUDY FINDINGS, CONCLUSION AND POLICY IMPLICATIONS

4.5.1 Summary of Study Findings

Using secondary panel data spanning the years 2000–2021, this study assessed the influence of the political budget cycles on economic growth in the East African Community. The pooled mean group (PMG) econometric technique was used to analyse regional and country-specific impacts thereof. The findings suggest that economic growth in the EAC is significantly influenced by fiscal deficits, election timing and political budget cycles.

GDP growth rate in the EAC was approximately 2.5% and 6.6% lower just before and during elections compared to other periods. Thus, EAC's economic progress is distorted every prior to and during elections. Furthermore, the post-election year short run results indicate that lower economic growth was observed compared to other years. However, the findings show that post-election, short term GDP growth rate is likely to be lower than in other periods by approximately 4.6%. this implies that election related events are likely to worsen economic growth in the EAC.

In the short run, country-specific results show that GDP was higher just before and during elections compared to other periods. This is particularly the case in Rwanda. However, Rwanda's GDP was low in the year following an election. The finding agrees with the theory of PBC which posit that politicians manipulate economic policies just before and during the elections to enhance their chances of winning an election, actions which could harm economic performance of a country (Nordhaus, 1975; Hibbs, 1977; Alesina et al., 1997). Empirical studies find manipulations of economic policies during elections to be detrimental to economic performance (Block, 2002; Block et al., 2003; Lessem and Urban, 2013; Iddrusu and Bokpin, 2018). In Kenya and Tanzania, pre-election budget deficits were strongly linked to a negative impact on short-term GDP growth, while post-election fiscal deficits had positive short-term effects, aligning with the patterns observed in the rest of the East African Community (EAC).

In the long run, pre-election fiscal deficits (FD_1) and election year budget deficits (FD_2) were positively related to GDP growth in the EAC. A 10 % growth in budget deficits just before elections is likely is rise GDP annual growth rate by 3.6% at 5% level of significance. Additionally, at 1% significance level, a 10%increase in budget deficits is likely to increase GDP annual growth rate by 8.4%. The findings imply that long-term economic growth in the EAC may benefit from fiscal deficits seen in pre-election and election years. This would be possible if public expenditure is on productive investments that increase aggregate output over the long term.

The findings align with Keynesian economic theory that suggests raising government spending to boost overall demand leading an economy towards full employment and higher total output (Keynes, 1936; Romer, 2019). At country level, pre-election budget deficit, showed a detrimental and statistically substantial association with growth of GDP in Kenya, Rwanda, and Tanzania. However, pre-election year budget deficit had a positive and substantial impact on economic growth in Burundi. The budget deficit in an election year had a noteworthy influence on the annual GDP growth in Burundi and Rwanda, with significant impact, while in Tanzania and Uganda, the effect was notably negative.

Fiscal deficits post-election had a long run negative association with GDP growth in the EAC at 10% level of significance. These findings conform to neoclassical theory which argues that budget deficits resulting from revenue deficits may put pressure on rate of interest and by implication reduce gross investment and hence economic growth of a country (Bernhein,1989). Empirical studies by Fischer (1991, 1993), Easterly and Rebelo (1993), Adam and Bevan (2005) and Brender and Drazen (2008) find such fiscal deficits to adversely affect economic growth. Time series studies by Adak (2010), Mohanty (2012) and Rana and Wahid (2017) make similar conclusions. However, short run results suggest a positive link between post-election year budget deficit and economic growth in the EAC.

The outcomes of individual country-level analyses concerning the impact of the fiscal deficit on output growth show mixed and inconclusive patterns. For instance, pre-election research demonstrates that in Kenya and Rwanda, the connection between growth of real GDP and budgetary deficit was negative and significant. This suggests that the fiscal deficit in the two countries is unfavourable to economic growth. Notably, the findings suggest that, in comparison to other nations, Kenya's budget imbalance had a considerably negative effect on economic progress. Neoclassical theory of fiscal deficit and output growth backs up these

conclusions. Furthermore, greater governmental spending may have the unintended consequence of discouraging private investments, a crucial component for economic progress.

The study suggests a long-term negative link between inflation as measured by CPI on GDP growth in the EAC. Country-specific short run results produced such evidence for Burundi, Kenya and Rwanda. However, the relationship was positive and significant for Tanzania and Uganda. The study's findings also indicated a notable and meaningful correlation between GDP growth and trade openness as well as gross fixed capital formation within the EAC as a regional block and at individual country level. The error correction models in the study were significant.

4.5.2 Conclusion

Within the EAC, GDP growth is typically lower during election years and higher in the post-election phase compared to other periods. Moreover, fiscal deficits leading up to and during elections exert a positive long-term influence on GDP growth in the EAC. However, the long-term findings indicate that the EAC's economic growth was slowed by the post-election year fiscal deficits. Therefore, political budget cycles and fiscal imbalances have an effect on GDP in the EAC over the long term.

4.5.3 Policy Implications

The study findings show that budget deficits during the run-up to and during an election have a favourable influence on output growth, whereas deficits following an election have the opposite effect. Overall, fiscal imbalances in the EAC slowed economic growth. Thus, it is crucial for EAC governments to constrain fiscal deficit to a reasonable level that would be favourable for long term economic growth. This can be attained by adoption of fiscal consolidation and discipline that will reduce budgetary shortfall and public debt accumulation especially in the long-term. The EAC governments need to engage in productive public spending that increase aggregate output hence improve economic performance. One of causes of post-election fiscal deficits is insufficient collection of public revenue. Therefore, EAC governments should put in place measures that widen tax base and adopt efficient and effective tax collection methods. Tax evasions, corruption among tax officials and unproductive tax exemptions should be addressed. Additionally, to diversify public revenue EAC governments should increase non-tax revenue sources.

There is need for EAC countries to work together with international bodies to implement policies that limit inflationary spending by politicians during election years. This can be done by controlling unnecessary public borrowing by politicians during elections. Also, countries should limit foreign borrowings in the run-up to elections politicians in government and their close associates use the money for election purposes but burden taxpayers with repayment.

Furthermore, there is need for medium term budgeting frameworks that limit fiscal policy manipulations and ensure a sustainable stance. Improvement in institutional governance and capacity by controlling mismanagement of public resources will reduce fiscal deficits especially during electioneering period. To address immediate economic requirements and ensure long-term economic stability, policymakers in the East African Community (EAC) should prioritize fiscal rules and discipline. Fiscal reforms such as fiscal accountability and transparency and development of independent fiscal oversight institutions can foster fiscal discipline in the EAC.

One of the reasons why PBCs thrive is because of rational ignorance coupled with information asymmetry among electorates. More fiscally informed voters will hold political candidates accountable and punish incompetent politicians by rejecting them at the ballot. Trade openness and Gross fixed capital formation had a direct substantial effect on economic performance in the long term. Thus, EAC governments should put measures that ensure quality and sustained growth of private investment and international trade. This can be attained through policies that promote and protect private investors as the prime drivers of economic growth rather than the state. According to evidence, high level of inflation was harmful for economic growth; therefore, the EAC government must implement monetary policy tools like inflation and credit control targeting to attain price stability.

CHAPTER FIVE

SUMMARY OF STUDY FINDINGS, CONCLUSION, POLICY IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

5.1 SUMMARY OF STUDY FINDINGS

The thesis examined the relationship between primary budgetary deficits and macroeconomic indicators of GDP growth and inflation in the EAC from 2000 to 2021. A sample of five EAC states, viz., Tanzania, Kenya, Burundi, Rwanda and Uganda was used for study. South Sudan and the new entrants into EAC were excluded because of limitations on their macroeconomic data. The period 2000-2021 chosen for study because most EAC countries embraced multi-party system of governance and allowed competitive politics during this time. The study's focus was mainly on the presidential race which tends to take place alongside other races (gubernatorial, senatorial, parliamentary, or ward representatives) in a general election since it is the executive arm of government that tends to manipulate budgets resulting in fiscal deficits.

The data was obtained from IMF's International Financial Statistics, African Development Bank (AFDB) socio-economic-database, African Elections Database (AED), East African Community (EAC) Facts and Figures publications, and World Bank's World Development Indicators and World Governance Indicators. In the analysis, the pooled mean group (PMG), differenced GMM (Diff-GMM) and system GMM (SGMM) techniques were employed. The results indicated a robust association among the variables in the study. The thesis was organized in three essays. While the first essay analyzed whether political business cycles (PBCs) exist in the East African Community (EAC), the second examined whether PBCs play a part in the budgetary deficits and rate of inflation experienced in the EAC. The third essay examined the interplay of budget deficits, PBCs, and economic growth in the EAC.

The outcomes of the research suggest that political budget cycles (PBCs) are prevalent in the EAC. The fiscal deficit was larger in the pre-poll year than in preceding years, according to long run and short run results. Fiscal was 4.4% higher in pre-voting and polls years than in other years, at a 1% level of significance. In the near future, the fiscal deficit was around 1.1% greater during election years than during other times. This indicates that EAC governments are likely to undertake expansionary fiscal policies such as rise in public spending and tax cuts prior to and during an election to enhance chances of winning elections. Contrarily, compared to other years, the post-election year has a reduced budget deficit. Short run results for

individual nations show that Tanzania, Kenya, Burundi, and Rwanda all have PBCs. Uganda did not, however, display an opportunistic pattern because the fiscal deficit was significant during every election year.

Additionally, the findings reveal that fiscal deficit was significantly influenced by governance indicators. This implies that increased level of freedom, adherence to rules, quality policy formulation implementation and independence of public institutions may improve fiscal sustainability in the EAC. Negative long-term real interest rates were linked with the fiscal deficit. In the long run, this could be attributed to an increase in concessional borrowing. However, the relationship was positive and substantial in the immediate term. Long-term correlation between the EAC's fiscal deficit and overall money supply was favorable. This was attributed to a rise in aggregate spending brought on by expansionary fiscal policies, which raise transactional money demand and, consequently, supply of real money balances.

These findings were in line with the PBC theory that predicts expansionary economic policies just before an election and contractionary policies immediately after. Nordhaus (1975) argue that voters are naïve and short sighted and therefore politicians manipulate them to vote for them by employing expansionary policies towards elections. Rogoff (1990) and Rogoff and Sibert (1988) through equilibrium PBC theory assert that politicians signal competence by increasing public spending. This signals their competence in provision of public good hence maximize on votes. Empirical findings by Schuknecht (1998), Block (2002a, 2002b), Granados (2003), Brender and Drazen (2005), Brender and Drazen (2008), Shi and Svensson (2006), Pasten and Cover (2010), Anwar and Ahmad (2012), Ebeke and Olcer (2013), Chiripanhura and Niño-Zarazúa (2015) and Mosley and Chiripanhura (2016) conclude that fiscal shortfalls increase during the electioneering period especially in young democracies and developing countries like EAC countries hence prevalence of PBCs in those countries.

Based on the findings of essay two, the inflation rate was higher during the pre-election year compared to other years. It was determined that the inflation rate was approximately 2% greater in the year before the election compared to other years. This was based on the findings of differenced GMM estimation method. This agrees with opportunistic theory of PBCs which argue that politicians would employ Phillips curve and lower unemployment levels at expense of higher inflation during electioneering period (Nordhaus, 1975, Alesina et al., 1997). Contrary to this theory, inflation rate was low during election and higher after elections though not significant.

Furthermore, the fiscal shortfall incurred in the pre-election year had a positive and significant relationship with EAC inflation. This was done at 1% with differenced GMM and 5% with system GMM. In the EAC, budgetary deficit observed in post-voting year had a direct and substantial relationship with inflation. This is attributed to time lags in public budgeting that made fiscal deficit incurred during an election to have impact after a year. These findings imply that election driven fiscal deficit is inflationary in the EAC. The study results agree with PBCs literature that expansion of economy in electioneering period is harmful (Rogoff and Sibert, 1988; Rogoff ,1990; Block, 2002; Block et al., 2003; Ebeke and Olcer 2013; Chiripanhura and Niño-Zarazúa, 2015; Mosley and Chiripanhura, 2016). The pre-election results support the fiscal theory of price level (FTPL), which asserts that rate of inflation is fiscally induced (Carlstrom and Fuerst, 2000). The findings also support previous research that the fiscal deficit is positively related with inflation (Catao and Terrones, 2005; Solomon and Wet, 2004; Wolde-Rufael, 2008; Ndanshau, 2012; Jayaraman and Chen, 2013; Lin and Chu, 2013; Nguyen, 2015; Keho, 2016).

In the EAC countries, the real rate of interest had an inverse and significant relationship with inflation. This suggests that rising interest rates are likely to lower the EAC's inflation rate. This leads to increase in inflation. Increase in trade openness was found to significantly rise general prices in the EAC. The findings suggest that that an improvement in the EAC's trade balance is likely to raise general price levels.

The findings regarding the relationship between primary fiscal imbalance, political budget cycles, and output growth in the EAC showed that fiscal deficits and political budget cycles play a key role in determining output growth in the region. The findings further showed that the EAC experienced lower GDP growth rate during elections compared to other years. At 1% level of significance, GDP was approximately 4.4% lower in election year in comparison to other years. Nevertheless, GDP growth rate declined in post-election year. This trend in GDP growth rate is consistent with PBC literature that elections can distort an economy's economic performance (Nordhaus, 1975; Rogoff, 1990; Block, 2002; Rogoff and Sibert, 1988; Block et al., 2003; Brender and Drazen, 2008; Lessem and Urban, 2013; Iddrusu and Bokpin, 2018).

Furthermore, pre-election and election-year fiscal deficits had a direct and statistically substantial long-term effect on the EAC's GDP rate of growth. These findings suggest that a fiscal deficit just before and during an election would increase output in the long term.

Nevertheless, the PMG estimation outcomes reveal that there is an adverse connection between fiscal disparity and GDP growth rate in the EAC, both in the immediate and extended periods.

The study findings agreed with the extant theoretical and empirical literature on PBCs (see, Bernhein,1989; Easterly and Rebelo, 1993; Fischer, 1993; Adam and Bevan, 2005; Adak, 2010; Mohanty, 2012; Rahman, 2012; Fatima et al., 2012; Nkrumah et al., 2016 and Rana and Wahid, 2017). Notably, political budget cycles were shown to be particularly common in Kenya, where fiscal deficits reduced GDP growth rates before and during elections. This is possibly related to the fact that elections in Kenya are more competitive than in other EAC Partner States, necessitating the use of fiscal policies to win elections. Election-related budget deficits in Uganda increased the rate of economic growth.

The findings of the research also indicate an inverse correlation between the GDP growth rate and the CPI inflation rate. This implies that the EAC's high price level is detrimental to economic progress. Trade openness and fixed capital formation both have statistically significant positive influences on output in the EAC. This suggests that increased private and public investment may boost EAC's economic growth. Total debt service payment, on the other hand, was found to significantly reduce economic growth in the EAC.

5.2 CONCLUSION

Fiscal deficits in the EAC systematically rise during pre-election and election periods and decline immediately thereafter. This is more pronounced in Kenya compared to other EAC states. In addition, political budget cycles significantly influence inflation and economic growth in the EAC. Election driven fiscal deficits increase inflation rate and lower GDP growth in the EAC. Furthermore, the inflation rate in the EAC is always higher in during pre-polls and voting years compared to other years. Moreover, GDP growth rate is approximately 4.4% lower during voting years compared to other years. Just before an election, presidential candidates implement expansionary fiscal policies to signal their competence in a bid to be re-elected. The voters, out of irrational ignorance, make political choices based on short term economic expansions. They view such candidates as competence and re-elect them. Such fiscal manipulations harm macroeconomic performance in the EAC.

5.3 POLICY IMPLICATIONS

Political budget cycles impact macroeconomy negatively. They stimulate inflation and reduce economic growth. Opportunistic public spending during election period needs to be restrained. In as much as high public expenditure could be good for economic growth especially when spent on productive investment projects, it could also be harmful if direction to consumption expenditure.

EAC states need to place legal and constitutional constraints on public expenditure so that projects that increase the level of output and maximize social welfare of citizens are always prioritized. Fiscal deficits should be moderated to promote sound macroeconomic environment. This calls for fiscal consolidation and discipline to reduce budget imbalances and public debt accumulation, both in the short- and long-term. This measure would be cost effective and minimize the probability of misuse of public resources, especially during election period. Moreover, a sustainable fiscal stance requires fiscal reforms that augment existing tax system for optimal revenue collection. Fiscal deficits in EAC could be reduced through measures such as increased tax revenue collection or more private investments.

There is need for a policy framework in EAC to provide accurate fiscal information to all citizens so as to reduce rational voter syndrome. In the presence of rational ignorance and information asymmetry, voters elect the wrong persons to office. Accurate periodical updates on the current state of an economy could help voters make informed choices during elections. The updates would serve as performance appraisal tools for the citizens. In addition, there is need for continuous civic education to help the electorate become informed-decision makers.

Furthermore, EAC countries must collaborate with international bodies to implement legal and constitutional checks that limit spending during election years. This can be done by controlling borrowings, whether foreign or local, during an election. The international community should limit foreign aid during election years. Legal and constitutional provisions are also needed to limit number of financial resources that a politician or political party can use during an election. EAC governments should adopt fiscal and monetary policies that promote and protect private investors to achieve favourable economic progress. This can be achieved through moderating tax and interest rates to stimulate private investment.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

Most developing countries, particularly Africa, are yet to investigate PBCs and their impact on macroeconomy, so much work remains to be done. Since higher deficits are linked to higher levels of government spending and it would be vital for future researchers to focus on the components of expenditure that are affected before and during the election periods. This will assist policy makers to formulate policies that manage such expenditures during the elections periods.

The study mainly focused on the general election years especially the presidential elections years. It is noteworthy that not all the countries in EAC elect the presidential candidates and parliamentary candidates at the same years. Moreover, these countries have different office terms for presidents and members of parliament. For further research it would be better to focus on both parliamentary and presidential elections.

The study findings suggest that political business cycles exist in the EAC as a regional block and at individual level. There is need for further research to examine why they exist in the EA. Additionally, there is need to investigate how to reconcile the fact that politicians are opportunistic and distort fiscal policy and positive impact of political budget cycles on economic growth.

REFERENCES

African Elections Database, (2022). A database of election results in Sub-Saharan Africa.

Adam, C. S., and Bevan D. L., (2005). Fiscal Deficits and Growth in Developing Countries, *Journal of Public Economics*, Vol.89, pp: 571-597.

Adak, M. (2010). Public Debt and Economic Growth: The Case of Turkey, *Maliye Dergisi*, vol. 159, pp. 233-243.

Ahmad, N. (2013). "The role of Budget Deficit in the Economic Growth of Pakistan", *Global Journal of Management and Business Research Economics and Commerce*, 13(5).

Akhmedov, A. and Zhuravskaya, E. (2004). Opportunistic Political Cycles: Test in a Young Democracy Setting, *Quarterly Journal of Economics*, vol. 119, pp. 1301-1338.

Albert, M. (2008). The Impact of a Budget Deficit on Inflation in Zimbabwe, *Munich Personal Re PEc Archive*. 24227 (2008).

Alesian A. and Perroti R. (1995). The Political Economy of Budget Deficits, IMF Working Papers, vol. 42, pp. 1-31.

Alesina, A. and Teballini, G. (1987). A Positive Theory of Fiscal Deficits and Government Debt in A Democracy, *National Bureau of Economic Research*, Working Paper No. 2308.

Alesina, A. (1989). Politics and Business Cycles in Industrial Democracies, *Economic Policy*, vol. 8, pp. 57-99.

Alesina, A. and Tabellini, G. (1990). A Political Theory of Fiscal Deficits and Government Debt in a Democracy, *Review of Economic Studies*, vol. 57(3), pp. 403-414.

Alesina, A., Roubini, N. and Cohen, G. (1997). *Political Cycles and The Macroeconomy*, Cambridge, MA: MIT Press.

Alesina, A., Perotti, R. and Tavares, J. **(**1998). The Political Economy of Fiscal Adjustments, *Brookings Papers on Economic Activity*, vol.1: pp. 197-248.

Al-Khedair, S. I. (1996). The Impact of the Budget Deficit on Key Macroeconomic variables in the Major Industrial Countries, Department of Economics Florida Atlantic University.

Alt, J. and Lassen, D. (2006a). Transparency, Political Polarization, and Political Budget Cycles in OECD Countries, *American Journal of Political Science*, vol. 50, pp. 530-550.

Anwar, M. and Ahmad, M. (2012). Political Determinants of Budget Deficit in Pakistan: An Empirical Investigation, *Hamburg Institute of International Economics (HWWI*) ISSN 1861-504X.

Arellano, M. and Bond, S.R. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an application of Employment Equations, *Review of Economic Studies*, vol.58: pp. 277-297.

Arellano, M. and Bover, O. (1995). Another Look at The Instrumental Variable Estimation of Error-Component Models, *Journal of Econometrics* vol. 68: pp. 29-51.

Aslam A.L. Mohamed and S. M. Ahamed Lebbe (2016). Impact of Fiscal Deficit on Inflation in Sri Lanka: An Econometric Time Series Analysis, *International Letters of Social and Humanistic Sciences* ISSN: 2300-2697, Vol. 70, pp 8-13.

Asteriou D. and Hall S.G. (2016). Applied econometrics (3rd ed, pp 459). Palgrave.

Avila, J. (2011). Fiscal Deficit, Macro-Uncertainty, and Growth in Argentina, available at http://www.ucema.edu.ar/publicaciones/download/documentos/456.pdf.*CEMA Working Papers no-456.*

Awolaja, G. O and Esefo, I. O. (2020) Budget Deficit and Economic Growth in Sub-Saharan Africa: PMG Approach. *Asian Journal of Economics, Business and Accounting*. Vol. 13. No. 3. Pp. 1-10.

Ball, L. N. and Mankiw, G. (1995). What Do Budget Deficits Do? *In 1995 Symposium Proceedings* –Budget Deficits and Debt: Issues and Option.

Baltagi, B. H. (2013). Econometric Analysis of Panel Data (5th ed., pp. 135-161, 175-180). Wiley.

Barro, R. J. (1978). Comment from an Unreconstructed Ricardian, *Journal of Monetary Economics,* vol. 4: pp. 569- 581.

Barro, R. J. (1979). On the Determination of the Public Debt, *Journal of Political Economy,* vol. 87: pp. 240-271.

Barro, R.J. (1989). The Ricardian Approach to Budget Deficit, *Journal of Economic Perspectives*, vol. 3(2): pp. 37-54.

Barro, R. J., (1995). Inflation and Economic Growth. *NBER Working Paper* No. w5326.

Baum, A, Checherita-Westphal, C. and Rother, P. (2013). Debt and Growth: New evidence for the Euro Area, *Journal of International Money and Finance,* vol. 32: pp. 809-821.

Bayar, A. and Smeets, B. (2009). Economic, Political and Institutional Determinants of Budget Deficits in the European Union, *CESifo Working Paper* No. 2611.

Bernheim, B. D. (1989). A Neoclassical Perspective on Budget Deficits, *Journal of Economic Perspective,* vol. 3: pp. 55-72.

Block, S. (2002). Elections, Electoral Competitiveness, and Political Budget Cycles in Developing Countries, Harvard University CID Working Paper, 78.

Block, S., Ferree K. and Singh, S. (2003). Multiparty Competition, Founding Elections and Political Business Cycles in Africa, *Journal of African Economies*, vol.12(3): pp. 444-468.

Blomberg, S.B. & Hess, G. (2003). Is the Political Business Cycle for Real? *Journal of Public Economics,* vol. 87: pp. 1091-1121.

Blundell, R. and Bond, S. R. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics* vol. 87: pp. 115-143

Blundell, R. and Bond, S. R. (1998). GMM Estimation with persistent panel data: an application to production functions, Econometric Reviews, vol. 19, issue 3, 321-340

Bose, N., Haque, M. E. and Osborn, D. R. (2007). Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Countries, *The Manchester School*. Vol. 75(5): pp. 33-556.

Brender, A. (2003). The Effect of Fiscal Performance on Local Government Election Results in Israel: 1989–1998, *Journal of Public Economics* vol. 87: pp. 2187-2205.

Brender, A. and Drazen, A. (2005). Political Budget Cycles in New Versus Established Democracies, *Journal of Monetary Economics* vol. 52: pp. 1271-1295.

Brender, A. and Drazen A. (2008). How Do Budget Deficits and Economic Growth Affect Re-election Prospects? Evidence from A Large Panel of Countries, *American Economic Review,* Vol.98, No.5, pp: 2203-2220.

Brennan, G. and Buchanan, J. (1980). *The Power to Tax: Analytical Foundations of a Fiscal Constitution*, Cambridge: Cambridge University Press.

Carlstrom, C.T. and Fuerst, T. S. (2000). The Fiscal Theory of The Price Level, *Economic Review,* Federal Reserve Bank of Cleveland: pp. 22-32.

Catao, L. A. V. and Terrones, M. E. (2005). Fiscal deficits and inflation, *Journal of Monetary Economics*, 52(3):529-554.

Chaudhary, M. A. and Abe, K. (1999). Pakistan economy: Current situation and future prospects, *Chiba University Economic Journal*, vol.14(1): pp. 49-85.

Chiripanhura, B. and Niño-Zarazúa, M. (2015), Aid, political business cycles and growth in Africa, *Journal of International Development,* vol. 27 No. 8, pp. 1387-1421.

Ciñar M, Eroglu I, Demirel B. (2014). Examining the role of budget deficit policies in economic growth from a Keynesian perspective. *International Journal of economic and finance*, vol.6 No.10, pp. 191-200.

Committee to Protect Journalists. (2020, January 16). Uganda: Government restricts media ahead of election.

Cottarelli, C., Griffiths, M.E.L. and Moghadam, R. (1998). The Nonmonetary Determinants of Inflation: A Panel Data Study, *IMF Working Papers 98/23 International Monetary Fund*.

Cukierman, A. and Meltzer, A. H. (1989). A Political Theory of Government Debt and Deficits in a Neo-Ricardian Framework, *American Economic Review*, vol. 79(4): pp. 713-732.

Dalyop, G.T. (2010). Fiscal Deficits and the Growth of Domestic Output in Nigeria, *Jos Journal of Economics*, vol.*4(1):* pp. 153-173.

Darrat, A. (2000). Are Budget Deficits Inflationary? A Reconsideration of The Evidence. *Applied Economics Letters* vol. 7(10): pp. 633-636.

Domaç, I. and Yücel, E. M. (2005). What Triggers Inflation in Emerging Market Economies? *Review of World Economics* vol. 141(1): pp. 141-164.

Drazen, A. and Eslava, M. (2005). Electoral Manipulation Via Voter-Friendly Spending: Theory and Evidence, *NBER working paper* 11085. Cambridge, MA: NBER.

Drukker, D. M. (2003). Testing for Serial Correlation in Linear Panel-Data Models, *The Stata Journal*, vol. 3(2): pp. 168-177.

Dwyer, G. P. (1982). Inflation and Government Deficits, Economic Inquiry vol. 20(3): pp. 315-329.

Drazen, A. and Eslava, M. (2004). Political Budget Cycles Without Deficits: How to play the Favourites, *Mimeo University of Maryland*.

Drazen, A. and Eslava, M. (2008). Electoral Manipulation Via Expenditure Composition: Theory and Evidence, *NBER Working Paper 11085*.

EAC, (2016). East African Community Facts and Figures-2016. Arusha, Tanzania.

EAC, (2016). Vision 2050: Regional vision for socio-economic transformation and development. Arusha, Tanzania.

EAC, (2019). East African Community Facts and Figures-2019 Arusha, Tanzania.

Easterly, W., and Schmidt-Hebbel K., (1993). Fiscal Deficits and Macroeconomic Performance in Developing Countries, *The World Bank Research Observer*, Vol. 8(2): pp. 211-237.

Edame, G.E. and Okoi, O.B. (2015). Fiscal Deficit and Economic Growth in Nigeria: A Chow Test Approach, *International Journal of Economics and Financial Issues*, vol. 5(3): pp. 748-752.

Eisner R., (1989). Budget deficits: Rhetoric and reality. *American Economic Association*. 1989;3(2):73–93.

Eminer, F. (2015). The impact of Budget Deficit on Economic Growth in North Cyprus, The *2015 WEI International Academic Conference Proceedings*.

Eslava, M. (2005). Political Budget Cycles or Voters as Fiscal Conservatives? Evidence from Colombia, *Mimeo, Universidad de Los Andes*.

Fatás, A., and Mihov, I. (2013). Policy Volatility, Institutions and Economic Growth, *The Review of Economics and Statistics*, vol. 95, No. 2, pp. 362-376.

Fatima, G., Ahmed, A. M and Rehman W. (2011). Fiscal Deficit and Economic Growth: An Analysis of Pakistan's Economy, *International Journal of Trade, Economics and Finance*, vol. 2(6): pp. 501-504.

Feldstein, M. (1976). Temporary layoffs in the theory of unemployment. *Journal of political economy*, *84*(5), 937-957.

Fischer, S. (1993). The Role of Macroeconomic Factors in Growth. *Journal of monetary economics*, *32*(3), 485-512.

Fischer, S., Sahay, R., and Végh, C. A. (2002). Modern Hyper and High Inflations. *Journal of Economic Literature*, vol. 40(3): pp. 837-880.

Fischer, S. (1991). Macroeconomic Development and Growth, *NBER Macroeconomics Annual*; pp. 329-364.

Friedman, M. (1968), "Inflation: Causes and Consequences", *In Dollars and Deficits: Living with America's Economic Problems*, pp. 21-71. Englewood Cliffs, NJ: Prentice-Hall.

Friedman, M. (1968). The Role of Monetary Policy, *American Economic Review*, vol. 58: pp. 1-17.

Furman, J. and Summers, L.H. (2019), "Who's afraid of budget deficits: how Washington should end its debt obsession", *Foreign Affairs*, Vol. 98, p. 82-95.

Gonzalez, M. (2002). Do Changes in Democracy Affect the Political Budget Cycle? Evidence from Mexico, *Review of Development Economics*, vol. 6: pp204-24.

Gruber, J. (2013). *Public Finance and Public Policy (Third Edition)*, Worth Publishers New York NY 100100.

Gupta, S., Clements, B., Baldacci, E. and Mulas-Granados, C. (2005). Fiscal Policy, Expenditure Composition, And Growth in Low-Income Countries, *Journal of International Money and Finance*, vol. 24(3): pp. 441-463.

Hadri, K. (2000). Testing for Stationarity in Heterogeneous Panel Data. *The Econometrics Journal*, 3(2): 148-161.

Hall, S. G., & Asteriou, D. (2016). Applied econometrics. Palgrave MacMillan.

Heckelman, J. C., & Berument, H. (1998). Political business cycles and endogenous elections. *Southern Economic Journal*, *64*(4), 987-1000.

Hibbs, D. A. (1977). Political Parties and Macroeconomic Policy, *American Political Science Review,* vol. 71: pp. 1467-87.

Hondroyiannis, G. and Papapetrou, E. (1997). Are budget deficits inflationary? A cointegration approach, Applied *Economics Letters* vol. 4(8): pp. 493-496.

Iddrisu, A. G. and Bokpin, G. A. (2018). Political Business Cycles and Economic Growth in Africa, *Journal of Economic Studies*, ISSN:0144-3585.

Im K, Pesaran H, Shin Y. (1997). Testing for unit roots in heterogeneous panels. DAE Working Papers Amalgamated Series No. 9526, *University of Cambridge.*

Im, K.S, Pesaran, M.H. and Shin, Y.C., (2003). Testing for Units Roots in Heterogeneous Panels, *Journal of Econometrics* vol. 115: pp. 53-74.

International Monetary Fund, (2023). World Economic Outlook, Washington, D.C.

Jayaraman, T. K., and Chen, H. (2013). Budget deficits and inflation in Pacific Island Countries: A panel study. *Working paper 2013/03. School of economics, the University of South Pacific.*

Kao, C. (1999). Spurious Regression and Residual-Based Tests for Cointegration in Panel Data *Journal of Econometrics*, 90(1): 1-44.

Keho, Y. (2010). Budget Deficits and Economic Growth: Causality Evidence and Policy Implications for WAEMU Countries, *European Journal of Economics, Finance and Administrative Sciences,* vol.18: pp. 99-104.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*, New York, Macmillan.

Khemani, S. (2004). Political Cycles in a Developing Economy: Effect of Elections in the Indian States, *Journal of Development Economics,* vol. 73(1): pp. 125-154.

Kiviet, J. F. (1995). On Bias, Inconsistency, and Efficiency of Various Estimators in Dynamic Panel Data Models. *Journal of Econometrics* vol. 68: pp. 53-78.

Kneller, R., Bleaney, M. F., and Gemmel, N. (1999). Fiscal Policy and Growth: Evidence from OECD Countries, *Journal of Public Economics*, vol. 74: pp. 171-190.

Krause, G. A. (2005). Electoral Incentives, Political Business Cycles, And Macroeconomic Performance: Empirical Evidence from Post-War U.S. Personal Income Growth, *British Journal of Political Science,* vol. 35(1): pp. 77-101.

Kwon, G., Lavern M. and Robinson, W. (2009). Public Debt, Money Supply, and Inflation: A Cross-Country Study, *IMF Staff Papers* vol. 56(3): pp. 476-515.

Leeper, E.M. (1991). Equilibria Under 'Active' And 'Passive' Monetary and Fiscal Policies, *Journal of Monetary Economics*, vol. 27(1): pp. 129-147.

Levin, A. and Lin, C.F. (1992). Unit root tests in panel data: new results, *Discussion paper,* Department of Economics, UC-San Diego.

Levin, A., Lin, C. and Chu, C. (2002). Unit Root Test in Panel Data: Asymptotic and Finite Sample Properties. *Journal of Econometrics* vol.108 (1): pp. 1–24.

Lin, H-Y. and Chu, H-P. (2013). Are Fiscal Deficits Inflationary? *Journal of International Money and Finance*, vol. 32: pp. 214-233.

Loungani, P. and Swagel, P. (2003). Sources of Inflation in Developing Countries. *Cambridge University Press, Cambrid*ge, pp. 207-232.

Luca, A. and Sousa, R.M. (2009). The Determinants of Public Deficit Volatility, European Central Bank, *Working Paper Series*, No 1042.

Lwanga, M.M. and Mawejje, J. (2014). Macroeconomic Effects of Budget Deficits in Uganda: A Var-Vecm Approach, *Economic Policy Research Centre (EPRC),* Research Series No. 117.

Maddala, G. S., and Wu, S. (1999). A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test. *Oxford Bulletin of Economics and Statistics,* 61(S1): 631-652.

Maji, A. and Achegbulu, J. O. (2012). The Impact of Fiscal Deficit on Economic Growth in Nigeria, *Canadian Research &Development Centre of Sciences and Cultures,* Vol.4, no. 2, pp. 127-132.

M'Amanja, D. and Morrissey, O. (2005). Fiscal Policy and Economic Growth in Kenya, *Centre for Research in Economic Development and International Trade, University of Nottingham.*

Mohanty, R. K., (2012). Fiscal Deficit-Economic Growth Nexus in India: A Cointegration Analysis, *New Delhi: Centre for Economic Studies & Planning, School of Social Sciences.*

Molocwa GA, Khamfula Y, Cheteni P. (2018). Budget deficits, investment and economic growth: A panel cointegration approach. *Investment Management and Financial Innovations.* Vol.15 No. 3:182–189.

Mosley, P. and Chiripanhura, B. (2016). The African Political Business Cycle: Varieties of Experience, *The Journal of Development Studies*, vol.52(7): pp. 917-932.

Republic Of Kenya, (2022). The National Treasury and Planning: Annual Public Debt Management Report For Financial Year 2021/2022.

Ndanshau, M. O. A. (2012). Budget Deficits, Money Supply and Inflation in Tanzania: A Multivariate Granger Causality Test, 1967-2010, University of Dar es Salaam, *Working Paper* No. 04/12.

Nguyen, V. B. (2015). Effects of Fiscal Deficit and Money M2 Supply on Inflation: Evidence from Selected Economies of Asia, *Journal of Economics, Finance and Administrative Science,* vol. 20: pp. 49-53.

Nguyen, T. C and Tran, T. L (2023) 'The Political Budget Cycles in Emerging and Developing Countries', *Journal of Economics and Development,* Vol. 25, No. 3, pp. 205-225.

Nickell, S. J. (1981). Biases in Dynamic Models with Fixed Effects, *Econometrica,* vol. 49: pp. 1417–1426.

Nordhaus, W. D. (1975). The Political Business Cycle, *Review of Economic Studies,* vol. 42(2): pp. 169–190.

Odhiambo, O. S., Momanyi G., Lucas O. and Aila F. O. (2013). The Relationship between Fiscal Deficits and Economic Growth in Kenya: An Empirical Investigation, *Greener Journal of Social Sciences,* vol.3(6): pp. 306-323.

Oladipo, S. O. and Akinbobola, T. O. (2011). Budget Deficit and Inflation in Nigeria: A Causal Relationship, *Journal of Emerging Trends in Economics and Management Sciences* (JETEMS), vol. 2(1): pp. 1-8.

Onwioduokit, E. A. (2012). An Empirical Estimation of Optimal Level of Fiscal Deficit in the West African Monetary Zone, *West African Journal of Monetary and Economic Integration*, vol. 6(2): pp. 1-14.

Pasten, R. and Cover, J. P. (2010). The Political Economy of unsustainable fiscal deficit, *Cuadernos De Economia,* vol. 47: pp. 169-189.

Pedroni, P. (1997). Panel Cointegration: Asymptotic and Finite Sample Properties of Tests with an Application to the PPP Hypothesis: New results. *Working Paper, Indiana university.*

Pedroni, P. (1999). Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors, *Oxford Bulletin of Economics and Statistics,* vol. 61: pp. 653–670.

Pedroni, P. (2000). Fully Modified OLS for Heterogeneous Cointegrated Panels, in B. Baltagi (ed.), Nonstationary Panels, Panel Cointegration, and Dynamic Panels, *Advances in Econometrics,* vol. 15, JAE Press, 2000, pp. 93-130.

Pedroni, P. (2004). Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis, in «Econometric Theory», 20, 2004, pp.597-625.

Peltzman, S. (1992). Voters as Fiscal Conservatives, Quarterly *Journal of Economic*s, vol.107, pp. 327–61.

Persson, T. and Tabellini, G. (2003). *The Economic Effects of Constitutions. What do the Data Say?* Cambridge, MA: MIT Press.

Persson, T. and Svensson, L. E. O. (1989). Why a Stubborn Conservative Would Run a Deficit: Policy with Time-Inconsistent Preferences, *Quarterly Journal of Economics,* vol.104 (5): pp. 325–345.

Pesaran, H., Shin, Y., and Smith, R., (1999). Pooled Mean Group Estimation and Dynamic Heterogeneous Panels, *Journal of the American Statistical Association,* vol. 94: pp. 621–634.

Pesaran, H., and Smith, R., (1995). Estimating Long-Run Relationships from Dynamic Heterogeneous Panels, *Journal of Econometrics,* vol. 68: pp. 79–113.

Pesaran, M. H. 2004. General diagnostic tests for cross section dependence in panels. University of Cambridge, Faculty of Economics, Cambridge Working Papers in Economics No. 0435.

Rahman, N. H. A. (2012). The Relationship Between Budget Deficit and Economic Growth from Malaysia's Perspective: An ARDL Approach, *2012 International Conference on Economics, Business Innovation*, IPEDR vol. 38: pp. 54-58.

Raji, J. O., Jusoh, J. and Jantan, M-D. (2014). Real Money Supply, Price and Fiscal Deficit in Nigeria: Evidence from Multivariate Granger Causality Tests, *Journal of Economic Cooperation and Development,* vol. 35(4): pp. 85-112.

Rana E.A and Wahid, A. N. M. (2017). Fiscal Deficit and Economic Growth in Bangladesh: A Time Series Analysis, *The American Economist,* vol. 62(1): pp. 31-42.

Reinhart, C. M., Reinhart, V. R. and Rogoff K. S. (2012). Public Debt Overhangs: Advanced-Economy Episodes since 1800, *Journal of Economic Perspectives,* vol. 26(3): pp. 69-86.

Republic of Rwanda. (2017). Vision 2050: A Long-Term Development Plan.

Rogoff, K. and Silbert, A. (1988), Elections and Macroeconomic Policy Cycles, *Review of Economic Studies*, vol. 55: pp. 1-16.

Rogoff, K. (1990). Equilibrium Political Budget Cycles, *American Economic Review*, vol. 80: pp. 21–36.

Romer, D. (2019). *Advanced Macroeconomics* (Fifth Edition). McGraw-Hill Irwin, 1221 Avenue of the Americas, New York.

Roodman, D. (2009). A note on the theme of too many instruments. Oxford Bulletin of Economics and statistics, 71(1), 135-158.

Sablik, T. (2019). Do Budget Deficits Matter? *Federal Reserve Bank of Richmond, Econ Focus.*

Sargan, J. D. (1958). The Estimation of Economic Relationships Using Instrumental Variables. *Econometrica,* vol. 26: 393-415.

Sargent, T. and Wallace, N. (1981). Some Unpleasant Monetary Arithmetic, *Federal Reserve Bank of Minneapolis Quarterly Review, Fall.*

Schuknecht, L. (1998). Political Business Cycles and Fiscal Policies in Developing Countries, *Kyklos*, vol. 49(2), 155-170.

Schuknecht, L. (2000). Fiscal Policy Cycles and Public Expenditure in Developing Countries," *Public Choice,* vol.102(1-2): pp. 115-130.

Shi, M. and Svensson, J. (2002). Conditional Political Budget Cycles, *CEPR Discussion Paper* No. 3352

Shi, M. and Svenson, J. (2002b). Political Budget Cycles in Developed and Developing Countries, *Working Paper, IIES, Stockholm University*.

Shi, M. and Jakob Svenson (2006). Political Budget Cycles: Do They Differ Across Countries and Why? *Journal of Public Economics,* vol. 90, pp. 1367– 89.

Sims C.A. (1997). Fiscal Foundations of Price Stability in Open Economies, *unpublished manuscript,* Yale University, September.

Sims, C.A. (1994). A Simple Model for Study of The Determination of The Price Level and The Interaction of Monetary and Fiscal Policy, *Economic Theory*, vol. 4(3): pp. 381-39 9.

Solomon, M. and Wet, W. A. (2004). The Effect of a Budget Deficit on Inflation: The Case of Tanzania, *South African Journal of Economic and Management Sciences*, vol. 7(1): pp. 100-116.

Tabellini, P. and Alesina, A. (1990). Voting on the Budget Deficit, *American Economic Review*, vol. 80 (3): pp. 37-49.

Tan, E. C. (2006). Fiscal Deficits, Inflation and Economic Growth in a Successful Open Developing Economy, *Review of Applied Economics*, vol.2, No.1, pp: 129-139.

Taylor, L., Proano. C. R., Carvalho, L. and Barbosa N. (2012). Fiscal Deficits, Economic Growth and Government Debt in the USA, *Cambridge Journal of Economics*, vol. 36 (1): pp. 189–204.

Tekin-Koru, A. and Ozmen, E. (2003). Budget Deficits, Money Growth and Inflation: The Turkish Evidence, *Applied Economics* vol. 35(5): pp. 591-596.

Velnampy T. and Achchuthan S. (2013). Fiscal Deficit and Economic Growth: A Study on Sri Lankan Economic Perspective, *Developing Country Studies*, vol. 3(3): pp. 166-175.

Wickens, M. (2013). *Macroeconomic Theory: A Dynamic General Equilibrium Approach*, Princeton University Press.

Wolde-Rufael, Y. (2008). Budget Deficits, Money and Inflation: The Case of Ethiopia, *The Journal of Developing Areas* vol.42(1): pp. 183-199.

Woodford, M. (1994). Monetary Policy and Price-Level Determinacy in a Cash-in-Advance Economy, *Economic Theory*, Vol. 4(3), pp. 345-380.

Woodford, M. (1995). Price-Level Determinacy without Control of a Monetary Aggregate, *Carnegie-Rochester Conference Series on Public Policy*, Vol. 43: pp. 1-46.

Woodford, M. (1996). Control of Public Debt: A Requirement for Price Stability? *NBER Working Paper*, No. 5684, July.

World Bank, (2022). World Development Indicators.

APPENDIX

Table 45: Some Political Characteristics of EAC Countries

Country	Independence Year	Presidential Term	Commencement of Multiparty System	Presidential Election Years at Party System	Democracy
Burundi	1962	5 years	2005	Single party: 1984 Multiparty: 1993, 2005, 2010and 2015.	RESTRICTED
Kenya	1963	5 years	1992	Single Party: 1969, 1974, 1979, 1983 and 1988. Multiparty: 1961, 1963, 1992, 1997, 2002, 2007,2013 and 2017.	OPEN
Rwanda	1962	7 years	2003	Single Party: 1965, 1969, 1978, 1983, 1988 Multiparty: 2003, 2010 and 2017.	RESTRICTED
Tanzania	1961	5 years	1992	Multiparty: 1962, 1995, 2000, 2005, 2010 and 2015 Single Party: 1965, 1970, 1975, 1980, 1985, 1990	OPEN
Uganda	1962	5 years	2006	Multiparty: 2006, 2011 and 2016 Non-Partisan: 1996, 2001.	RESTRICTED

Source: Author's compilation from AED (2022)