Fiscal Rules and the Compliance debate: Why do Countries adopt Rules and fail to comply

Martin Wafula Nandelenga and Mark J. Ellyne

ERSA working paper 815

March 2020

Fiscal Rules and the Compliance debate: Why do Countries adopt Rules and fail to comply?

Martin Wafula Nandelenga*and Mark J. Ellyne†

April 1, 2020

Abstract

We study the compliance with fiscal rules via various national numeric rules. Based on 20 sub-Sahara African countries with 57 fiscal rules in force from 1997 to 2016, our analysis identifies determinants among the rule specific characteristics, as well as their macroeconomic and political environments. To meet the objectives of our study, we employ a logistic model. Our analysis reveals that, while the average compliance rate is around 54 percent, there is significant heterogeneity among both individual rules and national compliance rates. The analysis shows that the debt rule has a higher probability of compliance compared to balanced budget and revenue rules, respectively. Furthermore, the analysis shows that rules supported with independent monitoring institutions, as well as those covering the central government, have a higher probability of compliance. Moreover, the findings show that GDP per capita and grants enhance the probability of compliance, while corruption increases a country's probability of non-compliance. To address endogeneity that may arise in our analysis, we employ an IV Probit model, and our results still stand.

Keywords: Numeric fiscal rules, Compliance, Deficit bias, Institutions
JEL Classifications: E620, H600, H110

1 Introduction

In the aftermath of debt relief in developing countries and the recent debt crisis in Europe, many countries have significantly strengthened their fiscal policy. Most importantly, countries have improved their fiscal surveillance with fiscal rules at both national and regional levels. Sub-Sahara Africa (SSA) countries are at the forefront of this trend, and by 2016, 57 fiscal rules were in operation in SSA in 25 countries. This means that, on average, each country has two rules for fiscal management. The key elements of fiscal rules are the numerical rules

*University of Cape Town (School of Economics), Rondebosch, South Africa and Egerton University (Department of Economics), Box 536-20115, Nakuru, Kenya. Email: nmartin200884@gmail.com. Corresponding Author

†Department of Economics, Egerton University, Box 536-20115, Nakuru, Kenya

that restrict discretionary spending by governments and impart a sense of fiscal credibility. In this paper, we empirically analyse the probability of compliance with fiscal rules in SSA and examine the role of institutions and macroeconomic variables on the compliance debate. We define compliance with fiscal rules as periods in which countries do not surpass their numeric targets[1].

Questions regarding compliance with fiscal rules have turned out to be difficult to answer for various reasons. Firstly, apart from the International Monetary Fund (IMF) fiscal rules database, the details and dynamics of a nation's fiscal rules do not obviously show if that nation complied or not (IMF, 2017). Secondly, information on compliance with individual fiscal rules is not readily available, and even when available, it is not obvious what determines compliance with these rules. Therefore, the compliance question is necessary to address before one tackles the effectiveness of rules and their future reforms[2]. This paper, therefore, aims to answer the following questions: What are the determinants of compliance for different fiscal rules? Does compliance rate vary when rules become more complex? And does compliance with rules affect their fiscal targets? The theoretical framework for rules is based on deficit bias, and rules are introduced to influence policy design and anchor agents' expectation about the government's commitment to fiscal discipline. Recently, interest in adoption of fiscal rules has risen as a reaction to rapidly rising debt and unsustainable deficits (Hallerberg et al., 2007). Despite the attractiveness of these rules, however, the determinants that enhance the efficacy of specific rules, and their compliance in mitigating the deficit bias, are not clear. At the same time, political factors significantly influence fiscal policy compliance, such that democratic and politically stable countries have a higher probability of compliance Ivanova et al. (2001); Nsouli et al. (2004); Dreher (2006); Joyce (2004).

There is a vast literature on the effectiveness of rules, which has led to a surge in adoption of rules by countries for policy management. In general, empirical evidence suggests that the introduction of fiscal rules, among other factors, leads

[1] Throughout the paper, 'compliance with fiscal rules' refers to events where fiscal outturns are within or below the corresponding numeric fiscal targets (e.g. if the debt limit is set at 50 percent of GDP, and the current debt is less or equal to 50 percent, the country is said to have complied).

[2] In this paper we refer to effectiveness of fiscal rules based on the success of fiscal rules in producing the desired result or outcome. For example, a fiscal rule is deemed to be effective to enhanced fiscal space if, indeed, it leads to higher fiscal space. Similarly, a rule is effective if it achieves the intended objective, e.g. if the rule leads to output stabilisation in the short run and fiscal sustainability in the long run. As such, effectiveness of rules can be assessed as a process that may take time to realise the intended outcome. This line of thought is explored by several authors. Poterba (1994) finds that US states with more restrictive fiscal institutions that employ balanced budgets and limits on tax revenue and spending are correlated with significant reduction in deficits.

Bergman et al. (2016) finds that fiscal rules are effective in reducing the structural primary deficits in selected European countries. Other authors have determined rules to be associated with improved and sustainable public finances (Debrun et al. (2008). Nerlich and Reuter (2013); Dirk Foremny (2014). Sacchi and Salotti (2015)) study the relationship between discretionary fiscal policy and macroeconomic stability in 21 OECD countries. Their findings show that fiscal rules induce discretionary policy to become output stabilising especially in presence of balanced budget.

to enhanced time consistency of macroeconomic policy, lowers fiscal deficits, reduces sovereign risk premia, and enhance fiscal space Kopits (2004); Calmfors and Wren-Lewis (2011); Bergman *et al.* (2016); (Thornton & Vasilakis, 2017); Nerlich and Reuter (2016). Against this backdrop, only a few papers have focused on this thematic area of compliance with fiscal rules. Among them, Delgado Tellez et al. (2016) analyses the compliance with fiscal rules at the subnational level in Spain. The authors find that fiscal noncompliance is persistent in Spain and increases with the size of growth forecasts. On the other hand, Cordes et al. (2015) examines compliance with expenditure rules in developed and emerging countries. They find that expenditure rules are complied with more often than other rules, especially when employed in a coalition government or in the presence of statutory law, and in cases where rules have explicit nominal targets. Frankel and Schreger (2013) investigate the compliance with supranational rules in the European Union and find that government forecasts are biased if the government violates fiscal deficit of 3 percent of GDP of the target level. The authors conclude that this bias is mitigated when rules are supported by fiscal councils[3]. Broadly speaking, fiscal councils can contribute to improved fiscal policy, as they can limit political influence over technical aspects of policy formulation. Along the same lines, Reuter (2018) investigates the compliance of fiscal rules in the European Union, and finds that independent monitoring and enforcement bodies are associated with higher probability of compliance.

The present paper complements existing literature and departs from the above by focusing on the determinants of fiscal rules compliance and other features relevant to SSA. Firstly, we focus on debt rule, balanced budget rule and revenue rules, which are widely employed in SSA. Secondly, we deviate from Reuter (2018) by including other variables that specifically have significant influence on SSA, like grants. Numerous countries have grants as a major component of their GDP of about 10 percent. Likewise, most countries in SSA have high debt levels; thus, interest payments constrain their compliance rates, and with high levels of inequality, GDP per capita could shed light on country's compliance ability. Thirdly, institutional setups have a significant influence on a country's fiscal management and could form part of determinants of fiscal rules compliance. Fourthly, we focus on Sub-Saharan African countries with fis-

[3] Fiscal councils are independent bodies set up by governments to evaluate fiscal policy and offer independent macroeconomic forecasts, e.g. making revenue projections. In this case, they limit the self-interested upward bias, thus fostering transparency on budgetary decisions (Debrun and Kinda (2017); Beetsma et al. (2019)). According to Beetsma *et al.* (2019) fiscal councils have substantially increased and are heterogeneous in mandate, remit, size etc. across the world. Additionally, they also differ, as indicated by their differing national titles, e.g. Austria – Fiscal Advisory Council, U.S. – Congressional Budget Office, Denmark – Danish Economic Council, in Kenya, Uganda and South Africa – Parliamentary Budget Office, Belgium – Federal Planning Bureau, Germany – Independent Advisory Board to the German Stability Council.

In this paper, it is important to note that having a fiscal council does not indicate that a country has a fiscal rule. Therefore, it is possible for a country to have either a fiscal council or fiscal rules, or both at the same time, e.g. Chile has both a fiscal rule and a fiscal council, while South Africa has only a fiscal council (see IMF (2016, 2017))

cal rules in place. The sub-Saharan African region presents an interesting case study, since the region has the highest inequality and poverty levels in the world, and the majority of its countries are classified as low income by the World Bank. Similarly, majority of its countries have significantly high debt levels, and of the 39 countries that benefited from Highly Indebted Poor Countries (HIPC), 36 of them came from SSA (see IMF, 2019a)[4]. Moreover, SSA countries are susceptible to negative shocks (see *Figure A1.4*)[5]. As noted earlier, only a smattering of papers has focused on the compliance subject, and in fact, none of the studies has focused on SSA, despite the region's growing importance in the global economy.

In recent years, enthusiasm for fiscal policy has increased, with a growing recognition that governments may not always serve public interest. In monetary policy rules, like inflation targeting, the mandate has been precise, and so far, results have been impressive. In fact, the credibility of central banks has increased, and they have become more transparent and accountable (Wyplosz, 2005). As with fiscal rules, they have also been made flexible and stringent with specified numeric targets. At the fundamental level, fiscal rules are supposed to be simple, easy to implement, and set explicit numeric targets (Schaechter et al., 2012). The compliance with rules, in principle, should restore fiscal policy credibility, enhance long-run fiscal sustainability, and buttress government efforts to implement fiscal discipline. Central to this is the extensive information asymmetry and the dynamic inconsistency of macroeconomic policy, given that public finance and budget processes are at the centre of a political process. Not surprisingly, because of the aforementioned challenges, there has been a rise in adoption of fiscal rules which has extended across the world. At the same time, in SSA, countries have continued with a surge in public debt and deficits, while undertaking reforms on fiscal rules over time[6]. While reforms are important to improve on the rule's future performance, the question that arises is: why countries fail to keep their promise.

To meet the objectives of this paper, we employ both a panel logistic model and instrumental variable probit model. The latter approach is employed to address the potential endogeneity problem that may arise in adoption of, and compliance with, fiscal rules. Our empirical findings show that monitoring enhances fiscal rules compliance. Similarly, coverage of rules determines the compliance rate, and thus, rules adopted and covering the central government have a high probability of compliance. Furthermore, institutional factors also play a significant role in a country's compliance rate. High corruption increases the

[4] Heavily Indebted Poor Countries (HIPC) was launched in 1996 by the International Monetary Fund (IMF) and the World Bank (WB) to ensure poor countries have sustainable debt levels. The Multilateral Debt Relief (MDR) initiative was launched in 2005 to supplement the HIPC by the IMF, WB, Africa Development Bank (AfDB) and the Inter-American Development Bank (IaDB) to help meet the Millennium Development Goals (MDGs).

[5] *Figure A1.4* shows before and after the global financial crisis of 2007. It is evident that the negative shock of the financial crisis affected the selected SSA countries. Although prior to the global financial crisis several countries had fiscal surplus (e.g. Equatorial Guinea, Botswana), after the financial crisis, the fiscal deficits widened for all countries except for Gabon.

[6] See *Figure 1.3* and *1.4* on the debt and deficit comparison among SSA countries.

probability of non-compliance, while regulatory quality enhances compliance of fiscal rules. Our findings also confirm that, overall, the debt rules are widely complied with, while revenue rules are complied with the least. Macroeconomic factors also have an impact on compliance with fiscal rules -, that is, enhanced grants and GDP per capita is associated with higher probability of compliance[7]. Our survey also reveals that significant heterogeneity exists among countries and individual fiscal rules.

The remainder of the paper is structured as follows: Sections 1.1-1.3 motivates the research by presenting types of fiscal rules, survey of fiscal rules and fiscal policy in SSA. Section 1.4 presents the literature review. Sections 1.5-1.6 presents the construction of fiscal rules index and summary of fiscal rules in SSA. Section 1.7-1.8 presents the data and compliance statistics, while sections 1.9-1.10 presents the methodology and summary statistics. Sections 1.11 presents the results while section 1.12 presents the robustness checks. Section 1.13 presents the conclusions and policy implications.

1.1 Types of Fiscal Rules

Fiscal rules provide boundaries on fiscal policy which cannot frequently be changed, and stipulate operational guidelines that specify the numeric target on the budgetary aggregates. Therefore, fiscal rules impose a long-lasting constraint on fiscal policy with numerical limits on budgetary aggregates. As such, these rules serve various objectives, including economic stabilisation, as they allow fiscal accounts to adjust to various economic activities. Rules have also been introduced to contain the size of government and act as an anchor for medium term credibility. While various fiscal rules exist in literature, this paper takes a clear focus on rules that are embedded with the following characteristics. Firstly, we consider rules that have specific numeric targets outlined in a country's legal framework or applied at supranational level[8]. Secondly, we consider fiscal rules that have a lower frequency of revision, wherein the adoption and revision is binding for three years. Thirdly, we consider rules that capture a large share of public finances, both at central government and general government level, and have a wider effect on the economy. Fourth, we consider rules that were adopted up to the end of 2017, both at national and supranational levels.

While fiscal rules may be interpreted in several ways, in this paper, we refer to those targets and ceilings that are imposed on fiscal aggregates, with the aim of providing guidance and imposing constraint on the conduct of fiscal policy over a significant period of time. Following Schaechter *et al.* (2012), we

[7] Grants in this paper refers to Official Development Assistance (ODA) grants. Is financial assistance offered for budget support but does not carry repayment obligation.

[8] According to Schaechter *et al.* (2012) countries operate either procedural rules or numerical rules, or both, in their fiscal management. The procedural rules establish good practices and transparency in the budget making process, and the structure of these rules can be modified to strengthen institutions, including the finance ministry (Drazen, 2004). However, procedural rules are subject to manipulation by the political class as they are not anchored in legislation. In instances where they are in legislation, they do not offer explicit numeric targets for policy guidance (Schaechter *et al.*, 2012).

define fiscal rules as a long-lasting constraint on fiscal policy through numeric limits on budgetary aggregates[9]. This means that fiscal limits or boundaries are explicitly set and cannot frequently change, and that they should be provided with operational guidance specifying numeric targets that limits a particular budgetary aggregate. Several types of fiscal rules exist in the literature, and they exhibit different characteristics and are employed to achieve different objectives based on the need for their adoption[10].

This paper considers the following types of fiscal rules: firstly, debt rules, which explicitly set numeric limits on public debt as a share of GDP. Secondly, balanced budget rules, which constrain the variable that influences the debt ratio by setting the numeric limit. Thirdly, expenditure rules, which are set in absolute or growth rate limits on spending as a share of GDP. Fourthly, revenue rules, which set ceilings or floors on revenues and aim at boosting revenue or preventing excessive tax burden. Finally, sovereign wealth funds, which provide a numeric percent of savings from a revenue windfall and the percent of withdrawal in a downturn[11].

1.2 Survey of Fiscal rules in selected Sub-Sahara African countries

The neoclassical smoothing model argues that governments should employ countercyclical fiscal policy by running surpluses in a boom and deficits in a downturn. In the context of developing countries, there is a wealth of evidence that they exhibit procyclical fiscal policy. In turn, this has led to macroeconomic volatility, elevated fiscal vulnerability, impeded investment, and exacerbated debt accumulation leading to debt relief. For SSA, the procyclical nature of fiscal policy has been exacerbated by uncertainty and the high volatility of fiscal revenues, as several countries depend on commodity linked revenues, credit constraints, exposure of countries to shocks (conflicts, Ebola, trade shocks), and high levels of informal economy and political business cycles. Empirical literature suggests that market discipline cannot mitigate procyclical fiscal policy and deficit bias. In fact, markets only intervene discontinuously. In this regard, an increasing number of countries have steadily adopted fiscal rules to address the shortcomings, with a goal of creating fiscal space and providing credible medium-term anchors for public finances.

[9] Fiscal rules can be specified in national constitutions through a statute, an Act of Parliament, or a treaty, and should explicitly specify the numeric target (e.g. SGP debt rule of 60 percent of GDP, WAEMU deficit rule of 3 percent of GDP etc.). The fiscal rules can apply to the general or central government, supranational level (e.g. WAEMU) or subnational governments (e.g. Germany and Spanish subnational rules) (see (Kopits (2004) and Dirk Foremny (2014)).

[10] Fiscal rules considered in this paper cover the central or general government and supranational level. Therefore, fiscal rules applied to the local or subnational government, or the individual sector, are not considered.

[11] The appendix provides a detailed explanation of each individual rule and the pros and cons thereof. In this paper we do not consider the sovereign wealth fund rule in our analysis, as few sub-Saharan countries make use of it.

This section makes three distinct contributions to fiscal literature. Firstly, we track the evolution of fiscal rules in SSA using various characteristics that uniquely apply to the region. In particular, using a survey study we systematically analyse the adoption of fiscal rules following different fiscal slippages and macroeconomic shocks in SSA[12]. Secondly, we corroborate and extend fiscal policy literature in developing economies and highlight how the efficacy of rules is tied to institutions and political environment. As such, economies that have rules supported by effective institutions tend to mitigate deficit bias and deploy countercyclical fiscal policy. Thirdly, we present a comprehensive review of rules and institutions for selected SSA countries and how they have evolved in support of strengthening fiscal rules for enhanced fiscal space. The survey studies several SSA countries at both national and regional level, which include: West African Economic Monetary Union (WAEMU)[13], Central Africa Economic and Monetary Union (CEMAC)[14], Mauritius, Nigeria and Kenya. Therefore, in this section we explore a range of statutory provisions, sanctions for non-compliance, design features and operational arrangements of rules.

1.2.1 Fiscal rules in Sub-Sahara Africa

The number of fiscal rules in SSA has grown steadily over time, from only 4 fiscal rules in the 1990s to 57 by 2016 (see *Figure 1.1 and Table 1.2*). Over this period, the use of debt rules and balanced budget rules has been considerably high, and none of the rules adopted has been abolished. The use of expenditure rule is infrequent, with only Namibia and Botswana employing the rule. Currently, about 42 percent and 38 percent of numeric rules in place in SSA are debt rules and balanced budget rules, respectively, with 15 percent being revenue rules and only 3.5 percent being expenditure rules. As noted earlier, fiscal rules were first enacted and used in SSA in 1997, after which the number of countries with legislated fiscal rules increased to 25 by end of 2016 (see *Figure 1.1*). These rules are adopted at the national and supranational levels, and the supranational or regional rules include the West African Economic and Monetary Union (WAEMU), Central Africa and Economic Monetary Community (CEMAC) and East Africa Monetary Union (EAMU). To strengthen the effectiveness of fiscal rules, countries employ a combination of rules, and at least 24 countries use more than one rule for fiscal management.

Figure 1.2 provides interesting observations of the characteristics of fiscal rules employed in SSA. The information in the figure shows that fiscal rules

[12] As noted earlier, countries employ either procedural rules or numeric rules. Therefore, in this paper we consider only numeric rules that are captured in a legislation with a clear fiscal numeric target. Countries that have procedural rules, e.g. South Africa, are not considered. South Africa has employed the Public Finance Management Act No. 1 of 1999 (the Act was amended in 2010) in fiscal management; however, this legislation does not set a numerical target (see Republic of South Africa (2010)).

[13] WAEMU consists of the following member countries: Benin, Burkina Faso, Cote D'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.

[14] CEMAC members include: Cameroun, The Central Africa Republic, Congo Republic, Gabon, Equatorial Guinea and Chad.

have gone through several changes, thereby increasing their credibility over time. At the national and regional levels, there also exist considerable variations, and a few interesting features deserve attention. The changes made include the adoption of rules at the regional levels to help mitigate negative spillover effects among member countries. Some countries have clearly-defined expenditures at different layers of government and allocations for development and recurrent spending. To strengthen the rules' operations, several countries have implemented oversight institutions (such as parliamentary committees) and legislations, including the Public Finance Management Act, which strengthens the operation of financial rules. Three countries employ rules in a political commitment, while only one country's rules operate under a coalition arrangement.

We also establish that fiscal rules in SSA are applied at central government (CG) and general government (GG) levels, as well as at the level of regional rules (RC) (*Figure 1.2*). Countries in WAEMU, CEMAC and EAMU regions implement rules at both regional levels and central government levels[15]. This reflects the willingness of governments to impose constraints at national levels and avoid negative spillover effects at the regional level to ensure coordination. The application of fiscal rules at the regional level, and the implementation of regional treaties by national governments, has increased considerably. Only two countries - Liberia and Mauritius - implement rules at the general government levels. In terms of legal framework, only 5 countries have a Legal Act to enforce rules in their jurisdictions. We find that, of the countries with fiscal rules, only Nigeria and Liberia have *'Fiscal Responsibility Law'* in place to guide the implementation of rules. It has been argued in the literature that the effect of fiscal rules depends on efficacy of institutions, and only a few countries from our sample have fiscal councils that help monitor implementation of fiscal rules. Most of the countries with fiscal councils are at the supranational level but supported by national committees. Moreover, to enhance investment, which is crucial for developing countries, 15 fiscal rules explicitly exclude investment. Interestingly, 15 fiscal rules also have escape clauses, which enables these countries to spend beyond the targeted variables limit in case of a shock on the economy (see *Figure A1.1*).

1.2.2 WAEMU

The West African Economic and Monetary Union (WAEMU) has a long history of fiscal and monetary policy convergence dating back to 1994. Fiscal rules were adopted in the region from 2000 to enhance fiscal discipline. The treaty that defines the convergence criteria contains, among other things, a zero fiscal deficit ceiling, member countries' restriction from holding arrears, and 70 percent debt-to-GDP ratio. In addition, the treaty outlines the decreasing of the public sector wage bill to 35 percent of the fiscal revenues, tax revenue of 20 percent of GDP, and investment from domestic revenue of 20 percent of tax revenue realised

[15] The EAMU – East Africa Monetary Union. Member countries include: Kenya, Uganda, Tanzania, Rwanda and Burundi.

within a given financial year (see Masson and Dore (2002); Masson and Pattillo (2002))[16].

To enhance efficiency in regional fiscal management, fiscal rules are monitored by the WAEMU commission, which is tasked with the responsibility of assessing and monitoring compliance with fiscal rules for the fiscal sustainability of member countries by preparing half-year progress reports (Hitaj & Onder, 2013). In case of non-compliance with fiscal rules by a member state, the report is forwarded to the WAEMU council and subjected to a vote. The treaty outlines that, in order to sanction a member country, a two thirds majority must be reached; in the case of failure, the report is made public (Hitaj & Onder, 2013). The WAEMU commission's effort are supplemented by National Committees for Economic Policy (NCEP) that gather country information and prepare national quarterly progress reports on the convergence criteria[17]. Several reforms of rules have been undertaken to enhance fiscal consolidation efforts. In particular, reforms undertaken in 2014 centred on the simplification of rules, and on making compliance easy by revising the zero fiscal deficit to 3 percent of GDP and increasing the tax revenue from 17 percent to 20 percent of GDP (Basdevant, 2015).

1.2.3 CEMAC Fiscal rules

Following several episodes of fiscal distress and the need to coordinate fiscal and monetary policy, CEMAC was formed in 1994 to enhance regional surveillance framework. This regional grouping's objectives are to enhance fiscal surveillance and prevent the excessive occurrence of deficits[18]. These efforts were refined in 2001 by allowing a quantitative convergence criteria aimed at regional fiscal sustainability and monitoring fiscal rules compliance, which was adopted and implemented in 2002 (see Iossifov *et al.* (2009); Mihalyi and Fernández (2018)). The surveillance criteria adopted by CEMAC member countries included the stock of public debt being less than or equal to 70 percent of GDP, non-accumulation of arrears, and a positive fiscal balance. The CEMAC rules predict compliance slippages. and thus, countries that do not meet these criteria are required to adopt a three-year adjustment programme (BIKAI, 2015). Several revisions on rules were undertaken in 2005 to include the oil wealth, and in 2008 to include the structural fiscal balance on the BBR to be balanced or in

[16] Throughout this paper, 'wages' refers to public sector wages.

[17] According to Hitaj and Onder (2013), the WAEMU council publishes the report of regional member fiscal sustainability and may assist the member country seeking financial support by, for instance, granting access to WAEMU resources. The member country is also required under the treaty arrangement to come up with a plan to correct the fiscal deficit within 30 days and the council has a series of sanctions: to publish the country's economic situation, with assistance to the country, the West African Development Bank can review the country's development plan and suspension of the regional resources to the country.

[18] The history of convergence for Central African countries dates back to 1946, during the French colonisation of these countries. Since the 1985 policy of a strong Franc in the Francophone region, subsequent efforts at monetary and fiscal surveillance have been employed. This led to 1994 devaluation of CFA franc that was important in improving terms of trade and enhancing economic growth in the region (Iossifov et al., 2009).

surplus. Additionally, 2008 reforms included adoption of the non-oil basic fiscal balance that helped step up surveillance efforts, as it delinks from the volatile and temporary oil revenue. Between 2012 and 2016, several other reforms have been undertaken to further tighten the rules by including the medium-term fiscal framework, which limits non-oil primary deficit and implements a lower debt ceiling (Mihalyi & Fernández, 2018). Moreover, other reforms include a new monitoring mechanism on a three-year debt level with a new debt ceiling of 70 percent on average that includes the oil revenues.

1.2.4 Mauritius

Over the years, Mauritius has maintained an impressive track record of governmental and institutional performance compared to other SSA countries. The country adopted the debt rule under the Public Debt Management (PDM) Act that was passed in 2008. This rule is captured in the PDM Act section 7, subsections (2) and (3). The Act outlines that total outstanding amount of public debt shall, at the end of each fiscal year, not exceed 60 percent of GDP at the current market price for that fiscal year (see Republic of Mauritius (2008)). In addition, the PDM Act shows that the percentage referred to in subsection 2 shall, at the end of 31 December 2018, decrease, and shall not exceed 50 percent of GDP, which shall remain the ceiling going forward. The fiscal rule further provides room for an escape clause, wherein, in the event of a natural disaster or emergency, or the government undertakes large investment project(s) and in the presence of economic slowdown, the rule shall be violated.

1.2.5 Nigeria

Following the oil volatility, there have been concerted efforts to ensure sustainability of fiscal policy in Nigeria. The adoption of fiscal rules and anchoring them to the country's legislation follows advice from the IMF on fiscal procyclicality in the country. In 2003, the IMF advised the Nigerian authorities about the need to address the boom and bust cycles that characterised fiscal policy in the country and recommended the adoption of oil-price-based fiscal rules (IMF, 2003). This advice followed a worrisome trend development in 2002 wherein, despite high oil prices, there were no mechanisms to save excess oil proceeds. Following a political agreement in 2004, an oil price fiscal rule was introduced that provided for excess oil revenue to be saved in excess crude oil account (SWF). In the following years, with technical advice from IMF, the BBR operated under the fiscal responsibility Act that was introduced in 2007 (see Republic of Nigeria (2007)). Initially, the law applied to the federal government, but since then, with political support, states have passed legislation in support of the Act (IMF, 2007). The country employs a BBR that is captured under the Fiscal Responsibility Commission (FRC) Act 2007. The FRC Act establishes the commission responsible for observing and authorising provisions of the Act to guarantee effectiveness. *Part II (section 12 sub-section 1,2) and IV (section 41 sub-section 1a, 1b)* of the Act states that:

"Aggregate expenditure and amount appropriated shall not be more than 3 percent of GDP or any sustainable level as may be determined by the national assembly in each year. Aggregate expenditure may exceed . . . if there is a threat to national security of federal republic of Nigeria"
"the government at all tiers shall only borrow for capital expenditure and human development, provided that such borrowing shall be on concessional terms with low interest rates and a long amortization period . . . and the government shall ensure that public debt, proportional to national income, is held at sustainable level"

Clearly, the Fiscal Responsibility Act 2007 provides the ceiling on the fiscal deficit of the government that should operate within a 3 percent level, be balanced or in surplus. Similarly, the law provides the commission with the responsibility of ensuring compliance with the fiscal rules in order to allow the federal, state or local governments to operate within the established legislation. Under the Act, the commission is mandated to publish on a quarterly basis a list of the governments that have exceeded the limits of consolidated debt. Additionally, the commission is mandated to ensure that the exceeded debt is brought within limit not later than end of 3 subsequent quarters within the same financial year, while achieving a minimum of 25 percent in the first quarter.

1.2.6 Kenya

Kenya was the first country in SSA to employ fiscal rules in 1997, which included the debt and revenue rules, respectively. Although the country was not a beneficiary of HIPC and Multilateral Debt Relief Initiatives (MDRI), Kenya has, on several occasions, been involved in negotiations with lenders regarding debt for development swap arrangements, debt cancellations and rescheduling. In fact, Kenya has, more than three times, requested the rescheduling of the bilateral debt through the Paris Club, in 1994, 2000 and 2004 (Blackmon, 2014)[19]. Similarly, Kenya has defaulted on external debt twice, in 1994-1998 and 2000-2001 (Reinhart, 2010). As such, to mitigate on debt distress episodes the country was facing, fiscal rules were adopted. These rules have been important in raising the country's sustainability and credibility levels since then. At the same time, in the periods that followed, successive governments have employed ways to enhance fiscal discipline. These efforts led to the formation of the Parliamentary Budget Office (PBO) in 2007. Thereafter, following the ushering in of the new constitution in 2010 the country embarked on further improving fiscal policy which culminated in 2012 of passing the Public Financial Management (PFM) Act (see Republic of Kenya (2012)). In addition, oversight roles have been enhanced through other agencies, including parliament, the auditor general, the anti-corruption agency, and the public prosecution office. In fact, the auditor general is constitutionally required to provide audit reports to parliament bi-annually.

[19] See Republic of Kenya (2007) for the various legislations on borrowing and a detailed report of debt rescheduling episodes.

1.2.7 Fiscal Policy in Selected Sub Sahara African Countries

Fiscal policy plays an important role in maintaining economic stability, allocating resources and redistributing income (Tanzi (2008); Bunea-Bontas and Petre (2009)). Empirical evidence suggests that government spending and taxation, if well-utilised by a government, can enhance public finance objectives and mitigate the deficit bias. Interestingly, a closer look at government spending in SSA shows that it has been on the rise, and that this rise lowers a country's fiscal space. Tax revenue in SSA, as shown in *Table 1.1,* reflects low revenue collection, since, on average, countries collect 13.7 percent tax revenue as a share of GDP, which is way below other comparator regions: Latin America, Europe and Central Asia at (22 and 20) percent of GDP, respectively (IMF, 2018). As has been argued in the literature, tax revenue presents the best channel of government financing; therefore, good policy reforms could accelerate tax revenue. Further, we also establish significant heterogeneity among SSA countries on tax revenue, as some countries have the capacity to mobilise up to over 25 percent of GDP (e.g. Namibia and Botswana) compared to 5.7 percent of GDP (e.g. Guinea-Bissau).

Similarly, we notice widening budget deficits in SSA, as shown in *Table 1.1.* Countries with fiscal rules have a minimum mean budget deficit of -3.8 percent of GDP and a maximum value of 3.7 percent of GDP for Guinea-Bissau and Gabon, respectively. In the case of Gabon, the fiscal policy has been driven by strong economic growth and fiscal reforms to enhance tax revenue and usage of oil revenue. The country has also implemented reforms to aid in government spending to mitigate the deficit bias (IMF, 2019b). On the other hand, government spending varies significantly among the countries of SSA. As we can see, Botswana has the highest spending of 38.7 percent of GDP, while Nigeria has the lowest spending of 17.9 percent of GDP. Despite the higher percentage rate, Botswana has an expenditure rule which outlines that spending cannot be more than 40 percent of GDP within a given year; and, indeed, this rule has been complied with since its inception (IMF, 2017). At the same time, the country has a robust tax revenue collection infrastructure compared to other developing countries. Nigeria, despite having an abundant oil revenue, faces a myriad of challenges, including exposure to oil price shocks that affects the country's fiscal revenue. We also establish, as shown in *Table 1.1,* that some countries have low levels of tax revenue; however, they tend to have more total revenue. This is because majority of these countries are resource-based economies and, thus, their resource envelop depends on oil revenue (e.g. Equatorial Guinea, Nigeria, Gabon and Republic of Congo).

Debt levels in SSA have been on the rise in recent years as countries enhance their investments to accelerate economic development. As noted earlier, a number of SSA countries have had a history of debt distress, and most of them benefitted from HIPC and MDR initiatives. As shown in *Figure 1.3*, SSA's debt profile reveals interesting cross-country variations, with some countries having debt levels above 100 percent of GDP by the end of 2016 (e.g. Cape Verde at 129 percent and Congo 114 percent). On average, the debt levels are on the rise

again from a low of 30 percent in 2005 to the current 52 percent in 2016. It is, however, noted that the HIPC initiative played a significant role in reduction of debt accumulation among SSA countries, with several of these countries having reached 50 percent debt to GDP levels. Despite some countries having fiscal rules to mitigate increased debt and deficit, there seems to be a surge in debt levels in the periods between 1996 to 2016 of 143 percent and 184 percent (Congo Republic and Guinea Bissau respectively) of GDP. The theoretical literature on debt makes it clear that higher public debt increases the cost of repayment and negatively affects compliance with fiscal rules, reducing a country's fiscal space.

On the other hand, the deficit levels in SSA have continued to widen, with significant heterogeneity among countries, as shown in *Figure 1.4*. Evidently, we find from *Figure 1.4* for example that deficits in the Congo Republic in 2016 increased to a high of 20 percent of GDP. Moreover, SSA is susceptible to shocks, as demonstrated in *Figure A1.4*. Before the financial crisis in 2007, most countries had lower deficit levels, with the majority of resource-based economies recording a surplus. However, in 2008 after the crisis, the deficit levels widened significantly, even for resource-based economies (excluding Gabon). The widened fiscal deficits reflect institutional weaknesses related to limited capacity for revenue and expenditure forecasting and debt management, which varies across countries.

1.2.8 Literature Review

Compliance with fiscal policy rules has gained momentum in recent years through a burgeoning literature on fiscal rules. The contemporary fiscal policy debate is framed in terms of two perspectives of compliance in form of enforcement and management. According to Tallberg (2002), the two perspectives are based, on one hand, on the notion of enforcement and of management employing a coercive strategy of enhanced monitoring and sanctions to increase the probability of policy compliance, and, on the other hand, on the notion of management embracing a problem-solving strategy geared towards improved capacity building and transparency. The enforcement approach is anchored in the political economy system, such that countries are rational actors that weigh costs and benefits of alternative choices when faced with a compliance decision. Elliott and Bayard (1994) and Dorn and Fulton (1997), the proponents of this school of thought, argue that countries, as sources of noncompliance, are driven by incentive structure. Thus, countries choose not to comply when the benefits of doing so outweigh the costs of being discovered. Therefore, according to these authors, compliance problems can be mitigated by increasing the likelihood and cost of detection through enhanced monitoring and threat of sanctions.

At the policy implementation level, countries may choose not to comply because their interests may include appending the signature for recognition, but not compliance. This is because, globally, a country's actions are driven by priorities, and given that compliance entails committing limited resources, they may choose not to comply. Similarly, countries may choose not to comply because they do not value the contents of rules, instead only placing import on

the acts of participation and signing. Underdal et al. (2002) contends that, for effective policy compliance, coordination supersedes collaboration. This is because countries and other international organisations employing a coordinated approach tend to be more effective than countries collaborating, as some have an incentive to renege on their commitment. It is therefore important that countries cooperating on policy implementation employ enforcement mechanisms to deter noncompliance. Monitoring and sanctions are at the forefront of this strategy. Monitoring enhances transparency, while sanctions increase the cost of noncompliance, and as such, they compel policy makers to comply (Tallberg, 2002).

The problem-solving management approach is built on the belief that a country's ability to comply with policy rules, both local and international, is based on the aspects of efficiency and interest (Chayes et al. (1998); Haas et al. (1993); Chayes and Chayes (1995)). The authors posit that countries fail to comply because of limited capacity and rule ambiguity. Consequently, noncompliance is mitigated through problem-solving of capacity building, proper rule interpretation, and transparency of policy. The government may be limited by lack of administrative capacity to implement the policy. Similarly, financial constraints may impede the country's ability to meet the requirements of the policy in place. Furthermore, at the international level, noncompliance may be inadvertent. In this case, efficient implementation of a treaty may be hampered by unclear treaty language to member countries. Therefore, capacity building, rule interpretation and transparency can be used to mitigate noncompliance. In this case, transparency improves compliance by facilitating coordination of policy rules and provides reassurance to actors and improves awareness employing social pressure for non-compliant members to stick to the policy rule.

The theoretical framework for fiscal rules has long been argued to favour time consistency of macroeconomic fiscal policy. In particular, fiscal rules can be used to achieve output stabilisation in the short run and fiscal sustainability in the long run. This line of reasoning has been supported by a number of authors - that is, that the rules can be instrumental in addressing the dynamic inconsistency of macroeconomic policy by helping countries to keep away from narrow policies (Kopits, 2004). Moreover, empirical evidence shows that prudent debt management by the current government induces future governments to pursue optimal and time-consistent fiscal policy (Barro and Gordon (1983); Lucas Jr and Stokey (1983); Wyplosz (2012)). At the same time, the signalling hypothesis, as proposed by Akerlof (1970) and Spence (1971), has gained momentum in policy environment. When this framework is applied to public finance, the basic premise is that policy makers adopt fiscal rules to signal the government's commitment in conducting prudent fiscal policy. Braun and Tommasi (2002) argue that policymakers can engage in signalling activity by committing themselves through agreements with or adoptions of fiscal rules that they are not committed to complying with, and thus does not alter the behaviour related to fiscal outcomes[20]. In the same line, it has been

[20] Braun and Tommasi (2002) argue that fiscal rules help creditors reduce costs involved in

found that disciplined governments adopt fiscal rules to signal to the market their commitment to enforcing fiscal discipline, which helps reduce public debt costs and supports monetary policy through mitigating the inflationary pressures (see Schaltegger and Torgler (2006); Debrun and Kumar (2007); Tomann (2017); Afonso and Jalles (2019))[21].

Additionally, in the face of increasing challenges in the financial markets, creditors are seeking market assurance, and this has led to a growth of credit rating agencies to fill the gap. It is believed that rating agencies provide significant information to market participants, and that they can be used to instil public finance discipline. Theoretically, according to the Leviathan philosophy, governments are inherently inefficient due to the lack of a competitive market force. Along these lines, it has been argued that fiscal rules enhance discipline in public finance and improve credit ratings for countries by reducing the borrowing costs (see Bayoumi et al. (1995); Johnson and Kriz (2005)). However, empirical literature on the relationship between fiscal rules and credit ratings has offered mixed results. Maher et al. (2016) examine the relationship between tax and expenditure limits on the credit ratings of US municipalities. Their findings show that tax and expenditure limits have a weak and negative impact on credit ratings. On the other hand, Stallmann et al. (2012) find that tax limits are associated with lower credit ratings while expenditure limits are associated with higher credit ratings[22].

Of recent, there has been a surge in independent fiscal councils as they have been found to improve fiscal performance. These fiscal councils are entrusted with the responsibility of real time surveillance of public finances. In general, empirical literature suggests that fiscal councils have enhanced policy transparency, reduced forecasting bias and fostered a sense of government commitment to fiscal discipline (see Calmfors and Wren-Lewis (2011); Debrun and Kinda (2017) and Beetsma *et al.* (2019)) . In fact, Beetsma *et al.* (2019) examine the effect of fiscal councils on government forecasts and monitoring compliance of fiscal rules. They find that the use of fiscal councils is associated with accurate and precise fiscal forecasts and enhanced compliance with fiscal rules. In the same framework, Debrun and Kinda (2017), investigate the characteristics of fiscal councils and find that they are associated with sustainable public finance. In line with the above findings, Hagemann (2011) posits that fiscal councils can be used as a signal of commitment, and can buttress a

information gathering of a country to establish payment ability as they signal the government's commitment to fiscal discipline. This, in turn, makes it costly to break the rule and thus creditors and financial markets act as enforcers of fiscal commitments.

[21] We are grateful to the anonymous referee at Economic Research Southern Africa (ERSA) for helpful comments, especially on expanding the literature on time-consistency and role of credit rating agencies as enforcers for fiscal rules.

[22] Johnson and Kriz (2005) examine the relationship between tax revenue and expenditure rules and credit ratings and find similar results. They find that tax rules lower credit ratings while expenditure rules improve credit ratings. In line with Maher *et al.* (2016), the results show that municipalities face increased borrowing costs in the presence of tax revenue and expenditure limits. This is because rating agencies convey information to the public that is used to determine their creditworthiness.

government's capacity to comply with fiscal rules.

In empirical studies, in general, the effects of fiscal rule compliance are limited, although they have recently gained traction. Cordes *et al.* (2015) examines the effectiveness of expenditure rules by considering 35 expenditure rules between 1985 to 2013. They find that expenditure rules can foster better spending, and that they have a higher compliance rate compared to balanced budget rules, particularly when expenditure rules are under the control of government and enshrined in law or political coalition. Coombs (1980) argues that policies have an impact only if they are successful in changing the behaviour of target individuals. The author argues further that the target individual may not comply due to lapses or ambiguity in communication, insufficient resources, an objection to a policy, or doubts about the authorities upon which the policy is based. The appropriate remedies proposed by Coombs (1980) include improved communication and provision of training or resources.

Reuter (2018) identifies determinants of compliance with various fiscal rules in 10 EU member states using 51 fiscal rules from 1995 to 2015. The author identifies determinants among specific rule characteristics, as well as political and social economic environments. He employs a logistics estimation strategy and finds that the average compliance rate across all rules is 50 percent. The findings also show that independent institutions, monitoring and enforcement play an important role in rules compliance. Cho and Vadlamannati (2012) examines the compliance of the anti-trafficking protocol in 147 countries from 2001 to 2009. The two authors employ a probit model in their estimation strategy. Their findings predict that ratification of anti-trafficking laws leads to high compliance with prevention policy. Therefore, the implementation of the protocol helps reduce domestic resistance and implementation costs.

1.2.9 Critique of Fiscal rules in Sub-Sahara Africa

Fiscal rules serve long-term objectives and can be used to constrain various fiscal policy variables including the stock of public debt. It is difficult, however, to target the debt ratio as the sole limit because it is not controlled directly, as it is a by-product of revenue and spending, interest rates and exchange rates. As such, debt targets should be accompanied with policies of other fiscal variables. To enhance the effectiveness of fiscal rules, governments have introduced independent fiscal agencies. These agencies are important, as they inform, analyse and implement fiscal policy. The independent fiscal agencies perform well through delegation of fiscal policy. There is lack of clear delegation of fiscal rule implementation in SSA, as most of the rules are left to the Ministries of Finance. In fact, SSA countries lack clear mandates and terms of operation that are supported by legislation on delegation of fiscal rules, and thus, the rules are not enforced. As is noted in the literature, economic theory provides several basic criteria to follow in the delegation process (Alesina & Tabellini, 2008). Firstly, there must be socially harmful distortions in policy implemented by elected leaders. Secondly, there should be abroad consensus on what constitutes a sound policy, as this is important in deciding the man-

date for which independent agency can be held accountable. Thirdly, delegated mandates should not be primarily distributive or have major distributive consequences, and the distributional decisions should reflect a popular mandate that can be exercised by elected leaders. Lastly, delegation should not lead to a major policy coordination problem.

Significant challenges manifest on SSA fiscal rules. Only 2 countries have fiscal responsibility laws that guide the implementation of rules. This is a clear shortcoming, as the effectiveness of rules should be supported with simple and explicit legislation that outlines the specific roles of the supporting institutions. Similarly, while escape clauses are important for fiscal policy implementation, SSA rules provide ambiguous interpretation of the escape clauses. This leaves much room for politicians to manipulate budgets for personal gain at the expense of the voters. In addition, the exclusion of investment by 15 fiscal rules in SSA does not specify the type and portfolio of investments to be excluded. On the other hand, as countries strive to strengthen their fiscal policy, they have developed independent fiscal councils and committees. These fiscal councils or committees help to realign fiscal rules to be more countercyclical, as is the case in Chile. In SSA, only two countries with fiscal rules have fiscal councils or committees in place, including the resource-based countries (IMF 2016, 2017). There is evidence to suggest that fiscal councils and committees or agencies have made an effective contribution to fiscal discipline. This fiscal councils also reflect the political will and commitment to stabilise or consolidate fiscal positions (Debrun *et al.*, 2008). Among the successful councils are the Belgian High Council, which recommends specific annual borrowing requirements of the government and publishes two reports each year, and the Swedish Fiscal Policy Council, which monitors compliance with the surplus target of 1 percent of GDP over the business cycle and presents annual reports to government.

Furthermore, fiscal rules should place emphasis on countercyclical policies that target structural balance, or should be adjusted to accommodate cyclical swings. In particular, the design of fiscal rules determines their compliance rate and enhancement of countercyclical fiscal policies. Bova et al. (2014) point out that flexible fiscal rules with explicit escape clauses and exclude public investment enhance countercyclical fiscal policy[23]. Of the rules in SSA, none places emphasis on countercyclical fiscal policy. Countercyclical fiscal rules will allow automatic stabilisers to operate when the economy deviates from the target. Moreover, temporary surge in debt during a recession will be eliminated during boom times, and the fiscal rules should be engineered to produce sufficiently large surpluses during these booms as this can smooth spending during recessions. Additionally, a robust fiscal rule should have a numeric constrain and clear means of enforcement. The SSA fiscal rules do not provide clear enforcement mechanisms and lack clear institutional sanctions that could deter country deviations from their fiscal paths.

Interestingly, over 50 percent of countries with fiscal rules in SSA are im-

[23]The design of fiscal rules is vital to enhancement of countercyclical fiscal policies. As such, flexible fiscal rules, with well-designed escape clauses that exclude public investment will accommodate countercyclical fiscal policy (for details see Guerguil et al. (2017)).

plemented at the supranational level - see *Figure A1.3*. Supranational rules are important as they compel countries to accept fiscal constraints; however, they lack strong monitoring and enforcement mechanisms. A closer look at these regional rules shows that they impose similar limits, but they are not sensitive to national differences. Similarly, there is no political commitment to impose sanctions when limits are threatened. Most of the rules are simple and ambitious in that they are easily marketed at each country, but are highly procyclical. A clear example is the WAEMU debt rule of 70 percent of GDP. This rule is ambitious, and given the high target level, it is easy to be accepted by regional member countries, including those struggling with public debt. There is need to combine national and supranational rules as it provides easy and effective formulae linking countries in a fiscal treaty. Supranational rules in SSA do not have a link to national rules, thus raising coordination issues between the two levels. Some of the supranational rules do not have monitoring and enforcement mechanisms (see EAMU rules), and no clear mandate of the institutions to sanction countries that deviate from the treaty. As such, to complement supranational rules, the national rules should be more stringent; this is because lax supranational rules encourages moral hazard when countries shelter imprudent fiscal behaviour with regional rules. Regional rules should have tougher monitoring provisions that allow regional bodies to intervene.

1.3 Construction of the Fiscal Rules Index

We construct a fiscal rules index in this paper based on the characteristics of rules as outlined in the fiscal rules database (IMF, 2017)[24]. The index also includes some additional features which countries have undertaken as part of reforms on fiscal rules, some of which are not captured in the IMF database. Our fiscal rules index represents the broader characteristics that make the fiscal rule, and as can be seen, these rules have evolved with time. Numerous countries have introduced checks and balances in their fiscal management: Kenya introduced a parliamentary budget office as part of their executive oversight. In the WAEMU region, the union introduced a cap on wage payment using tax revenue to 35 percent, with at least 20 percent of tax revenue being set aside to be used in domestic investment. This therefore means that reforms on fiscal rules has been ongoing and the restrictions have brought relative stability in a group of countries (Mauritius, Cape Verde and Namibia); however, other countries (WAEMU and CEMAC regional countries, and Kenya and Botswana) have increased the strictness of their rules to mitigate the deficit bias in recent years. Among the changes introduced are targets to specific variables and the strengthening of public finance management.

Post 2008, the Mauritius fiscal rules index is the strongest in SSA. The Mauritius fiscal policy rule is constitutionally driven and specifically targets debt with explicit institution support (see *Figure 1.5*). In the construction of the fiscal rules index, we adopt the following characteristics in our criterion: the

[24] See appendix *Figure A1.2* for individual country fiscal rules index from 1997-2016.

statutory base of the rule, the room for revising the rule, the mechanisms for monitoring compliance and enforcement of the rule, the existence of pre-defined enforcement mechanisms and excluded investment, and other characteristics. We follow (D. Foremny, 2014), making the indicator a sum of each criterion and divided by the total number of criteria. In each criterion we divide by the maximum number in the criterion to ensure the variables are between zero and one. If more than one rule is used, the fiscal rules index will be the sum of the individual values. The score is constructed as a simple average of each criteria, as follows:

Criteria 1: Statutory / legal base of the rule. 5: Constitutional base. 4: International treaty. 3: Fiscal rules based on a legal act. 2: A fiscal rule reached from a coalition government or through other different government tiers, but not enshrined in the constitution. 1: Political commitment by the authority (central/local government, ministry of finance).

Criteria 2: Room for revising the rule. 3: There is no margin for adjusting objectives (they are captured in the document underpinning the rule). 2: There is some margin in adjusting objectives, but it is constrained, and there is complete freedom in setting objectives. 1: There is complete freedom in revising the rules (the statutory base of the rule merely contains broad principles, but does not lay down procedures for revision involving other stakeholders).

Criteria 3a: Nature of the body in charge of monitoring the rule.

In this criterion we take a simple average of the two elements in 3a and 3b.

3: Monitoring by an independent body (fiscal council or independent institution) or an oversight role by national parliament. 2: Monitoring by the ministry of finance or any other government body. 1: No regular public monitoring of the rule (there is no report systematically assessing compliance).

Criteria 3b: Nature of the body in charge of enforcement of the rule. 3: Enforcement by an independent body (fiscal council or national parliament). 2: Enforcement by the ministry of finance or any other government body. 1: No specific body in charge of enforcement.

Criteria 4: Enforcement mechanism of the rule. 4: There are automatic correction and sanction mechanisms in case of non-compliance. 3: There is an automatic correction mechanism in case of non-compliance and possibility of imposing sanctions. 2: The authority responsible is obliged to take corrective measures in case of non-compliance or is required to present corrective measures to parliament. 1: There is no ex-ante defined actions in case of non-compliance.

Criteria 5: Development and investment visibility in the rule. 1 if the rule explicitly excludes investment, and 0 if silent on investment or otherwise.

Criteria 6: ***Escape clause.*** 2 if the rule clearly outlines circumstances in which the rule may not apply including the items and projects, 1 for general use of the clause, and 0 when the rule is silent on contingencies.

1.4 Summarised Fiscal Rules in SSA

As noted earlier, 25 countries in SSA employ fiscal rules at both national and supranational levels, as identified in the fiscal rules database (IMF, 2017). In

total, there are 57 fiscal rules in use. The IMF database contains 96 countries with rules from 1985 to 2016, and the database provides detailed information on type of rules, coverage, legal instruments and target variables.

Table 1.2 presents the 48 fiscal rules in operation covered in our sample of 20 countries[25]. Our sample includes rules that are enshrined under the international treaty or supranational law (75 percent), and under constitution or statutory law (10 percent), with negligible levels under coalition agreement and political commitment. At the level of individual rules, the sample includes 24 debt rules (44 percent), 22 balanced budget rules (40 percent) and 9 revenue rules (16 percent). The information in *Table 1.2* below is transformed into mathematical formulae based on the information contained in the IMF database. In turn, this transformed information is used to calculate the compliance variable of our interest in this paper. It is evident from *Table 1.2* that numeric rules in SSA are heterogeneous, as they do not set same numerical limit. To track the compliance of fiscal rules, our sample does not include countries that introduced fiscal rules in 2013 or later, nor does it contain any expenditure rules, as they are not used in the empirical analysis.

We calculate the country's compliance, a dummy variable, according to the procedure outlined in *Table 1.2* for the period from 1997 to 2016. The choice of this period is informed by the fact that, although fiscal rules were in place for many decades, in SSA they were formally adopted from 1997. We gave careful attention to calculating the compliance level to match the numeric variables and the actual data over time; thus, the resulting compliance calculated in this paper matches the set compliance target at national level. We later employ the rule-specific characteristics, economic variables, political and institutional factors in our analysis.

The dataset as shown in *Table A1.1* indicates that the average debt limit among countries with debt rule is 55 percent of GDP. At the country and regional levels, the highest debt limit is set at 70 percent of GDP in both CEMAC and WAEMU countries, the lowest being 40 percent of GDP in Botswana. Interestingly, Botswana turns out to be the only country with an explicit numeric target for both domestic and foreign debt at 20 percent of GDP in each category. For the deficit, all the countries have a set limit of 3 percent, with tax revenue at more than 20 percent. As mentioned earlier, numerous reforms have been undertaken to improve the efficiency of these rules. This has led to countries setting their wage bills below 35 percent of tax revenue for all WAEMU countries and Kenya. On the investment side, countries have committed to spend at least 20 percent of their tax revenue on investment.

1.5 Data

We employ a panel dataset to test the compliance of fiscal rules in SSA; this dataset covers the period 1997–2016[26]. The sample selection is based on data

[25] We exclude Uganda, Tanzania, Rwanda, and Burundi from the study because their rules were employed in 2013. Liberia is also excluded for lack of data during the sample period.

[26] For a detailed description of the variables, see Appendix *Table A1.7* on data description

availability and countries that had fiscal rules in place during the study period.

1.6 Compliance statistics for fiscal rules

This section provides information on the characteristics of compliance with fiscal rules in SSA. The average compliance of fiscal rules is provided at the national and supranational levels, including the time periods. The statistics show that, overall, combined rules employed have a compliance rate of 54 percent across all years and countries in the sample (see *Table 1.4*). In addition, the data shows that debt rules have a higher compliance rate of 73 percent, compared to balanced budget and revenue rules at 54 and 33 percent, respectively. The reason might be that much attention has been given to containing a debt surge, especially after the debt crisis in the 1990s, followed by HIPC and the current Greece debt crisis. Continued surveillance and advice from the IMF and other multilateral lending partners may have also contributed to enhanced compliance of debt rules.

Interestingly, compliance seems to have increased with time. The reason is that countries have revised their rules over time, as shown in *Table 1.2*, and initiated reforms aimed at improving the performance of fiscal rules and make them more specific to the target variables. However, there is significant heterogeneity at both the national and individual fiscal rules levels. At the regional level, fiscal rules seem to be highly complied with. However, a look at national levels paints a glaringly different picture. While Kenya was the first country to adopt fiscal rules in SSA, it has only complied 37 percent on overall fiscal rules, and has not complied with the revenue rule since adoption in 1997. Similarly, Cape Verde has the lowest compliance rate in our sample at 10 percent, and performs dismally on debt rule. The history of Cape Verde is not surprising, as it is a beneficiary of the HIPC programme: HIPC was to mitigate on the surging debt levels and create fiscal space for debt distressed countries. A look at Cape Verde's current debt-to-GDP ratio makes it clear that it is on the rise, and currently at 124 percent of GDP.

1.7 Methodology

1.7.1 Theoretical framework

The modelling technique used in this chapter is a logistic regression, as well as an IV Probit model. In our case, we shall use the binomial logistic regression where the outcome is binary. Therefore, the dependent variable will be binary, wherein we test whether a country has complied or not. The logistic regression is given as follows:

$$\eta = logit(c_i) = Log\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_0 + \beta_i X_i \tag{1.1}$$

We can further express the logit model as follows:

$$logit(c_i) = \beta_0 + \beta_i X_i \tag{1.2}$$

where c_i denotes dependent variable and X_i denotes a set of independent variables in the model.

1.7.2 Estimation Strategy

To estimate the compliance with fiscal rules, we employ a logistic model. In this case, it is a binary variable defined as follows:

$$c_{i,j,t} = \alpha + \beta FR_{i,j,t} + \gamma X_{i,t} + \varepsilon_{i,j,t} \tag{1.3}$$

Where $c_{i,j,t}$ is the binary of compliance; one for country i for fiscal rule j in year t and zero otherwise. $FR_{i,j,t}$ denotes the characteristics of the fiscal rule j of country i in year t and $X_{i,j,t}$ denotes the political and social economic factors of country i in year t. $\varepsilon_{i,j,t}$ is an idiosyncratic error term and we control for rule and country specific properties. We employ panel logistic regression model with fixed effects. Endogeneity is a major concern in the regression of this kind, and as such, we must control for it. From the fiscal policy point of view, voters may favour compliance of fiscal rules and elect leaders that implement sanctions for non-compliance. Krogstrup and Wälti (2008) argue that voter preference is time invariant; thus, by including countries' fixed effects we control voter preference. Moreover, we follow Reuter (2018) and introduce political and institutional variables.

Similarly, the government may introduce reforms to the features of fiscal rules in order to comply with the rules better. In our case, there is no reverse causality, as any change to rules enshrined in the constitution is a long and tedious process that may take a longer period before implementation and the process includes; a careful assessment of the reasons for non-compliance, drafting the bill and presenting to parliament for voting before and presidential ascend to the bill. We further argue, as in Reuter (2018) that any change on a fiscal rule or introduction of a new fiscal rule leads to a new set of rules for country i and the non-compliance cannot be observed without introduction of a new rule, thus, there is no reverse causality. It is also important to note that external factors can influence compliance with fiscal rules. However, in our modelling process, we have included control variables that can account for external influence, e.g. grants which forms a major component of the budget process in developing countries. At the same time, we argue that mechanisms for compliance are internal, and that, therefore, external influence may have limited effect on compliance.

1.7.3 Correlation of potential determinants of fiscal rules compliance

Table A1.6 presents the correlation matrix of rules, characteristics, and other potential determinants of fiscal rules compliance. The upper panel shows the rule-specific characteristic correlations for SSA. There are some large correlations among some of the characteristics, and this could be because of various reforms at national level that enhanced the features of these rules. As noted in *Table 1.2*, numerous reforms have been undertaken, and our sample indicates

that 80 percent of countries with fiscal rules have improved the features of rules through reforms and majority were undertaken from 2009.

Rules covering the central government are correlated more with statutory (0.9), monitoring (0.87) and non-compliance sanctions. This might be the reason why rules covering the general government are significantly less complied with, as shown in *Table 1.6*. This also suggests that government operating rules at central level have mechanisms to enhance compliance: The governments use the limited available capacity and resources at the central government for monitoring compliance with rules. Similarly, rules with statutory support or under a constitutional framework seem to correlate with monitoring and non-compliance sanctions. This therefore suggests that countries with rules on a higher legal basis seem also to introduce monitoring and sanctions in case of non-compliance. On the other hand, political commitment seems to have a negative correlation with non-compliance, and a low correlation with rules at central government. This could suggest that politicians are averse to deficit bias, and as such, they may spend beyond the numeric target as long as they can be assured of re-election, and therefore will not be willing to enforce sanctions. In the case of rules in a central government, politicians in a political commitment are willing to comply in order to win the confidence of voters and secure re-election.

In the lower panel of the correlation between country specific (macroeconomic, social and political), the correlations vary from positive to negative among variables. Looking at the correlation with rules' specific characteristics, interest payments seems to be negatively correlated with the rule-specific characteristics. Higher interest payments are associated with a smaller coverage of the central government (-0.45), less statutory laws (-0.42), less non-compliance sanctions and monitoring both at (-0.38). A similar situation is reflected in debt, such that higher debt is associated with less coverage at central government (-0.31), less statutory laws (-0.24) and less monitoring (-0.21). This points to a loophole that allows the central government debt to rise, thus leading to increased interest payments. On the other hand, GDP per capita seems correlated with political commitment and general government. This explains the reasons why politicians will endeavour to enhance voter's welfare for continuous re-election; and most importantly, the focus is on general government for a wider reach of the citizens. Regulatory quality is also correlated with political commitment (0.32) and general government (0.33). All this points to the fact that in a political commitment, parties agree to work together while checking each other to ensure compliance. Surprisingly, corruption seems correlated with political commitment (0.34); this could help explain the reason why there is high corruption in SSA countries.

1.7.4 Summary statistics

Table 1.5 provides information on the summary statistics of variables used in this chapter. The data shows that an average of 10 percent of countries have rules under a political commitment, with less than 5 percent of rules employed under a coalition agreement and at the general government level. This is par-

ticularly important as only Namibia has embraced its fiscal policy rules under a coalition agreement, while only Mauritius and Liberia have their rules at general government levels. About 60 percent of the rules are under the central government, and 85% of rules have mechanisms on monitoring. Additionally, numerous countries have escape clauses and non-compliance mechanisms at 44 and 42 percent, respectively.

1.8 Results

This section presents the results of compliance with fiscal rules on fiscal targets and rule characteristics. We estimate columns 1 to 9 in *Table 1.6* and our results can be interpreted as 'effects of rules specific characteristics on compliance to the rules'. As noted in *Table 1.6*, column 1 includes the full vector of rule-specific characteristics as our variables, while columns 2 to 9 contain each variable separately. Following the general-to-specific approach of Campos et al. (2005) and Lütkepohl (2007), we select variables by excluding insignificant variables.

Our results suggest that the probability of compliance increases when there is effective monitoring of rules. Therefore, a 1 percent higher monitoring level is associated with 0.13 percent higher probability of compliance. As noted earlier, there is consensus in fiscal literature that compliance is correlated with monitoring, as it forms a major component of government enforcement mechanisms. Rules coverage also has a significant impact on compliance. An estimated 1 percent larger coverage of total general government is associated with 0.13 percent higher probability of compliance, while a 1 percent larger coverage of central government finances is associated with 0.67 percent higher probability of compliance. This result is in contrast with Reuter (2018) on the compliance of fiscal rules in EU member states. Their findings show that fiscal rules at the general government level have a higher compliance rate. The stark contrast manifests from the fact that 59 percent of countries in our sample have their fiscal rules implemented at the central government level, and only about 2 percent have rules at the general government level. This therefore means that governments find it easier to implement and monitor fiscal rules at central government levelss. Similarly, governments may find it convenient at the central government level to use the limited capacity to evaluate ex-post effectiveness of rules.

Statutory provisions do not increase the probability of compliance. 1 percent use of statutory laws is associated with a 0.46 percent decrease in the probability of compliance. This means political will and support may be crucial for countries to comply with these rules, compared to rules enshrined in the constitution. Our results are similar to Reuter (2018), who find that countries with fiscal rules enshrined in their constitution have a 0.26 percent probability of noncompliance. Sanctions can play a role in enhancing compliance with fiscal rules. As noted, from the surveyed literature, stricter sanctions are introduced to induce compliance of rules. However, our results are insignificant. We are not the only ones to find these kind of results, as Reuter (2018) also finds insignificant results among European member countries.

Table A1.5 presents result for 'country specific variables with both political, economic and institutional variables in the first part and the second part with Fiscal Rules Index (FRI)'. Debt accumulation seems to significantly affect compliance rate. In fact, a 1 percent higher debt level is associated with 0.1 percent probability of non-compliance, and this trend is similar even in the presence of FRI. Among individual rules, it is evident that a DR exhibits a higher rate of non-compliance with increase in public debt. As such, a 1 percent increase in debt is associated with 0.23 percent probability of non-compliance. By contrast, grants are positively correlated with higher compliance rate of fiscal rules. As shown from the results, a 1 percent increase in grants is associated with 0.1 percent increase in the probability of compliance. This is reflected in the fact that grants help to boost the recipient country's revenues and form part of the budget, thus reducing debt accumulations and deficits.

Compliance is significantly boosted with higher GDP per capita, such that a 1 percent increase in GDP per capita increases the probability of compliance by 0.17 percent in the presence of a BB rule. This is related to the fact that countries that have lower levels of inequality and are highly developed have elaborate tax collection systems; thus, their revenue levels are higher, reducing their borrowing costs. On the other hand, corruption significantly impedes compliance. As can be seen from the results, a 1 percent increase in corruption correlates with an increase of between 0.47 percent and 0.05 percent probability of non-compliance. The surprising corruption results relate to revenue rule, such that 1 percent higher corruption correlates with about 0.58 percent probability of compliance. Election cycles also affect a country's compliance rate.

Our findings show that, during election periods, the probability of non-compliance increases by 0.17 percent in the presence of a revenue rule; elections do not, however, appear to have any significant effect on compliance with other rules. Reuter (2018) finds that election periods do not significantly affect compliance of fiscal rules in Europe. Accordingly, Delgado Tellez *et al.* (2016) also find that fiscal non-compliance increases in Spanish regions during periods of election years. In our case, it shows the influence of politics on fiscal rules. Regulatory quality significantly influences compliance. An increase in regulatory quality by 1 percent enhances 0.43 percent probability of compliance.

Table 1.7 provides Instrumental Variable (IV) Probit model estimation results. We utilise the fiscal rules to address the problem of endogeneity in our earlier model. To meet the objectives of the IV Probit model, a lagged fiscal rules index is used as our instrumental variable. The results confirm, to a larger extent, the results in the logit model in *Tables 1.6 and A1.5*. The first stage results are significant across all the fiscal rules. Thus, 1 percent higher debt correlates with 0.95 percent and 2.9 percent probability of non-compliance in the presence of combined rules and a debt rule. Similarly, grants turn out to be correlated with compliance. A 1 percent higher grant is associated with 0.42, 0.71, 0.25 and 0.45 percent, respectively, of higher probability of compliance in presence of all rules, DR, BBR and RR. In fact, grants are associated with a higher probability of compliance in the presence of a debt rule. The findings support the hypothesis that grants mitigate the deficit bias and enhance compli-

ance. These results confirm the findings of Delgado Tellez *et al.* (2016) on the compliance of fiscal targets in the Spanish regions. They find that regions that receive higher fiscal transfers have lower non-compliance rates. GDP per capita is also correlated with higher compliance, such that a 1 percent increase in GDP per capita is associated with 0.43 percent higher probability of compliance in the presence of BBR. These results are in line with those in the literature. In particular, Delgado Tellez *et al.* (2016) find that regions with higher GDP per capita exhibit higher compliance rates. Moreover, higher corruption seems to be associated with lower compliance rate, with a 1 percent increase in corruption increasing the probability of non-compliance by 1.67, 0.88 and 1.09 percent, respectively, in the presence of all rules, DR and BBR's. These results are in line with the literature, Hellman et al. (2003), Méon and Sekkat (2005), Dreher et al. (2009) and Bjørnskov (2011) suggesting that corruption constitutes a major problem among developing countries, as it aggravates underground economy and is an obstacle to both economic and political reforms. On the other hand, the quality of regulations seems to play a role in compliance. In the presence of higher quality regulations, the probability of compliance increases by 1.44 percent and 0.96 percent in presence of all rules and BBR's, respectively.

1.9 Robustness checks

We examine the robustness of our results by accounting for resource-based countries in our sample. An economy being resource-based could have an influence on a nation's compliance with fiscal rules, and on other determinants of fiscal rules. *Table A1.2* reports the results of characteristics of fiscal rules compliance after accounting for resource-based countries. Interestingly, countries withresource-based economies tend, on average, to be more compliant with fiscal rules' characteristics compared to countries with non-resource-based economies. The probability of compliance among resource-based countries increases by 0.23 percent compared to non-resource-based countries. Similarly, the probability of compliance for resource-based countries that embrace political commitment increases by 0.06 percent compared to non-resource-based countries under political commitment. At the same time, we find that non-compliance sanctions enhance compliance when we account for resource-based countries. These results differ from m.....Reuter (2018) who finds insignificant results among non-compliance sanctions. However, we find that after accounting for resource-based countries the macroeconomic characteristics of fiscal rules do not change significantly. In fact, the resource-based coefficient remains insignificant for macroeconomic characteristics in both logit and IV Probit modelling, as shown in *Table A1.3* and *A1.4,* respectively. In addition, we find that, at the individual fiscal rules level, a revenue rule reduces compliance after accounting for resource-based countries in the presence of both macroeconomic variables and fiscal rules index.

1.10 Conclusion and Policy Implications

Over the last two decades, there has been a growing appetite for adoption of fiscal rules, and this trend has continued at the national and regional levels. Although many countries have adopted these rules, with some countries revising them numerous times, there has been little empirical data on the determinants of countries' fiscal rules. Based on a sample of 57 fiscal rules in 20 Sub-Sahara Africa countries from 1997 to 2016, the chapter is the first of its kind to provide an explicit overview of fiscal rules in SSA and the determinants for individual fiscal rules compliance among specific characteristics and other fiscal frameworks.

Our results show that the overall compliance is high at 54 percent. However, significant heterogeneity exists among individual rules and country compliance rates. While some countries have complied over 80 percent of the period, others have never complied with some individual rules since their adoption. The revenue rule has the worst compliance rate, which is not surprising, as it is the least widely adopted rule in our sample. The numerous econometric analyses undertaken so far in this paper show that, overall, monitoring and adoption of rules by central governments turn out to be significantly associated with higher probability of compliance. Similarly, institutional factors seem to affect compliance. Corruption turns out to be associated with lower probability of compliance, while good-quality regulation is associated with higher probability of compliance. This therefore means that efforts within governments to mitigate rising corruption should be stepped up, and countries should endeavour to enhance regulatory quality, as this gives them room for resource mobilisation through the taxation channel. Political economy variables via the election cycles also turn out to be associated with lower probability of compliance, especially on tax revenue. Similarly, the quality of regulations seems crucial in the compliance agenda, as it increases the compliance rate when the quality is high.

1.11 Acknowledgements

We are grateful to the Editor in chief Economic Research Southern Africa (ERSA) and the anonymous reviewer for valuable comments. Financial assistance from Africa Economic Research Consortium (AERC), the University of Cape Town and ERSA is hereby acknowledged. We are also grateful to resource persons and participants at the AERC and Economic Society Southern Africa (ESSA) bi-annual conferences for their useful comments that helped improve this manuscript.

References

[1] Afonso, A., & Jalles, J. T. (2019). Fiscal Rules and Government Financing Costs. *Fiscal Studies, 40*(1), 71-90.

[2] Akerlof, G. A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The quarterly journal of economics, 84*(3), 488-500. doi:10.2307/1879431.

[3] Alesina, A., & Tabellini, G. (2008). Bureaucrats or politicians? Part II: Multiple policy tasks. *Journal of Public Economics, 92*(3-4), 426-447.

[4] Barro, R. J., & Gordon, D. B. (1983). Rules, discretion and reputation in a model of monetary policy. *Journal of Monetary economics, 12*(1), 101-121.

[5] Basdevant, O. (2015). *Strengthening the West African Economic and Monetary Union*: International Monetary Fund.

[6] Bayoumi, T., Goldstein, M., & Woglom, G. (1995). Do credit markets discipline sovereign borrowers? Evidence from US states. *Journal of Money, Credit and banking, 27*(4), 1046-1059.

[7] Beetsma, R., Debrun, X., Fang, X., Kim, Y., Lledo, V., Mbaye, S., & Zhang, X. (2019). Independent fiscal councils: Recent trends and performance. *European Journal of Political Economy, 57*, 53-69.

[8] Bergman, U. M., Hutchison, M. M., & Jensen, S. E. H. (2016). Promoting sustainable public finances in the European Union: The role of fiscal rules and government efficiency. *European Journal of Political Economy, 44*, 1-19.

[9] BIKAI, J. L. (2015). Fiscal Rules and Pro-cyclicality of the Fiscal Policy in CEMAC countries.

[10] Bjørnskov, C. (2011). Combating corruption: On the interplay between institutional quality and social trust. *The Journal of Law and Economics, 54*(1), 135-159.

[11] Blackmon, P. (2014). Determinants of developing country debt: the revolving door of debt rescheduling through the Paris Club and export credits. *Third World Quarterly, 35*(8), 1423-1440.

[12] Bova, E., Carcenac, N., & Guerguil, M. (2014). Fiscal rules and procyclicality of fiscal policy in developing world. International Monetary Fund, Washington D.C., IMF working paper No. 14/122.

[13] Braun, M., & Tommasi, M. (2002). Fiscal Rules for Subnational Governments: Some Organizing Principles and Latin American Experiences.

[14] Bunea-Bontas, C. A., & Petre, M. C. (2009). Fiscal policy during the current crisis. *Available at SSRN 1507170*.

[15] Calmfors, L., & Wren-Lewis, S. (2011). What should fiscal councils do? *Economic Policy, 26*(68), 649-695.

[16] Campos, J., Ericsson, N. R., & Hendry, D. F. (2005). General-to-specific modeling: an overview and selected bibliography.

[17] Chayes, A., & Chayes, A. H. (1995). The New Sovereignity. *Compliance with International Regulatory.*

[18] Chayes, A., Chayes, A. H., & Mitchell, R. B. (1998). Managing compliance: a comparative perspective. *Engaging countries: Strengthening compliance with international environmental accords*, 39-62.

[19] Cho, S.-Y., & Vadlamannati, K. C. (2012). Compliance with the Anti-trafficking Protocol. *European Journal of Political Economy, 28*(2), 249-265.

[20] Coombs, F. S. (1980). The bases of noncompliance with a policy. *Policy Studies Journal, 8*(6), 885-892.

[21] Cordes, T., Kinda, M. T., Muthoora, M. P. S., & Weber, A. (2015). *Expenditure rules: effective tools for sound fiscal policy?* : International Monetary Fund.

[22] Debrun, X., & Kinda, T. (2017). Strengthening Post-Crisis Fiscal Credibility: Fiscal Councils on the Rise–A New Dataset. *Fiscal Studies, 38*(4), 667-700.

[23] Debrun, X., & Kumar, M. (2007). Fiscal rules, fiscal councils and all that: commitment devices, signaling tools or smokescreens?

[24] Debrun, X., Moulin, L., Turrini, A., Ayuso-i-Casals, J., & Kumar, M. S. (2008). Tied to the mast? National fiscal rules in the European Union. *Economic Policy, 23*(54), 298-362.

[25] Delgado Tellez, M., Lledo, V., & Pérez, J. J. (2016). On the Determinants of Fiscal Non-Compliance: An Empirical Analysis of Spain's Regions.

[26] Dorn, A. W., & Fulton, A. (1997). Securing compliance with disarmament treaties: Carrots, sticks, and the case of North Korea. *Global Governance, 3*(1), 17-40.

[27] Drazen, A., (2004). Fiscal rules from a political perspective. In Rules-based fiscal policy in emerging markets (pp. 15-29). Palgrave Macmillan, London.

[28] Dreher, A. (2006). IMF and economic growth: The effects of programs, loans, and compliance with conditionality. *World Development, 34*(5), 769-788.

[29] Dreher, A., Kotsogiannis, C., & McCorriston, S. (2009). How do institutions affect corruption and the shadow economy? *International Tax and Public Finance, 16*(6), 773.

[30] Elliott, K. A., & Bayard, T. O. (1994). Reciprocity and retaliation in US trade policy. *Peterson Institute Press: All Books*.

[31] Federal Republic of Nigeria (2007). *Fiscal Responsibility Act. 2007*. Government Printer. Abuja, Nigeria.

[32] Foremny, D. (2014). Sub-national deficits in European countries: The impact of fiscal rules and tax autonomy. *European Journal of Political Economy, 34*, 86-110.

[33] Foremny, D. (2014). Sub-national deficits in European countries: The impact of fiscal rules and tax autonomy. . *European Journal of Political Economy,*, 34, 86-110.

[34] Frankel, J., & Schreger, J. (2013). Over-optimistic official forecasts and fiscal rules in the eurozone. *Review of World Economics, 149*(2), 247-272.

[35] Guerguil, M., Mandon, P., & Tapsoba, R. (2017). Flexible fiscal rules and countercyclical fiscal policy. *Journal of Macroeconomics,* 52, 189-220.

[36] Haas, P. M., Keohane, R. O., Levy, M. A., & Gasser, L. (1993). *Institutions for the earth: sources of effective international environmental protection*: Mit Press.

[37] Hagemann, R. (2011). How can fiscal councils strengthen fiscal performance? *OECD Journal: Economic Studies, 2011*(1), 1-24.

[38] Hallerberg, M., Strauch, R., & Von Hagen, J. (2007). The design of fiscal rules and forms of governance in European Union countries. *European Journal of Political Economy, 23*(2), 338-359.

[39] Hellman, J. S., Jones, G., & Kaufmann, D. (2003). Seize the state, seize the day: state capture and influence in transition economies. *Journal of comparative economics, 31*(4), 751-773.

[40] Hitaj, M. E., & Onder, Y. K. (2013). *Fiscal discipline in WAEMU: rules, institutions, and markets*: International Monetary Fund.

[41] International Monetary Fund (2003). Nigeria: Staff Report for the 2002 Article IV Consultation. https://www.imf.org/en/Publications/CR/Issues/2016/12/30/Nigeria-Staff-Report-for-the-2002-Article-IV-Consultation-16260 Accessed on July 2019

[42] International Monetary Fund (2007). Nigeria: Staff Report for the 2002 Article IV Consultation: https://www.imf.org/external/pubs/ft/scr/2008/cr0864.pdf Accessed on July 2019

[43] International Monetary Fund (2016) Fiscal Councils Dataset, Fiscal Affairs Department. https://www.imf.org/external/np/fad/council/. Last accessed on May 2019

[44] International Monetary Fund (2017). Fiscal Rules Dataset, Fiscal Affairs Department. https://www.imf.org/external/datamapper/fiscalrules/map/map.htm. Accessed on October 2018.

[45] International Monetary Fund (2018). Regional Economic Outlook, Sub Sahara Africa: Domestic Resource Mobilisation and Private Investment. Washington D.C.

[46] International Monetary Fund (2019). Gabon: Staff Report for 2018, Press Release. IMF Country Report No. 19/17. Washington D.C.

[47] International Monetary Fund (2019). Highly Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDR) Statistical update. IMF Policy paper. https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/08/06/Heavily-Indebted-Poor-Countries-HIPC-Initiative-and-Multilateral-Debt-Relief-Initiative-MDRI-48566

[48] Iossifov, P., Takebe, M. M., Zhan, Z., Kinoshita, M. N., & York, R. C. (2009). *Improving surveillance across the CEMAC region*: International Monetary Fund.

[49] Ivanova, A., Mayer, W., Mourmouras, A., & Anayiotos, G. (2001). *What determines the success or failure of fund-supported programs?* Paper presented at the second annual IMF research conference.

[50] Johnson, C. L., & Kriz, K. A. (2005). Fiscal institutions, credit ratings, and borrowing costs. *Public Budgeting & Finance, 25*(1), 84-103.

[51] Joyce, J. P. (2004). Adoption, implementation and impact of IMF programmes: A review of the issues and evidence. *Comparative Economic Studies, 46*(3), 451-467.

[52] Kopits, G. (2004). Overview of fiscal policy rules in emerging markets. In *Rules-based Fiscal Policy in Emerging Markets* (pp. 1-11): Springer.

[53] Krogstrup, S., & Wälti, S. (2008). Do fiscal rules cause budgetary outcomes? *Public Choice, 136*(1-2), 123-138.

[54] Lucas Jr, R. E., & Stokey, N. L. (1983). Optimal fiscal and monetary policy in an economy without capital. *Journal of Monetary economics, 12*(1), 55-93.

[55] Lütkepohl, H. (2007). General-to-specific or specific-to-general modelling? An opinion on current econometric terminology. *Journal of Econometrics, 136*(1), 319-324.

[56] Maher, C. S., Deller, S. C., Stallmann, J. I., & Park, S. (2016). The impact of tax and expenditure limits on municipal credit ratings. *The American Review of Public Administration, 46*(5), 592-613.

[57] Masson, M. P. R., & Dore, M. O. (2002). *Experience with Budgetary Convergence in the WAEMU*: International Monetary Fund.

[58] Masson, P., & Pattillo, C. (2002). Monetary union in West Africa: an agency of restraint for fiscal policies? *Journal of African Economies, 11*(3), 387-412.

[59] Méon, P.-G., & Sekkat, K. (2005). Does corruption grease or sand the wheels of growth? *Public Choice, 122*(1-2), 69-97.

[60] Mihalyi, D., & Fernández, L. (2018). How Did Fiscal Rules Hold Up in the Commodity Price Crash? In: Natural Resource Governance Institute.

[61] Nerlich, C., & Reuter, W. H. (2013). The design of national fiscal frameworks and their budgetary impact.

[62] Nerlich, C., & Reuter, W. H. (2016). Fiscal Rules, Fiscal Space, and the Procyclicality of Fiscal Policy. *FinanzArchiv: Public Finance Analysis, 72*(4), 421-452.

[63] Nsouli, M. S. M., Atoian, M. R., & Mourmouras, M. A. (2004). *Institutions, Program Implementation, and Macroeconomic Performance (EPub)*: International Monetary Fund.

[64] Poterba, J. M. (1994). State responses to fiscal crises: The effects of budgetary institutions and politics. *Journal of Political Economy, 102*(4), 799-821.

[65] Reinhart, C. M. (2010). *This time is different chartbook: country histories on debt, default, and financial crises*. Retrieved from

[66] Republic of Kenya (2012) *Public Finance Management Act. No. 18 of 2012*. Kenya Gazette Notice No. 32, Government Printer, Nairobi, Kenya.

[67] Republic of Kenya (2007). Public Debt Management report, Debt Management Department Ministry of Finance, Kenya. http://www.treasury.go.ke/publications/pdmo/category/40-annual-public-debt.html?download=140:annual-public-debt-report-2005-2006. Last accessed on August 2019.

[68] Republic of Mauritius (2008). *Public Debt Management Act. No. 5 of 2008*. Government Printer. Port Louis, Mauritius.

[69] Republic of South Africa (2010). Public Finance Management Act. No. 1 of 1999. South African Government Gazette 33059. Government Printer. Pretoria South Africa. http://www.treasury.gov.za/legislation/pfma/act.pdf Accessed on July 2019

[70] Reuter, W. H. (2018). When and why do countries break their national fiscal rules? *European Journal of Political Economy.*

[71] Sacchi, A., & Salotti, S. (2015). The impact of national fiscal rules on the stabilisation function of fiscal policy. *European Journal of Political Economy, 37*, 1-20.

[72] Schaechter, A., Kinda, T., Budina, N., & Weber, A. (2012). Fiscal rules in response to the crisis-toward the'next-generation'rules: A new dataset.

[73] Schaltegger, C. A., & Torgler, B. (2006). Growth effects of public expenditure on the state and local level: evidence from a sample of rich governments. *Applied Economics, 38*(10), 1181-1192.

[74] Spence, A. (1971). Job Market Signalling." Quarterly Journal of Economics, Vol. 87 (1973), pp. 355-374. AND ZECKHAUSER, R. *Insurance, Information, and Individual Action." American Economic Review, 61*, 380-387.

[75] Stallmann, J. I., Deller, S., Amiel, L., & Maher, C. (2012). Tax and expenditure limitations and state credit ratings. *Public Finance Review, 40*(5), 643-669.

[76] Tallberg, J. (2002). Paths to compliance: Enforcement, management, and the European Union. *International organization, 56*(3), 609-643.

[77] Tanzi, V. (2008). The role of the state and public finance in the next generation. *En: Las finanzas públicas y el pacto fiscal en América Latina: documentos y ponencias presentados en el XX Seminario Internacional de Política Fiscal. LC/L. 2977-P. p. 13-36.*

[78] Thornton, J., & Vasilakis, C. (2017). The impact of fiscal rules on sovereign risk premia: International evidence. *Finance Research Letters, 20*, 63-67.

[79] Tomann, H. (2017). Fiscal Policy Coordination and the Stability and Growth Pact. In *Monetary Integration in Europe* (pp. 81-104): Springer.

[80] Underdal, A., Miles, E. L., Andresen, S., Wettestad, J., Skjærseth, J. B., & Carlin, E. M. (2002). Environmental Regime Effectiveness: Confronting Theory with Evidence. In: MIT Press Cambridge, MA.

[81] Wyplosz, C. (2005). Fiscal policy: institutions versus rules. *National Institute Economic Review, 191*(1), 64-78.

[82] Wyplosz, C. (2012). Fiscal rules: Theoretical issues and historical experiences. In *Fiscal Policy after the Financial Crisis* (pp. 495-525): University of Chicago Press.

Table 2. 1 Average Macroeconomic variables in SSA between 1997-2016 (% of GDP)

Country	Tax Revenue	Total Revenue	Expenditure	Deficits
Benin	13,2	17,9	19,7	-1,8
Botswana	25,5	39,1	38,7	0,5
Burkina Faso	11,9	20,7	23,4	-2,7
Cape Verde	17,1	26,7	33,7	-7,0
Cameroon	11,2	17,9	16,6	1,2
Central African Republic	7,8	14,7	15,8	-1,1
Chad	8,4	15,7	18,1	-2,5
Republic of Congo	9,6	36,9	34,7	2,2
Côte d'Ivoire	15,6	18,2	19,8	-1,7
Equatorial Guinea	9,1	27,0	23,9	3,1
Gabon	16,3	28,2	24,5	3,7
Guinea-Bissau	5,7	16,7	20,5	-3,8
Kenya	15,2	19,3	22,5	-3,1
Mali	11,3	19,6	20,4	-0,8
Mauritius	17,2	19,2	22,7	-3,7
Namibia	28,5	29,8	32,2	-2,4
Niger	10,5	20,7	22,0	-1,3
Nigeria	8,8	16,9	17,0	-0,1
Senegal	16,8	17,3	19,3	-2,1
Togo	14,2	16,5	20,0	-3,4
Mean	**13,7**	**21,9**	**23,3**	**-1,3**

Notes: Source: IMF/WEO, UN-WIDER and WoRLD. Average data from 1997-2016 for countries with Fiscal rules in place.

Table 1. 2 Sample of fiscal rules in SSA

Country/Region	Type	From	Revisions	Rule	Other Conditions
BEN	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
BEN	BBR	2000	2009	$bb_t < 3\%$	
BEN	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
BWA	DR	2005		$d_t \leq 40\%$	$dd_t \leq 20\%$ & $df_t \leq 20\%$
BWA	ER	2006		$ex_t \leq 40\%$	$ex_t \leq 20\% \, from \, 2015/16$
BFA	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
BFA	BBR	2000	2009	$bb_t < 3\%$	
BFA	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
CMR	DR	2002	2012	$d_t \leq 70\%$	
CMR	BBR	2002	2005	$rev_t \geq ex_t$	
CPV	DR	1998		$d_t \leq 60\%$	
CAF	DR	2002	2012	$d_t \leq 70\%$	
CAF	BBR	2002	2005	$rev_t \geq ex_t$	
TCD	DR	2002	2012	$d_t \leq 70\%$	
TCD	BBR	2002	2005	$rev_t \geq ex_t$	
COG	DR	2002	2012	$d_t \leq 70\%$	
COG	BBR	2002	2005	$rev_t \geq ex_t$	
CIV	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
CIV	BBR	2000	2009	$bb_t < 3\%$	
CIV	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
GNQ	DR	2002	2012	$d_t \leq 70\%$	
GNQ	BBR	2002	2005	$rev_t \geq ex_t$	
GAB	DR	2002	2012	$d_t \leq 70\%$	
GAB	BBR	2002	2005	$rev_t \geq ex_t$	
GNB	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
GNB	BBR	2000	2009	$bb_t < 3\%$	
GNB	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
KEN	DR	1997	2012	$d_t \leq 50\%$	$w_t \leq 35\%$
KEN	BBR	2013		$bb_t < 3\%$	$from \, 2020/21$
KEN	RR	1997	2012	$rev_t \leq 21 - 22\%$	
MLI	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
MLI	BBR	2000	2009	$bb_t < 3\%$	
MLI	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
MUS	DR	2008		$d_t \leq 60\%$	$d_t \leq 50\% \, from \, 2018$
NAM	DR	2001		$d_t \leq 25 - 30\%$	
NAM	ER	2010		$ex_t < 30\%$	
NER	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
NER	BBR	2000	2009	$bb_t < 3\%$	
NER	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
NGA	BBR	2007		$bb_t \leq 3\%$	
SEN	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
SEN	BBR	2000	2009	$bb_t < 3\%$	
SEN	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$
TGO	DR	2000	2003	$d_t \leq 70\%$	$w_t \leq 35\%$
TGO	BBR	2000	2009	$bb_t < 3\%$	
TGO	RR	2000	2015	$rev_t \leq 20\%$	$dinv_t \geq 20\% \, of \, tax \, revenue$

Notes: Source: IMF Fiscal Rules database

The data contains fiscal rules up to 2016. w_t is the wage bill, d_t is the debt level, rev_t refers to revenue, ex_t is government spending, bb_t denotes the balanced budget and $dinv_t$ denotes investment financed by domestic tax revenue.

Table 1. 3 Description and measurement of variables

Variable	Unit	Description	Source
Public debt[1]	Ratio	The ratio of total debt which includes domestic and foreign debt as a ratio of GDP	IMF/WEO & WDI
Debt service	Ratio	The total sum of principal and interest payments on public debt as a ratio of total exports	WDI
GDP per capita[1]	Ratio	The ratio of real GDP to Population	IMF & WEO
Grants[1]	Ratio	The ratio of total foreign grants as a ratio of GDP	WDI
Statutory Laws	Index	Index between 1 and 5	IMF database & authors calculation
Monitoring	Index	Index between 1 and 3	IMF database & authors calculation
Central government	Index	1 in central government and 0 otherwise	IMF database & authors calculation
Political Commitment	Index	1 in central government and 0 otherwise	IMF database & authors calculation
Political Coalition	Index	1 in central government and 0 otherwise	IMF database & authors calculation
Non-compliance	Index	1 in central government and 0 otherwise	IMF database & authors calculation
Election dummy	Dummy	1 for election in a given year and 0 otherwise	NELDA
Low Corruption	Index	Index between -2.5 and 2.5	WB/WGI
Regulatory quality	Index	Index between -2.5 and 2.5	WB/WGI
Political violence	Index	Index between -2.5 and 2.5	WB/WGI
Fiscal Rules Index (FRI)[2]	Index	Index between 0 and 1 of the fiscal rule characteristics	IMF database & authors construction

Note: IMF – International Monetary Fund, WB – World Bank, WGI – World Governance Indicators, WEO – World Economic Outlook, WDI - World Development Indicators, NELDA – National Elections Across Democracies and Autocracy. [1]We use the logs of public debt, GDP per capita and grants in our analysis. [2]We follow Dirk Foremny (2014) to construct our FRI.

Table 1. 4 Average compliance with National and Supranational Fiscal Rules in Sample

Rule Type:	Combined Rules	DR	BBR	RR
Avg. Compliance	54%	73%	54%	33%
Observations	339	317	287	156
Legal basis:	*SL-C*	*PC*	*CA*	
Avg. Compliance	66%	47%	88%	
Observations	58	59	16	
Coverage:	*CG*	*GG*	*SNG*	
Avg. Compliance	54%	78%	62%	
Observations	85	09	238	
Non-Compliance:				
Avg. Compliance	*63%*			
Observations	136			
Time Periods:	*1996-2000*	*2001-2004*	*2005-2010*	*2011-2016*
Avg. Compliance	17%	44%	58%	72%
Observations	25	72	97	120

Regional and Selected Country Individual Fiscal Rules Compliance

WAEMU:	*Combined Rules*	*DR*	*BBR*	*RR*
Avg. Compliance	57%	71%	62%	38%
Observations	136	136	136	136
CEMAC:				
Avg. Compliance	67%	83%	50%	
Observations	102	102	102	
Kenya:				
Avg. Compliance	37%	50%	60%	0%
Observations	20	20	20	20
Cape Verde:				
Avg. Compliance	10%	5%	15%	
Observations	19	19	19	
Botswana:				
Avg. Compliance	100%	100%		
Observations	12	12		
Nigeria:				
Avg. Compliance	70%		70%	
Observations	10		10	

Source: IMF Database

Notes: The average compliance in percent of years in subsample. The DR - Debt Rule; BBR – Balanced Budget Rules; RR – Revenue Rule; CG – Central Government; GG – General Government; SNG – Supranational and National Government; SL – Statutory Law; PC – Political Commitment; CA – Coalition Agreement; C - Constitution; WAEMU Countries: Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo; CEMAC Countries: Cameroon, Chad, Central Africa Republic, Republic of Congo, Equatorial Guinea, Gabon.

Table 1. 5 Summary statistics

VARIABLES	(1) Obs	(2) Mean	(3) Std.Dev.	(4) Min	(5) Max	
Political commitment	540	0.0981	0.298	0	1	IMF
Political coalition	540	0.0296	0.170	0	1	IMF
General government	540	0.0167	0.128	0	1	IMF
Central government	540	0.589	0.492	0	1	IMF
Statutory Laws	540	2.133	1.863	0	4	IMF
Enforcement	540	1.037	0.935	0	2	IMF
Non-compliance	540	1.252	1.238	0	3	IMF
Escape clause	540	0.435	0.496	0	1	IMF
Investment adjustment	540	0.419	0.494	0	1	IMF
Monitoring	540	1.493	1.415	0	3	IMF
All Rules	339	0.853	0.355	0	1	IMF
Debt compliance	317	0.726	0.447	0	1	IMF
BBR compliance	287	0.547	0.499	0	1	IMF
RR compliance	156	0.333	0.473	0	1	IMF
Election dummy	540	0.150	0.357	0	1	NELDA
Checks & balances	506	2.314	0.992	1	5	DPI
Democracy	540	0.0315	18.69	-88	10	Polity IV
Debt service	540	4.648	6.741	0	105.288	WDI
Regulatory quality	540	-0.551	0.629	-2.633	1.127	WGI
GDP Per capita	540	8.033	0.998	6.352	10.87	IMF/WEO

Note: Source - IMF database (2017), IMF; International Monetary Fund; WDI – World Development Indicators; WDI - World Governance Indicators; WEO – World Economic Outlook.

Table 1. 6 Estimation Results for probability of fiscal rules compliance based on legal characteristics of fiscal rules

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Statutory Laws	-0.133**	0.060***							-0.111**
	(0.056)	(0.015)							(0.048)
Monitoring	0.125***		0.085***						0.126***
	(0.043)		(0.015)						(0.041)
General Government	0.128***			-0.074					0.125***
	(0.021)			(0.140)					(0.022)
Central Government	0.759***				0.297***				0.666***
	(0.174)				(0.110)				(0.210)
Political Commitment	-0.156					-0.225***			-0.145
	(0.110)					(0.068)			(0.089)
Political Coalition	-0.059						0.027		
	(0.140)						(0.085)		
Non-Compliance Sanctions	0.010							0.087***	
	(0.046)							(0.018)	
Wald Chi2	46.7	17.88	30.2	0.36	11.43	15.87	0.09	19.15	45.84
Probability	0.000	0.000	0.000	0.547	0.000	0.000	0.769	0.000	0.000
Countries	20	20	20	20	20	20	20	20	20
Observations	332	332	332	332	332	332	332	332	332
Country FE	NO	NO	NO	NO	NO	NO	NO	NO	NO

Source: IMF Fiscal Rules database

Note: Each column presents a separate panel logistic regression with country "s compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses *** denotes significance at 1 percent ** denotes significance at 5 percent and * denotes significance at 10 percent.

Table 1. 7 Estimation Results for fiscal rules compliance based on Macroeconomic Variables and FRI

VARIABLES	(1) Rules	(2) Debt	(3) Balanced Budget	(4) Revenue
Fiscal Rules Index	2.104**	4.239**	-1.230	16.759
	(1.060)	(1.818)	(1.119)	(11.928)
Debt service (lagged)	-0.001	-0.005	0.003	-0.012
	(0.017)	(0.014)	(0.012)	(0.019)
Debt (lagged)	-0.951***	-2.903***	0.067	-0.166
	(0.183)	(0.348)	(0.112)	(0.587)
Grants (lagged)	0.417**	0.707***	0.246*	0.451*
	(0.204)	(0.260)	(0.137)	(0.264)
GDP Per capita (lagged)	0.359	0.257	0.430***	0.113
	(0.236)	(0.278)	(0.160)	(0.661)
Control of Corruption (lagged)	-1.666***	-0.875**	-1.089***	1.554
	(0.359)	(0.365)	(0.283)	(1.156)
Election dummy	-0.177	-0.252	-0.052	-0.192
	(0.301)	(0.336)	(0.228)	(0.678)
Regulatory quality	1.440***	0.238	0.956***	-1.390
	(0.431)	(0.423)	(0.339)	(1.361)
Wald Chi2	56.58	78.87	23.20	83.03
Probability	0.000	0.000	0.003	0.000
Observations	312	291	270	147
Country FE	NO	NO	NO	NO

Note: Each column presents a separate panel IV Probit regression with country "s compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses, *** denotes significance at 1 percent, ** denotes significance at 5 percent and * denotes significance at 10 percent.

Figure 1. 1: Number of numeric fiscal rules in SSA since 1990's by type of rules

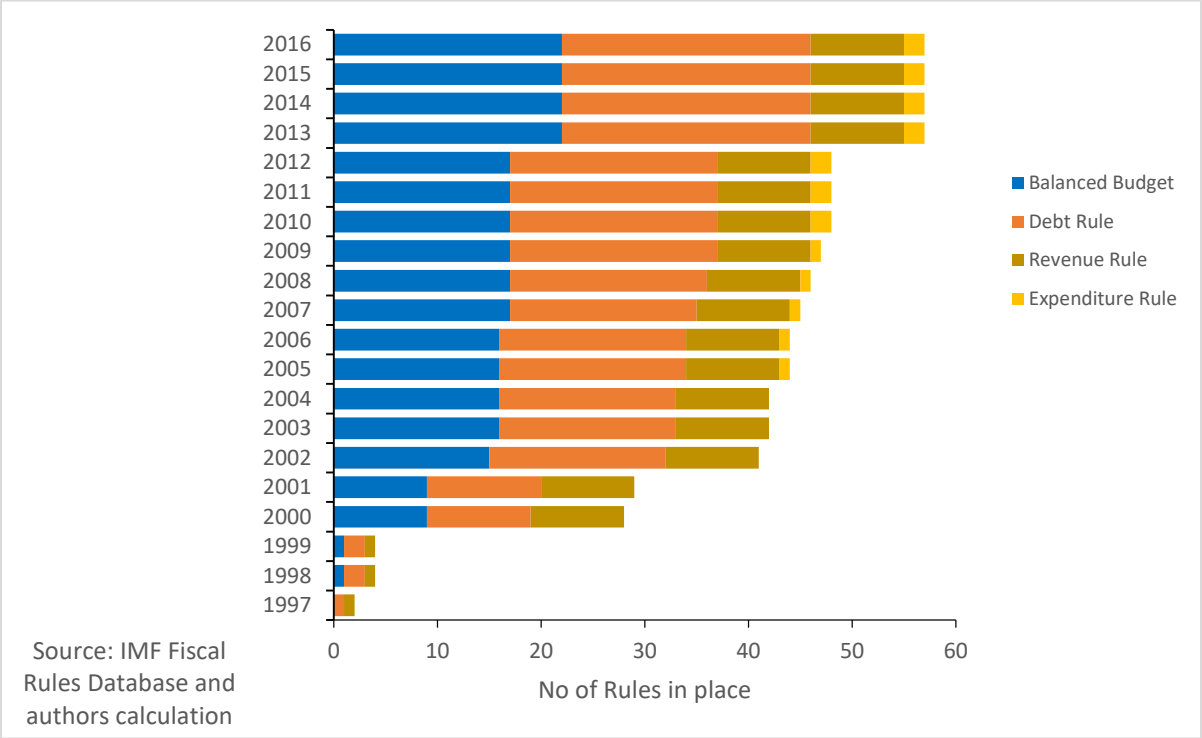
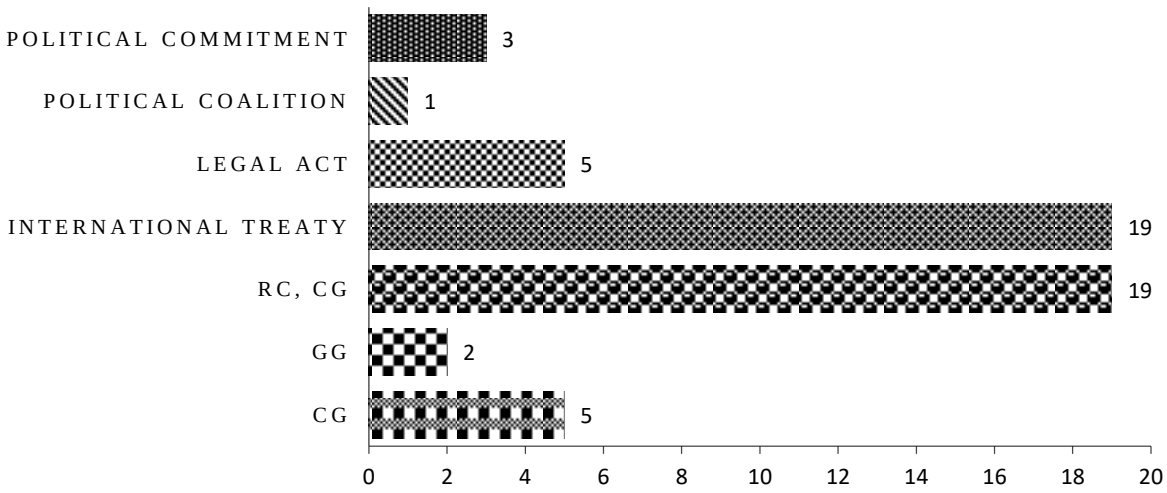


Figure 1. 2 Number of fiscal rules in SSA in 2016 by selected characteristics



Source: IMF Fiscal Rules Database (2016)

Note: Abbreviations: GG – General Government, CG – Central Government and RC – Regional Government

Figure 1. 3 Debt profile in Sub-Sahara Africa

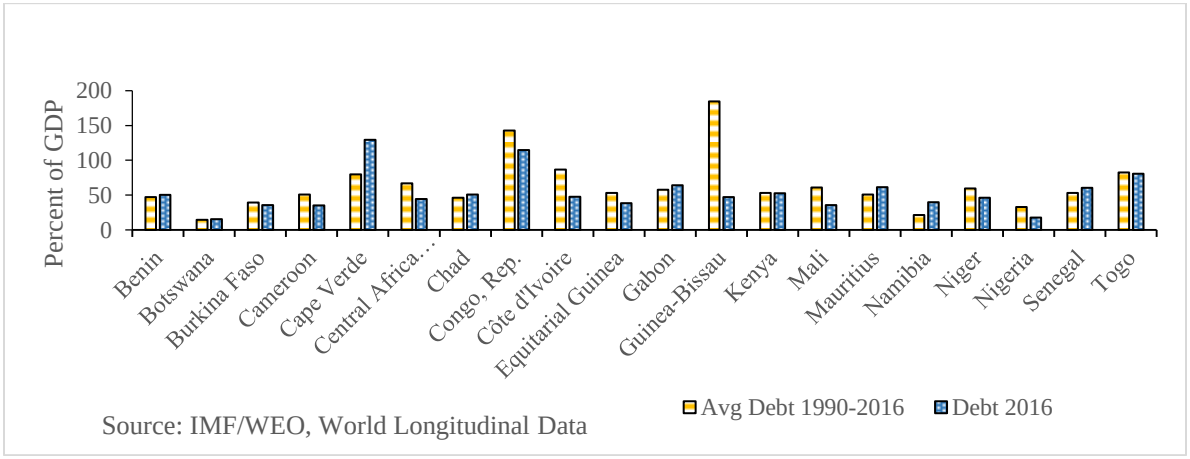


Figure 1. 4 Deficit profile in SSA

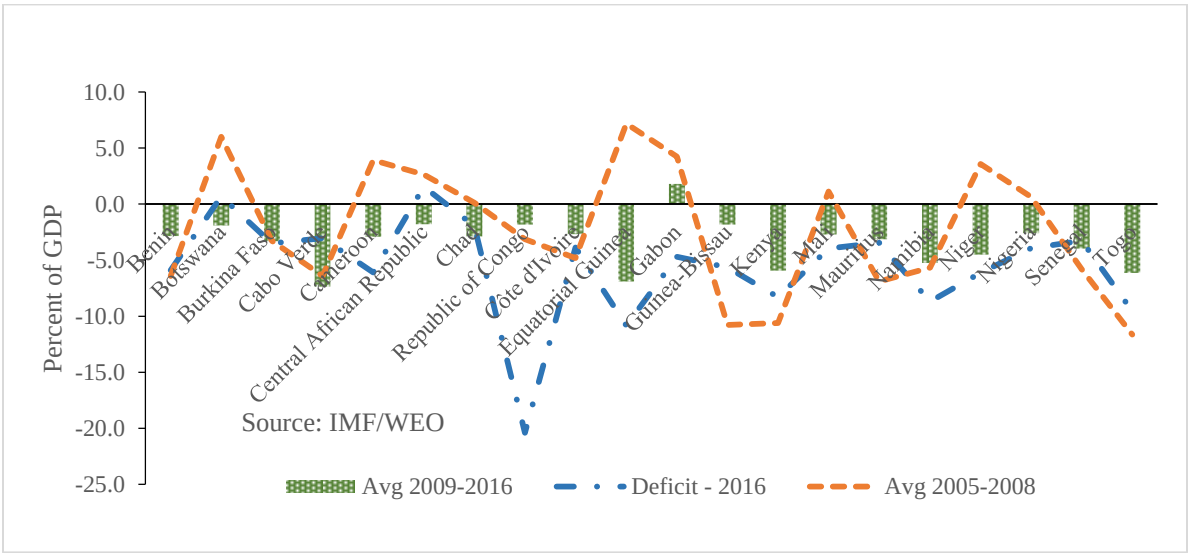
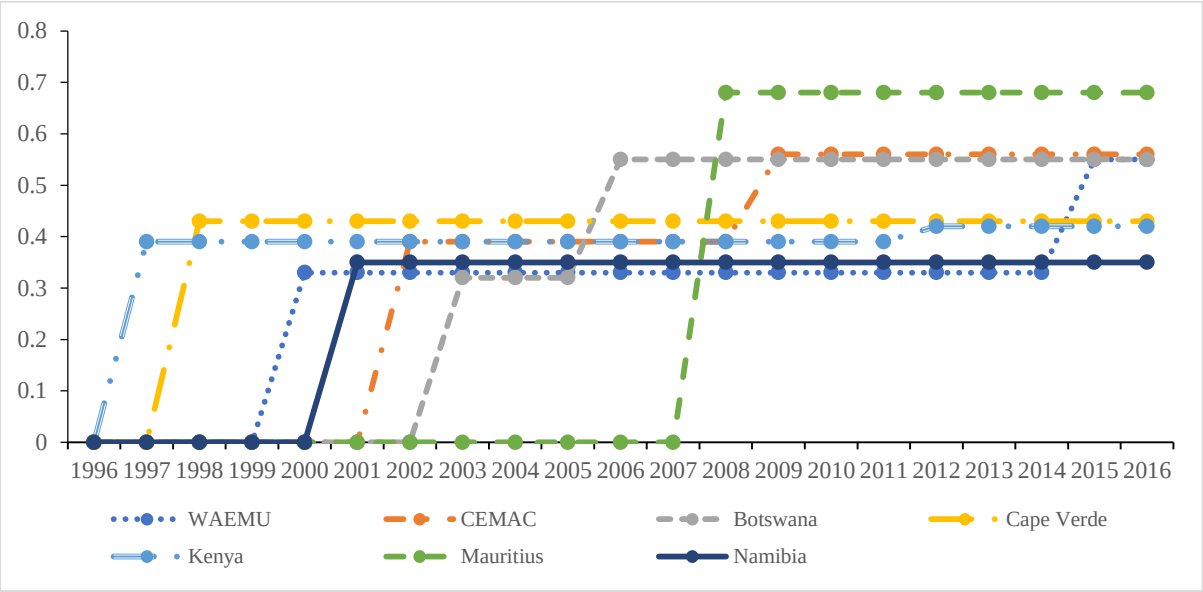


Figure 1. 5 Fiscal Rules Index in SSA over time



Appendix

Figure A1. 1 Number of fiscal rules in SSA in 2016 by their characteristics

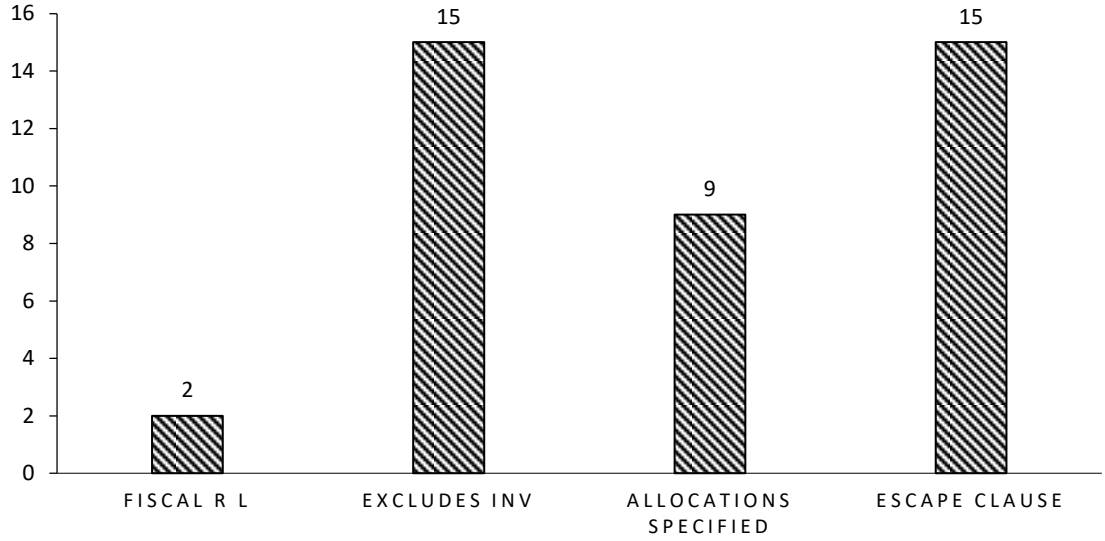


Table A1. 1 Complete list of SSA countries with Fiscal Rules

	Debt Rule	BB Rule	Revenue Rule	Expenditure Rule
Benin	2000	2000	2000	
Botswana	2005			2006
Burkina Faso	2000	2000	2000	
Burundi	2013	2013		
Cameroon	2002	2002		
Cape Verde	1998			
Central Africa Republic	2002	2002		
Chad	2002	2002		
Congo Republic	2002	2002		
Cote D'Ivoire	2000	2000	2000	
Equatorial Guinea	2002	2002		
Gabon	2002	2002		
Guinea Bissau	2000	2000	2000	
Kenya	1997	2013	1997	
Liberia				
Mali	2000	2000	2000	
Mauritius	2008			
Namibia	2001		2010	
Niger	2000	2000	2000	
Nigeria		2007		
Rwanda	2013	2013		
Senegal	2000	2000	2000	
Tanzania	2013	2013		
Togo	2000	2000	2000	
Uganda	2013	2013		

Source: IMF Fiscal Rules Database

Note: The information in this table shows the years when countries adopted fiscal rules. In the following analysis, we exclude Burundi, Rwanda, Tanzania, Uganda and Liberia. Abbreviations: BB – Balanced Budget Rules, SSA – Sub-Sahara Africa.

Table A1. 2: Estimation Results for probability of fiscal rules compliance based on legal characteristics, with control for Resource-based countries

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Statutory	-0.183***	0.060***							-0.143***
	(0.067)	(0.015)							(0.047)
Monitoring	0.133***		0.085***						0.130***
	(0.034)		(0.015)						(0.032)
General Government	0.108***			-0.074					0.106***
	(0.024)			(0.140)					(0.024)
Central Government	0.823***				0.297***				0.566*
	(0.212)				(0.110)				(0.289)
Political Commitment	0.046					-0.225***			0.060*
	(0.039)					(0.068)			(0.032)
Political Coalition	-0.161						0.027		
	(0.224)						(0.085)		
Non-Compliance	0.114**							0.087***	0.108**
	(0.044)							(0.018)	(0.044)
Resource-based	0.240***								0.239***
	(0.053)								(0.052)
Wald Chi2	46.42	17.88	30.20	0.36	11.43	15.87	0.09	19.15	46.40
Probability	0.000	0.000	0.000	0.0012	0.000	0.000	0.769	0.000	0.000
Observations	332	332	332	332	332	332	332	332	332
Country FE	NO	NO	NO	NO	NO	NO	NO	NO	NO

Note: Each column presents a separate panel logistic regression with country's compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses *** denotes significance at 1 percent ** denotes significance at 5 percent and * denotes significance at 10 percent.

Table A1. 3: Estimation Results of fiscal rules compliance with Macroeconomic Variables, FRI controlling for Resource countries

VARIABLES	(1) All Rules	(2) Debt	(3) Balanced Budget	(4) Revenue
Fiscal Rules Index	2.619**	4.526**	-1.160	17.656*
	(1.122)	(1.877)	(1.123)	(9.610)
Debt service (lagged)	-0.001	-0.003	0.003	-0.011
	(0.016)	(0.015)	(0.012)	(0.019)
Debt (lagged)	-0.889***	-2.870***	0.075	-0.206
	(0.187)	(0.351)	(0.112)	(0.669)
Grants (lagged)	0.491**	0.713***	0.259*	0.441
	(0.213)	(0.260)	(0.138)	(0.276)
GDP per capita (lagged)	0.268	0.189	0.405**	0.044
	(0.243)	(0.293)	(0.162)	(0.576)
Control of Corruption (lagged)	-1.661***	-0.856**	-1.059***	1.446
	(0.362)	(0.365)	(0.284)	(1.145)
Election dummy	-0.216	-0.256	-0.058	-0.188
	(0.301)	(0.336)	(0.228)	(0.689)
Regulatory quality	1.589***	0.323	1.009***	-1.446
	(0.440)	(0.438)	(0.345)	(1.581)
Resource based	0.485	0.227	0.191	-0.464
	(0.298)	(0.302)	(0.203)	(0.815)
Wald Chi2	57.74	78.73	23.81	111.0.
Probability	0.000	0.000	0.000	0.000
Observations	312	291	270	147
Country FE	NO	NO	NO	NO

Note: Each column presents a separate panel IV Probit regression with country's compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses. The significance levels are at *** 1 percent, ** 5 percent and * 0 percent.

Table A1. 4: Estimation Results of fiscal rules compliance based on Macroeconomic variables and control for Resource countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					Logit Model with Fiscal Rules Index as Independent Variable			
VARIABLES	All Rules	Debt	Balanced Budget	Revenue	All Rules	Debt	Balanced Budget	Revenue
Fiscal Rules Index					0.218**	0.198	-0.626	1.020
					(0.097)	(0.139)	(0.454)	(0.821)
Debt Service (lagged)	-0.001	-0.001	0.001	-0.006*	-0.000	-0.000	0.001	-0.006*
	(0.001)	(0.001)	(0.004)	(0.003)	(0.001)	(0.001)	(0.004)	(0.003)
Debt (lagged)	-0.108***	-0.227**	0.048	-0.217***	-0.091***	-0.227**	0.027	-0.205***
	(0.023)	(0.093)	(0.039)	(0.070)	(0.027)	(0.091)	(0.040)	(0.070)
Grants (lagged)	0.033	0.044	0.110**	0.132	0.033	0.048	0.097*	0.148
	(0.025)	(0.032)	(0.049)	(0.089)	(0.026)	(0.033)	(0.050)	(0.091)
GDP per capita (lagged)	0.032	0.026	0.158***	0.143	0.025	0.017	0.157***	0.134
	(0.022)	(0.024)	(0.057)	(0.138)	(0.020)	(0.023)	(0.057)	(0.138)
Control of Corruption (lagged)	-0.151***	-0.050	-0.456***	0.543***	-0.148**	-0.052	-0.408***	0.553***
	(0.056)	(0.049)	(0.114)	(0.170)	(0.062)	(0.047)	(0.117)	(0.169)
Election dummy	-0.031	-0.004	-0.023	-0.188**	-0.030	-0.005	-0.024	-0.179**
	(0.036)	(0.028)	(0.089)	(0.081)	(0.032)	(0.027)	(0.090)	(0.085)
Regulatory quality	0.127*	0.015	0.451***	-0.666***	0.128	0.008	0.384***	-0.655***
	(0.076)	(0.034)	(0.136)	(0.230)	(0.084)	(0.036)	(0.147)	(0.231)
Resource based	0.023	0.011	0.075	-0.240***	0.037	0.013	0.074	-0.241***
	(0.029)	(0.021)	(0.079)	(0.070)	(0.030)	(0.022)	(0.080)	(0.070)
Wald Chi2	45.49	48.00	23.53	30.83	50.38	50.12	24.34	32.55
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	312	291	270	147	312	291	270	147
Country FE	NO	NO	NO	NO	NO	NO	NO	NO

Note: Each column presents a separate panel logistic regression with country's compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses *** denotes significance at 1 percent ** denotes significance at 5 percent and * denotes significance at 10 percent.

Table A1. 5 Estimation Results for fiscal rules compliance based on Macroeconomic Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					Logit Model with Fiscal Rules Index as Independent Variable			
VARIABLES	Rules	Debt	Balanced Budget	Revenue	Rules	Debt	Balanced Budget	
Fiscal Rules Index					0.191*	0.192	-0.624	1.038
					(0.099)	(0.127)	(0.441)	(0.770)
Debt Service (lagged)	-0.001	-0.001	0.001	-0.005	-0.000	-0.000	0.001	-0.005
	(0.001)	(0.001)	(0.004)	(0.004)	(0.001)	(0.001)	(0.004)	(0.004)
Debt (lagged)	-0.110***	-0.233***	0.046	-0.174**	-0.095***	-0.233***	0.025	-0.161**
	(0.024)	(0.088)	(0.039)	(0.070)	(0.030)	(0.088)	(0.040)	(0.071)
Grants (lagged)	0.029	0.046	0.106**	0.126	0.026	0.050	0.092*	0.145*
	(0.023)	(0.029)	(0.050)	(0.083)	(0.024)	(0.031)	(0.050)	(0.088)
GDP Per capita (lagged)	0.036	0.031	0.168***	0.152	0.031	0.022	0.167***	0.143
	(0.022)	(0.022)	(0.055)	(0.135)	(0.021)	(0.021)	(0.056)	(0.135)
Control of Corruption	-0.152***	-0.055	-0.473***	0.583***	-0.152**	-0.057	-0.423***	0.587***
	(0.056)	(0.045)	(0.112)	(0.166)	(0.062)	(0.044)	(0.116)	(0.162)
Election dummy	-0.028	-0.004	-0.022	-0.179**	-0.025	-0.005	-0.023	-0.170*
	(0.035)	(0.029)	(0.089)	(0.087)	(0.030)	(0.028)	(0.089)	(0.091)
Regulatory quality	0.120	0.013	0.437***	-0.607***	0.122	0.005	0.368**	-0.586***
	(0.077)	(0.036)	(0.139)	(0.217)	(0.085)	(0.037)	(0.150)	(0.216)
Wald Chi2	43.91	48.0	21.39	27.85	43.89	49.84	23.64	29.24
Probability	0.000	0.000	0.003	0.000	0.000	0.000	0.002	0.000
Observations	312	291	270	147	312	291	270	147
Country FE	NO	NO	NO	NO	NO	NO	NO	NO

Note: Each column presents a separate panel logistic regression with country's compliance with its fiscal rules as the dependent variable. Selection of variables emerges after consecutive exclusion of insignificant variables following general to specific. Robust standard errors are in parentheses, *** denotes significance at 1 percent, ** denotes significance at 5 percent and * denotes significance at 10 percent

Table A1. 6 Correlation between Rules characteristics and Macroeconomic and Political Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rule Characteristics Potential Determinants of Compliance														
Statutory	1. 0000													
Monitoring	0.9572	1. 0000												
Political commitment	0.1611	0.0644	1. 0000											
General government	0.0614	-0.0455	-0.0456	1. 0000										
Central government	0.9085	0.8702	0.2962	-0.1540	1. 0000									
Non-comp sanctions	0.9320	0.9359	-0.0717	-0.0273	0.8254	1. 0000								
Macroeconomic, Social and Political Potential Determinants of Compliance														
Debt	-0.2496	-0.2173	-0.1021	-0.0368	-0.3128	-0.1851	1. 0000							
Interest payment	-0.4253	-0.3896	-0.1385	-0.0028	-0.4522	-0.3810	0.3742	1. 0000						
GDP per capita	-0.0753	-0.1856	0.2379	0.2687	-0.0034	-0.2340	-0.1272	0.2350	1. 0000					
Grants	-0.0601	-0.0296	-0.1229	-0.1212	-0.1066	0.0388	0.3845	-0.0888	-0.5273	1. 0000				
Regulatory quality	-0.0209	-0.1098	0.3233	0.3267	0.0750	-0.0745	-0.2073	-0.0552	0.4477	-0.2055	1. 0000			
Political stability	-0.1759	-0.2602	0.1733	0.1655	-0.1085	-0.1697	-0.1316	-0.0435	0.3774	-0.0355	0.5237	1. 0000		
Corruption	-0.1069	-0.2376	0.3410	0.1799	0.0106	-0.1528	-0.1766	-0.0685	0.3429	0.0218	0.5807	0.6656	1. 0000	
Election dummy	-0.0311	-0.0226	-0.0361	-0.0120	-0.0319	-0.0205	0.0032	-0.0294	-0.0306	-0.0349	-0.0099	0.0050	-0.0427	1. 0000

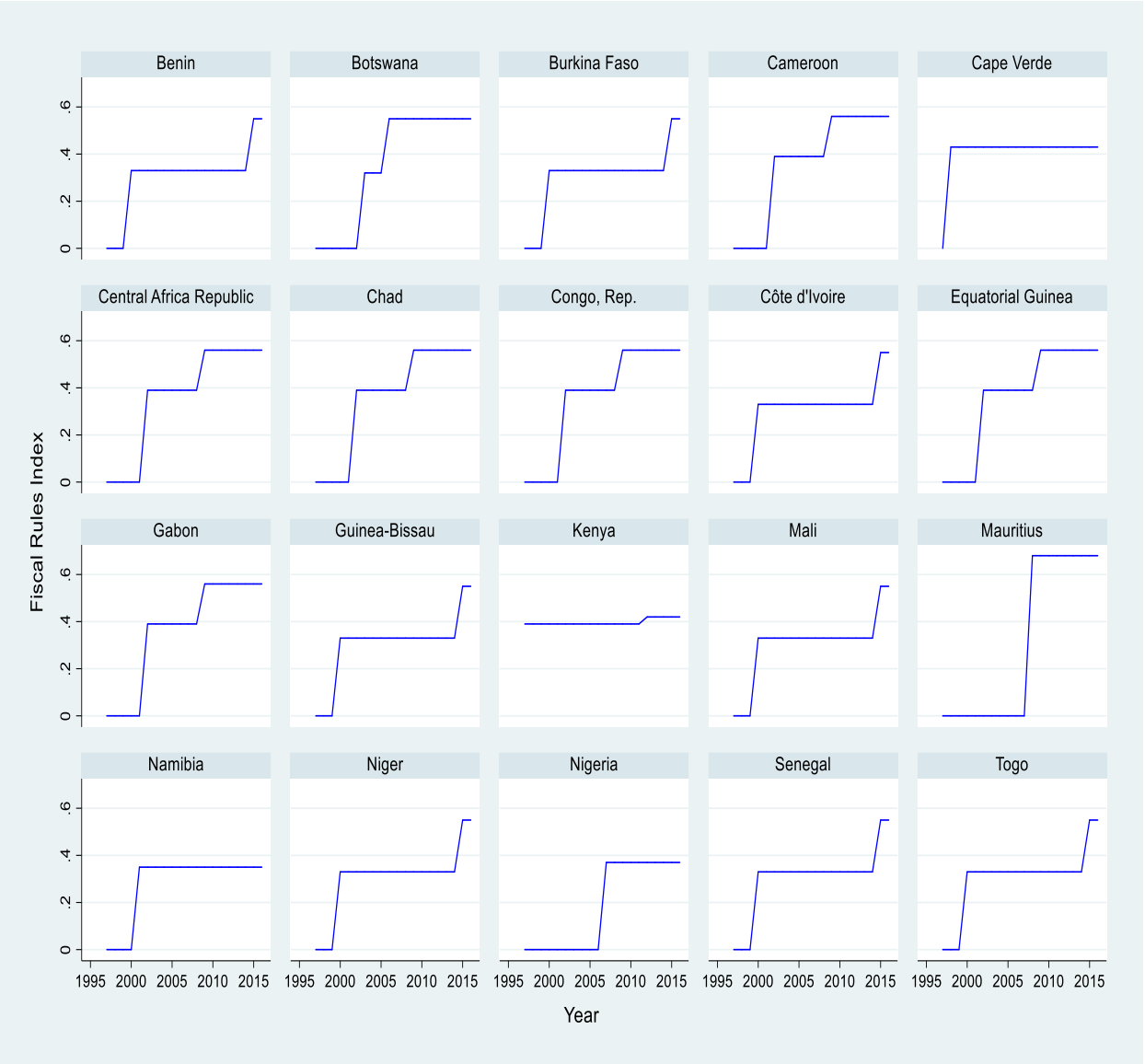
Table A1. 7 Description and Measurement of variables

Figure A1. 2 Fiscal Rules Index in SSA from 1997-2016

Variable	Description	Source
Public debt	The ratio of total debt, which includes domestic and foreign debt as a ratio of GDP. We log public debt in our analysis. Debt levels put a constraint on the countries' development as they endeavour to meet their debt obligations. Further, increased debt can lead to difficulty in complying with fiscal rules. We therefore expect public debt a priori to negatively affect fiscal rules compliance.	IMF/WEO & WDI
Debt service	The total sum of principal and interest payments on public debt as a ratio of total exports. Debt service shows a country's ability and burden in debt repayments. It also shows how a country's resources are constrained through repayment of debt obligations. We expect a priori that debt service will negatively affect compliance of rules.	WDI
GDP per capita	Is the real GDP per capita in per person (base year of 2011). GDP per capita is a ratio of real GDP to Population. We log GDP per capita. Countries that have improved GDP and the income level will find it easy to meet their debt obligations and generate more resources. We expect a priori, that GDP per capita will enhance fiscal rules compliance.	IMF & WEO
Grants	They are measured as a ratio of GDP. We log grants in our analysis. Governments benefit from receipt of foreign grants as they form part of the national budget. It is expected that grants will not act as insurance, but help fuel economic development. We therefore expect a priori grants to enhance compliance of fiscal rules.	WDI
Statutory Laws	An index ranging between 1 and 5, wherein 5 represents a rule is captured in the constitution, 4 represents a rule under an international treaty, 3 represents a fiscal rule based on a legal Act, 2 represents a rule is under a coalition government, and 1 represents a rule implemented under a political commitment.	IMF database & authors calculation
Monitoring	An index ranging between 1 and 3. In this index, 3 represents monitoring under an independent body that is constitutionally sanctioned or an oversight body by parliament, 2 represents monitoring by the ministry of finance or any government body, and 1 represents no public monitoring of the fiscal rule.	IMF database & authors calculation
Central government	A dummy where 1 in central government and 0 otherwise.	IMF database & authors calculation
Political Commitment	A dummy where 1 in central government and 0 otherwise	IMF database & authors calculation
Political Coalition	A dummy where 1 in central government and 0 otherwise	IMF database & authors calculation
Non-compliance	A dummy 1 in central government and 0 otherwise	IMF database & authors calculation
Election dummy	Is a dummy variable. 1 for election of legislature in a given year and 0 otherwise. We consider generation elections where a president or prime minister is elected.	NELDA
Control of Corruption[1]	Index between -2.5 and 2.5. It captures perception of the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as *'capture'* by elites and private interests. Higher values indicate low corruption.	WB/WGI
Regulatory quality[1]	Index between -2.5 and 2.5. Reflects the ability of government to formulate and implement sound policies and regulations that permit and promote private sector development. Higher values indicate strong governance, while low values show weak governance.	WB/WGI
Political violence[1]	Index between -2.5 and 2.5. Measures perceptions of likelihood of political instability and/or politically motivated violence including terrorism. Higher values indicate little or no violence, while low values indicate political violence.	WB/WGI
Fiscal Rules Index (FRI)[2]	Index between 0 and 1 of the fiscal rule characteristics. We construct the FRI's using the characteristics as outlined in the FR's database.	IMF database & authors construction

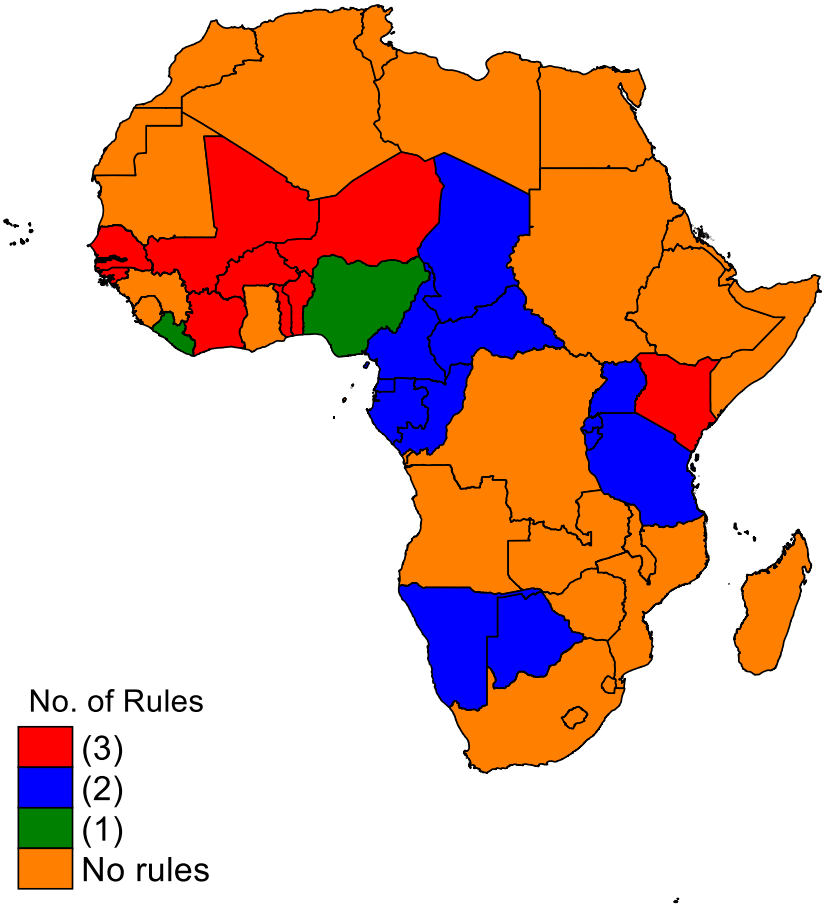
Note: IMF – International Monetary Fund, WB – World Bank, WGI – World Governance Indicators, WEO – World Economic Outlook, WDI - World Development Indicators, NELDA – National Elections Across Democracies and Autocracy. [1]We use linear interpolation to add years 1997, 1999 and 2001 which are missing from the data. [2]We follow Dirk Foremny (2014) to construct our FRI.

Figure A1. 3 Fiscal Rules Index in SSA from 1997-2016



Source: IMF Database and Authors Calculations

Figure A1. 4 Countries with Fiscal rules in Sub-Sahara Africa 1997-2016



Source: IMF Fiscal Rules Database

Figure A1. 4: Selected SSA countries fiscal deficits before and after the financial crisis

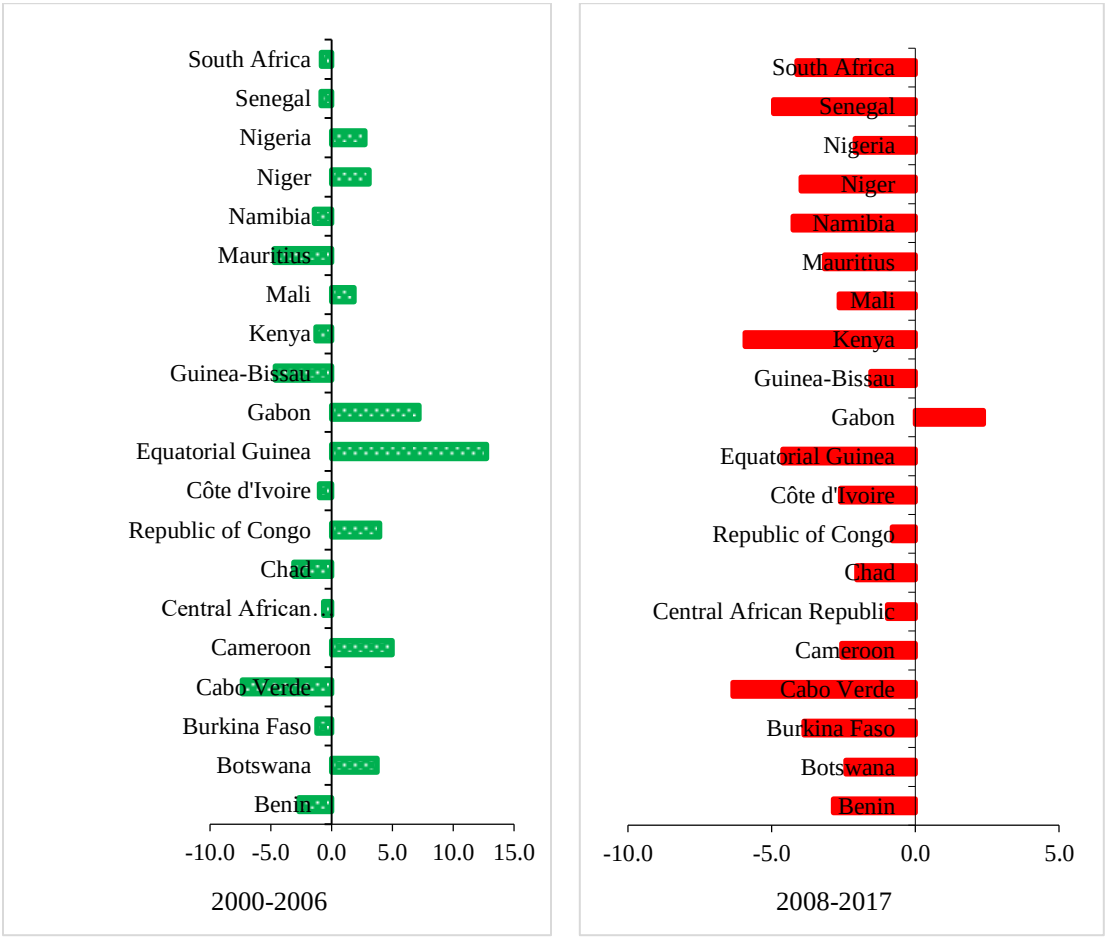


Table A1. 8 Summarised types of fiscal rules

Type of rule	Merits	Demerits
Debt rule (DR)	• They are easy to communicate by the policy makers • Are directly linked to fiscal and debt sustainability	• They can be procyclical as they are not embedded with economic stabilisation features • Highly susceptible to shocks outside the government control • Policy impact on debt is applicable in the long run.
Revenue rule (RR)	• Can improve revenue and resource mobilisation • Mitigates pro-cyclical spending and size of government	• Can be linked to debt sustainability by constraining spending of windfall revenue • There is no economic stabilisation feature, thus can be procyclical
Balanced budget rule (BBR)	• Linked to debt sustainability • Provides a clear budget operational guidance • Easy to communicate and monitor	• Highly susceptible to developments outside government control like recession • There is no economic stabilization feature, thus can be procyclical
Expenditure rule (ER)	• Easy to communicate and monitor • Offers a clear budget operational guidance • Can be linked to debt sustainability with a constrain on revenue • Allows for economic stabilization	• If not linked to revenue, cannot lead to debt sustainability • Not linked to debt sustainability for lack of constrain on revenue
Sovereign wealth fund rule (SWF)	• Allows for economic stabilization • Relatively easy to communicate and monitor • Offers long-term policy impact, through savings	• Highly susceptible to political interference • Can be a source of corruption unless there is legislation to protect the funds

Selected features of fiscal rules	
Statutory base	There should be legal provisions that clearly specify the fiscal targets and institutions responsible for fiscal management. They can be contained in Constitutions, Legal Acts or international treaties. The more the binding the statutory provision is, the stronger the rule. Political commitment and coalitions can be important to enhance compliance.
Monitoring	Rules should be subjected to frequent and independent monitoring. Constant updates and use of desirable statistical data should be used. Tasks assigned to monitoring unit should be explicitly stated, with a clear mandate defined.
Sanctions and enforcement	Sanctions should be clear and punitive, as it helps improve future policy implementation and policy makers are incentivised to act. The sanctions should be specific and simple to impose.
Flexibility	Rules should have room for flexibility in case of unexpected shocks. The flexibility gives policymakers adequate tools to respond whenever shocks arise. In developing countries, flexibility can be implemented in case of development.

Source: Schaechter *et al.* (2012) and Authors compilation

Table A1. 9 Summary of Empirical studies on fiscal rules compliance

Author(s), Year	Case study	Study period	Model(s) or Estimation strategy	Variables included	Key findings
Reuter (2019)	EU 28 countries 51 fiscal rules	1995-2015	Logit regression model	**Dependent:** complied with fiscal rule: debt, deficit and expenditure **Independent:** debt, output gap, inflation, government fragmentation, military expenditure, election year, statutory base, monitoring body, escape clause, alert mechanism, enforcement body, non-compliance mechanism, coverage and media visibility.	• Average compliance rate is 50 percent • Independent monitoring and enforcement body are associated with higher compliance • Rules at general government level have higher compliance rates. • Rules enshrined in constitution or statutory have low compliance rates. • Rules under a coalition have higher compliance rates. • Government fragmentation has higher compliance rates. • Macroeconomic environment does not influence compliance.
Reuter (2015)	Euro area 11 countries	1994-2012	Least Square Dummy Variable (LSDV)	**Dependent:** Constrained variable: debt, deficit and expenditure **Independent:** public debt, output gap, inflation, dependency ratio, openness, population, government size, political ideology, election years, government fragmentation, rule under contract or delegation and run up to European Monetary Union (EMU)	• Even though fiscal rules are not always complied with, they tilt fiscal policy towards their numeric constraint • Fiscal policy is complied with 50 percent of the years under rules. • Introduction of rules changes the behaviour of policy makers towards compliance.
Delgado Tellez et al. (2016)	16 Spanish regions	2002-2015	First-Difference GMM	**Dependent**: difference between fiscal outturns and fiscal targets as a share of GDP **Independent:** Fiscal deficits, Investment as a share of spending, fiscal rules index, election years, and growth forecast errors, regional credit ratings, regional growth differential and regional seats in parliament.	• Political factors do not affect compliance with rules • Non-compliance increases during election years • Strong fiscal rules are not shown to contain fiscal non-compliance
Friedrick et al. (2016)	16 Germany states	Survey study 639 politicians	Probit model	**Dependent:** Compliance expectation of budget deficits **Independent:** Tertiary degree, economic degree, member of budget committee, age in years, preference for fiscal consolidation, political party affiliation, GDP per capita, fiscal equalisation transfers and debt rule index	• States with lower GDP per capita are less optimistic about complying with fiscal rules • Over confidence states have a higher compliance rate • Weak fiscal situation in a state reduces compliance rates • Sub-national rules are a complement to national rules

Author(s), Year	Case study	Study period	Model(s) or Estimation strategy	Variables included	Key findings
Cordes et al. (2015)	Global: 35 countries with ER	1985-2013	Dynamic model	**Dependent:** primary balance & primary expenditure **Independent:** lagged primary balance, lagged primary expenditure, debt, output gap, expenditure rule dummy and expenditure rule index	• ER leads to spending control • ER leads to countercyclical fiscal policy and improved fiscal discipline • Improves fiscal performance like primary balance • They foster better spending behaviour in the presence of PFM • ER are associated with lower public investment where PFM are weak

Source: Authors compilation

Notes: Abbreviations: GMM – Generalised Method of Moments, GDP – Gross Domestic Product, EU – European Union, ER – Expenditure Rule, PFM – Public Finance Management