

**FISCAL RULES:
TOWARDS A NEW PARADIGM FOR FISCAL SUSTAINABILITY IN THE CARIBBEAN**

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Abstract:

This study focuses on pragmatic solutions for promoting a new structural-fiscal culture in the Caribbean. It argues that Caribbean countries cannot adequately surmount their fiscal and debt challenges in the absence of fiscal rules that are geared towards entrenching fiscal discipline, curbing fiscal pro-cyclicality, enforcing counter-cyclical fiscal policies, and improving budget transparency and credibility. Distilling global lessons and taking due cognizance of Caribbean countries' idiosyncrasies, the paper proposes a broad framework for the design and implementation of fiscal rules. Simulations carried out to assess the economic performance of selected Caribbean countries under various fiscal rules-scenarios found that of the different types of fiscal rules, simulated expenditure rules perform the best in terms of reducing macroeconomic volatility, and in that regard, appear to be the most welfare enhancing. The findings of the study evince useful insights for policymakers on how to improve the design and conduct of fiscal policy for better fiscal, and by extension, development outcomes.

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1.0 INTRODUCTION

The Caribbean has had a serious fiscal and debt problem for some time now. World Bank (2005), in analyzing fiscal performance in the 1990s notes, “in almost every Caribbean country, public sector debt is an issue, with public sector debt levels rising sharply since 1997 from already high levels” (p. 33). The Caribbean’s debt problem is a multi-causal one; Caribbean Development Bank (2013) provides a comprehensive exposition. Of the myriad causes of rising debt in the Caribbean, fiscal mismanagement, manifested by persistent deficits and unbridled growth in public expenditure, appears to be one of the most important.

Fast forward to 2015 and the fiscal and debt challenge has become more acute, especially post 2008. Indeed, the global economic and financial crisis exacerbated the fiscal problem in the majority of Caribbean countries. The simple average of the countries’ overall deficit⁴ of 5.5% of GDP in 2009 was three times the average ratio in 2007. Consequently, public debt leaped to an average of 71.0% of GDP in 2009, six percentage points higher than the average ratio in 2007. Moreover, the pro-cyclical fiscal stance adopted by the majority of Caribbean countries because of limited/no fiscal space, meant that there was little or no cushion from the economic blow that the global crisis delivered.

Apart from the cyclical fiscal deterioration and the consequent damage to medium-term sustainability, the global crisis exposed fundamental fiscal-structural weaknesses. Entrenched institutional fragilities appeared to have aided and perpetuated pro-cyclicality in the conduct of fiscal policy; Mercer-Blackman and Seerattan (2014) and Samuel (2009) find empirical support for this. In addition to the pro-cyclicality problem, institutional shortcomings also contribute to a credibility, as well as an indiscipline problem. Grenade (2015) points out that based on the findings of several Public Expenditure and Financial Accountability (PEFA) reports, in many countries, budget credibility and transparency in particular, tend to be lacking (as evidenced by the number of supplementaries that are presented to Parliament after Budget approval). Moreover, slippages in discretionary fiscal policy are particularly evident in the lead up to a general election.

Improving fiscal governance and strengthening institutions are imperative to not only curb fiscal pro-cyclicality and reduce indebtedness but also to restore medium-term fiscal sustainability to better support socioeconomic development. This study argues for a new fiscal-structural culture, which of necessity requires transformative shifts in fiscal practices, policies and institutions, ultimately for better fiscal, and by extension, development outcomes.

Against this backdrop, this study examines issues surrounding the applicability, design and adoption of fiscal rules for Caribbean countries as one transformative shift towards a new fiscal-structural culture. Indeed, the Caribbean’s fiscal performance, especially over the past two decades has drawn attention to the need to strengthen fiscal discipline, promote credibility and entrench counter-cyclical fiscal policy, through mechanisms such as fiscal rules. Given the persistence and scale of the fiscal and debt problem in many Caribbean countries, the urgent adoption of fiscal rules is viewed by the authors as a critical development priority for the Caribbean.

This study is therefore motivated by the urgent need for pragmatic, evidence-based solutions to promote a new structural-fiscal culture in the Caribbean; one where fiscal discipline is entrenched, fiscal pro-cyclical is curbed if not totally replaced by counter-cyclical policies, and where transparency and credibility of budgets are fundamentally improved. There is a paucity of Caribbean research on these

⁴ Refers to central government deficit.

issues in general and fiscal rules in particular, and as such, this study addresses a crucial gap in the extant literature.

Fiscal rules refer to mechanisms that are enforced to constrain fiscal policy. Schaechter, Kinda, Budina, and Weber's (2012) criteria for the qualification of a fiscal mechanism indicate that: fiscal rules must have numerical targets/ceiling/floor that are set on one or more government budgetary aggregates (expenditure, revenue, budget balance and/or public debt) and bound in legislation and fiscal arrangements (Kopits and Symansky, 1998). The rules can be revised only on a low frequency basis and must be binding for at least three years (medium-term budgetary frameworks that can be changed annually are not considered).

From the outset, it is important to underscore that fiscal rules are not a panacea; indeed, they cannot guarantee fiscal sustainability but they have become a popular mechanism by which to anchor fiscal policy, infuse fiscal discipline and promote credibility. Rules can reduce the likelihood of fiscal policy being subjected to misplaced, and sometimes, myopic plans of governments. The adoption of fiscal rules, particularly, but not exclusively by developing countries, has increased in recent years. According to Schaechter et al. (2012), the number of countries using one or more fiscal rules increased from five in 1990 to 76 in 2012. In the Caribbean, Jamaica is the only country with legislated fiscal rules, which were adopted in 2014. Box 1 provides details of Jamaica's fiscal rules.

While empirical results have been mixed with regards to the effectiveness of fiscal rules, two broad conclusions can be distilled from the literature: (i) the design and implementation of fiscal rules matter for their effectiveness; and (ii) there is a positive correlation between the strength and extent of coverage of the fiscal rules and fiscal discipline, as measured by the overall fiscal balance (Ter-Minassian, 2010 provides a useful discussion). Indeed, from the literature review, it appears that countries with strong fiscal discipline without rules do not need them; however, rules are needed in countries where fiscal discipline is a challenge.

The remainder of this study proceeds as follows; section 2 deals with a few key fiscal-structural issues as a backdrop for articulating a rationale for the adoption of fiscal rules in the Caribbean. Drawing on the discussion in section 2, section 3 proposes an indicative framework for the design and implementation of fiscal rules for Caribbean countries, which currently do not have legislated rules. Section 4 carries out a simulation exercise in a heuristic attempt to assess the potential impacts of fiscal rules on selected macroeconomic variables as well as on consumer welfare. Section 5 discusses the results of the simulations and section 6 concludes.

2.0 FISCAL-STRUCTURAL CONTEXT: SUMMARY

The causes and consequences of the region's fiscal and debt problem is a subject matter that has received rapt attention both in the policy arena as well as in academia over time, but especially in recent times because the problem has become more acute. For brevity, this study does not review fiscal performances of Caribbean countries; interested readers can consult various Article IV Assessments of the IMF for this. Instead, this study zeros in on a few key fiscal-structural issues that are perhaps less well known than trends in deficits and debts that are more known.

The persistent fiscal and debt problem in the region is partly a reflection of pro-cyclical fiscal policy, where governments spend excessively during booms and are forced to retrench during downturns. Empirical evidence for the Caribbean suggests that multipliers are generally positive but quite low. Excluding Barbados and Guyana, Ruprah and Melgarejo's (2013) results show that the fiscal multipliers are positive but weak (less than one); nevertheless they are statistically significant. Guy and Belgrave (2012) find that the cumulative multipliers are less than 0.3 after 24 quarters in a sample of Caribbean

countries and they are negative in some. Fiscal multipliers⁵ of government expenditure on consumption, government expenditure on investment, and of tax revenue were estimated for the Eastern Caribbean Currency Union (ECCU), the results of which suggest that only government investment expenditure multiplier is positive and less than one (0.60) (Gonzalez-Garcia, Lemus, and Mrkaic, 2013).

The region's fiscal and debt problem also reflects institutional weaknesses related to limited capacity for effectively managing public expenditure and matching this with revenues. In addition, systems for revenue and expenditure forecasting and debt management remain weak and ineffective in a number of countries, particularly as they relate to containing contingent liabilities.

The PEFA Framework was established to improve benchmarking and monitoring of progress of national Public Financial Management (PFM) systems. The Framework identifies six critical dimensions of performance of an open and orderly PFM system and also assesses donor performance. The core dimensions are: credibility of the budget; comprehensiveness and transparency; policy-based budgeting; predictability and control in budget execution; accounting, recording and reporting; and external scrutiny and audit compliance issues. Deficiencies abound across all dimensions.

Fiscal decentralization in a number of the countries has exacerbated the sub-national PEFA governance challenges where implementation is inconsistent and capacity is weak at the sub-national level (United States Agency for International Development [USAID], 2014). Budgeting is a political process, and announcing that reforms are underway is far easier than actually carrying them out (Wescott, 2009); thus budget planning is a major weakness across the region. A number of countries lack standard operating procedures for budget execution. Political considerations have at times undermined the impact of reform implementation (Department for International Development [DFID], 2014). Recording and reporting capabilities have affected the predictability of funds and commitment controls. PFM systems tend to lack a strong channel through which accountability can be ensured. Some countries lack robust PEFA plans and monitoring and evaluation frameworks which limit the scope to coerce accountability for results.

The region has been unable to link development strategies and plans to medium-term fiscal planning and current year appropriations and execution. There are also significant gaps in budget credibility, as several countries consistently execute budgets that differ significantly from approved budgets. Comprehensiveness and transparency are also problematic areas. Moreover, there exist challenges in procurement planning and execution, and poor linkages between budget preparation, procurement planning, and execution systems. Oversight and governance of procurement, weak monitoring of contract compliance, non-compliance with bidding processes by procurement agencies, and non-transparent bidding processes are additional areas where most countries face challenges.

3.0 FISCAL RULES FOR THE CARIBBEAN: TOWARDS AN OPERATIONAL FRAMEWORK

As discussed section 2, the fiscal and debt problem has been engendered by weak fiscal institutions and frameworks that have failed to curb, and in some cases, perpetuated fiscal indiscipline and chronic fiscal pro-cyclicality. To restore medium-to-long-term sustainability and credibility of fiscal policy, comprehensive reforms are required, particularly, but not exclusively, fiscal-structural reforms. Growth-enhancing reforms (not dealt with in this study) are needed also. This current study contends that given the strong political-economy roots of the Caribbean's fiscal woes, if the region is to truly surmount its acute fiscal and debt challenge, there must be a fundamental modification of the institutions that support

⁵ "The multiplier is the ratio of the rise in GDP relative to the size of the policy intervention (the reduction in taxes and/or increase in government purchases). A multiplier of 1 means that GDP rises by the size of the fiscal intervention."

the design and conduct of fiscal policy. Accordingly, fiscal rules must be an integral part of countries' fiscal-structural reform agenda. The authors hold the view that a resolute commitment to fiscal rules will help to bolster confidence in countries' fiscal policies and frameworks, with broader positive effects on sustainability and ultimately, economic growth and development.

3.1 Fiscal Rules: Guiding Principles

Before delving into an indicative operational framework for Caribbean countries (in section 3.2), it is useful to first examine some guiding principles that countries should consider in deciding whether or not to adopt fiscal rules. These include: (i) objective(s); (ii) type(s) of rules and coverage; (iii) design issues; (iv) implementation modalities; (v) institutional arrangements; and (vi) timing. Each is dealt with in turn.

3.1.1 Objectives

The ultimate objective of fiscal rules is to promote sustainable growth, while at the same time controlling deficits and limiting debt accumulation. However, as Anderson and Minarik (2006) point out, the ultimate objective is supported by at least two proximate ones: (i) long-term fiscal responsibility and sustainability; and (ii) short-term macroeconomic stabilization. The authors caution that, "the apparent superiority of any rule on the basis of one criterion is not a sufficient justification for adoption" (p. 7). Governments also implement fiscal rules to foster policy coordination between different levels of government, contribute to the reduction of uncertainty about future fiscal policy developments, control size of government, and promote cyclical stability. By extension, fiscal rules can foster economic stabilization, as they allow the fiscal accounts to adjust to variations in economic activity. Ambiguities in the objectives and definition can lead to ineffective enforcement; hence a fiscal rule and its objective should be clearly defined.

Fiscal policy rules are essential since unconstrained fiscal policy may be perceived as systematically deviating from desirable policies. In practice, pro-cyclical and/or unsustainable policies can be biased because of the political economy; that is, myopia, re-election concerns, fiscal illusion, distributive conflicts, and coordination failures. Strong rules can potentially inflict higher political costs. An effective rule may result if it is enforced by a politically independent body (Inman, 1996). The main argument is that fiscal rules are hard to modify or amend once they are enshrined in law or constitution and are characterized on a statutory basis.

In the context of Caribbean countries, a delicate balance must be struck between the short-term and long-term objectives in the creation of any fiscal rules. For the highly-indebted, fiscally-constrained, low-growth countries, the need for an economically-viable and politically-palatable balance between macroeconomic stabilization and debt restraint will be critically important.

3.1.2 Type and Coverage

The four main types of fiscal rules are Debt Rules, Budget Balance Rules, Expenditure Rules and Revenue Rules (International Monetary Fund [IMF] 2009; and Schaechter et al., 2012). The most frequently used rules are the Budget Balance Rules and Debt Rules. Debt Rules set a specific numerical target for public debt as a percentage of GDP. This rule is useful when monitoring and measuring economic performance are simple. Budget Balance Rules focus on an overall budget balance, structural or cyclically adjusted balances, or an average balance "over the cycle" of the economy. This rule helps in reducing the budget deficit and supports the convergence of the debt-to-GDP ratio to a desired level. This allows policy makers to identify and control the variable that have repeatedly contributed to debt. The Expenditure Rule limits total, primary and current spending. In general, this rule is applied to control the size of government. Revenue Rules are aimed at boosting revenues or decreasing tax burdens by setting

revenue ceilings or floors (Schaechter et al., 2012). The combination of rules adopted correlates with the fiscal challenges of an economy.

Indeed, the types of rules depend on the variable(s) to be constrained, be it public debt, expenditure, overall balance, revenue, or a combination of those. IMF (2009) suggests that the variable to constrain should depend on the following factors: “(i) objective; (ii) controllability and provision of clear operational guidelines for fiscal policy; and (iii) transparency and ease of monitoring” (p. 20). Based on the four main types of rules, the one(s) that might be most suitable to individual Caribbean countries should be guided by the considerations articulated by IMF (2009) as well as country idiosyncrasies. Deciding on the most apt rule will require not only perspective and judgment but importantly, due cognizance of the political-economy realities in country. In the final analysis, the choice of a fiscal rule must meet its primary and proximate objectives and must be able to withstand harsh political and economic situations.

There are merits of each type of rule. Balanced budget and overall deficit rules can be advantageous since they can: tighten asymptotic properties of debt; directly address the deficit bias; and can be simple and transparent. Debt rules are capable of directly tackling debt sustainability, can be transparent and simple, and can accommodate large shocks if debt is well below a defined ceiling. Revenue rules impose limits on revenues with a view to containing the size of the public sector /tax burden and allocate ex-ante revenue windfalls (e.g., due to surprisingly high growth). This rule is useful as it can reduce pro-cyclicality in good times.

Against the merits are demerits. Fiscal rules are opposed on two theoretical grounds: automatic stabilizer can be hindered and economic growth can be depressed. Automatic stabilizers are elements of the budget that tend to increase revenues during an expansion and increase expenditures during a recession. When automatic stabilizers are allowed to operate, the budget automatically generates surplus during an expansion and deficit during a recession. Thus, stabilization advocates argue that rules are not desirable since they can limit the decision-makers’ ability to adopt necessary stabilization policies during periods of exogenous shocks and thus hinders automatic stabilizers. The depressed growth argument purports that volatility increases and by extension, growth is dampened because automatic stabilizers are hindered (Eichengreen and Wyplosz, 1998; and Levinson 1998).

A poorly-designed rule can be more harmful than helpful. The rules can suffer from a number of weaknesses, namely, balanced budget and overall deficit limits could force cuts in investment. These may also accommodate manipulations, and do not guarantee debt sustainability. In addition, they are pro-cyclical, unless cyclically adjusted. Moreover, debt and revenue rules can induce revenue pro-cyclicality due to the progressivity of tax systems. Debt rules may lead to undesirable responses to interest rate and exchange rate shocks, if debt is close to its prudential limit. Drawbacks with individual rules have led most countries to adopt combination of rules.

The coverage of fiscal rules may vary significantly. Coverage speaks to whether the rules take into consideration central government or the entire public sector. At a minimum, rules must cover central government. However, to prevent the accumulation of debt through fiscal rules, it is critical that the fiscal framework guiding the central government involves a cohesive mechanism that controls all sources of indebtedness, which must include the wider public sector. Narrow coverage, including not covering quasi-fiscal activities through institutions beyond the general government, such as public nonfinancial and financial enterprises, can render a fiscal rule(s) unsuccessful because they can provide room/ incentives to shift operations to areas of the budget not covered by the rules or directly off budget.

3.1.3 *Design Issues*

The economic, political and institutional peculiarities of a country are integral to the design of any fiscal rule. While there is no “one-size-fits- all” approach, there are some broad principles that should guide the design of fiscal rules. Primarily, these include simplicity and transparency, credibility, and flexibility.

With respect to simplicity, the variable(s) being constrained must be a fiscal indicator that is clearly-defined, uncomplicated, and difficult to manipulate. Additionally, the variables(s) must be easy to monitor and control, especially during budget implementation. Simplicity and transparency go hand-in-hand. In relation to transparency, Balasonne and Franco (2002) recognize that transparency is helpful for the success of fiscal policy, whether it be rules-based or discretionary. Specifically related to fiscal rules, it is important that they are designed and implemented in an unambiguous manner, and must be well explained and communicated to the public. Transparency is also important to enhance the integrity of the budget process by limiting quasi-fiscal activities. Additionally, the institutional structures and functions supporting a fiscal rule must be explicit. Transparency in fiscal reporting is also important.

Regarding credibility, Anderson and Minarik (2006) are adamant that, “no fiscal rule can add to credibility if it is flouted” (p. 180). Indeed, a credible fiscal rule is one that makes it arduous and/or costly (politically and otherwise) to make ad hoc and frequent changes. Rules must also be perceived as credible by financial markets and the public at large so as to bolster confidence in fiscal policy decisions and underpinning institutions and frameworks. However, rules ought not to be too rigid, rendering them unworkable. There must be a feasible balance between credibility and flexibility.

Pertaining to flexibility, it is particularly important in fixed exchange rate economies where fiscal policy is the only macroeconomic stabilization tool. Regardless of the exchange rate regime however, fiscal rules should be designed with sufficient built-in flexibility so that fiscal policy can adequately respond to economic and other shocks, without undermining the discipline and sustainability benefits of the rule(s). According to Schaechter et al. (2012), fiscal rule should be designed with appropriate escape clauses that include:

- “(i) a very limited range of factors that allow such escape clauses to be triggered in legislation;
- (ii) clear guidelines on the interpretation and determination of events (including voting rules); and
- (iii) specification on the path back to the rule and treatment of accumulated deviations” (p. 20).

Based on the survey of the literature by Schaechter et al. (2012), 12 countries globally, as well as countries in the EURO and West African Monetary areas use fiscal rules with embedded escape clauses. Typically, escape clauses apply in the event of; (i) a natural disasters, (ii) economic recession, (iii) banking system bailouts; (iv) change in government; (v) change in budget coverage; and (vi) other events outside of governments’ control. Importantly, the magnitude of the shock(s) that would give effect to an escape clause must be unequivocal. Ultimately, the decision of if, and when to relax a fiscal rule in the presence of a shock, is a country-specific one.

3.1.4 *Implementation Modalities*

The credibility of the rule and government’s commitment to the rule are likely to be enhanced if there is a high degree of certainty that non-compliance would be sanctioned. Mechanisms for enforcement must be an integral part of the design of any fiscal rule. Ter-Minassian (2010) emphasizes that enforcement mechanisms must have a solid legal basis and discourage non-compliance through unambiguous and sufficiently potent sanctions. With respect to a legal basis, Ter-Minassian (2010), while pointing out that it is not necessarily a precondition for the introduction of a fiscal rule, duly acknowledges that its sustainability and credibility prospects are greatly enhanced with a strong legal foundation. In relation to enforcement mechanisms, their success is likely to be heightened if they are underpinned by explicit

requirements to correct aberrations from the rule within a reasonable, pre-specified time period. Ter-Minassian (2010) suggests that sanctions should be realistic enough to make application doable. Based on the survey of the literature, typically, sanctions are either financial (fees and fines for example) or administrative (submission of plan to correct deficit, for example). However, there are two factors that condition the usefulness/effectiveness of sanctions; first, they require a third-party enforcer, who may or may not be effective; and second, full enforcement may lead to political instability. For these reasons IMF (2009) opines that sanctions are hardly ever envisaged and advocates that formal enforcement procedures should rely on mechanisms that encourage an obligation to (i) take corrective measures and/or (ii) minimize cost of non-compliance. IMF (2009) asserts that, “the mere introduction of fiscal rules does not guarantee success, unless the cost of breaking the rule is higher than the benefit of doing so” (p. 34).

3.1.5 Institutional Arrangements

There is general agreement in the literature that fiscal rules must be embedded in strong institutional arrangements. Lane (2003) in particular stresses the importance of the efficacy of governments’ machinery and insists that fiscal policies must be used in conjunction with improvements in government efficiency. Bergan and Hutchinson (2014) find empirical support for moderate-to-high government efficiency in aiding the effectiveness of fiscal rules in reducing the pro-cyclicality of fiscal policy in developing countries. IMF (2009) calls for adequate PFM systems and views them as prerequisites for effective implementation of fiscal rules. Indeed, IMF (2009) argues that PFM systems should be so effective that they allow for a smooth and easy conversion of the intent of the fiscal rule into the reality of budget policy and implementation. Of the PFM systems, sound accounting systems that are consistent across all government ministries are particularly important for Ter-Minassian (2010) to ensure timely monitoring of the fiscal targets included in a country’s fiscal rules.

Monitoring is indeed crucial and increasingly several countries (particularly, but not exclusively in advanced and emerging-market) are using “fiscal watch dogs” such as an independent fiscal council to monitor and assess the implementation and impacts of fiscal policy. From a survey of the literature, fiscal councils perform three main functions: (i) fiscal analysis (which should be objective) and costing of proposed budgetary measures; (ii) independent fiscal forecasts and broader macroeconomic projections; and (iii) assessments of the appropriateness of the fiscal stance. In some countries, fiscal councils are also responsible for publicizing non-observance of rules.

In countries that have fiscal rules, their credibility is further bolstered because of the oversight provided by such independent bodies. Wyplosz (2011), in a systematic evaluation of fiscal councils worldwide, remarks, “a fair conclusion is that advisory fiscal policy councils have made a tangible contribution to fiscal discipline in countries where policymakers have shown a willingness to listen to them” (p 11). Wyplosz (2011) contends that after fiscal rules, a fiscal council is the second best solution for promoting fiscal discipline and sustainable public finances. Calmfors and Wren-Lewis (2011) advance the point that fiscal councils are not alternatives to fiscal rules but are complimentary and suggest that the design of fiscal rules should be considered jointly with the design of fiscal councils. Indeed, international organizations such like the IMF, OECD and European Commission have also advocated for complementarity and cohesion.

Off course, the actual setup of a fiscal council must be country specific, taking into account the nature/magnitude of the fiscal and debt challenge as well as the political context. It is noteworthy however, that fiscal councils are not a panacea. Indeed, based on a survey of fiscal councils worldwide, it appears that there is little political costs for a government that ignores the advice of fiscal councils (Wyplosz 2011). Given the inherent limitations of fiscal councils, it is important that fiscal rules be embedded in law; in particular, a fiscal responsibility law (FRL).

Leinert (2010) defines a FRL as “a limited-scope law that elaborates on the rules and procedures relating to three budget principles: accountability, transparency and stability” (p. 5). The author outlines the following requirements as core components of a FRL:

- “(i) specification of the medium-term path of fiscal aggregates;
- (ii) description of the medium-term and annual budget strategy for attaining the chosen fiscal objectives;
- (iii) regular publication of reports (at least twice a year) on the attainment of fiscal objectives or targets; and
- (iv) audited annual financial statements that assure the integrity of fiscal information” (p. 5).

However, Leinert (2010) points out that those are not exhaustive, and in practice, FRLs usually contain discretionary features. Fiscal rules embedded in a FRL-type legislation have become popular in recent years, especially in emerging-market economies. According to Schaechter et al. (2012), 14 emerging economies had FRLs in 2011, compared with four in 2000 and zero in 1985. Reasons for adopting a FRL vary depending on country context; however, two reasons appear common: accountability and responsibility.

3.1.6 Timing

Depending on the objective(s) of the fiscal rule, it can either be introduced: (i) at the start of a fiscal consolidation programme; (ii) to lock in gains from a fiscal consolidation programme; (iii) during a period of economic upturn; and (iv) during an economic recession, i and iv are consistent with the stabilization objective, while ii and iii accord with the sustainability objective. IMF (2009) presents empirical evidence, which suggests that fiscal rules are more likely to be adopted by countries in which a fiscal consolidation programme is ongoing, rather than in countries just starting a programme. The study’s findings support the view that prior consolidation enhances the credibility of fiscal rules. Further, the evidence also implies that fiscal rules are more likely to be introduced during times of economic stability rather than during periods of economic declines, large external imbalances and sharp currency depreciations. In the final analysis however, whatever the appropriate timing might be, public consultations prior to design of rule is important. Public consultations would be critically important given the political-economy context of Caribbean countries.

Lessons from country experiences (See Box 1) suggest that fiscal rules matter. Fiscal policy without rules leads to a short-sighted, asymmetric policy under which the level of debt increases over business cycles, until it becomes unsustainable. A structurally balanced budget is one of the simplest workable rules. Second, any target must be backed up by institutions. In particular, forecasts and output gap estimates need to be made by independent agents that should allow the technically competent and unbiased estimates of the output gap that are an essential input to a structural balance rule. Third, rules must be accompanied by political commitment to long-term fiscal sustainability.

3.2. An Indicative Operational Framework for Caribbean Countries

Guided by the issues discussed in section 3.1, Table 1 lays out an indicative operational framework for Caribbean countries (without legislated fiscal rules), based on recent fiscal performances and political economy contexts as well as global “best/good” practices. Seven Caribbean countries presently have fiscal rules (Jamaica, and the six counties that comprise the Eastern Caribbean Currency Union (ECCU) - Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines). However, only Jamaica has a national rule that is legislated and enshrined in law. In the other countries, rules are bounded by the supranational rule of the ECCU. However, the supranational rules are “de facto”;

they are not legislated and are not enforced. At the end of 2014, all of the ECCU countries were in breach of the “de facto” rules.

Table 1: Indicative Framework for Fiscal Rules

Country	Proposed Indicative Framework To Improve Discipline And Sustainability				
	Type of Fiscal Rule	Indicative Target(s)	Institutional Change(s) Required	Design Issues	
				Enforcement	Escape Clause(s)
The Bahamas	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Increases in total expenditure not exceed medium-term nominal GDP growth projections. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/ “fiscal watch dog.” 	<ul style="list-style-type: none"> • Rules enshrined in law. • Formal mechanism (public disclosure of any breaches). 	<ul style="list-style-type: none"> • Natural disasters. • Economic recession.
Barbados	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Increases total expenditure not exceed nominal GDP growth or at most, remain constant when nominal growth is negative. • Total expenditure not exceed 33% of GDP. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/“fiscal watch dog.” 	<ul style="list-style-type: none"> • Rules enshrined in law. • Formal mechanism (public disclosure of breaches). 	<ul style="list-style-type: none"> • Natural disasters. • Economic recession.
	<ul style="list-style-type: none"> • Debt rule. 	<ul style="list-style-type: none"> • New borrowing should only be to finance public investment. • Increases in total debt stock not exceed 2-year projected nominal GDP growth. 			

Belize	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Total expenditure not exceed 25% of GDP. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. 	<ul style="list-style-type: none"> • Rules enshrined in law. <p>Formal mechanism (public disclosure of breaches).</p>	<ul style="list-style-type: none"> • Natural disasters.
	<ul style="list-style-type: none"> • Debt rule. 	<ul style="list-style-type: none"> • Increases in total debt stock not exceed 2-year projected nominal GDP growth. • New borrowing should only be to finance public investment. 	<ul style="list-style-type: none"> • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/ “fiscal watch dog.” 	<ul style="list-style-type: none"> • Economic recession. 	
Guyana	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Total expenditure not exceed 30% of GDP. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. 	<ul style="list-style-type: none"> • Rules enshrined in law. <p>Formal mechanism (public disclosure of breaches).</p>	<ul style="list-style-type: none"> • Natural disasters.
	<ul style="list-style-type: none"> • Debt rule. 	<ul style="list-style-type: none"> • Increases in total debt stock not exceed 2-year projected nominal GDP growth. 	<ul style="list-style-type: none"> • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/“fiscal watch dog.” 	<ul style="list-style-type: none"> • Economic recession. 	
Suriname	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Growth in total expenditure not exceed 2-year projected non-mineral GDP growth. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. 	<ul style="list-style-type: none"> • Rules enshrined in law. • Formal mechanism (public disclosure of breaches). 	<ul style="list-style-type: none"> • Natural disasters. • Economic recession.

			<ul style="list-style-type: none"> • Fiscal council/ “fiscal watch dog.” 		
Trinidad and Tobago	<ul style="list-style-type: none"> • Spending rule. 	<ul style="list-style-type: none"> • Growth in total expenditure not exceed 2-year projected non-oil GDP growth. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/ “fiscal watch dog” 	<ul style="list-style-type: none"> • Rules enshrined in law. • Formal mechanism (public disclosure of breaches). 	<ul style="list-style-type: none"> • Natural disasters. • Economic recession.
ECCU Countries: [Antigua & Barbuda, Dominica, Grenada, St. Kitts & Nevis, St. Lucia and St. Vincent & the Grenadines]	<ul style="list-style-type: none"> • Deficit rule. 	<ul style="list-style-type: none"> • Overall balance not exceed 3% of GDP. 	<ul style="list-style-type: none"> • Medium-term budget framework that is binding. 	<ul style="list-style-type: none"> • Formalize the current debt and deficit rules in legislation and establish an enforcement mechanism. 	<ul style="list-style-type: none"> • Natural disasters. • Economic recession.
	<ul style="list-style-type: none"> • Debt rule. 	<ul style="list-style-type: none"> • Debt-to-GDP ratio of 60% by 2030. 	<ul style="list-style-type: none"> • Stronger expenditure monitoring mechanisms. • Enforceable multi-annual expenditure ceilings across the public sector. • Fiscal Responsibility Law. • Fiscal council/ “fiscal watch dog.” 		

Source: Authors’ conceptualization.

4 MACROECONOMIC IMPACTS OF FISCAL RULES: A SIMULATION EXERCISE

4.1 Model

A real business cycle (RBC) model, derived from the works of Bi et al. (2013), Wright and Ramirez (2014), and Ovalle and Ramirez (2014) is used to determine the macroeconomic impacts of adopted simulated rules. The model includes a description of the restriction on government expenditure and the fiscal deficit, and how changes to certain simulated rules specifically impact selected economic variables. The model is further enhanced by considering consumption bundles of households and goods produced by firms.

4.2 Fiscal Variables

From Bi et al.'s (2014), Wright and Ramirez's (2014) and Ovalle and Ramirez's (2014) small open economy RBC models, standard fiscal variables are derived as follows; income taxes τ_t^l , from labour and capital, consumption taxes, τ_t^c and the deficit b_t^* , financed by bonds. Transfers are granted to householders z_t and the real sector comprises of both the tradable and non-tradable goods (g_t^T) and (g_t^N) respectively. The goods basket incorporates goods at a constant elasticity of substitution (CES) aggregator.

The price of government goods is outlined as follows: $p_t^g = [\varphi^g (p_t^N)^{1-\chi} + (1 - \varphi^g)(s_t)^{1-\chi}]^{\frac{1}{1-\chi}}$ (4.1)

Where φ^g is the level of home bias (the proportion of goods consumed from domestic production relative to imported goods), χ is the rate of substitution between goods, s_t is the rate of exchange and p_t^N is the non-tradable goods price. The deficit position is described by:

$$\tau_t^c c_t + \tau_t^l (w_t l_t + r_t^N k_{t-1}^N + r_t^T k_{t-1}^T) - (s_t b_{t-1}^* - p_t^g g_t - z_t) = q_t s_t b_t^* \quad (4.2)$$

Where q_t is the foreign bond price and $q_t s_t b_t^*$ (fiscal deficit) is the amount that will be financed by selling bonds b_t^* . Movement in the fiscal deficit is based on rules targeting debt and rules related to revenue and expenditure. Changes in revenue, spending, and primary balance determine targeted limits for the debt-to-GDP ratio $\left(\frac{b}{y}\right)$, w is wages, l is leisure, r is interest rate, k is capita, and N and T are the non-traded and traded sectors, respectively.

$$\text{Targeted debt ratio with Revenue Rule} \quad \tau_t = \alpha_0 \tau_{t-1} + \alpha_1 \left(\frac{b_t^*}{y_t} - \frac{b^*}{y} \right), \quad y \quad \alpha_0 > 0, \alpha_1 > 0 \quad (4.3)$$

$$\text{Targeted debt ratio with Expenditure Rule} \quad g_t = \alpha_0 g_{t-1} + \alpha_1 \left(\frac{b_t^*}{y_t} - \frac{b^*}{y} \right), \quad y \quad \alpha_0 > 0, \alpha_1 < 0 \quad (4.4)$$

$$\text{Targeted debt ratio with Overall Balance Rule} \quad b p_t = \alpha_0 b p_{t-1} + \alpha_1 \left(\frac{b_t^*}{y_t} - \frac{b^*}{y} \right), \quad y \quad \alpha_0 > 0, \alpha_1 > 0 \quad (4.5)$$

Where α_0 is the policy instrument and α_1 the degree of adjustment to the rule. Simulated fiscal rules allow the fiscal authority to determine limits for the debt-to-GDP ratio, while making changes to revenue or expenditure or the overall fiscal balance separately, as well as simultaneously.

With no limits for the debt-to-GDP ratio and the level of government spending, the revenue rule establishes a minimum level for revenue, hence limiting the tax- to-GDP ratio. τ^*

$$\tau_t = \tau^* \quad (4.6)$$

Alternatively, the government now sets a limit for spending, with no limits for the debt-to-GDP ratio and revenue, thereby limiting the government spending-to-GDP ratio at an upper level.

$$\frac{g_t}{y_t} = \frac{g^*}{y} \quad (4.7)$$

Constraints on the overall balance-to-GDP ratio, and no constraints on revenues, expenditure, and debt, the final fiscal variable rule is determined.

$$\frac{bp_t}{y_t} = \left(\frac{bp}{y}\right)^* \quad (4.8)$$

Compared against these rules is the discretionary rule (d_t), which shows government spending and revenue beyond and above existing fiscal policy stance (Attinasi and Klemm ECB 2014). The discretionary rule is usually defined as the difference between actual government activities less a no-policy change scenario, which is the previous year's activity adjusted by inflation:

$$d_t = g_t - g_{t-1}(1 + \pi_{it}) \quad (4.9)$$

The automatic mechanism of correction that rectify deviations from targeted levels is normalized, which is a usual practice in fiscal management. Fiscal activities such as public private partnerships, liabilities and risk are also included.

4.3 Households

The household basket of goods comprises public and private property, leisure and consumption \tilde{c}_t and $(1 - l_t)$ following a CES index:

$$\tilde{c}_t = \left[\omega (c_t)^{\frac{v-1}{v}} + (1 - \omega)(g_t)^{\frac{v-1}{v}} \right]^{\frac{v}{v-1}} \quad (4.10)$$

Where ω is the share of private consumption bias and v relates to the level of interchangeability between goods. The determined utility function for preferences is as follows:

$$U_t = \left(\log(\tilde{c}_t) + \phi \frac{(1-l_t)^{1-\sigma}}{1-\sigma} \right) \quad (4.11)$$

σ is the inverse of the Frisch elasticity of labour and ϕ is the share of leisure in the function.

Household maximizes utility over the horizon; $E_t \sum_{t=0}^{\infty} \beta^t U_t$; $\beta \in (0,1)$, where β is the discount factor, helping to determine the paths for goods, labour, investment and capital throughout the sectors:

$$(1 + \tau_t^c)c_t + i_t^N + i_t^T + \frac{\kappa}{2} \left(\frac{i_t^N}{k_{t-1}^N} - \delta \right)^2 k_{t-1}^N + \frac{\kappa}{2} \left(\frac{i_t^T}{k_{t-1}^T} - \delta \right)^2 k_{t-1}^T = (1 - \tau_t^i)(w_t l_t + r_t^N k_{t-1}^N + r_t^T k_{t-1}^T) + z_t \quad (4.12)$$

Where the parameter κ is the adjustment costs of capital and the rate of depreciation is δ .

The first order conditions (FOC) for the equilibrium relationship among householders is outlined as follows:

$$\phi(1 - l_t)^{-\sigma} = (1 + \tau_t^c)(1 - \tau_t)w_t \omega c_t^{\frac{-1}{v}} \tilde{c}_t^{\left(\frac{1}{v}-1\right)} \quad (4.13)$$

4.4 Firms

Following a Cobb-Douglas function, firms produce for the tradable and non-tradable sectors in perfect competition as follows:

$$y_t^N = a_t (k_t^N)^{1-\alpha^N} (l_t^N)^{\alpha^N} \quad (4.14)$$

$$y_t^T = a_t (k_t^T)^{1-\alpha^T} (l_t)^{\alpha^T} \quad (4.15)$$

$$\ln \frac{a_t}{a} = \rho_a \ln \frac{a_{t-1}}{a} + \varepsilon_t^a; \varepsilon_t^a \sim N(0, \sigma_a^2) \quad (4.16)$$

a_t is the total factor of production that follows the AR (1) process and ε_t^a is a productivity shock in both sectors.

The FOC helps determine labour and capital demand and a shock to terms of trade follows an exogenous process:

$$l_t^N = \alpha^N \left(\frac{p_t^N}{w_t^N} \right) y_t^N \quad (4.17)$$

$$l_t^T = \alpha^T \left(\frac{\xi_t s_t}{w_t^T} \right) y_t^T \quad (4.18)$$

$$k_{t-1}^N = (1 - \alpha^N) \left(\frac{p_t^N}{r_t^N} \right) y_t^N \quad (4.19)$$

$$k_{t-1}^T = (1 - \alpha^T) \left(\frac{\xi_t s_t}{r_t^T} \right) y_t^T \quad (4.20)$$

$\xi_t = p_t^x / s_t$ is the terms of trade that follows an exogenous process:

$$\ln \frac{\xi_t}{\xi} = \rho_\xi \ln \frac{\xi_{t-1}}{\xi} + \varepsilon_t^\xi; \varepsilon_t^\xi \sim N(0, \sigma_\xi^2) \quad (4.21)$$

The model is used to determine the welfare effects of each of the specified simulated fiscal rules relative to the discretionary fiscal policy by adopting the Lucas (1987) methodology, and the extent of volatility of key macroeconomic variables under each fiscal rule, including the discretionary policy rule. The methodology to determine both welfare effects and the volatility of macroeconomic variables is described in the following sections.

4.5 Welfare and Variations in Compensating Consumption

Lucas' (1987) methodology, which was enhanced by Schmitt-Grohe and Uribe (2004), is used to estimate economic welfare and variations in compensating consumption through the use of second order approximations of the model and the function of utility relative to the discretionary policy rule. (Kumhof and Laxton, 2013). The methodology estimates the reductions in average consumption householders are willing to accept and still remain indifferent among the various fiscal rules. The formula for estimating welfare utility, based on compensating consumption is:

$$\eta = (1 - \beta)\eta + \beta\eta \quad (4.22)$$

Where the discount factor is represented by β , determines consumption at its steady state that allows householders to experience indifference in terms of expected utility across the different fiscal rules relative to the discretionary policy rule. Determining the change in steady state consumption by using second order approximations, welfare gains and compensating variations are calculated to compare each fiscal rule to the discretionary policy rule (Garcia et al., 2013).

The results outlined in Section 5 show the impact on consumer welfare (gains/losses), based on the gap between the six simulated fiscal rules and the prevailing discretionary fiscal policy.

4.6 Volatility of Macroeconomic Variables

Following a similar exercise by Ovalle and Ramirez (2014), the volatility⁶ of each simulated fiscal rule outlined in section 4.1 is compared against the discretionary fiscal policy across the nine economies studied (The Bahamas, Belize, Barbados, and the six economies comprising the ECCU)⁷. The very nature of these small very open economies generally portend acute vulnerability to shocks, such as terms of trade and productivity shocks. Prevalence of these shocks contribute to increasing volatility of key macroeconomic variables such as (output, consumption, investment and employment) that could adversely affect confidence in governments' fiscal policy and overall consumer welfare. Simulated results are outlined in section 5.2.

4.7 Parameters and Moments

The calibrated parameters used in the model, comprise of parameters that are common across the economies studied and country-specific parameters. The moments of the detrended data for the period are matched with the coefficients of autocorrelations and standard deviations of the model, to ensure the consistency of the data within the model.

4.7.1 Calibration

The determination of both parameters is based on information garnered from similar studies (Bi et al., 2014; and Wright and Ramirez, 2014) on small open economies. Parameters calculated or estimated by the authors are from data series derived from statistical databases from the Central Banks of Barbados, Belize and Bahamas, the IMF International Finance Statistical database and the Economic Commission of Latin America and the Caribbean (ECLAC). Table 2 comprises of the common parameters, while Tables 3 and 4 contain the country-specific parameters.

Table 2: Common Parameters

Parameters		
φ	Weight of non-tradable in consumption basket	0.5
σ	Inverse of the Frisch elasticity of labour supply	2
υ	Elasticity of substitution between c_t y g_t	0.49
ω	Weight of c_t in effective consumption	0.8
χ	Elasticity of substitution between tradables and non-tradables c_t and g_t	0.44
χ^l	Elasticity of substitution between l_t^N and l_t^T in l	1
φ^l	Steady state labour income share of the non-tradable sector	0.5
κ	Investment adjustment costs	1.7
α^N	Weight of labour income in non-tradable sector	0.5
α^T	Weight of labour income in tradable sector	0.5
ϕ	Steady state of leisure participation	0.25
δ	Annual rate of depreciation	0.1

⁶ The standard deviation of each simulated fiscal rule's impact on output, consumption, investment and employment is calculated.

⁷ These countries were included because of data availability and consistency.

The proportion of non-tradable share in the consumption basket (φ) is set to 0.5, which is closely estimated in previous studies (Bi et al., 2014), 0.53 for two similar economies and 0.49 for the Dominican Republic (Wright and Ramirez, 2014).

Following Bi et al. (2014) and Wright and Ramirez (2014) and estimated parameters for similar small open economies, σ , the inverse of the Frisch elasticity of supply, is estimated at 2, the substitution elasticity in the household basket (ν) is calibrated at 0.49 and ω , the weight of consumption preference c_t in effective consumption is made at 0.8, while the level of substitution on tradable versus non-tradable is estimated at 0.44. The labour mobility, χ^l , is equal to 1, the steady share of labour income in the non-tradable sector φ^l , is calibrated to 0.5. Costs of investment adjustment parameter are done at 1.7. Assuming that sectors have about the same labour intensiveness, the similar parameters for labour income in the tradable and non-tradable sectors (α^N) and ($\alpha^T = 0.5$). With most householders spending approximately 25% of their time at work, the labour share usually made to 0.25 and the annual depreciation rate of capital is 0.10 for sectors.

The country-specific parameters in Tables 3 and 4 are derived from the Mendoza and Oviedo's (2004) methodology for steady state debt-to-GDP ratio, while the persistence and volatility of productivity and terms of trade are estimated from the Hodrick-Prescott (HP) filter against the trend series.

Using the ratio of tax expense to taxable income, the effective tax rates are derived and sales tax is used as effective tax on goods and services (Ovalle and Ramirez 2014). Beta β , which is the discount factor that determines the optimality of consumption, labour, capital and investment, is computed from the real lending rate for each economy.

Table 3: Description of Country Specific Parameters

Parameters	Description	Methodology and Data
$\frac{b}{y}$	Steady State debt ratio	Mendoza-Oviedo (2004)
τ_i	Effective income tax rate	1990-2012
τ_c	Effective tax rate on goods and services	1990-2012
ρ_a	Persistence productivity shock	1990-2012
ρ_{ti}	Persistence terms of trade shock	1990-2012
σ_a	Volatility productivity shock	1990-2012
σ_{ti}	Volatility terms of trade shock	1990-2012
β	Discount Factor	

Table 4: Country-Specific Parameters

Countries	ρ_a	ρ_ξ	σ_a	σ_ξ	τ_i	τ_c	β	$\frac{b}{y}$
Antigua Barbuda	0.68	0.31	0.02	0.04	0.10	0.14	0.98	0.91
The Bahamas	0.61	0.57	0.01	0.03	0.02	0.04	0.99	0.50
Barbados	0.58	0.31	0.01	0.04	0.19	0.17	0.98	0.61

Belize	0.62	0.09	0.01	0.02	0.14	0.16	0.97	0.68
Dominica	0.46	0.47	0.01	0.02	0.15	0.15	0.97	0.83
Grenada	0.56	0.43	0.02	0.02	0.15	0.15	0.98	0.90
St. Kitts and Nevis	0.68	0.53	0.01	0.03	0.17	0.16	0.97	0.87
St. Lucia	0.42	0.61	0.01	0.02	0.15	0.15	0.97	0.81
St. Vincent and the Grenadines	0.60	0.30	0.01	0.03	0.15	0.15	0.98	0.83

The country-specific parameters show a discount factor averaging 0.98 for the nine economies studied; this implies a quarterly real interest rate of approximately 2%, with effective rate of 8%. The Bahamas has the highest discount factor of (0.99) with four economies having a factor of 0.97.

The steady state debt-to-GDP ratio, calculated from Mendoza and Oviedo's (2004) methodology, which determines a ratio based on the difference between the minimum levels of income and spending with respect to GDP, divided by the interest-growth rate differential. The smaller economies of the region averaged a higher steady state level of approximately 0.90, with Antigua and Barbuda, Grenada, St. Kitts and Nevis are all close or above this average.

The persistence and volatility shock parameters for productivity and terms of trade are obtained from the HP filtered data against the trend of per capita output and the real exchange rate. The highest persistence is observed among the Bahamian data of (0.61 and 0.57). The volatility parameter shows that Antigua and Barbuda experience higher levels than most other economies within the sample of economies.

Effective Income tax rate and rate for goods and services are also outlined in Table 3. The income tax rates for most economies are usually based on a progressive system of taxes, as higher income earners pay higher taxes. Throughout these economies the effective rate is based on taxable expense against taxable income. In this paper the value added tax or sales tax is used as a measure to determine the effective tax rate on goods and services.

4.7.2 Moments

Using the autocorrelations and the standard deviations of the productivity and terms of trade shocks along with cost adjustment parameter, the correlations and standard deviations of the key variables for the de-trended data are produced covering the period 1990-2012. Table 5 reports the moments of the data across the economies. The results show that model closely matches the data. Indeed, the smallness and openness of the economies study contribute to macroeconomic volatility and liquidity-constrained householders do not encourage persistence in output and consumption (Ovalle and Ramirez 2014; and Kumhof and Laxton 2013).

Tables 5. Moments of the Data.

Variables	Standard Deviation	Auto-correlations
GDP	1.58	0.62
Private consumption	2.42	0.81
Investment	3.95	0.76

5 RESULTS

5.1 Welfare

Using Lucas's (1987) methodology, the welfare utility is determined based on compensating consumption for each fiscal rule relative to the discretionary policy rule. The results are outlined for The Bahamas, Belize, Barbados and the ECCU in Appendix 1.

The classification of the fiscal rules in Appendix 1 are: DR1, which shows adjustments being made to revenue once there is a deviation from the targeted debt-to-GDP ratio; DR2, is similar to DR1, but adjustments are made to government spending based on deviations from the targeted debt-to-GDP ratio; DR3 shows adjustments in the overall balance against deviations from the targeted debt ratio, RBF, RG and RI all rules for the overall balance, expenditure and revenue as proportions of GDP respectively, with no limits to the debt-to-GDP ratio.

Expenditure rules, which simulate adjustments in public spending based on deviations from the targeted debt-to-GDP ratio, provide a higher rate of consumer welfare in The Bahamas (0.18 difference), relative to the discretionary fiscal policy rule than any other rules. This result is similar for all the economies studied with Belize (0.38 difference), Barbados (0.13 difference) and the combined ECCU economies (0.47 difference). For Belize and the ECCU, rule based level of expenditure as a proportion of GDP was considered the next best method of improving welfare relative to the discretionary policy. In The Bahamas and Barbados, a revenue rule (which simulate adjustments in revenue based on deviations from the targeted debt-to-GDP) was considered the second best option for improving welfare.

5.2 Volatility of Macroeconomic Variables

The results in Appendices 2 to 5 show that rules based on simulations without a targeted debt-to-GDP ratio tend to increase volatility in the macroeconomic variables and could have resulted from a seemingly lack of credible consistency among government policy, a result also observed by Ovalle and Ramirez (2014). However, simulated debt rules, without adjustments in expenditure tend to have the overall lowest volatility across the economies studied. In the first two economies studied (Bahamas and Belize), this rule had the near lowest volatility in consumption, investment and employment, with similar results for Barbados and the ECCU.

A key policy implication of the simulated results is that the design and conduct of current fiscal policy need to be modified to include appropriate fiscal rules to reduce macroeconomic uncertainty and volatility and enhance welfare.

6 CONCLUSIONS

This study examined issues surrounding the applicability, design and adoption of fiscal rules for Caribbean countries as one transformative shift to promote a new fiscal-structural culture. In critically analyzing the Caribbean's fiscal situation, the study argued that Caribbean countries cannot adequately surmount their fiscal and debt challenges in the absence of an institutionalized and legitimate discretionary-constraining mechanism, such as fiscal rules. The study therefore proposes an indicative framework for the design and implementation of fiscal rules, based on specific country nuances. The implementation of fiscal rules, which are idiosyncratic given varying contexts, but which are all geared towards entrenching discipline, curbing pro-cyclicality, enforcing counter-cyclical policies, and improving budget transparency and credibility are considered an urgent development priority. Simulations carried out to assess the economic performance of selected Caribbean countries under various fiscal rules-scenarios found that of the three types of fiscal rules, simulated expenditure rules perform best in terms of reducing macroeconomic volatility, and in that regard, appear to be the most welfare enhancing. The findings of the study evince useful insights for policymakers on how to improve the conduct of fiscal policy for better fiscal, and by extension, development outcomes.

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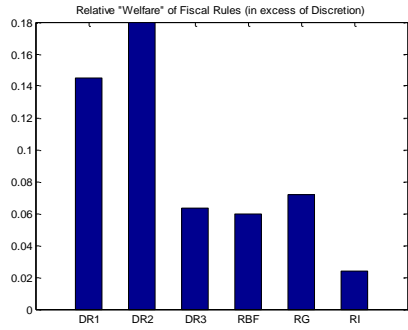
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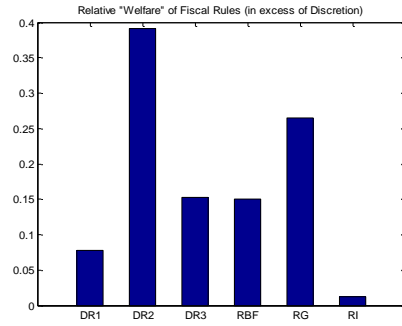
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Appendix 1

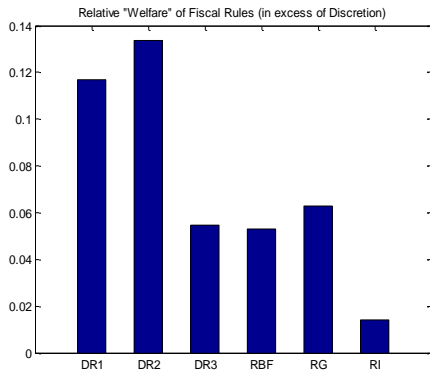
The Bahamas



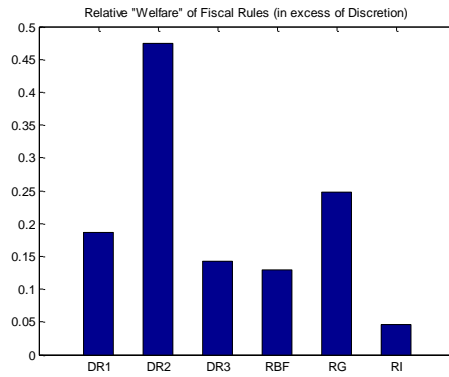
Belize



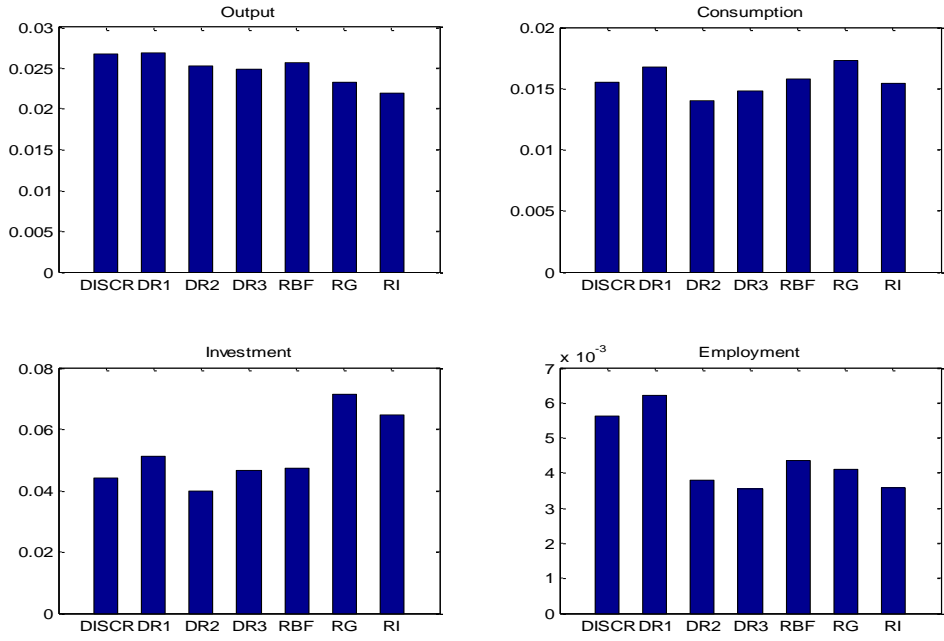
Barbados



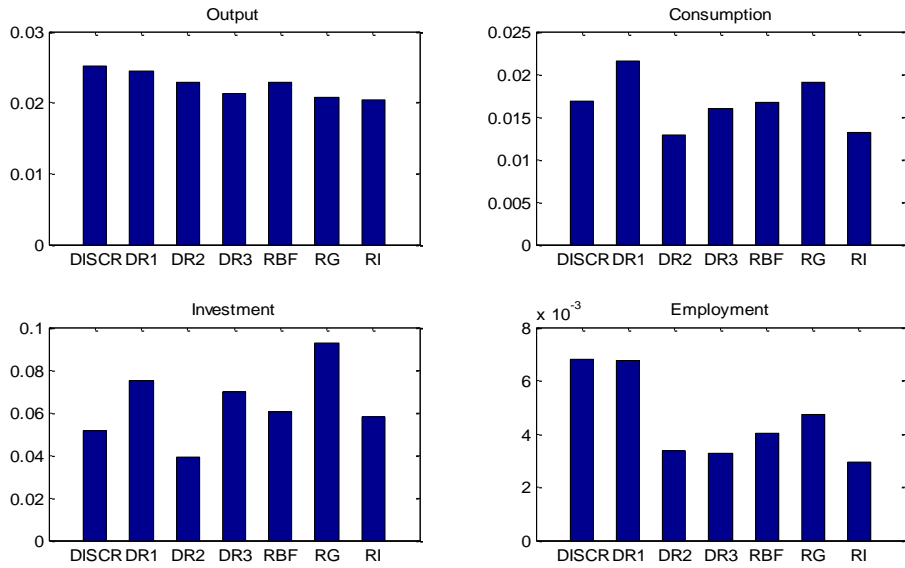
ECCU



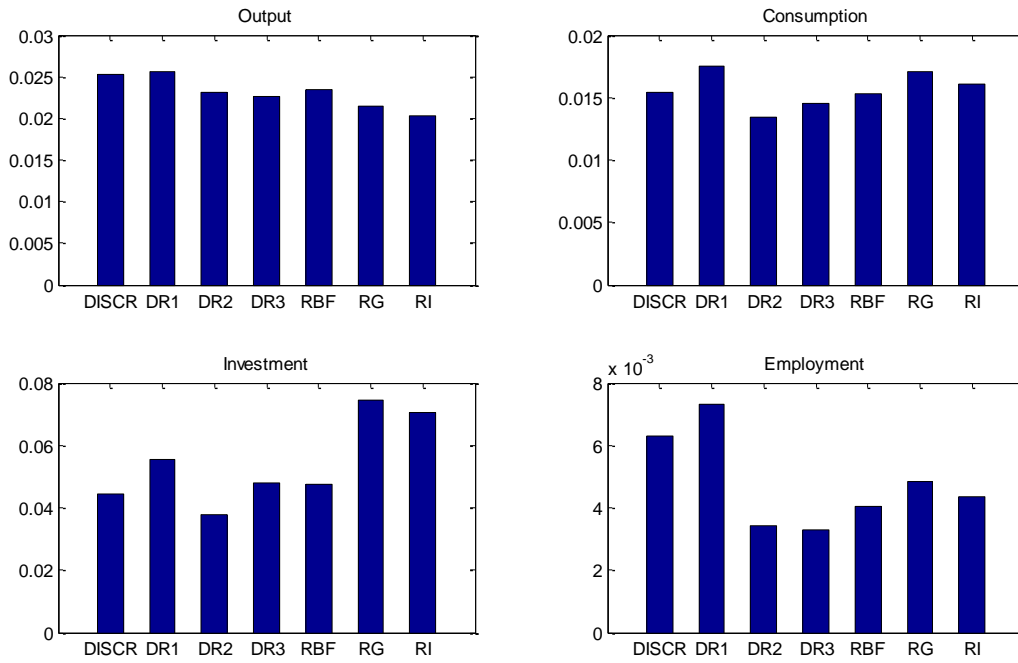
Appendix 2: The Bahamas



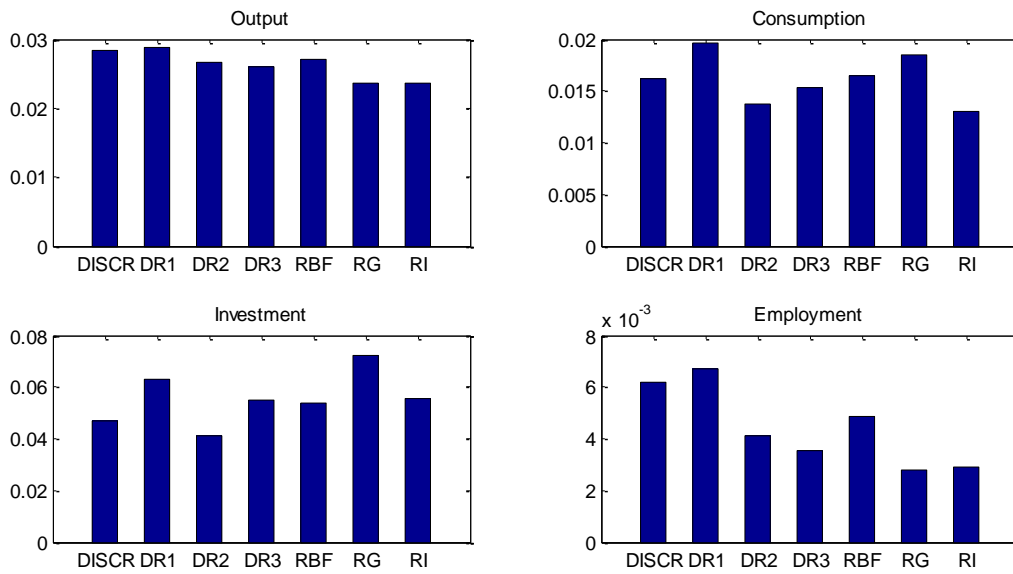
Appendix 3: Belize



Appendix 4: Barbados



Appendix 5: ECCU



Box 1: Selected Country Summaries: Jamaica and Chile

Jamaica's fiscal responsibility framework approved in March 2010 is designed to reduce the fiscal balance and debt by end of March 31, 2016. The policy includes two rules: balanced budget and debt rule. The debt rule aims at reducing the total debt to approximately 100% of GDP. The framework also includes a target to reduce the ratio of wages paid by the government as a proportion of the GDP to 9% or less (Schaechter, et al., 2012). The appropriate fiscal mechanisms were not implemented to support the fiscal framework, hence the government was unable to curtail debt and decrease budget deficits. In particular, the recurring fiscal deficit increased the country's dependence on debt, causing the debt-to-GDP ratio to reach of over 140% in 2010 (Central Bank of Jamaica, 2013). In addition, the IMF agreement was derailed. As a consequence, the IMF in response to Jamaica's request for an extended loan facility imposed as a major conditionality, the design of a fiscal rule by August 31, 2013, to be incorporated as a part of the 2014/2015 budget.

The Jamaican Government's request for a four-year extended loan facility from the IMF was approved in 2013. In March 2014, Jamaica took aggressive steps to improve its fiscal framework and meet its target by enacting a legislation to enable the adoption of the fiscal rules. The framework aims to limit annual budgeted overall fiscal deficits of the public sector to achieve a reduction in public debt to no more than 60% of GDP by 2025/26. The rule establishes an automatic correction mechanism that would be triggered by substantial cumulative deviations from annual balance target. The rule however includes an escape clause, limited to major adverse shocks and triggered only with parliamentary approval. The fiscal rules take into account all fiscal activities associated with the public sector as well as fiscal implication of public private partnerships therefore accounting for contingent fiscal liabilities and risk.

Chile's fiscal rule was developed in 2000 and implemented in 2001. The fiscal rule aims at contributing to two policy objectives: fiscal sustainability and fiscal/macroeconomic stability. The fiscal rule is that the government must set a budget target. The target was originally set at a surplus of 1% of GDP, for three reasons: (i) recapitalizing the central bank, which inherited a negative net worth from bailing out the private banking system in the 1980s and some sterilization of inflows in the 1990s; (ii) funding some pension-related and other liabilities; and (iii) servicing net external dollar debt⁸ The target was subsequently lowered to ½ % of GDP in 2007, and to 0 in 2009⁹. The main features of the rules have remained unaltered although there have been changes in its political administration.

Chile's approach is to discard the pro-cyclicality of a strict annually balanced budget by focusing on the concept of a central government structural balance. Structural budget balance is the difference between the expenditures that would be made and the revenues that would be collected if the economy were operating at potential GDP. A structurally balanced budget guarantees long-run sustainability and at the same time, permits automatic stabilizers to operate freely.

The implementation of a targeted structural balance was driven by independent commissions/institutions and the necessary political will to make the institutions work. As a consequence, the structural budget policy had shown benefits by 2006. Namely, public savings rose from 2.5% of GDP to 7.9% (allowing national saving to rise from 20.6% to 23.6%)¹⁰ As a result, central government debt fell¹¹ Public spending fluctuated much less than in past decades, and its creditworthiness and access to foreign markets had improved notably by June 2010 and its sovereign rating had climbed to A+. Compliance with the structural balance is not legal. In addition, Chile has neither established escape clauses nor sanctions for violating the rule.

⁸ Rodríguez, Tokman and Vega (2007, p.5, 21).

⁹ A team of three economists appointed by Velasco recommended reducing the structural budget target: Engel, Marcel and Meller (2007). Sources: Velasco, Céspedes, Rodríguez Cabello, and Arenas de Mesa (2007), Velasco, Arenas, Rodríguez, Jorratt de Luis, Gamboni (2010); and "The options that the Treasury had to relax the rule," *El Mercurio*, Chile, May 24, 2007.

¹⁰ Rodríguez, Tokman and Vega (2007, p.27).

¹¹ Ibid. (p.29-30).