WHO IS AFRAID OF FISCAL ADJUSTMENT?

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ABSTRACT

This paper critically assesses fiscal sustainability in Barbados, Jamaica and St. Kitts and Nevis - countries with public debt that exceeded 100% of GDP at the end of 2010. Utilizing the accounting approach to assessing sustainability, the finding is that medium-term fiscal sustainability is at risk in all countries, but especially so in Barbados and St. Kitts and Nevis. The key policy implication is that large-scale fiscal adjustments are required to put the fiscal deficit and public debt on sustainable paths so as to anchor solvency expectations and safeguard socioeconomic gains.

1.0   Introduction

This paper critically assesses fiscal sustainability in Barbados, Jamaica and St. Kitts and Nevis, where public debt levels exceeded 100% of the respective gross domestic product (GDP) at the end of 2010. Figure 1 in the sAppendix shows that the rise in the ratio of gross public debt[2] to GDP (henceforth, debt ratio) has been quite marked over the past decade, but especially within the past three years; a predictable consequence of the global economic and financial crisis. Plummeting public revenue coupled with some counter-cycle spending, especially in 2009, worsened already large fiscal imbalances and exacerbated already high public debt levels in the three countries. Moreover, declining nominal values of GDP pushed debt and deficit ratios to levels that stoked concerns about medium-term fiscal and debt sustainability.

The acute fiscal and debt challenges confronting Barbados, Jamaica and St. Kitts and Nevis warrant a critical assessment to determine if medium-term fiscal sustainability is indeed at risk in each country. The importance of fiscal and debt sustainability for macroeconomic stability is indisputable. Manageable fiscal deficits and public debt allow countries the fiscal space to engage in counter-cyclical policies when such policies become necessary. Indeed, high public debt and large fiscal imbalances in Barbados, Jamaica and St. Kitts and Nevis curtailed the level of counter-cyclical spending that should have been undertaken to cushion the adverse effect of the global economic crisis. Moreover, sustainable fiscal positions also ensure that governments are able to meet their financing obligations comfortably, thereby reducing the risk of restructuring or at worst, default. Essentially, fiscal sustainability is critical to anchor solvency expectations. Ultimately, fiscal prudence supports growth and development by channelling resources towards productive activities rather than towards debt servicing. Buiter (2003) sums it up neatly, "Without fiscal sustainability, no economic development strategy can proceed" (p.24).

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[2] Defined as gross central government debt (both domestic and external) plus total contingent liabilities.

The large fiscal imbalances and high debt levels in the three countries suggest that fiscal adjustment will be required to anchor solvency expectations. However, policymakers in those countries will need to address two seemingly conflicting, yet imperative, policy priorities: stimulating economic activity and protecting vulnerable groups versus entrenching medium-term fiscal and debt sustainability. Indeed, austerity measures imposed too soon could hamper the nascent economic recovery, while delayed austerity measures might increase the risk of restructuring or unfasten solvency expectations and trigger investors' fears, which can undermine growth and development.

It is against this background that this paper utilises the accounting approach to sustainability assessment to explore the scale and composition of fiscal adjustments that policymakers may have to contemplate to put their fiscal deficit and debt on a sustainable path. Specifically, the paper seeks to answer three policy questions:

1. What is the primary balance needed for a 25% reduction in the debt ratio by 2015?

2. What is the fiscal adjustment required for a 25% reduction in the debt ratio by 2015 given current fiscal policies?

3. What is the primary balance needed to stabilise the debt ratio at the 2010 level?

The answers provided to the policy questions posed may serve to inform the design and/or redesign of medium-term fiscal consolidation strategies to better support macroeconomic stability and improve the allocation of public resources to enhance socioeconomic development.

The remainder of this paper is structured as follows. Section 2 presents brief stylised facts on the fiscal deficit and public debt in three countries. Section 3 locates the three countries within the wider Caribbean socioeconomic context. Section 4 reviews the literature on the analytical underpinnings and practical applications of fiscal sustainability assessments. Section 5 answers the policy questions posed, while section 6 discusses the policy implications. Section 7 concludes.

2.0   Fiscal Deficits and Public Debt (2000-2010): Brief Stylised Facts

Barbados

Based on country data, Barbados' debt ratio was 77.5% at the start of the decade; by the end of 2008, it was 103.5%. The ratio leaped to 113.3% in 2009 and by the end of 2010, at 123.3%, it was the highest ever in the country's history. The increase in the debt ratio was rapid during the 10-year period ending 2010. The average growth in the debt ratio outpaced that of real GDP by as much as 3.5 percentage points over the 10-year period. The fiscal deficit as a percentage of GDP widened considerably to 7.6% in 2010, 6 percentage points higher than the ratio in 2007 and 6.2 percentage points above the ratio in 2000. Five consecutive years of primary surpluses were interrupted in 2008 when a primary deficit of 0.7 % of GDP was recorded. By 2010, the primary deficit had widened to 2.6% of GDP, 5.4 percentage points worse than the ratio at the start of the decade.

Jamaica

Country data indicate that the debt ratio climbed from 100.6% in 2000 to 125% in 2008 and by 2010, the ratio was 142.3%. Over the 10-year period, the average growth in the debt ratio outpaced that of real GDP by as much 2.9 percentage points. At 7.4% of GDP, the fiscal deficit in 2010 was 3.6 percentage points higher than in 2007 and well above the deficit of 0.9% of GDP recorded in 2000. A primary surplus was recorded in each year during the 10-year period, indicating what the overall fiscal balance would have been had it not been for large interest payments, which averaged 14.1% of GDP over the decade.

St. Kitts and Nevis

According to country data, the debt ratio was 158% in 2010, 23 percentage points higher than the ratio in 2008 and 1.5 times the ratio in 2000. Although there was a sustained narrowing of the fiscal deficit during the period 2002-2008, the average during that period was relatively high at

6.0% of GDP. The deficit of 4.2% of GDP recorded in 2010 was substantially higher than in the previous two years. The primary balance moved from a deficit position of 4.8% of GDP in 2004 to a surplus of 3.0% of GDP in 2010, associated with the sharp increase in interest payments, which rose from 3.3% of GDP in 2000 to 7.1% in 2010, reflecting the elevation in public debt.

A comparative analysis of the fiscal situation in the three countries suggests that, by and large, the build-up in public debt has been underpinned by the deterioration in fiscal positions, figures 2 to 4 in the Appendix demonstrate. The countries' fiscal woes became more acute in the wake of the global crisis. Barbados' fiscal stability ratio[3] dipped to negative 1.3% of GDP in 2010 from negative 1.1% of GDP in 2007, indicating that public finances have become more unstable. Jamaica's fiscal stability ratio worsened to negative 1.3% of GDP in 2010 from negative 1.1% of GDP in 2007. In St. Kitts and Nevis, the fiscal stability ratio showed no sign of worsening, stabilising at negative 1.1% of GDP since 2005, after being as high as negative 1.5% of GDP in 2002. However, at a value less than zero, the ratio implies that public finances are unstable.

In addition to the deterioration in public finances, which is due more to increases in expenditure (more so capital expenditure associated with natural disaster rehabilitation, particularly in St Kitts and Nevis) than declines in revenue, there are other important reasons for the build up in public sector debt such as large increases in contingent liabilities, high interest rates, and strong reliance on non-concessional debt. Sahay (2005) provides a detailed account for the elevation of public debt in the Caribbean during the early years of the decade. Durant (2007) also offers explanations for the debt build up in St. Kitts and Nevis.

Based on the relatively large stock of gross public sector debt in each country and their respective population at the end of 2010, the level of nominal per capita debt was US$17,954.9 in Barbados, US$21,112.8 in

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[3] Calculated in percentage of GDP as follows: [overall balance after grants/total revenue and grants] - 1. Values closer to zero indicate more stable public finances.

St. Kitts and Nevis, and US$7,365.3 in Jamaica; indeed evidence of the enormity of the debt burden of these countries.

3.0 Brief Overview of the Countries' Context within the wider Caribbean

The population across CARICOM countries[4] totalled approximately 16 million in 2010; of that total Jamaica accounted for 2.6 million, Barbados 0.26 million and St. Kitts and Nevis 0.046 million. The majority of CARICOM countries are upper middle income based on the World Bank's per capita income group categorisation. In fact, 10 of the 14 countries for which data are available were classified as upper middle income in 2010; the countries in this study fall into this category. Barbados ranked at the top of this group with a per capita income of US$11,718, while Belize ranked tenth with a per capita income of US$4,153. Only the Bahamas and Trinidad and Tobago were categorised as high income countries in 2010, with per capita GDP of US$21,984 and US$15,206 respectively. Guyana, with a per capita income of US$2,945 was categorised as the only lower middle income country while Haiti fell into the low income group with a per capita income of US$671 (See Table 1 in the Appendix).

Caribbean countries generally rank high on the Human Development Index (HDI). Based on the 2010 Human Development Report, Barbados ranked 42nd, while Jamaica ranked 84th out of a 193 countries worldwide. There was no ranking for St. Kitts and Nevis; however, the country's HDI rank was 62 out of 182 countries in 2009.

While economic performance and policy[5] vary, Caribbean countries share many commonalities such as a heavy reliance on external

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[4] Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago and Suriname.

[5] Nine countries including Barbados and St. Kitts and Nevis maintain a fixed peg with the US dollar, while the remaining countries, including Jamaica, have a flexible exchange rate regime.

trade, narrow production base, high vulnerability to external shocks and natural disasters, and small size, among others.

With respect to external trade, the ratios of total imports and exports to GDP (trade ratio) averaged 60%, 57% and 51% in St. Kitts and Nevis, Jamaica and Barbados respectively, during the period 2000-2010. The majority of Caribbean countries depend on a few sectors to drive economic growth. For the countries in this study, the services sector is the main economic pillar, especially tourism and financial services. Based on country data, in St. Kitts and Nevis, non-government services account for close to 80% of GDP, with financial and business services comprising about 20%. In Barbados, non-government services account for around 70% of GDP, with tourism making up 15%. After tourism, the financial services sector is the second largest foreign exchange earner, and accounts for about 60% of public revenues. In the case of Jamaica, while there is a heavy dependence on agriculture and mining, tourism generates as much foreign exchange as all exports of goods combined.

Tepid growth, especially during the past decade, has been another common feature of the majority of Caribbean economies. Real GDP growth averaged 1.7%, 1.5% and 1% in St. Kitts and Nevis, Barbados and Jamaica respectively during the period 2000-2010. The Caribbean average during the period was 3.1%. Macroeconomic volatility is a distinct feature of Caribbean economies, a testament to their vulnerability to external shocks. The volatility of output growth as measured by the standard deviation of real GDP growth for all Caribbean countries averaged 3.4% during the period 2000-2010, the same average for Barbados and St. Kitts and Nevis. In Jamaica, output growth volatility averaged 1.7%.

Most Caribbean countries also carry high debt. In 10 of the 12 countries for which data are available, the debt ratio exceeded 60% at the end of 2010. Of these 10 countries, four had ratios ranging from 61% to 80%, three had ratios ranging from 81% to 99% and three had ratio surpassing 100%. In only two countries were the debt ratio less than 60%. Of the 12 countries, seven recorded primary surpluses, with Jamaica being the only country where the surplus exceed 5% of GDP (See Table 2 in the Appendix). In six (6) of the countries the bulk of public

debt is domestic, while in the opposite is true in the remaining six. Relating to the three countries in this study, for Jamaica and St. Kitts and Nevis, the bulk of the domestic debt have medium to long-term maturities, while in Barbados, the bulk of the domestic debt are long-term debentures.

4.0   Fiscal and Debt Sustainability: Conceptual Underpinnings

According to Blanchard, Chouraqui, Hagermann and Sartor (1990), a sustainable fiscal policy is one in which current tax and expenditure programmes can be maintained without resulting in a persistent increase in public debt.   Such a policy ensures that the debt-to-GDP ratio eventually converges to its initial level. More explicitly, the International Monetary Fund [IMF] (2002) explained that a country's fiscal policy is sustainable if (i) the government's budget can be easily financed without large future correction in revenue and expenditure or without resorting to debt default or excessive debt monetization and (ii) normal external shocks do not result in debt distress. In other words, fiscal sustainability deals with the future implications of the current fiscal stance. Blanchard et al. (1990), while not elaborating, expressed that assessments of fiscal sustainability must be forward-looking and not static.

Adama, Ferrarini and Pak (2010) explained that static sustainability refers to when the budget can be financed smoothly from period to period, while dynamic sustainability refers to when the budget does not, in the long term, lead to a debt explosion. According to the IMF (2002), sustainability rules out the following: (i) a situation where debt restructuring is already needed, (ii) a situation where debts are being accumulated faster than the debtor's capacity to service these debts and (iii) a situation where a country's expenditures far exceeds its revenues, which results in a retrenchment to service the debts accumulated.

Sustainability incorporates two key concepts: solvency and liquidity. Solvency requires that the government is able to repay its debts sometime in the future. More technically, the present discounted value of the government's current and future primary expenditures are no greater

than its current and future income streams, net of initial indebtedness (Wyplosz 2007). In other words, the outstanding debt should not exceed the present discounted value of current and future primary surpluses. However, Buiter (2003) pointed out that the solvency criterion is silent on when in the future any primary surpluses are to be run. Solvency is a necessary, but not a sufficient, condition for sustainability. The IMF (2002) explained that solvency needs to be viewed in relation to fiscal adjustments that are economically, socially and politically feasible so that debt default is not a preferred option. With regards to liquidity, a government is considered liquid if its assets (liquid) and available financing are sufficient to meet its maturing liabilities. Based on the definitions of solvency and liquidity, it is possible for a government to satisfy the solvency condition and still be deemed illiquid.

Kojo (2010) underscored the need to determine whether a country's prevailing fiscal policy is sustainable since the answer may indicate if adjustment measures need to be front-loaded or back-loaded. There are two main approaches to assessing fiscal sustainability: the accounting approach and the present value budget constraint approach (PVBC). Fiscal sustainability assessments are predicated on assumptions about policy variables such as tax rates and expenditure as well as endogenous variables such as interest rates and growth rates (IMF 2002). The starting point for both approaches is the government's budget constraint. The public sector budget constraint assuming only domestic debt and no money creation is:

$$D_t = (1 + r_t)D_{t-1} - PS_t \tag{1}$$

Where D_t is domestic debt, r_t is the real interest rate on domestic debt and PS_t is the primary surplus, which is total revenue minus non-interest expenditure.

4.1   The Accounting Approach

The accounting approach assesses the mutual consistency of a number of fiscal sustainability indicators, which are based on the government's budget constraint (Cuddington 1996).   In particular, the approach focuses on the debt-to-GDP ratio.   The fiscal deficit is considered sustainable if it generates a constant debt-to-GDP ratio. This implies that the growth rate of real GDP must be larger than the real interest rate (Arnone and Presbitero 2006).   Re-writing equation 1 in terms of ratios to GDP and using the identity $\frac{Y_t}{Y_{t-1}} \equiv (1\text{-}g_t)$, where Y_t is real GDP and g_t is the growth rate of real GDP between period t-1 and t, and r $_t$ is the real interest rate, yields:

$$\frac{D_t}{Y_t} = \frac{(1+r_t)D_{t-1}}{(1+g_t)Y_{t-1}} - \frac{PS_t}{Y_t} \tag{2}$$

Defining values as ratios to GDP by lower case, the change in the debt-to-GDP ratio is:

$$\Delta d_t \equiv d_t - d_{t-1} = \frac{r_t - g_t}{1+g_t} d_{t-1} - ps_t \tag{3}$$

Equation 3 implies the following: (i) if the primary surplus to GDP ratio is zero, then the debt-to-GDP ratio will increase or decrease at the rate r-g; (ii) if the government runs a primary surplus (or deficit), then the debt-to-GDP ratio will increase at a rate less than (or exceeding) r-g; and (iii) if the real interest rate exceeds (or is less than) the growth rate of real GDP and if the government runs a primary deficit (or surplus), then the debt-to-GDP ratio in period t will be higher (lower) than the ratio in period t-1. A primary surplus or deficit is defined as sustainable if it does not generate ever-increasing debt-to-GDP ratios given a specified real interest rate growth rate differential. The sustainable primary surplus or deficit (ps^*) guarantees that the debt-to-GDP does not increase, in other

words it is the debt stabilizing primary surplus or deficit. It is derived by equating d_t to d_{t-1} and solving for ps:

$$ps^* = \frac{(r_t - g_t)}{(1 + g_t)} d_{t-1} \qquad (4)$$

Equation 4 underpins the following important sustainability indicators:

1.   *The primary gap indicator*
       This indicator measures the fiscal adjustment needed to ensure fiscal solvency. It is essentially the difference between the actual primary balance-to-GDP ratio and the sustainable primary balance-to-GDP ratio. It is calculated as follows:

$$ps - ps^* = ps - (r - g)d_t \qquad (5)$$

       This indicator is simple to implement and interpret. However, one problem with this indicator is that it could distort the amount of adjustment required as a result of cyclical variations in public finances and/or unrealistic medium-term assumptions for the rate of interest and real GDP growth (Chalk and Hemming 2000). Erickson (2008) also pointed out another weakness of this indicator, which is, all relevant variables are endogenous.

2.   *The debt-stabilizing primary surplus ratio under finite horizon*
       This is calculated as follows:

$$ps^{**} = \frac{(\gamma - \beta^N)(\beta - 1)}{(1 - \beta^N)} d_t \qquad (6)$$

Where $\gamma = {d^*_{t+N}}/{d_t}$, d^*_{t+N} is the target for the debt-to-GDP ratio, N is the number of years and $\beta = \frac{(1+r)}{(1+g)}$ is the discount factor.

3.   *The debt-reducing primary surplus under finite horizon*

The primary surplus ratio needed to reduce the debt-to-GDP ratio to a lower target ratio is calculated as:

$$ps^{'} = \frac{(\beta-1)(\gamma-\beta^{N})}{(1-\beta^{N})} d_t \qquad (7)$$

$ps^{'} - ps$ gives the fiscal adjustment required to reduce the debt-to-GDP to its desired level.

4.   *The fiscal sustainability or convergence indicator*

The convergence indicator tells whether the current fiscal policy is consistent with the debt-to-GDP converging to a sustainable target level. It is calculated as:

$$CI_t = (\beta - \gamma) = \left(\frac{1+r_t}{1+g_t} - \frac{ps_t-ps^{*}}{d_{t-1}-d^{*}}\right) \qquad (8)$$

Values greater (less) than one imply that current fiscal policies are unsustainable (sustainable) and inconsistent (consistent) with the current debt-to-GDP ratio converging to a lower target (Erickson 2008).

The calculations of the above-mentioned fiscal sustainability indicators are particularly useful for countries with primary deficit and/or high debt. Calculation is easy and interpretation is simple. Arnone and Presbitero (2006) expressed the view that the approach is a simple tool to assess ex-post debt sustainability. Wyplosz (2007) added that the approach is transparent and easily implementable because it requires few assumptions. The essential premise of the accounting approach is that as long as the economy grows at a rate higher than the real interest rate, it is possible to run a sustainable primary deficit. A major drawback of the accounting approach is the assumption that government liabilities can continue at the rate of growth of GDP. This assumption, according to Cuddington (1996), implies that the debt-to-GDP remains constant. Cuddington (1996) contended that this assumption leaves vague the role

that creditors play in determining which debt strategies are sustainable and which are not. The PVBC is clearer in this regard.

4.2   *The Present Value Budget Constraint Approach (PVBC)*

This approach starts with the government's budget constraint in real terms and not expressed as ratios of GDP, as follows:

$$D_{t-1} = \frac{D_t}{1+r_t} + \frac{PS_t}{1+r_t} \qquad (9)$$

Iterating equation 9 forward N periods, and assuming for expositional ease that real interest rates are constant, the intertemporal budget constraint is:

$$D_{t-1} = \sum_{j=0}^{N} \frac{PS_{t+j}}{(1+r)^{j+1}} + \frac{D_{t+N}}{(1+r)^{t+N}} \qquad (10)$$

Assuming that the present value of government debt in the indefinite future converges to zero, in other words, assuming the government does not run a Ponzi scheme, then in the limit, the second term in equation 10 goes to zero so that at any point in time, the government debt must equal the present value of future primary surpluses. The assumption that the government will not run a Ponzi scheme is reasonable since it arguably incredulous that lenders would allow a government to pay, without end, its entire interest obligations by increasing its borrowing. The present value budget constraint is therefore:

$$D_{t-1} = \sum_{j=0}^{N} \frac{PS_{t+j}}{(1+r)^{j+1}} \qquad (11)$$

The validity of the PVBC is typically tested econometrically following the seminal work of Hamilton and Flavin (1986). An empirical test of equation 11 has been interpreted as a sustainability test (Wilcox 1989; Hakkio and Rush 1991) as well as a solvency test (Agenor and Montiel 1996). However, Cuddington (1996) contended that any test of equation 11 is essentially a test of sustainability of fiscal policies and not a

solvency test since a test for solvency must incorporate all conceivable government policies and their implications with respect to satisfying the PVBC, given the value of current debt. The empirical assessment of fiscal sustainability involves econometric tests of the validity of the PVBC based on historic time series data on government expenditure, revenue, deficit and debt. Essentially, the econometric test is a co-integration test of revenue and expenditure. The deficit and debt should be stationary for fiscal policies to be considered sustainable. Although the PVBC approach assumes that policy variables are fixed over time, in order to reduce model misspecification, parameters should be allowed to vary with time.

Chalk and Hemming (2000) raised the issue about the type of fiscal policies that are consistent with the PVBC. They argued that there are two key policy implications of the PVBC; (i) the approach does not rule out large primary deficits or high debt, just as long as the future primary surpluses needed for the PVBC to hold are feasible and viable policy options and (ii) the PVBC approach also rules out persistent primary deficits; in fact, the PVBC implies that a government cannot run a small primary deficit followed thereafter by a primary balance since that situation would violate the transversality condition. The transversality condition constrains the debt to grow no faster than the rate of interest rate.

4.3 Application of the Approaches: Brief Literature Review

Indeed, both approaches make up the IMF's standard sustainability toolkit. Beyond use by the IMF, both approaches have been widely used in fiscal sustainability assessments. See Chalk and Hemming (2000) for a comprehensive review of the literature.

Pertinent to Caribbean multi-country studies, Sahay (2005) is one of the most referenced studies. Sahay (2005) critically examined fiscal sustainability in six countries across the Caribbean, which had public debt to GDP ratio in excess of 90% at the end of 2003. Specifically, the author sought to answer three policy questions: (i) what will be the primary balance needed to reduce public debt ratios to 60% of GDP in five years? (ii) what will be the primary balance required to stabilize the public debt

ratio at the 2003 level? and (iii) what will be the ratio of public debt to GDP in 2008 given current policies?. Using the accounting approach, the main finding was that sizeable primary surpluses were required for debt reduction ranging from 23.1% to 4%. Debt stabilising primary balances were more benign, allowing some countries to maintain primary deficits. Public debt ratios were projected to rise, relative to the 2003 levels in four of the six countries by 2008. The main policy message from Sahay's (2005) study is that fiscal consolidation was critical to successfully reduce public debt to sustainable levels and to assist countries to realise their growth potentials. The work is analytically rigorous and the policy message is clear. However, the first policy question seems to be based on an assumption that a 60% debt to GDP ratio is achievable. In the context of high debt and small economies, such a debt ratio is perhaps unachievable and even undesirable. I agree with Buiter (2003) who contended that there is a weak rationale for the internationally accepted 60% benchmark for the debt-to-GDP. This is so given the fact that the number is based on the historical average figure for the European Union at the time the debt ceiling was promulgated in the Maastricht Treaty in 1992.

Kufa, Pellechio and Rizavi (2003) is another important study in which the sustainability of public debt in the countries in the Eastern Caribbean Currency Union (ECCU) was assessed using the PVBC approach. They concluded that public deficits and debt in many of the ECCU countries appeared unsustainable and called for the implementation of fiscal policies consistent with sustainable public finances and a maximum sustainable public debt ratio. While the study evinced useful insights, the framework used was inherently probabilistic, with a heavy reliance on judgements.

Scott-Joseph (2008) using the co-integration and PVBC approaches examined the sustainability issue in Dominica, Jamaica, St. Kitts and Nevis and St Vincent and the Grenadines and concluded that public debt was sustainable only in Jamaica. Indeed, small sample econometric analyses are fraught with limitations; therefore, the findings of the study ought to be interpreted with care.

A few single-country studies are noteworthy. Archibald and Greenidge (2003) in their fiscal sustainability assessment of Barbados, using both the accounting and PVBC approaches, found that the country's public finances were sustainable. The study relied heavily on econometric techniques, specifically co-integration tests of expenditures and revenues, using data covering the period 1976-2001. This finding was supported by Belgrave, LaCorbinaire, Worrell and Applewaithe (2011) who found that Barbados' fiscal deficits have been on a sustainable path since 1993 and have remained so despite the considerable rise in debt-to-GDP ratio in recent years. Wright, Singh and Craigwell (2009), in their assessment of fiscal sustainability in Jamaica over the period 1999-2008, using both the co-integration and primary gap approaches, concluded that the country's fiscal position was sustainable. This finding was in contrast to Lewis (2004), who argued that Jamaica's debt ratio was unsustainable and posed a risk to stability of the financial sector.

Generally, the focus of fiscal sustainability assessments is on whether extant fiscal policies can persist indefinitely without compromising government's solvency. Off course, as Chalk and Hemming (2000) pointed out, this does not prevent an increase in public debt. The previous sustainability assessments done for countries in this study found sustainability to be an issue in St. Kitts and Nevis, but not for Barbados, while results are mixed with respect to Jamaica.

This study builds on the work of Sahay (2005) to assess the sustainability of extant fiscal policies in Barbados, Jamaica and St. Kitts and Nevis by exploring the scale of fiscal adjustment that will be required to anchor sustainability.

5.0   Approach and Country Results

5.1   *Approach*

Given its analytical simplicity and tractability, the accounting approach is used to assess fiscal sustainability in Barbados, Jamaica and St. Kitts and Nevis. The fiscal sustainability analysis for the three countries is based on the respective country's fiscal outturn (debt ratio and primary

balance-to-GDP ratio) at the end of 2010 and medium-term assumptions of real GDP growth and real interest rate. In conducting the fiscal sustainability assessment, three scenarios are examined: (i) baseline, (ii) optimistic, and (iii) pessimistic. The baseline scenario examines the scope of fiscal adjustment given the fiscal outturns in 2010 and the medium-term assumptions for real GDP growth and real interest rate. The optimistic scenario considers a one percentage point increase over the country's average medium-term GDP growth projections, while the pessimistic scenario contemplates a one percentage point decrease in the country's average medium-term GDP growth projections.

For simplicity, the baseline assumption for the real interest rate over the medium-term, which is the historic average over the period 2007-2010, remains for both scenarios. Real interest rate is derived by deflating the nominal rate by the either annual GDP deflator or the annual change in the consumer price index. In Barbados, the GDP deflator is used because high inflation results in negative real rates. Nominal Interest rate is calculated by dividing the current year's nominal interest payments by the public debt stock in the previous year.

Gross public sector debt is defined as the gross debt (both domestic and foreign) of the central government plus total contingent liabilities. Both the GDP and gross debt figures are denominated in United States dollars. Cuddington (1996) explained that equation 1 can be easily generalised to allow for foreign currency debt and money creation in addition to domestic debt. Therefore, the evolution of public liabilities depends not only on the domestic interest rate and the primary balance but also on the rate of currency depreciation. For this study, the use of gross public debt as opposed to domestic debt is not problematic, since in Barbados and St. Kitts and Nevis external debt is denominated in United States dollars, given the fixed exchange rate regime between those countries and the United States. In the case of Jamaica, changes in the debt stock reflect changes in the nominal exchange rate; however, changes are minimal since most cases external debt is denominated in United States dollars. The primary balance is calculated as the overall fiscal balance before grants minus interest expenditure.

Country data (both historic and projections) are sourced from various issues of the respective central banks as well as the IMF's database. Historic data span the period 2000-2010, while projections cover the period 2011-2014.

In keeping with the study's objective, the paper derives values for equations 4-8 to answer the three policy questions posed.

5.2   *Country Results*

5.2.1   *Baseline*

The results in Table 4 in the Appendix show that the fiscal stance in the three countries at the end of 2010 is on an unsustainable path, as evidenced by the sustainability indicator, which exceeded one in all countries. Indeed, the analysis shows that the primary surplus (as a ratio of GDP) required for a 25%[6] reduction in the debt ratio by 2015 is significant: 7.5% in St. Kitts and Nevis, 6.7% in Jamaica and 5.8% in Barbados. Given the actual primary balances at the end of 2010, large fiscal adjustments will be required for debt reduction. For example, based on Barbados' primary deficit of 2.6% of GDP at end 2010, a fiscal adjustment to the tune of 8.4% of GDP will be required for a 25% reduction in the public debt to GDP by 2015. For St. Kitts and Nevis, the required fiscal adjustment is 7.9%. Jamaica, which registered a high primary surplus at end 2010, would require less fiscal adjustment; the analysis suggests that it would take fiscal consolidation to the tune of 1.3% of GDP for a 25% reduction in the debt ratio by 2015.

The analysis also shows that if fiscal policies persist unchanged, the debt ratio is projected to reach 134.4% by 2015 in Barbados, averaging 135.5% over the period 2011-2020. In St. Kitts and Nevis, the debt ratio is projected to fall gradually over the medium-to-long term, averaging 157.1% over the period 2011-2020. In Jamaica, the debt ratio is also projected to decline but at a faster pace, averaging 110.6% over the forecast horizon. The reduction in the debt ratio primarily reflects the assumption that the primary surplus achieved in 2010 will be maintained over the forecast horizon.

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[6] This is arbitrary and meant to be illustrative.

To stabilise the debt ratio at the 2010 level, Barbados would be the only country that would need to significantly improve its primary balance position, relative to the 2010 outturn. Given Jamaica's high primary surplus in 2010, a primary deficit will be enough to maintain the debt ratio at 2010 level. For St. Kitts and Nevis, a primary deficit of 0.5% of GDP is required to stabilise the debt ratio at its 2010 level. Given the actual primary deficit of 0.3% of GDP, this suggests that there is virtually no room for further fiscal deterioration if the debt ratio is to be prevented from rising further.

5.2.2   *Optimistic Scenario*

As is shown in Table 5 in the Appendix, primary surpluses are needed to bring about a 25% decline in public debt ratio by 2015: 5.5% in Jamaica, 4.8% in Barbados and 6.1% in St. Kitts and Nevis. Consequently, given the primary balance that existed in some countries in 2010, relatively sizeable fiscal adjustments will be required to achieve a 25% reduction in the public debt ratio. In the case of the Barbados, fiscal tightening to the tune of 7.4% will be needed to reduce the debt to GDP ratio by 25% over the next five years, while in St. Kitts and Nevis the required fiscal adjustment is estimated at 6.4% of GDP. In the case of Jamaica, the required fiscal adjustment is small (0.1%) given the high primary surplus registered in 2010. To stabilize the debt ratios at their 2010 levels, Jamaica and St Kitts and Nevis are not required to improve their fiscal balances beyond the 2010 levels. However, Barbados will need to improve its 2010 primary balance position.

Debt reduction is faster given the assumption of higher real GDP growth. For example, assuming a one percentage point increase in St. Kitts and Nevis' projected average medium-term GDP growth, the country's debt ratio is projected to fall to 148% by 2015 and to 142% by 2020. For Jamaica, the debt ratio is projected at 74.3% by 2020; the projected declines in Jamaica's debt ratio average 6.4% over the forecast horizon. However, in the case of Barbados, an upward trajectory is projected, with the debt ratio estimated at 128.4% in 2015 and 133.3% in 2020. The increase in the debt ratio averages 0.8% over the forecast

horizon. It is important to point out that despite a more optimistic assumption for real GDP growth over the medium term, the fiscal sustainability indicator still suggests an unsustainable fiscal course for all countries, the indicator is highest in Barbados, suggesting that the fiscal problem is most acute in that country.

5.3.3 *Pessimistic Scenario*

Table 6 in the Appendix shows that given the assumption of slower GDP growth, much larger primary surpluses will be required to achieve a 25% reduction in the debt ratio by 2015. The projected primary surpluses required average 8.8% of GDP in St. Kitts and Nevis, 8% of GDP in Jamaica and 6.9% of GDP in Barbados. Higher average primary surpluses imply that larger fiscal adjustments will be required given the fiscal stance at the end of 2010. For example, Barbados will require fiscal tightening to the tune of 9.5% of GDP, while St. Kitts and Nevis will require tightening to the tune of 9.2% of GDP. In Jamaica, even with pessimistic assumption for real GDP growth, given the large primary surplus at the end of 2010, the estimates suggest that the country will only need to consolidate to the tune of 2.6% of GDP. Under this scenario, primary surpluses needed to stabilize public debt to GDP ratio at the 2010 range from 0.8% in Barbados to 1.0% in Jamaica and St. Kitts and Nevis.

Debt ratios are estimated to rise faster than they are estimated to fall under the optimistic scenario in Barbados. The debt ratio is projected to reach 140.8% by 2015 and 158.9% by 2020, growing at an annual average rate of 2.5% over the forecast horizon. In St. Kitts and Nevis the projected rise in the debt ratio averages 0.9% over the forecast period, reaching 172.4% by 2020. In contrast, the debt ratio is projected to decline in Jamaica by an annual average of 3.9%, decreasing to 96.8% by 2020.

6.0   Policy Implications

Medium-term fiscal and debt sustainability appears to be at risk in all countries, but this appears to be especially so in Barbados and St. Kitts and Nevis. The key policy implication of the findings is the need for growth-sensitive, front-loaded fiscal adjustment to anchor solvency expectations. This need has already been recognised by Barbados and Jamaica, where explicit Medium-term Fiscal Strategies (MTFS) have been announced. In the case of Jamaica, the MTFS is in the context of an ongoing IMF programme. In both cases, the MTFS seems broadly consistent with prudent macroeconomic management, in particular, fiscal and debt sustainability that promote and sustain economic growth and external viability. Moreover, there is political commitment to the respective strategies.

However, in the case of Barbados, while the measures outlined in the MTFS are intended to correct the fiscal imbalances and reduce public debt as much as it is politically and socially feasible, more decisive measures on the expenditure front are imperative to ensure a durable fiscal consolidation. Given the severity of the fiscal challenge, it is difficult to contemplate any meaningful fiscal consolidation without explicit expenditure cuts. The fact is expenditure growth, which became more rapid from 2007, is the main antecedent of the fiscal deterioration. The cyclical contraction in revenues has only served to exacerbate the deterioration. Rather than explicit expenditure cuts, the Government plans to control the increase in expenditure, something it has not managed to do well in recent years. The Government's apparent reluctance to deal decisively with current expenditures can endanger fiscal and debt sustainability. Moreover, Barbados' fiscal outlook could be significantly affected by the nature of the CLICO resolution. Ultimately the fiscal cost associated with the resolution option would be bound by the net liabilities of CLICO Life, which is estimated at 3.3% of GDP and the extent to which liabilities to investors are guaranteed by the government.

St. Kitts and Nevis recently entered into an IMF programme comprising critical components including a restructuring of commercial and bilateral external debt. Prior to entering into the IMF programme, a number of fiscal measures had already been implemented to rein the deficit, the main one being the introduction of the value-added tax. Maintaining the revenue effort in the future will require reforms to strengthen the underpinning fiscal institutions and support to the private sector to maintain their participation in productive activities. Moreover, minimization of wasteful expenditure, better targeting of social spending and rationalization of public corporations must be integral components of future fiscal adjustment measures. Similar to the Barbados situation, St. Kitts and Nevis' fiscal outlook could also be significantly affected by the nature of the CLICO resolution.

It is noteworthy that the recent policy measures announced by the countries have not been included in the analysis, hence in reality, the required fiscal adjustments over the medium term could be smaller than illustrated. It is imperative, however, that policies are designed and implemented in a manner that strike the right balance between the need to support economic growth and the need to restore fiscal and debt sustainability. Therefore, expenditure adjustments that involve more targeted social spending will be necessary to raise significant fiscal savings, while protecting the most vulnerable and not undermining the recovery. Seeking efficiency gains and maximising revenue-collecting capabilities will also be necessary. Moreover, improvements in budgetary processes, liquidity and risk management, and fiscal frameworks in general, will also be necessary. Well thought out debt reduction strategies will also be crucial.

7.0   Conclusion

This paper has attempted to illustrate the scale of fiscal adjustment that will be required given the fiscal position in the three most heavily indebted countries in the Caribbean at the end of 2010. The analysis shows that large-scale adjustments will be required for debt reduction and fiscal sustainability. Indeed, the nature of fiscal adjustment depends on the country context. The specific revenue enhancement and expenditure control measures ultimately depend on political palatability and will. Nonetheless, it is critical that countries stay the course of fiscal consolidation as any lapse in efforts can undermine fiscal and debt sustainability with implications for broader macroeconomic stability.

In spite of the inherent weaknesses in the accounting approach, this study still has policy relevance especially given the extant fiscal and debt challenges being faced by many Caribbean countries. However, as an area for further study, a probabilistic approach can be used to project the likelihood of achieving a debt ratio that is sustainable, which can in turn offer some probabilities of the likelihood of success in fiscal adjustment.

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APPENDIX I

Table 1: Per Capita Income in Caribbean Countries

Per capita Income Grouping	Caribbean country	Per capita income, 2010 (US$ current prices)
High income countries (US$12,196 and above)	The Bahamas	21,984
	Trinidad & Tobago	15,206
Upper middle income countries (US$3,946-12,195)	Antigua & Barbuda	11, 442
	Barbados	11,718
	Belize	4,153
	Dominica	5,649
	Grenada	6,009
	Jamaica	5,179
	St Kitts & Nevis	10,038
	St. Lucia	5,356
	St. Vincent and the Grenadines	5,138
	Suriname	6,198
Lower middle income countries (US$996-3,945)	Guyana	2,945
Low income countries (US$995 and below)	Haiti	671

Source: World Bank

Appendix I (Con't)

Table 2: Gross Public Sector Debt and Primary Balance
in the Caribbean (% of GDP)

Primary Fiscal Balance before Grants: 2010	Gross Public Sector Debt: 2010			
	0% to 60%	61% to 80%	81% to 99%	Above 100%
Higher than 5%				Jamaica
0% to 5%	Trinidad & Tobago	Dominica	Antigua & Barbuda, Belize, Grenada	
Less than 0%	The Bahamas	Guyana, St. Lucia, St. Vincent and the Grenadines		Barbados, St. Kitts & Nevis

Source: Caribbean Development Bank. Note: data unavailable for Haiti and Suriname.

Appendix I (Con't)
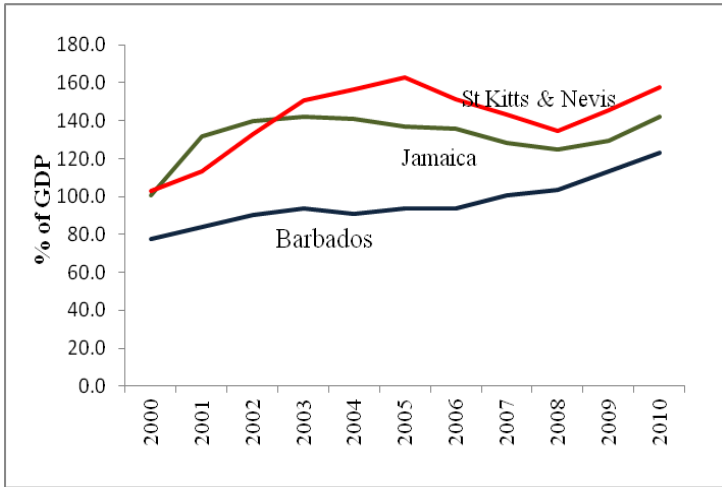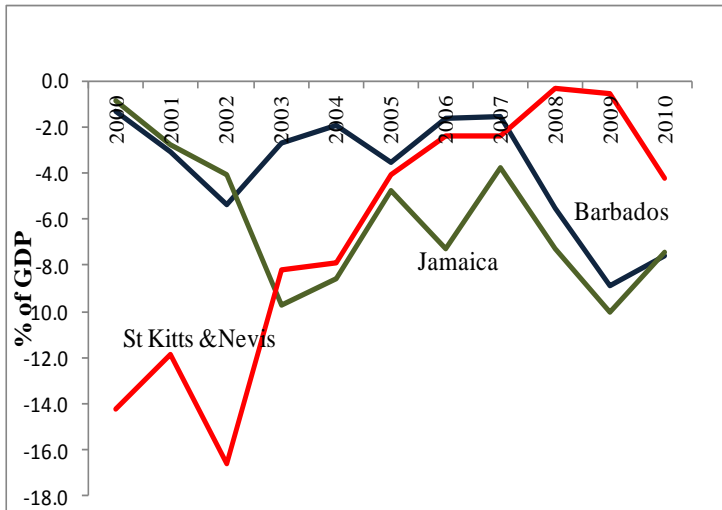
Figure 1: Public Debt

Figure 2: Fiscal Balance (Overall)

Appendix I (Con't)

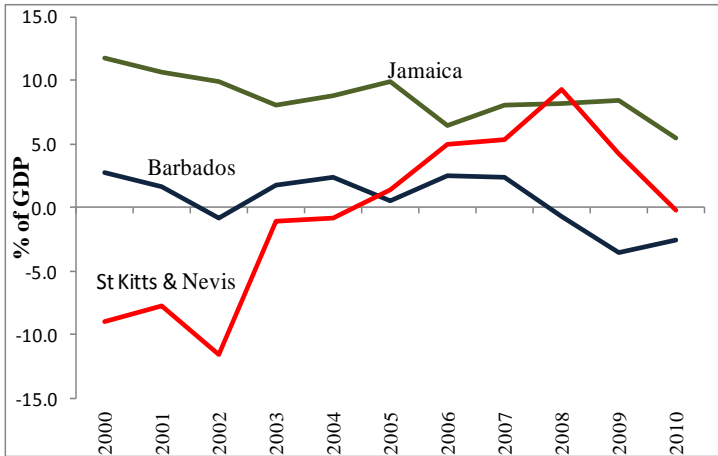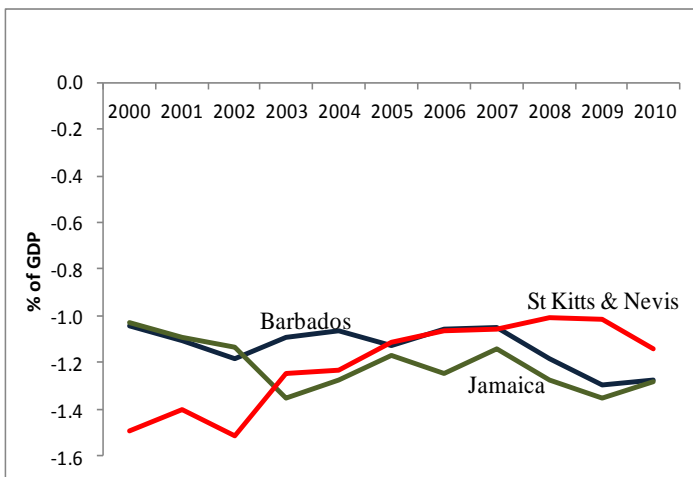**Figure 3: Primary Balance**

Figure 4: Fiscal Stability Ratio

Appendix I (Con't)

Table 3: Fiscal Outturns (2010) and Medium-term Assumptions

Fiscal Situation 2010 (% of GDP):			
	Barbados	Jamaica	St. Kitts and Nevis
Gross Public Debt	123.3	142.3	158.0
Primary Balance before grants	-2.6	5.4	-0.3
Baseline Medium-term Assumptions for Real GDP[7] Growth and Interest Rate[8] (%):			
	Barbados	Jamaica	St. Kitts and Nevis
Real GDP Growth	2.7	1.9	2.0
Real Interest Rate	2.4	1.5	1.7

Sources: Country Data and IMF

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[7] Average over the period 2011-2014

[8] Based on averages over the period 2007-2010.

Appendix I (Con't)

**Table 4: Policy Questions Regarding Fiscal Sustainability
(Baseline)**

Policy Questions on Medium-term Debt Sustainability Based on Fiscal Stance at Year-end 2010 and Medium-term Growth/Interest Rate Assumptions (Baseline Scenario) (% of GDP)			
	Barbados	**Jamaica**	**St Kitts & Nevis**
What is the Fiscal Sustainability indicator?	1.3	1.0	1.2
What is the primary balance for a 25% reduction in the debt ratio by 2015?	5.8%	6.7%	7.5%
What is the fiscal adjustment required for a 25% reduction in the debt ratio by 2015?	8.4%	1.3%	7.9%
What is the Primary Balance needed to stabilise the debt ratio at the 2010 level?	-0.4%	-0.4%	-0.5%

Source: Author's Estimates (as at March, 2011)

Appendix I (Con't)

Table 5: Policy Questions Regarding Fiscal Sustainability (Optimistic Scenario)

Policy Questions on Medium-term Debt Sustainability Based on Fiscal Stance at Year-end 2010 and Medium-term Growth/Interest Rate Assumptions (Optimistic Scenario) (% of GDP)			
	Barbados	**Jamaica**	**St Kitts & Nevis**
What is the Fiscal Sustainability indicator?	1.2	1.0	1.1
What is the primary balance for a 25% reduction in the debt ratio by 2015?	4.8%	5.5%	6.1%
What is the fiscal adjustment required for a 25% reduction in the debt ratio by 2015?	7.4%	0.1%	6.4%
What is the Primary Balance needed to stabilise the debt ratio at the 2010 level?	-1.5%	-1.8%	-2.0%

Source: Author's Estimates (as at March, 2011)

Appendix I (Con't)

Table 6: Policy Questions Regarding Fiscal Sustainability (Pessimistic Scenario)

Policy Questions on Medium-term Debt Sustainability Based on Fiscal Stance at Year-end 2010 and Medium-term Growth/Interest Rate Assumptions (Pessimistgic Scenario) (% of GDP)			
	Barbados	**Jamaica**	**St Kitts & Nevis**
What is the Fiscal Sustainability indicator?	1.3	1.1	1.2
What is the primary balance for a 25% reduction in the debt ratio by 2015?	6.9%	8.0%	8.9%
What is the fiscal adjustment required for a 25% reduction in the debt ratio by 2015?	9.5%	2.6%	9.2%
What is the Primary Balance needed to stabilise the debt ratio at the 2010 level?	0.8%	1.0%	1.1%

Source: Author's Estimates (as at March, 2011)