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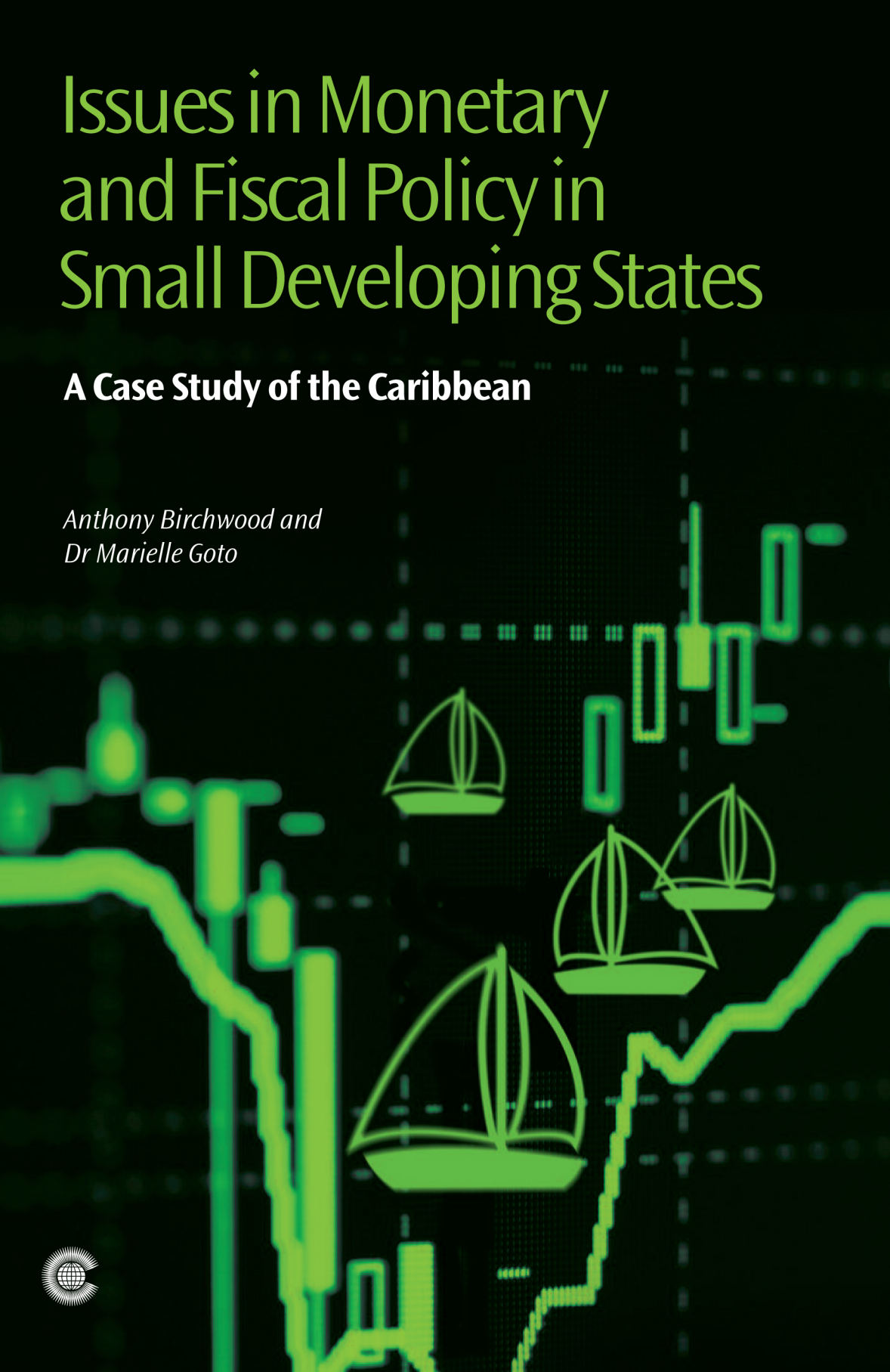
A Case Study of the Caribbean

Anthony Birchwood and
Dr Marielle Goto



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Abbreviations and acronyms

BSE	Barbados Stock Exchange
CARICOM	Caribbean Community
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CET	Common External Tariff
ECCB	Eastern Caribbean Central Bank
ECCU	Eastern Caribbean Currency Union
ECD	Eastern Caribbean Dollar
ECSM	Eastern Caribbean Securities Market
ESF	Exogenous Shocks Facility
EU	European Union
FIA	Financial Institutions Act
FIEL	Fundación de Investigaciones Económicas Latinoamericanas (Foundation for Economic Research on Latin America)
GDP	gross domestic product
GIS	Geographic Information System
GLS	generalised least square
HSF	Heritage and Stablisation Fund, Trinidad and Tobago
IDB	Inter-American Development Bank
IMF	International Monetary Fund
JDX	Jamaica Debt Exchange
JSE	Jamaica Stock Exchange
NIP	National Industrial Policy
OECD	Organisation for Economic Co-operation and Development
OECS	Organization of Eastern Caribbean States
PPP	public–private partnership
PRGF	Poverty Reduction and Growth Facility
SALISES	Sir Arthur Lewis Institute of Social and Economic Studies, The University of the West Indies, St. Augustine, Trinidad and Tobago
TTSE	Trinidad and Tobago Stock Exchange
UNDP	United Nations Development Programme
USD	US dollar
VAR	vector autoregressive
VAT	value added tax
WTO	World Trade Organization

About the authors

Anthony Birchwood is a Research Fellow at the Caribbean Centre for Money and Finance. He has published widely in areas related to banking, monetary and fiscal policy, trade and economic integration. His publications have included studies on commercial banking in the region, development banking, interest rate issues and monetary policy. In addition Mr. Birchwood has presented papers on a diverse array of topics at numerous conferences and workshops. Mr. Birchwood has also served as an examiner at the University of the West Indies for various economic courses, supervised MSc. Projects and also serves on PhD committees at the University. Further, he has been a consultant to the United Nations, the Commonwealth, Caribbean Development Bank, the Trinidad and Tobago Securities and Exchange Commission, the Central Government of Trinidad and Tobago and Caribbean Money Market Brokers. Some of his work has included the construction of a macro-econometric model for Suriname, development banking, work which informed the new financial act of Trinidad and Tobago, collective investment vehicles, monetary policy in Caribbean economies and interest rate forecasting.

Dr Marielle Goto is a Caribbean born economist, specialised in the analysis of small states macroeconomics. She has presented and written papers for different seminars and conferences about vulnerability and macroeconomic policies in the Caribbean and issues of vulnerability and resilience. She has also made presentations on 'Fiscal policy and crisis in the Caribbean' and 'The Commonwealth Composite Vulnerability Index' at conferences organised by the Commonwealth Secretariat. In addition, she presents major economic news concerning small economies around the world in her weblog.

Preface

The inherent vulnerability of small states affects the implementation of monetary and fiscal policies in these countries. This inherent vulnerability stems from their high dependence on a narrow range of exports and on strategic imports such as food and fuel. These features render small states disproportionately exposed to external economic shocks. Other characteristics which pose disadvantages for small states include their limited ability to exploit economies of scale, and their limited opportunities for diversification. These features have constrained policy implementation and success in small states and increased the importance and influence of external reserves, external financing, foreign investment and the international economic climate on domestic policy.

This study examines the implementation of monetary and fiscal policies in twelve Commonwealth Caribbean small states, and the impact of this on growth and development in these countries. The study also identifies the monetary and fiscal policy options most suited to these countries. For small developing states with little ability to identify new financial resources in periods of stress and during episodes of exogenously-induced crisis, monetary and fiscal policies remain among the few policy levers available to policymakers. Their choices are crucial for these countries in successfully warding off and more typically mitigating the impacts of crisis. Getting these choices right depends on policy circumstance, institutional constraints, the range of additional policy levers available to governments and some good fortune. This volume carefully sets out both the policy and institutional constraints in monetary and fiscal policy management for an important set of Commonwealth Caribbean small states, and provides a rich illustration of policy implementation in practice in some of these states. It also provides an excellent summation of both the transmission mechanisms and the degree of success in implementation of monetary policy in these countries. The volume will fill an important gap in understanding monetary and fiscal policy instruments, policies and choices in small states.

The study surveys the monetary frameworks practised by Caribbean Community (CARICOM) member countries with a view to examining whether stabilisation and real side performances were related to the style of monetary policy practised by the respective central banks. This is particularly important given that member countries are heterogeneous in the monetary policy frameworks practised, which is typified by variation in the exchange rate regimes. It is found that the exchange rate anchor has been useful in maintaining low inflation. However, there was a tendency for the exchange rate in these countries to become overvalued as economic activity picked up as evidenced by increased lending. This led to two principal problems: it led to deterioration in the balance of payments, and economic agents were forced to absorb increased economic costs. On the other hand, those territories which moved off the fixed exchange rate were presented with their own challenges. Once not backed by adequate earning of foreign exchange, the

exchange rate tended to depreciate continuously, leading to socioeconomic challenges. This was exacerbated by the downgrading of credit ratings, leading to further instability in the foreign exchange market. Regional markets therefore face the question of whether to continue with a fixed exchange anchor and attain stabilisation at the risk of losing market competitiveness in the long run, or whether to give up the exchange rate anchor and improve competitiveness while accommodating instability in the short run, the length of which is undefined. This volume's findings suggest that monetary theory is still unable to deal with the balance of payment constraints of small open economies, particularly where countries possess inadequate foreign exchange reserves.

Natural disasters are a major source of vulnerability in the Caribbean. These hazards take a heavy toll, causing casualties and damages to the environment and the whole economic system. So, it is necessary to examine if and how fiscal policy contributes to the resilience of the economy in this region. The study assesses the importance of fiscal stabilisation using an econometric approach. Although many fiscal reforms were implemented in the 2000s, the 2008 crisis placed emphasis on the fiscal leeway of small states to absorb economic shocks.

1

Monetary Policy Frameworks of Commonwealth Caribbean Economies

Anthony Birchwood

1.1 Introduction

In analysing the implications of monetary policy frameworks in small open economies such as CARICOM member countries, it is useful to contrast the economic outcomes of those which continued to use a prescriptive style where the central bank maintains a fixed exchange rate in conjunction with the use of direct instruments, as opposed to those which exercised a managed float alongside the use of market based instruments. Accordingly, an evaluation of different countries' experiences can provide insights into the implications of alternative styles of monetary frameworks as adopted by these small open economies. This presumes that the type of monetary framework used can play a role in the resilience of the region in response to negative external economic shocks. The study examines the economic consequences of different styles of monetary policy for the CARICOM economies.

The monetary framework practised in the region can essentially be divided into two camps: fixed exchange rate and managed floats. These frameworks set parameters on monetary policy responses to fiscal deficits, foreign exchange shocks, stabilisation and the contribution of monetary policy to development objectives. To begin, the monetary frameworks practised in the region are noted with respect to the style of exchange rate, goals and instruments. This is followed by an examination of outcomes, noting the cost and benefits of the various frameworks. Following this the study concludes.

Based on the regional experiences, we found that in general exchange rate stability, whether fixed or floating, hinged on adequate foreign exchange inflows and low debt levels. Moreover, the stability of the exchange rate allowed for the maintenance of a low inflation rate. However, it must be remarked that a hard peg potentially conveyed the risk of adverse real side consequences.[1] Indeed the regional experiences showed that as countries sought to realise development though the allocation of credit to productive activities, this contributed to external current account imbalances by raising demand for imports. Further, a fixed exchange rate framework tended to become overvalued when inflation increased, leaving exporters to absorb costs, since the alternative of raising export prices would leave the exporters uncompetitive once the small open economy is a price taker.[2] At the extreme,

where the credibility of the peg was undermined, it led to possible capital flight and black marketing of foreign currency if the market perceived the threat of devaluation as real. This led some regional economies to move off the fixed exchange rate.

On the other hand, economies which moved off the fixed exchange rate faced many challenges. While the depreciation of the exchange rate can theoretically buffer economies from external shocks, the experience of the regional economies showed that once foreign exchange earnings were insufficient, there was a continuous decline in the exchange rate. In addition, continuous depreciations were noted to have unfavourable socioeconomic consequences on regional economies. This included the deepening and widening of poverty as vital imports become more expensive. At the macro level, an increasing proportion of domestic resources were diverted to paying external debt as debt in domestic terms rose with currency depreciation. Depreciations also tended to be mutually reinforcing, fostering a loss of confidence in the domestic currency, thus causing an erosion of the domestic currency as a store of value, leading to possible dollarisation. In addition, during the period of depreciations, downgrades from credit rating agencies tended to destabilise foreign exchange markets and therefore frustrated the orderly adjustment of the market.

We therefore argue that adequate foreign exchange earnings were critical for a country to embark on credible monetary policy. Thus, we suggest that an important research agenda is with respect to the importance of external reserves in the establishment of a credible monetary policy framework for small island states. Monetary theory developed by advanced industrialised countries has long ignored this aspect in monetary theory formulation. Yet, external reserves impact on the ability of small island states to credibly support their exchange rate.

1.2 Choice of monetary frameworks practised by regional central banks

The central banks are fairly recent institutions in CARICOM, having been constituted between the years 1961 and 1983, see table 1.1.[3] These banks were formed around the time of independence when countries were striving after the deepening and widening of their financial sectors as they sought to accelerate the pace of economic development. They evolved from currency boards and monetary authorities that were established prior to independence. To this end, central banks were expected to support government developmental and stabilisation efforts.

Fundamentally, the regional central banks have a mandate to issue and redeem currency, act as banker to the government while seeking to maintain monetary stability, and act as advisor to their respective governments. In addition they are expected to strive after real side development and the deepening and widening of the financial sector, and to interface with overseas regulatory authorities. In spite of the ideals with which they were formulated, the styles of monetary policy adopted by the central banks have been influenced by the external balances of the various economies and by the prompting of international financial institutions such as the International Monetary Fund (IMF) and the World Bank.

Table 1.1 Date of independence and establishment of central bank

Country	*Date of country's independence*	*Central bank*	*Date that central bank was established*
Jamaica	6 August 1962	Bank of Jamaica	May 1961
Trinidad and Tobago	31 August 1962	Central Bank of Trinidad and Tobago	12 December 1964
Guyana	26 May 1965	Bank of Guyana	16 October 1965
Barbados	30 November 1966	Central Bank of Barbados	May 1972
The Bahamas	10 July 1973	Central Bank of The Bahamas	1 June 1974
Belize	21 September 1981	Belize Central Bank	1 November 1976
Grenada	7 February 1974	Eastern Caribbean Central Bank (ECCB)	October 1983

It can be observed that in the region two types of frameworks can be distinguished: those which used fixed pegs and those which used managed floats. Within the fixed exchange rate regime there exists a currency union called the Eastern Caribbean Currency Union (ECCU) for which the central bank is the Eastern Caribbean Central Bank (ECCB). This currency union comprises Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St Lucia, St Kitts and Nevis, St Vincent and the Grenadines.

At the ECCU's inception, all the countries opted for a fixed exchange rate anchor with foreign currency and direct controls. By the 1980s all the exchange rates of the various territories were pegged to the US dollar, following their earlier association with the pound sterling. However, while they all began with a hard peg, two types of exchange rate regimes emerged by the mid-1990s: those which maintained a fixed exchange rate peg with the US dollar and those which moved off the fixed peg with the US dollar but instead opted for a managed float.[4]

As can be gleaned, the countries which adopted a managed float all reflected a lower exchange rate in terms of units of local currency per unit of US dollar, see table 1.2. The wide disparity in exchange rates complicated the creation of a single currency for the region as was proposed for the formation of a single Caribbean economy.[5] Indeed, the lack of unification of the various exchange rates caused the deepening of CARICOM to incur

Table 1.2 Exchange rate regime

Fixed exchange rate	*Nominal parity with one US dollar*	*Managed exchange rate*	*Nominal parity with one US dollar (date is in brackets)*
The Bahamas	1	Guyana	205.91 (26/03/10)
Barbados	2	Jamaica	89.65 (26/03/10)
Belize	2	Trinidad and Tobago	6.38 (26/10/10)
ECCB	2.7		

Source: National Central Bank websites

transactions costs with respect to trade in goods and services, the formation of a single stock exchange and capital transfers across the region.

The difference in the fixed and managed exchange rate regimes gave rise to divergence in the style of monetary policy adopted by the various CARICOM economies. Monetary policy in the countries with fixed exchange rates tended to be more influenced by the monetarist view.[6] Consistent with this view, monetary policy reaction in the economies using fixed exchange rates appeared to be akin to monetary policy in the advanced industrialised economies in the 1960s, where the focus of monetary policy was primarily on variables such as nominal interest rates, bank borrowings from the central bank and free reserves (excess reserves minus borrowings). Consequently, a 'once and for all' type of approach was the typical style adopted under this framework.

The countries which moved off the fixed exchange rate embraced a neoliberalist agenda where interest rates were to be market determined, rather than set administratively for the execution of monetary policy. As such these countries had to make a transition to market based systems by developing the institutional infrastructure accordingly.[7] Moreover, monetary policy involved the fine tuning of the economy, in order to steer prices in the direction signalled by the monetary authorities. Nevertheless, the central banks did not fully embrace the floating exchange rate as the exchange rate was largely managed with frequent interventions into the market.

Choice of monetary frameworks

Fry et al. (2000) borrowed from McNees (1987) to define a monetary policy framework as one which 'comprises the institutional arrangements under which monetary policy decisions are made and executed' (p3). Following independence, the governments in CARICOM sought through acts of parliament to outline suitable monetary frameworks within which they identified various monetary policy goals and objectives based on the extent of institutional, real side and financial development of the economies. A summary of the goals within monetary frameworks can be observed in table 1.3, where it can be seen that the most common goals were the accumulation and preservation of reserves, maintenance of stability of the financial sector, and monetary stability.

Critical here is whether monetary policy in small island states can simultaneously achieve stabilisation and development or whether it is only capable of achieving stabilisation. A combination of stabilisation and developmental goals can be observed with respect to the countries with fixed exchange rates – The Bahamas, Barbados, Belize and the ECCB – while the other three central banks in the sample – Guyana, Jamaica and Trinidad and Tobago – dropped developmental goals from their framework but maintained stabilisation goals. The rationale for this was that obtaining low inflation growth was desirable, so the central bank was the best placed agency to achieve inflation growth. The actual goals per country are detailed in table A1 in Appendix A.

In terms of frequency of meetings, the monetary body responsible for the devising of monetary policy in those territories which primarily used direct instruments generally met with less frequency than those territories which attempted to employ indirect instruments.

This can be expected as direct instruments tend to be blunt and not well suited for short-term fine tuning. The central banks with the highest frequency of meetings were Guyana and Jamaica. In Jamaica, the Operating Targets Committee was obligated to meet on a daily basis to review the reserves of the commercial banks and their ability to meet targets while the Economic Policy Committee was obligated to meet weekly. In Guyana, the Money Market Committee was obligated to meet on a weekly basis to monitor the reserves of commercial banks against the set weekly targets, and wider economic developments. The committee then decided on further action based on current and expected inflation and exchange rate conditions, particularly with respect to the foreign exchange market and government financing needs. The committee therefore decided on the reserve money and open market operations to achieve the set growth path and inflation targets. In the case of Trinidad and Tobago, while a statutory time was not prescribed for the Monetary Policy Committee to meet, there is a Monetary Support Committee which monitors liquidity in the market on a daily basis.

Table 1.3 Goal correspondence to monetary frameworks in the Caribbean

Fixed exchange rate framework	*Managed exchange rate framework*
Core goals	**Core goals**
Stability of financial sector	Stability of financial sector
Low inflation	Low inflation
External reserves	External reserves
Additional goals	**Additional goals**
Maintenance of fixed exchange rate	Inflation targeting
Economic development	Maintenance of an orderly foreign exchange market

The major difference between the fixed and managed exchange rate frameworks lie in the monetary policy objectives. The territories which evolved to the use of managed exchange rates largely embraced a market based system, following the economic fallouts they registered in the 1980s and early 1990s. Accordingly, these economies underwent World Bank and IMF sponsored structural and stabilisation adjustment programmes. In particular, Jamaica and Trinidad and Tobago reflected a deterioration of their foreign exchange reserves as their import cover reached as low as 0.8 months in Jamaica in 1991 and 1.6 months in Trinidad and Tobago in 1994. Jamaica was also highly indebted as its external debt to GDP ratio was as high as 102 per cent in 1991, and Trinidad and Tobago debt to GDP ratio reached 67 per cent in 1991. Guyana's debt situation was urgent as its debt was 5.7 times its GDP by the end of 1992. As a result, the early 1990s was a period in which these economies were on IMF and World Bank programmes.

Accordingly, Guyana and Jamaica revised their central bank acts to specify inflation targeting as the objective of monetary policy. As a result, these countries used the inflation rate as the primary anchor. Trinidad and Tobago did not declare the inflation rate as an anchor, but a perusal of the various central bank reports would suggest that the rate became

the major monetary objective in the mid-1990s. Consequently, the inflation rate can be listed as the primary anchor for those territories with managed exchange rates.

In contrast, those countries with fixed exchange rates depended on the exchange rate anchor to stabilise prices. Consequently, monetary policy was devoted to the use of instruments to maintain the fixed exchange rate pegs. As a result, these territories had a greater propensity to use direct controls in their monetary policy regimes.

Regardless of the exchange rate regime adopted, the management of foreign exchange reserves turned out to be one of the most popular goals of monetary policy. This was not surprising given that these economies do not possess reserve currencies and the credibility of the exchange rate was highly dependent on the accumulation of external reserves. Countries therefore aimed to accumulate and preserve reserves by investing in low risk assets and if necessary, to bolster their reserves through borrowing.

Most of the central banks in the study did not explicitly outline specific external reserves targets. However, two exceptions here were The Bahamas and the ECCB. The Bahamas Act (2000) specified that the fixed exchange rate should be supported by external reserves, which should be at least 50 per cent of the value of the total notes and coins and other demand liabilities of the central bank. Further, the ECCB Act (1983) specified that the external reserves should be at least 60 per cent of its demand liabilities. These provisions limited the ability of the central banks to finance fiscal deficits by printing money.

For those territories which still embraced development as an objective of monetary policy, it was envisaged that development was to be pursued by the central banks through the channelling of credit to productive activities in a bid to achieve a high level of domestic production, employment and growth. However, credit allocation was not an explicit goal of monetary policy for territories with floating exchange rates, since monetary policy was no longer used for economic development but instead directed solely to achieving stabilisation objectives.

Use of instruments to achieve monetary goals

The monetary instruments used by the various central banks were closely related to the type of exchange rate regime adopted within the monetary framework. As such, countries with fixed exchange rates were more likely to rely on the use of direct instruments. Here we define direct instruments as those which are used to impact directly on the balance sheet of financial institutions under the jurisdiction of the respective central bank. Under a regime of direct instruments, impositions are applied to either the interest rate or the volume of funds via regulatory devices.[8] Indeed, the central banks with fixed exchange rates still maintained the use of direct instruments in their various acts, mainly to regulate and guide credit allocation. On the other hand, those which adopted managed floats were actively seeking to evolve to market-based instruments.

Table 1.4 examines the monetary instruments on the statute books of the various central banks. Not surprisingly, all the central banks adopted moral suasion as a means of influencing the market to co-operate to attain targets prescribed by the central bank.[9] A detailed breakdown per country is in table A2 in Appendix A.

Table 1.4 Instruments used in frameworks

Fixed exchange rate framework	*Managed exchange rate framework*
Core primary monetary instruments	**Core primary monetary instruments**
Moral suasion	Moral suasion
Reserve requirement	Reserve requirement
Additional primary instruments	**Additional primary instruments**
Bank discount rate	Monetary base
Selected interest rate controls	Open market operations
Selective direct credit controls	Repo rate
Liquidity asset controls	Direct sales/purchase of foreign currency
Specification of security on loans	

Source: Compiled from Appendix A

Equally important were the allowance for the use of rule-based instruments in the form of liquid asset ratios and reserve requirements.[10] There were widespread provisions for the use of rules-based instruments regardless of the style of monetary policy pursued. Central banks varied, however, in the frequency with which they utilised changes in rules-based instruments, see table 1.5. The Bahamas and the ECCB have not changed their monetary rules since their inception, and so we have classified the activity level of monetary rules in these countries as passive. The central banks in Barbados and Belize have occasionally

Table 1.5 Frequency of use of rules-based instruments

	Liquidity ratios	*Activity level*
The Bahamas	Fixed at 5% for statutory reserves, and liquid asset ratios at 15% for demand deposits and 20% for savings and fixed deposits.	Passive
Barbados	Liquid assets ratio: 12% on securities and 5% on cash. Reserve requirements 23%, down from 24%.	Moderate
Belize	10% across the board for average transferable (demand), savings and time deposit liabilities.	Moderate
	Secondary reserves: 23% of approved liquid assets including reserves requirements. Voluntary transfer of public institutions deposits from commercial banks to the central bank.	
ECCB	Reserve requirements: 6% of deposit liabilities.	Passive
Guyana	Reserve requirements: 12% of all deposit liabilities including foreign liabilities.	Active
Jamaica	Increased statutory cash reserve requirement to 13% on 3 December 2008.	Active
Trinidad and Tobago	Reserve requirements: increased to 17% by November 2008.	Active

Source: Constructed from the websites and reports of the respective central banks July 2009

altered their monetary rules, but changes have tended to be 'once and for all'. The activity level of monetary rules in these countries is therefore described as moderate. Active changes in monetary rules were made by countries which exercised managed floats. These rules played an important part in the liquidity management of the central banks.

Direct controls on intermediation generally took the form of impositions on credit, as was the case in The Bahamas. The Central Bank of the Bahamas employed this device by imposing a direct freeze on the outstanding level of credit. The Bank also limited lending to clients based on their monthly income and their level of equity. Moreover, new loans were limited to the extent of resources obtained from ongoing repayments. In Belize, the Central Bank tended not to use its powers of direct controls on the volume of loans and advances.

In addition, all the countries with fixed exchange rates were empowered to employ some form of interest rate controls. In The Bahamas, Section 22 of the Bahamas Act gave the Central Bank the power to set minimum and maximum interest rates payable on various classes of loans and deposits. In addition, the Section also allowed the bank to regulate the maximum volume of loans or advances that were outstanding at any time. Similarly, the Central Bank of Barbados was empowered to regulate the maximum interest rate payable on deposits according to maturities and other financial instruments including overdrafts, discounting of bills of exchange, commercial or financial papers, letters of credit and other forms of credit.

In contrast to countries with fixed exchange rates, countries which exercised managed floats took a more aggressive posture regarding liquidity management. Guyana and Jamaica combined reserves requirements with money market operations as the main tools of monetary policy.[11] See Appendix B for a model of the style of monetary policy that was practised in both countries.

Trinidad and Tobago also sought to make the transition to open market operations. Money market operations were geared towards the management of liquidity on the Central Bank balance sheet through the sale by auction of securities in the financial market. [12] Given the embryonic stage of the development of the money markets in the region, the auction of treasury bills was the major instrument used to conduct open market operations, and these were usually denominated in terms of 91-day, 182-day and 364-day government treasury bills, though the Bank of Jamaica eventually moved on to issuing its own securities through certificates of deposits. In the case of Guyana, the management of the money supply was exercised through the use of intermediate targets on reserves of commercial banks, which were set according to forecasts of inflation and growth. The reserves requirements were seen as useful for meeting long-term monetary objectives, while open market operations were used to fine-tune the economy.

The Central Bank of Trinidad and Tobago used three modes of monetary policy: reserves requirement, open market operation and the repo rate.[13] However, the Central Bank sought to reduce its reliance on reserves requirements, placing greater emphasis on the use of a policy repo rate to signal its monetary stance to the credit market. The policy rate was expected to be transmitted through the term structure of interest rates to the credit market. However, regular open market operations were used to absorb excess liquidity from the market. In so doing, treasury bills were auctioned so that the rates were market

determined. The repo rates were only introduced in 2002. The major form of liquidity management adopted by the Central Bank of Trinidad and Tobago was the use of open market operations. Treasury bills and treasury notes were the main form of securities traded in this respect.

To give impetus to the trading of liquidity, territories with indirect instruments actively embarked on the development of the money market. Jamaica and Trinidad and Tobago developed primary dealers consisting mostly of commercial banks to kick-start the trading of primary securities to absorb excess liquidity in the banking system. Open market operations were essentially directed at primary dealers which were chiefly commercial banks. In addition, the money market was developed into the primary securities market with government securities traded. The interbank market was also developed to allow for the trading of securities. All these developments were deemed as critical to the transmission of interest rates. Nevertheless, the markets were still limited in the sophistication of instruments for, among other things, the trading of risks.

Interestingly, even where the central banks were seeking to make a transition towards the use of market-based instruments, they still depended on reserve requirements to absorb excess liquidity. In fact in both Jamaica and Trinidad and Tobago there were policy reversals on the reserves requirement. After seeking to bring down its reserves requirement to prudential levels, the Bank of Jamaica ended up increasing its cash reserve ratio from 9 per cent to 11 per cent by the fourth quarter of 2008. In October 2003, the Central Bank of Trinidad and Tobago declared its intention to deemphasise its dependence on reserve requirement as a monetary tool by bringing down the reserve requirement in three phases in eighteen months, from 18 per cent to 9 per cent. Having reached the second phase where reserves were lowered to 11 per cent by 15 September 2004, the bank was unable to go lower owing to the chronic excess liquidity that could not be adequately absorbed by indirect instruments. Thereafter the bank reverted to rules-based instrument by increasing the reserves requirement so that by November 2008, the reserves requirement rose to 17 per cent.

Use of interest rates

The use of the discount rate featured prominently in the active conduct of monetary policy in various countries as the majority of central banks were empowered by their acts to use changes in the bank discount rates as a monetary tool. However, given an environment of chronic high excess liquidity, this rate was used more as a signalling device with respect to the direction in which the central banks would like to see the interest rate move, rather than one which forced banks to move interest rates in particular directions. Nevertheless the discount rate was meant to be a punitive device on banks which did not meet the reserve ratio and therefore needed to borrow from the central bank.

In the countries with fixed exchange rates the shallowness of the money market led to the discount rate and treasury bill rate being prescribed without much reference to the market – see figure 1.1. These rates were flat, set and maintained for long periods of time. Normally, the discount rate should be higher than other rates, in an effort to discourage

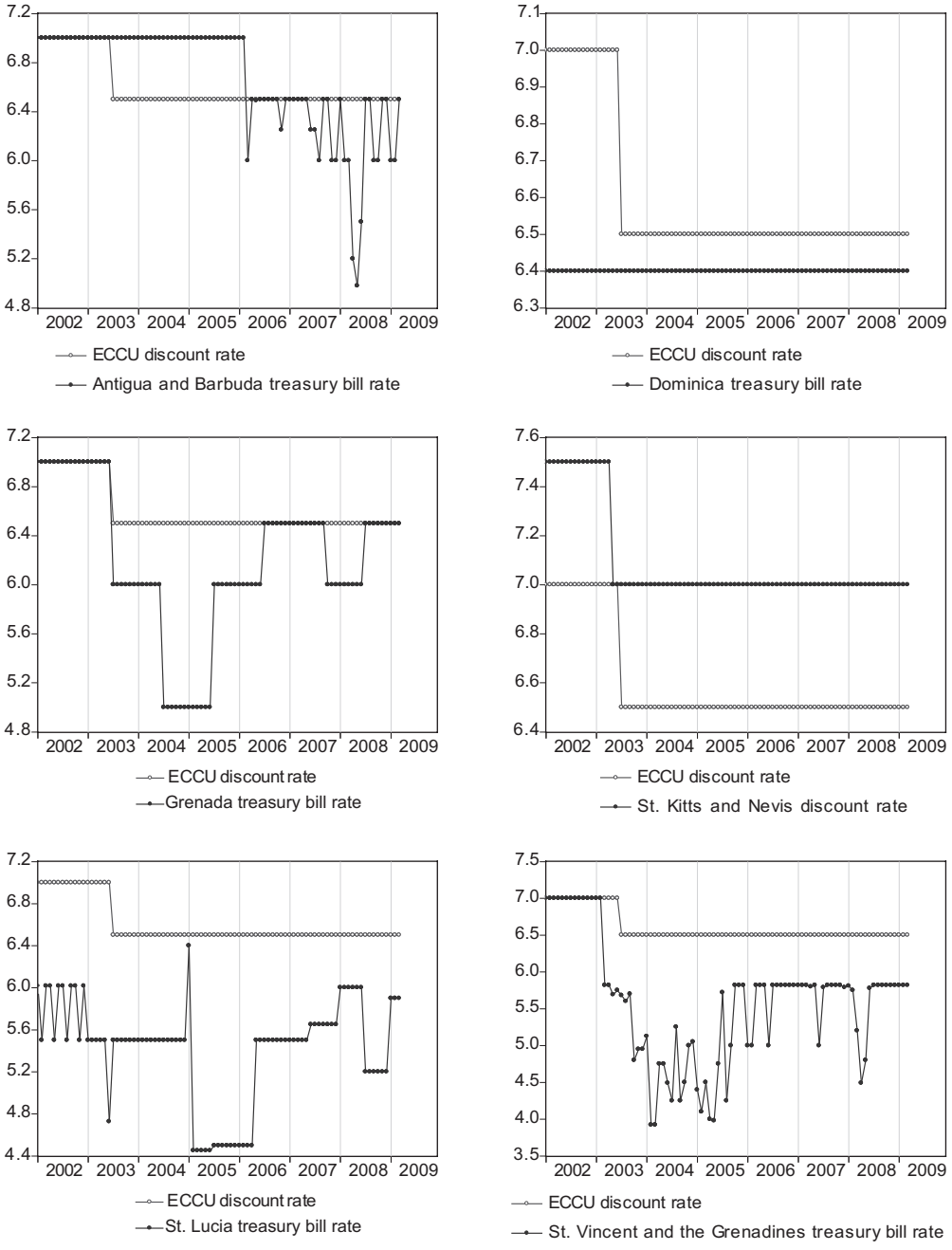

Figure 1.1 OECS money market rate
Source: Graphs constructed from data obtained from ECCB website

borrowing from the central bank. However, in the case of the Organization of Eastern Caribbean States (OECS), the discount rates were at times inefficient, for example when the treasury bill rates were at times above the discount rate in Antigua and Barbuda, as well as in St Vincent and the Grenadines. This would have suggested that at times it was cheaper for the government to borrow from the central bank rather than from the public where the cost of financing was higher.

Technically, when the bank discount rate is lower than the national treasury bill rate, it would suggest that it would be cheaper for the government to borrow from the ECCB rather than raise funds through the use of treasury bills. However, the ECCB Act does not permit it to lend to member governments, except where it is temporary to meet seasonal needs, and in any event that amount must not exceed 5 per cent of the government's average annual current revenue over the three preceding financial years. Moreover, the provisioning of this type of financing must be approved unanimously by member countries through the Board. This may be difficult to obtain, since any one member can exercise its veto power to block lending by the bank to a member country if it thinks there is the risk that this would undermine the stability of the exchange rate. Thus, regulatory barriers may prevent arbitrage[14] in the market when the discount rate is lower than the market rate. As such, the bank discount rate may lack force, and at best would be a signalling rate. It may be the case that the shallowness of the markets led to inefficiencies in the pricing of financial assets such as the treasury bill rate in the various national territories within the ECCU.

The treasury bill rates in The Bahamas, Barbados and Guyana reflected greater volatility and remained below the respective discount rates, see figure 1.2. However, it was noticeable that the movement of the treasury bill rate had little relation to the discount rate in The Bahamas and Barbados, in the sense that the latter may have been higher than it needed to be at times. This was in contrast to Guyana, where the treasury bill rate was market determined in the sense that it was determined through auctions and this served as a useful guide for the setting of the discount rate.

Trinidad and Tobago and Jamaica exhibited greater depth in their money markets, see figure 1.3. In the case of Trinidad and Tobago, the market was designed so that banks falling

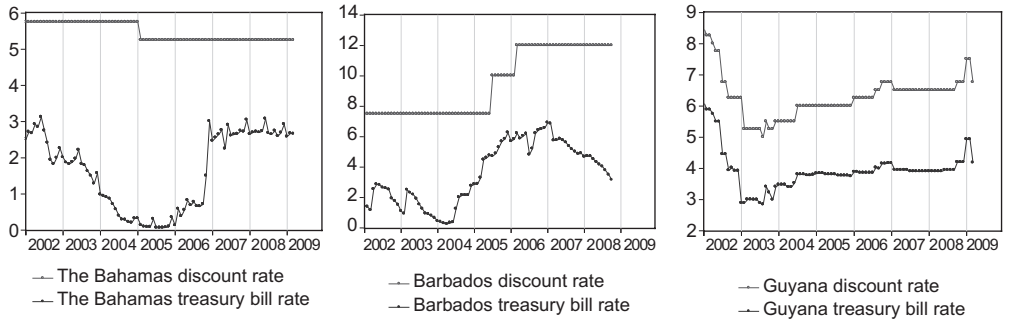

Figure 1.2 Money market rates in The Bahamas, Barbados and Guyana
Source: Constructed from data obtained from the websites of the central banks of The Bahamas, Barbados and Guyana

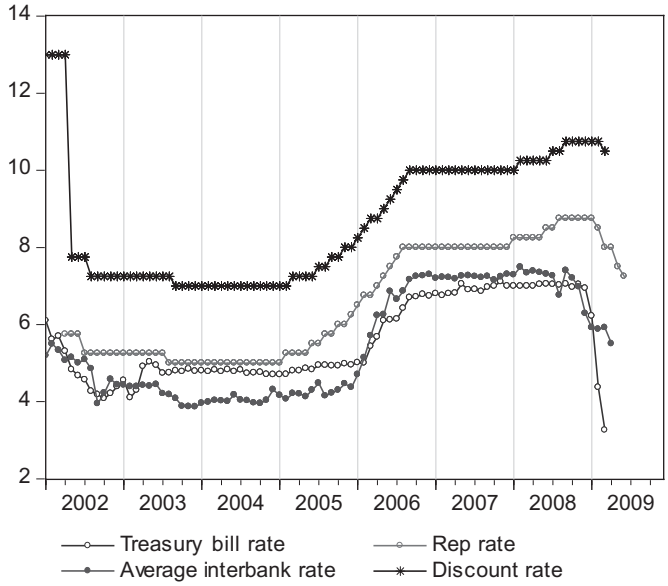

Figure 1.3 Trinidad and Tobago money market rates
Source: Constructed from data obtained from the central bank of Trinidad and Tobago website

short of reserves had the option of borrowing on the interbank market, failing which they could access overnight financing from the Central Bank at the repo rate, and if liquidity in the interbank market was tight, then they had the option of approaching the discount window at the Central Bank. The discount rate was deliberately set 200 basis points above the repo rate to discourage borrowing from this window, in order to encourage banks to use the other facilities. To foster the development of the interbank market, the interbank market rate was the cheapest when compared to the repo or the discount rates. The interest rate was most effective as a means of setting monetary policy where there was tight liquidity.

The Bank of Jamaica was the most advanced in the development of the money market. The central bank exhibited the greatest depth in terms of maturity of policy instruments as it gave investors the option of investing in instruments subject to a range of maturities. In so doing the market was presented with yield curves which were fundamental in the pricing of bonds, see table 1.6. Much of the policy response was with respect to instability in the foreign exchange market, international reserve position, excess Jamaican dollar liquidity and foreign currency liquidity. These factors were deemed to be associated with high inflation and pressures on the exchange rate. As a result the central bank used a mixture of policy rates with different maturities with varying frequency of adjustments in each year. It should be noted that to reach the point of trading various maturities, the Bank began by trading government securities in the open market, but by June 2001 it had begun trading its own assets in the form of certificates of deposits in the market.

From a look at the instruments traded, it was clear that the Bank laid particular emphasis on liquidity absorption. Moreover, in times of stability (instability) the central bank tended to slacken (tighten) monetary policy by reducing (increasing) the policy rates across the

Table 1.6 Jamaica money market certificate of deposit rates

	30-day	*60-day*	*90-day*	*120-day*	*180-day*	*270-day*	*365-day*	*Liquid assets ratio of commercial banks and other institutions under the Financial Institutions Act (FIA)*	*Cash reserve ratio of commercial banks and other institutions under the Financial Institutions Act (FIA)*
Basis points spread in 2001	14.25						20	28–30	10–12
Frequency of changes in 2001	5	7	7	7	7	10	10	3	3
Basis points spread in 2002	12.95						16.7	23–27	9
Frequency of changes in 2002	4	4	4	4	4	5	5	2	1
Basis points spread in 2003	15						24		
Frequency of changes in 2003	1	1	3	4	7	8	8		
Basis points spread in 2004	13.8						22		
Frequency of changes in 2004	6	7	8	9	10	11	11		
Basis points spread in 2005	12.6						15		
Frequency of changes in 2005	3	3	3	3	3	3	3		
Basis points spread in 2006	11.65						12.8		
Frequency of changes in 2006	4	4	4	4	4				
Basis points spread in 2008	12.65						24	25	11
Frequency of changes in 2008	5	5	5	5	5	5	5	1	1
Basis points spread in 2009								27–28 on local currency; 25 on foreign currency	13–14 on local currency; 11 on foreign currency
Frequency of changes in 2009								2	2

Source: Data obtained from the Bank of Jamaica

spectrum of maturities. In addition the Bank at times adjusted the liquid assets ratio and the cash reserve ratios to absorb or release liquidity into the system.

One challenge the Bank of Jamaica faced was how to deal with the resulting liquidity overhang arising from the maturing of domestic debt instruments of liquid assets. To absorb excess liquidity the Bank exercised a preference for the use of long-term instruments. At the beginning of 2007 it introduced a special one-year instrument called the one-year variable rate instrument and this was offered to primary dealers. By mid-year it moved to offering two-year variable rate instruments. At the end of 2008 the Bank was complementing these by offering special certificates of deposits. The difficulty arising here was that offering instruments led to the necessity of further instruments to deal with the surge in liquidity arising from the maturity of previous instruments, and this compounded the interest rate burden on taxpayers.

1.3 Comparison of macroeconomic performances according to style of monetary policy

Should the style of monetary policy matter to the relative performance of CARICOM economies, then a burning question is what the regional experiences are under different styles of monetary policy.[15] Here we argue that a country's style of monetary policy is derived principally from its exchange rate regime, whether this be hard pegs or managed exchange rate regimes.[16] In order to explore the question of relative regional performances according to exchange rate regimes, we compare our simplified exchange regimes with the average macroeconomic performances of the selected economies for the periods 1991–1999 and 2000–2007.

It is instructive that countries which predominantly combined direct instruments with fixed exchange rates still managed to attain low inflation rates, as their inflation rates exhibited a combined average of 2.6 per cent in both 1991–1999 and for the period 2000–2007, see table 1.7. In contrast, the countries which adopted managed floats had a combined average inflation rate of 16.5 per cent and 7.2 per cent in both periods respectively. The evidence therefore supports the argument that the exchange rate anchor is pivotal to the attainment of low inflation in small open economies.

Table 1.7 Comparison of prices under market rigidity versus market-based regimes

	Fixed exchange rate framework					*Flexible exchange rate framework*			
	The Bahamas	*Barbados*	*Belize*	*ECCU*	*Combined average*	*Guyana*	*Jamaica*	*Trinidad and Tobago*	*Combined average*
Inflation (1991–1999)	2.6	2.9	2.1	2.9	2.6	15.5	28.5	5.7	16.5
Inflation (2000–2007)	2.0	3.2	2.5	2.5	2.6	6.3	9.8	5.4	7.2

Source: Averages calculated from Caribbean Centre for Money and Finance (CCMF) (2008)

It should be noted, however, that inflation levels declined for the countries which practised a managed float. The evidence emerging from CARICOM economies is therefore not supportive of Roger and Stone (2005), which suggests that in the majority of cases inflation levels and volatility have declined since countries adopted inflation targeting. They suggest that these countries maintained their commitment to the target owing to its flexibility with respect to handling shocks, high standards of transparency and accountability. However, the critical question that they do not address is whether these countries would have realised lower rates had they maintained fixed exchange rates. The evidence with respect to the CARICOM region suggests the dominance of the exchange rate anchor over inflation targeting as a means of keeping inflation down.

Given the higher inflation rates in the earlier period in the countries with managed floats, higher lending rates followed, thus causing the cost of financial intermediation, reflected through lending rates, to be higher than in the countries with fixed exchange rate regimes. In keeping with the decline in inflation rates, lending rates also declined, thus lowering the cost of financial intermediation to consumers.

The results also show that the regional experience of most countries has been that those with fixed exchange rates carried lower lending rates and lower interest rate spreads compared to those which moved off the fixed peg, see figure 1.4 as well as table A3 in

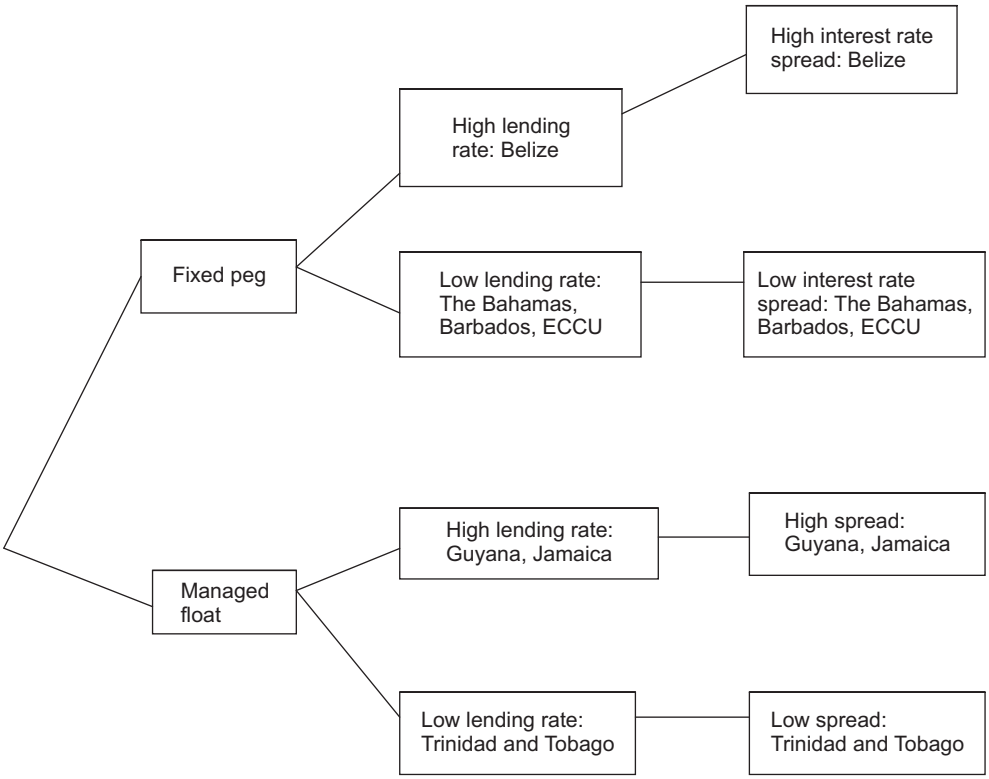

Figure 1.4 Association of monetary framework with lending rates[17]

Appendix A for more detailed data. Thus, with a fixed exchange rate, countries were able to exhibit lower than median lending rates along with lower interest rate spreads. On the other hand, most of the countries with managed exchange rates exhibited higher than average lending rates, the exception being Trinidad and Tobago. The results were practically similar with respect to intermediation spreads, with the exception of Belize, which exhibited high spreads by CARICOM standards.

Another point to note is that the evidence uncovered suggests that the exchange rate framework did not make a fundamental difference to macroeconomic performances in the region, see table 1.8 and table A4 in Appendix A. Growth was random across exchange rate frameworks just as were fiscal balances, associated debt levels and import cover. The stronger relation was between fiscal balances and debt levels as countries with larger fiscal deficits also exhibited larger debt.

The distortionary effect of direct controls in the fixed exchange rate framework did not manifest itself in growth of the economies or their ability to maintain adequate reserves. All of the CARICOM economies exhibited positive growth averages during the various sub-periods amidst low inflation in the majority of cases. Moreover, countries' growth generally improved in the period 2000–2007 compared to the earlier period. In addition, with the exception of Belize, the territories had adequate reserves in the second period, as signified by import cover of over three months as laid down by the CARICOM single market economy. Further, with the exception of Belize, the territories had adequate reserves in the second period, as signified by import cover of over three months as laid down by CARICOM.

Table 1.8 Exchange rate association with economic growth

Fixed exchange rate				*Managed exchange rate*			
High growth		*Low growth*		*High growth*		*Low growth*	
Belize, ECCU		The Bahamas, Barbados		Trinidad and Tobago		Guyana, Jamaica	
High fiscal deficit		*Low fiscal deficit*				*High deficit*	
Belize, ECCU		The Bahamas, Barbados		Trinidad and Tobago		Guyana, Jamaica	
High import cover		*Low import cover*		*High import cover*		*Low import cover*	
Barbados, ECCU		The Bahamas, Belize		Trinidad and Tobago, Jamaica		Guyana	
High debt	*Low debt*	*High debt*	*Low debt*	*High debt*	*Low debt*	*High debt*	*Low debt*
Belize, ECCU			The Bahamas, Barbados		Trinidad and Tobago	Guyana, Jamaica	

Notes: Median growth was 2.1 per cent of GDP, median fiscal deficit was -4.4 per cent of GDP, median import cover was 4 months and median debt was 54.3 per cent of GDP. High is classified as those countries above median and low as those below the median

1.4 Stabilisation outcomes of monetary frameworks

Cost of fixed exchange rate as an anchor

What the literature says

While the fixed exchange rate anchor is useful for the maintenance of low inflation, the literature has pointed out the potential risk in such a strategy. For example, Obstfeld and Rogoff (1995) underscored the difficulty in maintaining the fixed rate where there is integration of international capital markets. This is partly due to the fact that any threat of devaluation causes the exchange rate peg to lack credibility and therefore can encourage attacks on the currency as well as cause a parallel exchange rate to develop. Also, if the trilemma argument held, then a country adopting a fixed exchange rate would lose monetary independence as it would be unable to use monetary policy to react to developments in its economy, as domestic monetary policy would be dominated by monetary policy of the base country, assuming that the domestic economy was open to external capital flows. Mishkin (2007), p447, notes other drawbacks including the transmission of shocks from the anchor country to the home country and the 'potential for weakening the accountability of policy-makers to pursue anti-inflationary policies'.

Regional experiences

In examining the relation between credit growth, inflation and GDP growth, it can be noted immediately that in most cases the growth of loans amplified the positive growth enjoyed by the economies under study, in the sense that these economies recorded growth in lending in excess of GDP growth, see figure 1.5. What is also noticeable is that there was not a one-to-one correspondence between credit growth and inflation. Growth in lending in those territories which ran fixed exchange rates was not associated with increased inflation levels. Accordingly, growth in lending telegraphs little information on movements in inflation as the association is weak.

In evaluating regional experiences, it was also found that while countries with fixed exchange rate frameworks sought to direct credit allocation to achieve growth and development, the drawback was that increases in credit posed the danger of deepening the external current account deficits and therefore militated against the goal of conserving external reserves. This was evidenced by the high and significant correlation between increases in credit with the balance of payment deficits, see figure 1.6. Thus economies faced the dilemma of how to build up economic activity levels, as signalled through increases in credit, without creating balance of payment pressures.

There is a case, therefore, for monetary policy to be more aggressive in the face of economic growth since lending tends to be amplified and can lead to higher levels of demand for imports in the absence of increases in productive capacity. With the exception of Trinidad and Tobago, an increase in the growth of lending was associated with a deterioration in the external current account. In particular, the deterioration of the external current account was significant in Barbados, the ECCU, and Guyana.

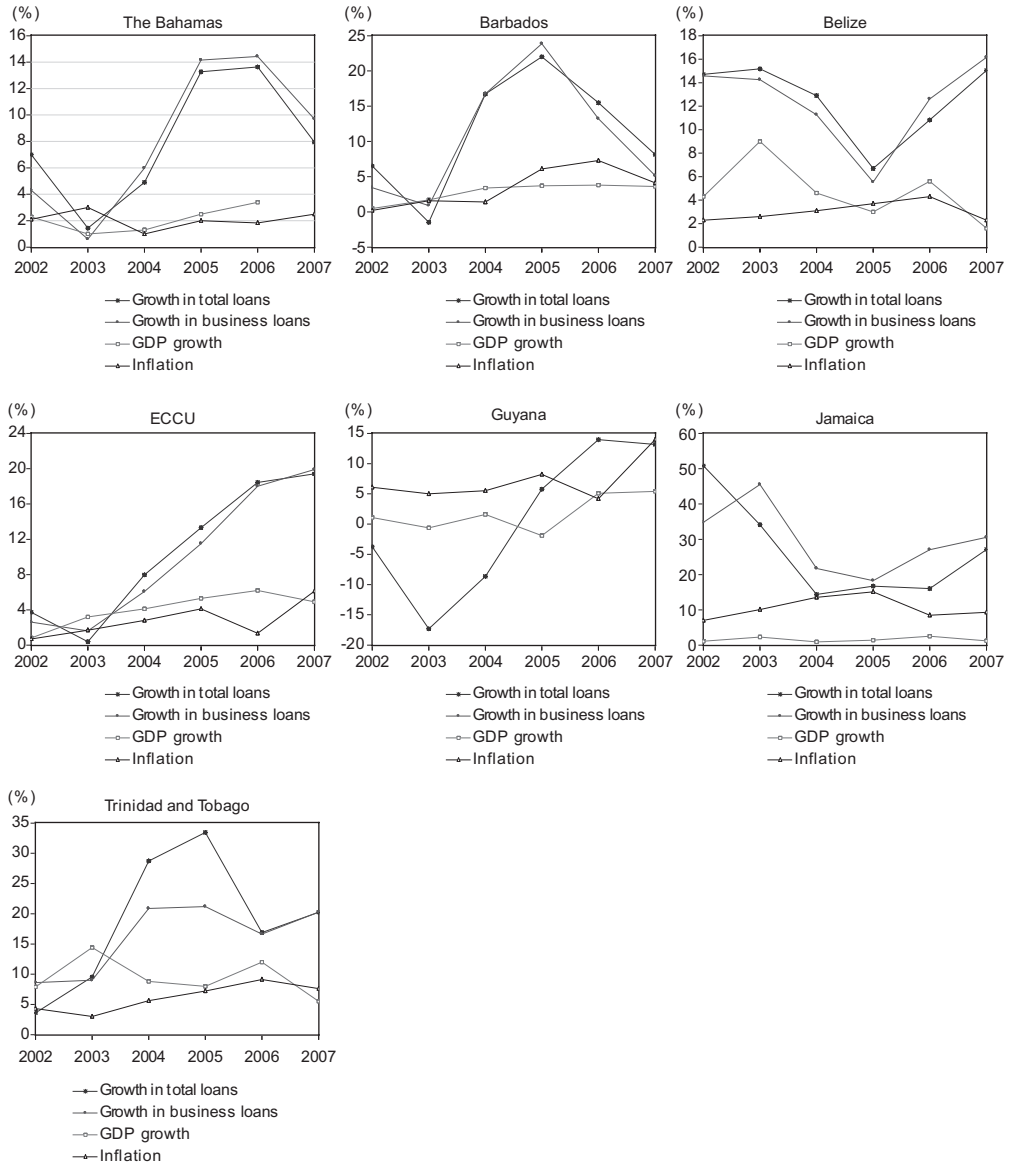

Figure 1.5 Association between credit growth and the real side of the economy

The evidence, therefore, generally suggests that in the case of small open economies, credit expansion was not only aligned to inflation and output growth, but also with respect to pressure on the balance of payments where domestic supply of exports is inelastic. The results are also supportive of the proposition that as the level of economic activity picks up, lending increases thus impacting negatively on the external current account, all things being equal.

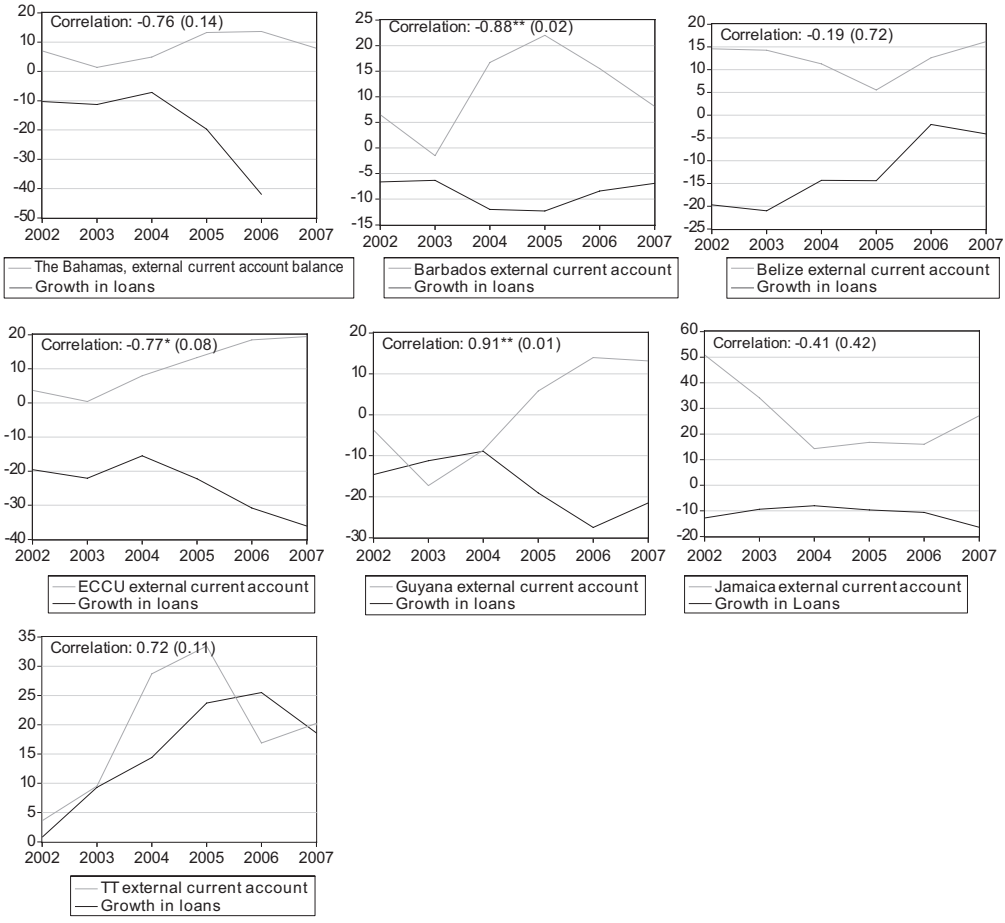

Figure 1.6 Relationship between credit and external current account

Another factor that can militate against countries with a fixed exchange rate is that the exchange rate can become overvalued by increases in inflation, rendering the country uncompetitive. For example, in tourist destinations such as Barbados, hotel owners can be hard pressed to be competitive in attracting overseas guests when inflation rises and the exchange rate does not depreciate. If the cost of their products rise then for hotel owners to maintain their prices, they must be prepared to absorb costs to remain price competitive internationally. Thus, an overvalued exchange rate can impair entrepreneurial returns arising from hotel plants as owners are forced to entertain lower returns.

The movement of exchange rates in managed exchange rate regimes

The exchange rates of countries which moved off fixed exchange rates were tracked both graphically using monthly data and in terms of their decadal point to point movements. For

Guyana and Jamaica, exchange rates continuously depreciated barring a few isolated times of appreciation. Trinidad and Tobago is unique since its exchange rate fluctuated within a narrow band.

In the case of Guyana, prior to 2004, the exchange rate remained within a point to point decadal level for short periods of time before depreciating to new decadal intervals, see figure 1.7 and table 1.9. The longest period of stability prior to 2004 was 51 months between May 1994 and August 1998. The rate depreciated and stabilised within the decade following 2004. Nevertheless the rate depreciated by 2009 by over 100 per cent of its original rate in February 1991, when it was first floated.

While the preset convergence criterion for debt service (i.e. debt as a ratio of the exports of goods and services) for CARICOM member countries was 15 per cent, in the 1990s the actual debt service ratio for Guyana was above this level, reaching as high as 23 per cent in 1998. As a ratio of GDP, external debt was three to five times GDP between 1991–1995 and twice GDP between 1996 to 1998, before sinking to under twice GDP. After benefiting from the HIPC (heavily indebted poor countries) relief programme, the foreign exchange market showed some stability so that the exchange rate stabilised with small fluctuations somewhere within the decadal level of 200 Guyana dollars (G$) to G$209 since September 2004.

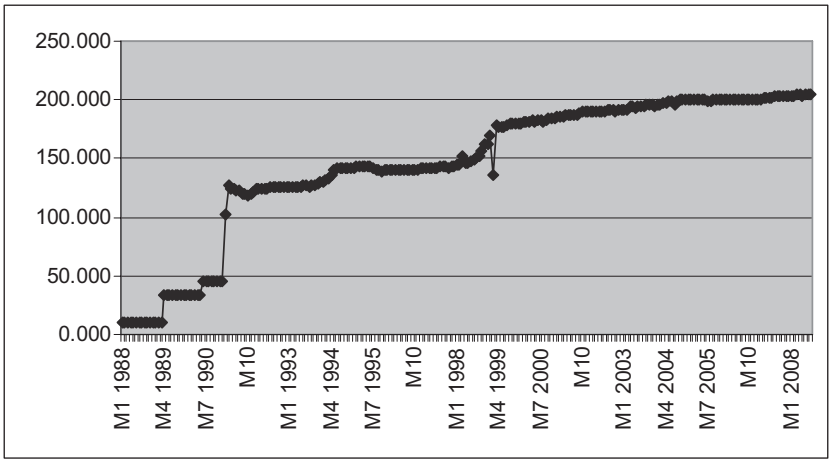

Figure 1.7 Guyanese exchange rate
Source: Graph constructed from IMF, *International Financial Statistics* (IFS) online database

Table 1.9 Guyanese exchange rate movements in decadal intervals

Jan 1988	*May 1989*	*June 1990*	*Feb 1991*	*Mar 1991*	*Dec 1993*	*May 1994*	*Aug 1998*	*Nov 1998*	*Mar 1999*	*Oct 1999*	*Feb 2002*	*Sep 2004*
10	33	45	102.75	126.5	130.75	140.75	150	162.75	179	180.5	190.25	200

Source: Data extracted from IFS online database

A few observations can be made here from the Guyanese experience. The evidence suggests that under the pressure of a high debt burden, the floating exchange rate was destined to depreciate before finding its equilibrium level. There was also a bidirectional relationship since a depreciation of the exchange rate would have increased the debt burden in terms of local resources. Moreover, as the exchange rate depreciated it led to a greater displacement of the national budget on debt servicing, if some form of debt forgiveness and debt rescheduling was not granted.

With respect to Jamaica, figure 1.8 shows that the exchange rate depreciated almost at a constant trend rate over the period of the study. Jamaica dabbled with various exchange rate regimes after it departed from the pound sterling in 1975 to move over to the US dollar as its peg. Eventually in 1987 the country used an auction system to sell foreign currency while maintaining exchange rate controls. Following the subsequent depletion of foreign exchange reserves and severe trade imbalances, the auction system was abandoned by November 1989 and the country returned to a hard peg where the exchange rate was set at 6.5 Jamaican dollars (J$) to US$1. However, the rate became overvalued so that by September 1991, prompted by international financial institutions, exchange rate controls were abolished and the foreign exchange market was deregulated. The depreciation of the Jamaican exchange rate occurred as Jamaica struggled with high debt overhang, high fiscal

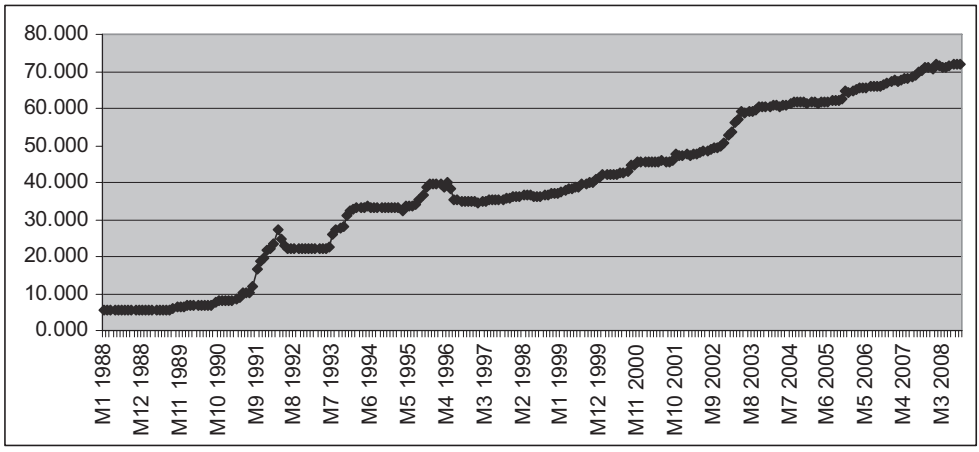

Figure 1.8 Jamaican exchange rate
Source: Graph constructed from IFS online database

Table 1.10 Jamaican exchange rate in decadal intervals

August	*December*	*November*	*October*	*December*	*October*	*September*	*December*
1991	*1991*	*1993*	*1999*	*2002*	*2003*	*2007*	*2008*
11.95	21.49	30.88	40.08	50.76	60.26	70.27	80.15

Source: Data extracted from IFS online database

imbalances and depressed foreign exchange earnings. Thus, Jamaica no longer committed itself to a fixed exchange rate at this point.

Table 1.10 captures the chronological movement of the Jamaican exchange rate as it moved through decadal intervals. The depreciation of the exchange rate may be attributable to instability in foreign exchange reserves and speculation against the exchange rate. The longest period of existence within decadal bands was six years for the period November 1993 to October 1999. Otherwise, the exchange rate spent relatively short periods within decadal banks.

In the case of Trinidad and Tobago, figure 1.9 demonstrates that the rate moved in a step like manner at the beginning of the period. Due to macroeconomic difficulties, the government valued the rate from 3.6 Trinidad and Tobago dollars (TT$) in January 1988 to TT$4.25 in August 1988. A hard peg against the US dollar was maintained up to March 1993 where the rate was initially 4.25. After this the Government removed the commitment to the hard peg following severe balance of payments and macroeconomic difficulties. The country then removed all exchange controls, following which the rate depreciated to TT$5.79 by April 1993, before eventually depreciating to TT$6.3 by December 1997; from here, it oscillated at around TT$6.3 to US$1. The stability of the exchange rate can be attributed to the sizeable inflow of foreign exchange reserves and low debt service requirements, two factors that were not simultaneously present in the Guyana and Jamaica situations.

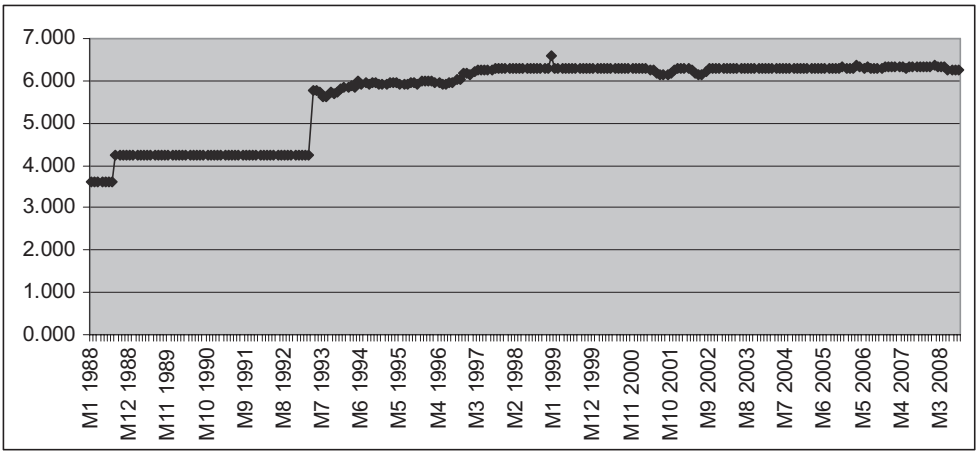

Figure 1.9 Trinidad and Tobago exchange rate
Source: Graph constructed from IFS online database

Cost of managed exchange rates: the CARICOM experience

The debate on the merits of flexible exchange rates is far from settled in the case of small island economies such as those of CARICOM. Admittedly, the debate may be settled with respect to advanced industrialised countries in favour of floating exchange rates and inflation targeting, thereby giving up the exchange rate anchor, see for example Truman (2003). However, CARICOM countries have been able to maintain low inflation under

fixed exchange rates. The CARICOM experience indicates that domestic based monetary policy was less successful in containing rising inflation within an inflation target when compared to containing inflation via the use of an exchange rate anchor.

The experience of the CARICOM economies has shown that once the exchange rate is not fixed, then there is a high tendency for it to continuously depreciate once there are not simultaneously sufficient foreign exchange inflows, low debt commitments and an orderly adjustment of markets. Thus, the Guyanese situation was triggered principally by high debt overhang while the Jamaica situation was triggered principally by the insufficiency of foreign exchange inflows and emerging high debt overhang.

Furthermore, once depreciation sets in, it can be very costly for these economies to endure. For one thing, it leads to rising inflation as countries import most of their inputs and final products from international markets. This leads to pressures to raise salaries as locals are priced out of international markets. As a result, continuous devaluation creates its own instability in the domestic economy.

Another important point to notice is that devaluations caused more domestic resources to be diverted to paying external debt as it increased in terms of domestic currency. As a result, an increasing proportion of national budgets was diverted to debt servicing, which involved meeting both principal and interest payments denominated in foreign currency. An example of this was the case of Jamaica. After the country succeeded in reducing external debt in terms of local currency by 20 per cent in 2007, it then saw its debt converted to local currency increase in 2009 by 85 per cent, partly on account of depreciations in the exchange rate.

Yet another point to be made is that depreciations tend to foster a loss of confidence in the national currency, leading to further rounds of depreciations as local agents recognise foreign currency as having greater properties as a store of value. Thus the demand for foreign currency increases, carrying up its price in terms of domestic currency, and as a result further rounds of depreciation ensue.

In addition, depreciations encourage dollarisation as domestic assets are more likely to be priced in foreign currency, in this case the US dollar. For example, fixed domestic assets like real estate are now priced in US dollars and given a depreciating exchange rate, and locals with fixed salaries can find themselves priced out of the market. The monetary authorities face an uphill battle to break this cycle and restore confidence in domestic currency.

An important point to make here is that international credit rating agencies can potentially create further instability in the foreign exchange markets. This was the case in Jamaica where adverse credit ratings caused countries exporting to Jamaica to demand payment in cash rather than extend a line of credit. This created a surge in demand for foreign exchange and contributed to further instability in the foreign exchange market.

1.5 Summary of cost benefit comparison of monetary frameworks in the Caribbean

A summary of the comparison of the cost and benefits of the various frameworks associated with the exchange rate regimes is located in table 1.11. However it must be borne in mind

that the success of the managed exchange rate hinges on the successful development of money markets. This is useful especially for intermediating excess liquidity and ensuring the transmission of the short-term interest rate as the policy rate. Moreover, the successes of monetary frameworks have been largely dependent on the foreign exchange inflows accruing to various territories. These factors may have therefore been important considerations in the choice of monetary frameworks implemented by countries.

Table 1.11 Qualitative benefit cost of exchange rate framework: Caribbean experience

Fixed exchange peg		*Managed exchange rate*	
Advantage	*Cost*	*Advantage*	*Cost*
Low inflation	Increase in credit can lead to increase in import demand.	Some degree of monetary independence.	High tendency to continuously depreciate once foreign exchange inflows are insufficient and debt levels are high.
Low intermediation rates	Conflict between the use of credit for development and balance of payments stability.	Exchange rate can be allowed to vary according to foreign exchange reserves.	Leads to rising inflation.
Growth in lending amplifies economic growth.	Exchange rate can become overvalued when inflation increases: countries can become less competitive.	Exchange rate can find sustainable level.	Pressure on salaries to increase.
Less meetings required to fine-tune monetary policy.	Producers may be forced to absorb costs in order to remain competitive.	Can react with higher frequency to economic developments.	More resources are diverted to paying debt.
	Black marketing of currency causing a parallel exchange rate.		Depreciations tend to cause a loss of confidence in national currency.
	Must be backed by sufficient foreign exchange.		Can lead to dollarisation.
	Loss of monetary independence.		International credit rating agencies tend to downgrade and cause instability in the foreign exchange market.
	Difficult to sustain where there is integration of international capital markets.		More meetings required to fine-tune monetary policy.
			Speculative activities tend to lead to increased foreign exchange being required to defend the rate.

None of the frameworks provides a perfect solution to the staging of monetary policy in small island states. What can be noticed immediately is that the fixed exchange rate contributes to internal balance regardless of foreign exchange reserves, while the managed float framework conditions exchange rate stability on the inflows of foreign exchange reserves. Moreover it was noticeable that speculation potentially played a greater role in deciding the exchange rate in the case of the managed floats. At the same time, the longer the exchange rate remained fixed, the more the tendency for speculation against the rate evaporated. Thus territories which maintained the fixed exchange rate for the past thirty years seemed to incur less speculative activities against their rates.

1.6 Concluding remarks

Central banking experience in CARICOM can be considered too short for the region to empirically address the question of which monetary framework works best for it. It was clear however that monetary policy when applied to the region must confront the foreign exchange constraint typical of non-reserve currencies. This constraint can be exacerbated by different factors including low levels of foreign exchange earnings, inadequate net capital inflows and high debt overhang. The foreign exchange constraint made it necessary for various regional economies to tighten monetary policy in order to restrain foreign exchange outflows.

From the analysis a few key principles emerged. First, the primacy of the exchange rate anchor allowed for the attainment of low inflation. Second, there were no significant differences in the real side or external performances between exchange rate frameworks. Third, the experience of the region was that the implementation of market-based instruments in the absence of adequate market development could lead to policy reversal away from the use of indirect market-based instruments.

Generally, the analysis suggested that the choice of monetary framework depended on the objective of policy-makers. Where the choice was to achieve stabilisation through low inflation, then the regional experience suggested that a hard currency peg was preferable. However, its credibility was dependent on the sustainability of adequate currency inflows. At the same time there were other costs such as the loss of monetary independence, a loss of competitiveness and internal policy conflicts between credit and balance of payments stability. Where the choice was for monetary independence, a managed float was the preferred option. However this too relied on the attainment of adequate currency inflows to bring about stability in the exchange rate.

Notes

1. We define a hard peg as a fixed exchange rate used by a country with respect to the currency of a large country.
2. By price taker we refer to the market structure where firms lack market power to influence prices and therefore must take the prevailing market price as given.

3. This can be contrasted to the UK for example, where the central bank was founded in 1694 and nationalised in 1946.
4. We classify all the countries which moved off the fixed exchange rate pegs as managed floats, since they have not committed to specific exchange rates and at times intervene in the foreign exchange market.
5. See for example the West Indian Commission Report, 1989 or Nicholls et al. (2000) for an elaboration on this point.
6. In this view, monetary policy is unable to influence employment as the economy would settle in the long run at a natural rate of unemployment regardless of the inflation rate. Moreover, inflation is seen as a monetary phenomenon so that, according to this school of thought, monetary policy should be aimed at controlling the money supply.
7. See Birchwood (2001) for a discussion on the speed of transition to indirect instruments with respect to the CARICOM economies.
8. See Alexander et al. (1995) for an elaboration on this point.
9. Moral suasion implies that the central bank is able to appeal to altruistic sentiments of the regulated entities or they are able to imply a threat of coercion to these entities.
10. IMF occasional paper 244, p vi, defines liquid asset ratio as the 'requirement for a bank to hold minimum amounts of specified liquid assets, typically as a percentage of the bank's liabilities'. It also defines the reserve requirement as 'requirements for a bank to hold minimum balances with the central bank, typically as a percentage of its liabilities. When averaging provisions are allowed, banks can fulfil reserve requirements on the bases of average reserve holdings during the maintenance periods'.
11. IMF occasional paper 244, pvi, defines money market operations as 'money instruments that are used at the discretion of the central bank and bearing an interest rate linked to money market conditions.' In addition it defines open market operations as 'market based monetary operations conducted by the central banks as a participant in the money market'.
12. See Alexander et al. (1995).
13. In this case the repo rate is the official policy rate of the central bank at which it sells securities to the private sector bank needing to raise liquidity by borrowing from the central bank.
14. We use arbitrage to refer to the exploitation of the price differential between markets to make a gain.
15. Calvo and Mishkin (2007) noted that this was an active debate in the aftermath of various financial crises in emerging economies and they suggested that the exchange rate regimes were expected to spring different results in economies depending on their institutional mix.
16. We suggest that the regional economies have not yet emerged into a bipolar world of either fixed exchange rates or fully floating exchange rates as noted by Frankel (2000) and Calvo and Reinhart (2002) with respect to various economies around the world.
17. The median lending rate was calculated using annual data across fixed and managed exchange rate frameworks for the period 2000–2008. The rate was 11.5 per cent.

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Appendix A

Table A1. Ultimate goals of monetary objectives

	The Bahamas	*Barbados*	*Belize*	*ECCB*	*Guyana*	*Jamaica*	*Trinidad and Tobago*
Stability of the financial sector	√	√	√	√	√	√	√
Low inflation	√	√	√	√	√	√	√
Maintenance of fixed exchange rate parity with the US dollar	√	√	√	√			
Inflation target					√	√	√
Balance of payments stability	√						
External reserves	√	√		√		√	√
Maintenance of an orderly foreign exchange market					√		√
Channelling credit to productive activities	√	√	√	√			
Fostering credit and exchange conditions conducive to sustained growth Monetary base		√	√	√		√	

Source: Constructed from the central bank websites and laws of the respective countries

Table A2. Monetary instruments adopted

	The Bahamas	*Barbados*	*Belize*	*ECCB*	*Guyana*	*Jamaica*	*Trinidad and Tobago*
Moral suasion	√	√	√	√	√	√	√
Bank discount rate	√	√	√	√			√
Selective direct credit controls	√		√				
Interest rate controls	√		√				
Minimum deposit rate		√	√	√			
Maximum lending rate			√				
Type of security required for loans			√				
Securities requirement as a ratio of total deposits		√					
Requirement on commercial banks to deposit a percentage of their foreign currency to the central banks		√					
Reserve requirements	√		√	√	√	√	√
Liquid asset ratios		√	√				
Monetary base					√	√	
Money supply			√				
Money market operations	√				√	√	√
Repo rate						√	√
Direct sales/purchases of foreign exchange						√	√

Source: Constructed from the websites from the respective central banks

Table A3. Comparison of prices under market rigidity versus market-based regimes

	Fixed exchange rate framework					*Flexible exchange rate framework*			
	The Bahamas	*Barbados*	*Belize*	*ECCU*	*Combined average*	*Guyana*	*Jamaica*	*Trinidad and Tobago*	*Combined average*
Lending rate (1991–1999)	13.6	12.2	15.6	11.8	13.3	21.7	38.7	13.6	24.6
Lending rate (2000–2007)	11.1	10.7	4.6	11.0	11.8	14.7	18.6	11.6	15.0
Interest rate spread (1991–1999)	8.3	7.3	9.3	7.4	8.1	8.3	14.3	6.8	9.8
Interest rate spread (2000–2007)	7.4	6.9	9.5	7.3	7.8	10.7	8.9	8.1	9.2

Source: Averages calculated from Caribbean Centre for Money and Finance (CCMF) (2008)

Table A4. Macroeconomic performance of selected economies

	Fixed exchange rate framework					*Flexible exchange rate framework*			
	The Bahamas	*Barbados*	*Belize*	*ECCU*	*Combined average*	*Guyana*	*Jamaica*	*Trinidad and Tobago*	*Combined average*
GDP growth 1991–1999	3.1	1.2	3.9	3.1	2.8	5.9	0.9	2.4	3.1
GDP growth 2000–2007	1.9	2.1	5.7	3.3	3.2	1.5	1.5	8.5	3.8
Overall fiscal balance 1991–1999	(2.2)	(1.7)	(2.6)	(2.5)	(2.3)	(2.0)	(1.2)	(0.8)	(1.4)
Overall fiscal account balance 2000–2007	(2.8)	(3.0)	(5.6)	(4.4)	(4.0)	(6.2)	(5.0)	2.2	(3.0)
External debt to GDP 1991–1999	10.2	10.3	34.8	31.9	–	325	66.8	16.9	–
External debt to GDP 2000–2007	8.0	25.5	72.8	56.4	–	158.9	54.3	12.8	–
Import cover 1991–1999	2.5	2.7	2.1	6.1	3.3	5.5	2.8	3.5	3.9
Import cover 2000–2007	3.9	7.2	2.3	7.3	5.2	3.6	4.0	9.2	5.6

Source: Averages calculated from Caribbean Centre for Money and Finance (CCMF) (2008)

Appendix B Implications of exchange rate frameworks for the style of monetary policy in Guyana and Jamaica

We present a model of the conduct of monetary policy by Guyana and Jamaica where it is noted that these countries continue with the monetary targeting approach while seeking to implement the market approach to inflation targeting. As such,

$$\pi = f(Ms.Yg) \quad (1)$$

where π is the inflation rate, *Ms* is the broad money supply and *Yg* is output growth.

$$Ms = f(kMB) \quad (2)$$

where *MB* is the monetary base and *k* is the money supply multiplier with $k = \frac{1}{\alpha}$ where $0 < \alpha < 1$. The reliability of the model depends on a stable multiplier, so that by controlling reserves the central bank can successfully forecast the money supply. The Bank of Jamaica points out that changes in the reserve requirements induce changes in *k*.

$$MB = f(NFA, NDA) \quad (3)$$

Where *NFA* is net foreign assets and *NDA* is net domestic assets.

$$NFA = f(\text{intervention in FX market}) \quad (4)$$

The central bank intervenes in the foreign exchange market (*FX*) by selling and buying foreign currency on the domestic market and by so doing is able to reduce or increase domestic assets of commercial banks respectively. This is based on the fact that commercial banks are the main private sector actors in the foreign exchange market.

$$NDA = f(CC, cbr) = f(\text{liquidity} = f(\omega)) \quad (5)$$

where CC is defined as currency in circulation and *cbr* commercial bank reserves, ω is factors which influence liquidity in the banking system inclusive of government net expenditure and net external capital inflows.

Some important differences can be obtained between the monetary frameworks for fixed exchange rate regimes and managed exchange rate regimes. The countries which staged fixed exchange rates were likely in the case of (5) to use direct instruments aimed at commercial bank balance sheets. These instruments include interest rate controls and credit controls. On the other hand, the countries which used managed exchange rates are assumed to aim at manipulating liquidity on the central bank balance sheet rather than directly on the balance sheet of financial institutions. As such, the style of monetary policy was indirect.

Monetary programming framework

The Guyana and Jamaica central banks set a targeted path for growth of broad money supply consistent with output growth and inflation. As such, the targeted growth is set at

$$Msg^T = f(Yg, \pi) = k(gMB^T) \quad (6)$$

where Msg^T is the targeted growth of broad money supply. This is based on the idea that the central bank can set a target on the growth of the monetary base ($g\{MB\}^{\uparrow}T$). Substituting (5) in (6)

$$gMB^T = f(\omega^f) = f(CC, cbr) \quad (7)$$

where $\omega^f = \omega_0, \omega_1, \omega_2, \ldots \omega_n$, with ω^f is the forecast of changes in the items which influence domestic banking system liquidity and $\omega_0, \omega_1, \omega_2, \ldots \omega_n$ are the forecast of the different components that act on the liquidity of the commercial banking system.

The central bank conducts annual forecasts of the monetary base in accordance with forecasted output growth and inflation. For Guyana and Jamaica, the deviations of the forecasted money supply from the targeted money supply causes the central bank to intervene through open market operations to push money supply along its targeted path.

$$OMO \rightarrow Msg^f - Msg^T = fk(gMB^f - gMB^T) \quad (8)$$

where *OMO* is open market operations, Msg^f is the forecasted growth of the money supply, gMB^f is the forecasted growth of the monetary base. Hence, *OMO* is used to bring the forecasted growth of the monetary base in line with the targeted growth of the monetary base.

Using *OMO*, the central banks trade liquidity through the auctioning of treasury bills, so as to minimise the variation between forecasted and targeted reserves. Open market operations were actively used to auction the volume of treasury bills in the primary market. In the case of Guyana, the volume of treasury bills issued acted as a signal of the monetary policy stance of the central bank.

Specifically, Guyana and Jamaica would have utilised open market instruments to bring the money supply towards its targeted levels in (8) above. For Jamaica, the money supply target is followed by the base money target which is broken up into quarterly, monthly, weekly and daily targets in relation to the multiplier. The Bank had the greatest depth of money market instruments of different maturities which allowed the market to construct yield curves. Changes in the yield curve of the central bank signal changes in its monetary stance.

2

Fiscal Policy Frameworks of Commonwealth Caribbean Economies

Dr Marielle Goto

2.1 Introduction

This chapter examines the fiscal policies and strategies implemented in Caribbean small states between 1988 and 2007. During this period, especially in the 2000s, governments were active in the implementation of fiscal reforms and tools for the mitigation of shocks such as natural disasters and 9/11. The inherent vulnerability and degree of openness of Caribbean small states impacts on these countries' economic activity and economic policy strategies.

The differences in wealth and development levels within the region are highlighted by the different income and human development brackets into which these countries fall. Countries are classified as follows by the World Bank:

- High-income countries: Antigua and Barbuda, The Bahamas, Barbados and Trinidad and Tobago,
- Upper middle-income countries: Belize, Dominica, Grenada, Jamaica, St Kitts and Nevis, St Lucia and St Vincent and the Grenadines,
- Lower middle-income countries: Guyana.

Five countries within the region are classified as high human development: Antigua and Barbuda, The Bahamas, Barbados, St Kitts and Nevis and Trinidad and Tobago. The other countries are classified as medium human development.

These countries also differ in terms of fiscal targets, fiscal years and taxation structure. The fiscal years for Barbados, Belize, Jamaica and St Lucia are from April to March whereas in The Bahamas there is a multi-year budgetary framework and in Trinidad and Tobago the fiscal year is from October to September. The ECCU has established a fiscal benchmark for public debt, with countries expected to have a public debt to GDP ratio of 60 per cent by 2020. Barbados has also established this ratio as a target, but with a target date of 2012. Belize's established target for public debt to GDP is 30–35 per cent by 2012. In addition, countries such as Grenada, Dominica and Guyana have undergone IMF adjustment programmes which influenced their fiscal targets.

In the Bain and Dos Santos (2004) cross-country comparison of taxation in the Caribbean, it appears that Caribbean countries do not have the same choice of taxation

structure. Some countries rely more on direct taxes and others on indirect ones. Table 2.1 presents the different group of countries. The ranges of the tax burdens are different but still they are not as high as in developed countries, which averaged nearly 40 per cent for the countries of the Organisation for Economic Co-operation and Development (OECD) in 2007 (OECD, 2008). This fact is usual in developing countries according to Raghbendra (2001). The highest tax burden in 2003, as far as tax revenue is concerned, was Barbados with a rate of 30 per cent. The lowest tax burden was for The Bahamas with only 17 per cent. For these islands the tax revenue on average between 1990 and 2005 is about 99 per cent of current revenue.

Table 2.1. Main source of tax revenue in countries in this chapter, 2003

Main source of tax revenue	*Countries*
Indirect taxes	Antigua and Barbuda, The Bahamas, Belize (2002), Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines
Direct taxes	Trinidad and Tobago,
Balanced taxation	Guyana, Jamaica, Barbados

Source: The author from Bain and Dos Santos (2004) and from World Bank (2009)

Prior to 2004, Caribbean small states did not have value added tax (VAT). This tax was implemented in 2004 in Barbados, Jamaica and Trinidad and Tobago, and in Dominica and Guyana in 2006. Trinidad and Tobago is the only country in this group that relies on direct taxes. The Bahamas and ECCU countries rely more on taxes on international trade. This reliance could be problematic for regional integration where these countries, as members of the Caribbean Single Market, have adopted CARICOM's common external tariff (CET),[1] at a different pace. This programmed disappearance of trade tariffs in order to stimulate commercial relationships between members and promote growth can have an adverse effect on countries where taxes on trade are a large part of government revenue.

A further influence on fiscal policy in the region is the adoption of public–private partnerships (PPP), where the private sector supplies infrastructure assets and services with high quality and cost-effective management that has traditionally been provided by the government (IMF, 2004). Seen as an alternative to privatisation, PPPs can affect long-term fiscal sustainability because of the off balance items, but can nonetheless create fiscal space[2] (Commonwealth Secretariat, 2007). The efficiency of PPPs requires good governance, supporting legislation and political commitment. Jamaica for example developed at least three PPP projects in sectors such as tourism, education and small businesses, with the goal of increasing the competitiveness of firms and of the country as a whole.

Given these various influences on fiscal policy in the region, the first part of this chapter deals with the vulnerability of these states to natural disasters and how this has affected government expenditure and fiscal stabilisation and presented the need for insurance against shocks. In the second section, fiscal strategies in the Caribbean are examined from a theoretical point of view, with the objective of deriving optimal fiscal strategies.

This assessment is done through a structural vector autoregressive (VAR) model[3] for four Caribbean countries. Fiscal strategy in the Caribbean is then examined through the analysis of strategic development policies in Barbados, Jamaica, and Trinidad and Tobago. In the final section, there is an evaluation of the degree of fiscal stabilisation for The Bahamas, Jamaica and Trinidad and Tobago.

2.2 The influence of vulnerability to natural disasters on fiscal policy

Some Caribbean small states, particularly those in the Eastern Caribbean, are among the most exposed to natural disasters in the world (Rasmussen, 2004). The region is vulnerable to hurricanes which result in loss of production capacities, destruction of dwellings and damages to infrastructure such as roads and bridges. In Grenada for example, there was a ten month period between Hurricanes Ivan (September 2004) and Emily (July 2005). Hurricane Ivan, a category 5 hurricane, caused direct and indirect damage assessed at approximately 2.4 billion Eastern Caribbean dollars (EC$). This compares with the Grenada's GDP of EC$1.2 billion in 2003. The country's banana industry suffered an 80 per cent loss after Hurricane Emily.

Hurricanes affect the environment as the ecosystem's equilibrium is impacted. For example, in Grenada there was run-off and soil erosion after the passage of these two hurricanes because of heavy rainfall and the destruction of the forest canopy. Water quality was degraded and hectares of mangrove, a source of nutrients for animal and plant life, were destroyed. The remediation indirect cost for this environmental aspect (reforestation, removal of waste) was estimated by the OECS and the Government of Grenada at EC$1.6 million (OECS, 2005).

The damages generated by natural disasters has several consequences for fiscal policy. The first is the increase of public debt. In Grenada, public sector debt, excluding guaranteed debt, moved from 82.1 per cent of GDP in 2003 to 110 per cent of GDP in 2004. The other effects depend on the structure of the tax system of the country concerned and on the time period. There is also a loss of revenue due to the destruction of productive capacities and the slowing down of the economy. This loss of revenue comes mostly from the decrease in the amount collected from taxes on international trade and transactions in countries where this heading is the main source of fiscal revenue. The loss can also come from the decrease in taxes on income and profit collection. Fiscal expenditure may also increase, though this movement depends more on discretionary actions from the government. Evidence from the effect of natural disasters on fiscal expenditure and revenue can also be seen in other Caribbean small states such as Jamaica, where public debt levels are very high.

2.3 An econometric assessment of fiscal stabilisation in some ECCU countries

Fiscal policy can be used to shield against vulnerability, especially in countries with fixed exchange regimes where monetary policy action is limited. Therefore, what is the degree of fiscal stabilisation in these countries given the ever present shock of natural disasters?

This analysis, which aims to establish a degree of fiscal stabilisation from taxes and expenditure elasticises, is based on the work on the elasticity approach of fiscal stabilisation carried out by Von Hagen (1992), Goodhart and Smith (1993), Sala-I-Martin and Sachs (1992) and Italianer and Pisani-Ferry (1992). These authors observed a degree of fiscal stabilisation from transfers and subsidies and taxes on income in the United States, some European countries and Canada. The transfers and subsidies and taxes on income represent what is called automatic fiscal stabilisation.

Selection of countries and data

This assessment of the degree of fiscal stabilisation in the Caribbean is performed on Grenada, St Kitts and Nevis, St Lucia and St Vincent and the Grenadines for the period 1983–2001. Nonetheless in table 2.2 the set of countries is a little different to have a complete set of data.

The elasticity approach equation can take the following form:

$$S = \beta_t \frac{T}{Y} - \beta_g \frac{G}{Y}$$

With S: degree of fiscal stabilisation, β_t: elasticity of taxes on income, β_g: elasticity of public expenditure on income, Y: income, T: taxes and G: public expenditure.

The ECCU islands have a fiscal structure specific to developing economies as mentioned by Agenor and Montiel (1999), Linn and Wetzel (1990) and Hitiris (1990). That means that indirect taxation is still the main source of revenue. In the ECCU, taxes on international trade and transactions represent about 48 per cent of fiscal revenue for the period 1980–2001. Meanwhile, personal emoluments represent about 52 per cent of fiscal expenditure for the same period (table 2.2). The degree of fiscal stabilisation is therefore calculated under these two headings. The aim is to test if they have a countercyclical role and can absorb the impact of shocks on primary revenue. As we study national fiscal policy we test for the degree of homogeneity within the sample countries.

We use fiscal variables provided by the ECCB (2003) and the GDP from the World Development Indicators database (World Bank, 2004). These fiscal variables are: current revenue, current expenditure, taxes on income and profits, international taxes on trade and transactions, taxes on domestic goods and services, grants, personal emoluments, transfers and subsidies, interest payments, and goods and trades expenditure.

Table 2.2 reveals that the main heading is tax on transactions and international trade income which represents about half of current revenue. On the expenditure side, personal emoluments are the first heading as more than 50 per cent of current expenditure is devoted to the payroll of civil servants. The second heading is interest payments with almost the same proportion as subsidies and transfers, at nearly 12 per cent of GDP.

Grants are not an important part of fiscal structure as they represent less than 10 per cent of current fiscal expenditure.

The data used here concerns central governments' actions. As the islands concerned are quite small, governmental measures are centralised and we can encompass most of the public action.

Table 2.2. Average weight of some fiscal headings for the period 1980–2001 for Antigua and Barbuda, St Kitts and Nevis, St Lucia and St Vincent and the Grenadines

	Name of the fiscal variables series	*Part of the current fiscal revenue (percentage)*	*Part of the current expenditure (percentage)*
Taxes on income and profits	TAXINC	19.9	
Taxes on international trade and transactions	TAXTRANS	48.4	
Taxes on domestic goods and services	TAXGOODS	12.7	
Grants	GRANTS	6.2	
Personal emoluments	PERSEM		52.3
Transfers and subsidies	TRANSUB		11.8
Interest payments	INT		11.9

Source: Processed with data from ECCB (2003)

Panel data econometrics

Our analysis is based on Maddala (2001) and Sevestre (2002). Panel data econometrics encompass both time series aspects and cross-section ones. It is an appropriate choice, as in the Caribbean for the period 1983–2001, the length of the time series and the frequency of the variables are not important enough for time series analysis. In addition, the sample of four countries is too short (less than 10 countries) to make a cross-section analysis.

Panel data analysis provides more degrees of freedom and the collinearity between explicative variables is reduced. To know whether it is appropriate to use a panel data econometric approach we use Hsiao's process based on Fisher's tests.

We test for the homogeneity of the fiscal elasticises (β). They are obtained through the regression of the different fiscal variables on the constant GDP.

$$y_{i,t} = \alpha + \beta GDP_{i,t} + \varepsilon_{i,t}$$

We use the Hsiao methodology (1986) to determine the degree of homogeneity of fiscal policy behaviour within the sample. The conclusion is that those behaviours are quite similar so it is possible to use panel data econometrics.

According to Table 2.3 is not possible to reject the null hypothesis of independence of the specific individual effects with the explanatory variables as the value of χ^2_{16} is 5.14 at a significance level of 0.05. So, we can use a random coefficients model and estimate it with the generalised least square (GLS) estimator for each regression of elasticises.

We chose to work with a balanced panel as it allows for not dealing with missing data. The data is from the ECCB (2003). We use the logarithms of the variables in first difference equations to avoid stationarity problems, using times series and panel data tests. So, the variables used in the regressions are growth rates.

Table 2.3. Hausman test statistics for the different fiscal variables

	Hausman test statistic
CURREV	0.53 (0.47)
TAXINC	1.04 (0.31)
TAXTRANS	0.10 (0.75)
TAXGOODS	1.24 (0.27)
GRANTS	0.00 (0.97)
CUREX	1.57 (0.21)
TRANSUB	0.41 (0.52)
PERSEM	1.11 (0.29)
GOODEX	0.15 (0.70)
INT	1.80 (0.18)

( ): p-value

Source: Processed with data from ECCB (2003)

Note: CURREV stands for current revenue; TAXINC for taxes on income and profits; TAXTRANS for taxes on international trade and transactions; TAXGOODS for taxes on domestic goods and services; CUREX for current expenditure; TRANSUB for transfers and subsidies; PERSEM for personal emoluments; GOODEX for goods and services expenditure and INT stands for interest payments.

Results

Our panel has 90 observations and GLS estimator regression for a random coefficients model (the specific individual effect is random) is used.

We notice that fiscal revenue policy has a procyclical[4] impact. Indeed, there is a rise in fiscal revenue (current revenue and taxes on international trade and transactions) when the income (GDP) is growing. The elasticity of taxes on international trade is 0.84 on average. That means that when the GDP growth rate is increasing (decreasing) by 1 point the taxes on international transactions and trade growth rate is increasing (decreasing) by 0.84 points.

On the contrary the fiscal expenditure elasticities regressions cannot be used, because with random coefficient regressions estimated with GLS no fiscal expenditure is significant.

Table 2.4. Fiscal revenue elasticities for the panel, 1983–2001

Variables	*GDP*
	GLS estimator
CURREV	0.40 (0.14) *** [0.1]
TAXINC	0.15 (0.49) [0.00]
TAXTRANS	0.84 (0.19) *** [0.21]
TAXGOODS	0.35 (0.40) [0.01]
GRANTS	-1.7 (2.45) [0.01]

( ): Standard-variation; *** significant at the 1 per cent level, ** significant at the 5 per cent level, * significant at the 10 per cent level; [ ]:R^2

Source: Processed with data from ECCB (2003)

Table 2.5. Fiscal expenditure elasticities for the panel, 1983–2001

Variables	*GDP*
	GLS estimator
CUREX	0.05 (0.17) [0.00]
TRANSUB	0.52 (0.62) [0.01]
PERSEM	0.20 (0.19) [0.02]
GOODS	-0.22 (0.33) [0.01]
INT	0.44 (0.52) [0.01]

( ): Standard-variation; *** significant at the 1 per cent level, ** significant at the 5 per cent level, * significant at the 10 per cent level; [ ]:R^2

Source: Processed with data from ECCB (2003)

The tax and expenditure elasticities allow establishing the degree of fiscal stabilisation for each variable with the following formula:

$$S = \beta_t \frac{T}{Y} - \beta_g \frac{G}{Y}$$

The degree of stabilisation S is equal to zero if the concerned budget headings do not absorb any part of the shock affecting primary income.

It is equal to 100 per cent if the concerned budget headings absorb all of the impact of the shock on the primary income. It is possible to calculate a degree of fiscal stabilisation, with the significant fiscal elasticities, from tables 2.4 and 2.5, estimated with a GLS estimator. The results are stated in table 2.6.

When a shock occurs, only 9.2 per cent of the impact of this shock on the income (GDP) growth rate is absorbed by taxes on international trade and transactions for St Kitts and Nevis and 11.8 per cent for St Lucia. So, on average, about 10 per cent of the impact of a shock is absorbed by fiscal policy in our sample. Fiscal policy has a limited action in the ECCU because of the weak degree of fiscal stabilisation: about 12 per cent as a maximum.

That means that when a shock is occurring only 12 per cent of the GDP variation caused by this shock can be absorbed through fiscal policy, represented here by taxes on international trade and transactions (the main part of fiscal revenue). Personal emoluments are not significant in the regressions with GLS estimation.

Fiscal national policies in the sample are homogenous, so even if there is a national budget, fiscal policy behaviours are quite similar for Grenada, St Kitts and Nevis, St Lucia and St Vincent and the Grenadines.

Table 2.6 Degree of fiscal stabilisation for the panel, 1983–2001

	St Kitts and Nevis	*Grenada*	*St Lucia*	*St Vincent and the Grenadines*
Taxes on international trade and transactions elasticity	0.84	0.84	0.84	0.84
Personal emoluments elasticity	Non significant	Non significant	Non significant	Non significant
Taxes on international trade and transactions/GDP	0.11	0.13	0.14	0.12
Personal emoluments/GDP	0.12	0.13	0.12	0.13
Degree of stabilisation (%)	9.24	10.92	11.76	10.08

Source: Processed with data from ECCB (2003)

2.4 The alternative of insurance: stabilisation funds and insurance facility against disasters

After considering the vulnerability of small states in the Caribbean and showing the weak efficiency of fiscal policy in the ECCU, it is interesting to have a look at the insurance topic. Perotti (2007) considers a model dealing with individuals and firms that cannot insure and where no precautionary savings are allowed. This highlights one important point for fiscal policy. Like other economic policies originated by governments, fiscal policy is supposed to palliate the failures of different markets such as the financial or labour markets. Fiscal tools can reveal low efficiency because of the limited weight of public action (expenditure and revenue) in GDP for some countries like The Bahamas and because of the taxation structure in Caribbean countries. For example, subsidies and transfers represent about 2.4 per cent of Jamaica's public expenditure for the period 1992–2007.

In models of fiscal stabilisation such as Von Hagen's (1992) the countercyclical fiscal action is provided by subsidies and transfers when a shock occurs: transfers such as unemployment allowances automatically increase, limiting the decrease in purchasing power. Quite often the most important part of public expenditure in the Caribbean is employee compensation. This expense is not automatically linked to the conjuncture (the ongoing economic situation). The movement is more likely linked to discretionary decisions of the authorities. Moreover, there is inertia in this kind of expenditure – a sort of downward rigidity – as it is very difficult to reduce the civil servant payroll or wages when the conjuncture is more favourable.

In order to find some leeway, insurance can be a way to have an efficient public action notwithstanding weak fiscal stabilisation efficiency.

The insurances referred to in this section are public insurance such as social security for the unemployed, and insurance against natural disasters.

The Lomé and Cotonou Agreements can be seen as insurance against agricultural products' price volatility. The principle was to provide stable income for concerned African, Caribbean and Pacific countries in sectors such as bananas or sugar.

The most recent insurance scheme undertaken in the Caribbean is the Caribbean Catastrophe Risk Insurance Facility (CCRIF). The Caribbean is the area of the world most affected by natural disasters; therefore the World Bank and several Caribbean countries started the CCRIF to mitigate the devastating impact of these natural disasters.

One of the reasons of the optimality (Perotti, 2007) and efficiency of fiscal policy is the non possibility of insurance. So, when insurance or self-insurance is possible can governments of small states have the leeway of fiscal action when borrowing is limited. Borrowing may be limited because of the already heavy burden of debt and difficult access to external financial markets.

Perotti (2007) presents some arguments about the role of self-insurance in developing countries. This self-insurance can take the form of stabilisation funds. In the Caribbean several funds of this type exist such as in Trinidad and Tobago and Belize.

The fund in Belize is called the Petroleum Revenue Management Fund. It was implemented when oil was discovered in 2005 and was approved in 2007 by Belize's

National Assembly. The aim is to collect oil revenue for the benefit of future generations with transfers to the national budget of real returns on the present value oil savings. Over one million barrels were extracted in 2007.

In Trinidad and Tobago the Heritage and Stabilisation Fund (HSF) was approved by parliament in 2007. It is a sovereign wealth fund with intergenerational saving and stabilisation objectives. There was an Interim Revenue Stabilisation Fund from the late 1990s. The deposits were of 8 per cent of GDP in 2005/2006. The fund is linked with international oil and gas price changes and receives proceeds from the energy sector.

The government intends to use the fund to absorb oil price shocks. It acts as a tool for stabilisation alongside the usual fiscal policy tools. Some of the fund's rules are presented by the Governor of the Central Bank of Trinidad and Tobago, Ewart S Williams, in Williams (2008). As a matter of fact, the deposit rule requires that a minimum of 60 per cent of the excess between actual and budgeted energy revenues must be credited to the fund. In addition, the withdrawal rule allows the government to tap into the fund to cover 60 per cent of any revenue shortfalls. Moreover, there is a cap on the amount of the fund that could be used for stabilisation.

Nonetheless, several provisions in the law are made like the fact that HSF deposits are to be invested abroad, with a medium to long-term focus. Also, the fund should be invested in assets not directly related to oil and gas (so as to avoid contagion) or the fund cannot be used to directly finance capital expenditure or as collateral for government borrowing. On top of that the Act comes up for review every five years.

The allocation for the fiscal year 2006/2007 by the government was about TT$2,030.2 million.

These stabilisation funds in English speaking Caribbean states are a temporary scheme as oil resources are expected to be exhausted by 2019 in Belize (IMF, 2008) and by 2029 in Trinidad and Tobago (IMF, 2009).

In Trinidad and Tobago there is a double objective for the HSF: stabilisation and savings for future generations. The part allocated for future generations, at the end, will depend on the impact of different shocks affecting the economy and of swings in oil prices. In Belize, stabilisation was not originally one of the Petroleum Management Fund's goals.

Perotti (2007) states that a stabilisation fund provides precautionary savings as during expansion due to high oil prices assets are accumulated, and during downturns they can be used. This mechanism could not be optimal because of under-insurance of the individuals. However, a stabilisation fund may be an optimal form of fiscal policy (Engel and Valdes, 2000) when divestiture rules are set clearly and transparency and accountability are provided. Perotti (2007) even states that there is no difference between a fiscal rule and a stabilisation fund when the fund contributes to the stabilisation of government spending over time.

Insurance against natural disasters: the CCRIF

The CCRIF insurance pool against hurricanes and earthquakes is a worldwide premiere. It was implemented in May 2007. There are 16 members: Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti,

Jamaica, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago and Turks and Caicos.

Non-members participating in the financing are Canada, France, Ireland, the United Kingdom, the Caribbean Development Bank, the European Union, and the World Bank. In April 2009, the total value of the insurance facility stood at US$130 million.

The scheme is a regional parametric insurance one. Parametric insurance is based on the assessment *ex ante* of natural hazards probability of occurrence in a specific place. This evaluation is done through models that provide the frequency of hazards for a certain level of intensity. These models lead to a hazard exceedence curve that establish the relationship between the hazard intensity and the probability of that hazard being exceeded at a specific point. So, a damage appraisal can be implemented and the loss to governments' accounts can be estimated (World Bank, 2006). Caribbean governments had limited access to traditional insurance market and reinsurance markets because of high transaction costs. As a result, the governments and households (especially the poorest) couldn't transfer most of the economic loss (World Bank, 2006).

The parametric insurance mechanism assures quicker payments than one based on the proof of actual loss. This means that there is less paperwork when a natural disaster occurs. Usually, parametric insurance works with simulation models using geographic information systems so that the settlement is linked to the occurrence of a natural disaster of given intensity in a special area (Pico, 2007).

Within the CCRIF, payouts are contingent on pre-established trigger events measured in terms of wind speed or ground acceleration and proportional to the estimated loss derived from a hazard impact model. As an example, the estimate is done with published information from the National Hurricane Center, for the hurricanes. Earthquake magnitude and location information come from the global seismic data centre operated by the United States Geological Survey (CCRIF, 2007–2008). Nevertheless, the settlement could underestimate or overestimate loss.

Insurance coverage under the CCRIF is capped at 50 per cent of total estimated direct losses (World Bank, 2008): a proportion that should cover a government's immediate liquidity needs to begin emergency operations before a disaster, until other financial resources, like grants and other foreign funds, become available. Most of the settlement should go to the treasury of the countries concerned within a month.

Moreover, there is an interaction between this pool of reserve and the reinsurance markets, where risks are transferred allowing for sufficient financial capacity.

The CCRIF is a highly sustainable insurance mechanism. Indeed, the probability of the CCRIF defaulting was less 0.01 per cent during its first year (World Bank, 2008).

Two settlements were made in 2007, as a result of the impact of an earthquake of magnitude 7.4, for which St Lucia received US$0.4 million and Dominica US$0.5 million.

The CCRIF is a very interesting pool which aims to absorb part of the financial impact of the natural disasters that cause major shocks in the Caribbean. It is designed to provide a leeway to governments that face events that destroy lives, homes and productive capacities in a non-negligible way. It is a scheme where Caribbean states can insure at a regional level

and so it contributes to much needed resilience for these countries, as a tool that allows the mitigation of shocks.

The correspondence between actual losses and the settlements based on the occurrence of a special event will be appreciated over time.

Conclusion

The Caribbean is exposed to many shocks especially natural disasters. Many important initiatives have been undertaken during the last 20 years and in particular since the mid-2000s. States, aware of their specificities (important public debt) and their vulnerabilities, are using fiscal reforms to change their system of taxation. Nevertheless, fiscal policy is not really efficient in Caribbean countries, especially those in the ECCU. So, alternatives must be found by governments to provide leeway and stabilise the level of activity. This leeway can come from insurance and self-insurance. One insurance example is the CCRIF initiative. Self-insurance is more about the implementation of stabilisation funds by oil producing countries like Belize or Trinidad and Tobago. The characteristics of these schemes are their recent implementation. The CCRIF is especially innovative and provides room for manoeuvre to countries severally affected in the recent past by natural disasters.

2.5 Fiscal strategies in small states

Fiscal policy has three objectives: stabilisation, allocation and redistribution. The stabilisation part consists of buffering the impact of shocks on disposable income. The allocation part seems to have been in greater use in the twelve Caribbean islands that are examined here. Indeed, Raghbendra (2001) shows that fiscal policy in developing countries is more committed to growth development through the allocation of investment funds and redistribution because of the significant poverty that exists in these countries. Redistribution is done through taxes and subsidies and transfers.

The stabilisation part of fiscal policy is less evident in small Caribbean states as mentioned earlier in this chapter. Indeed, the efficiency of fiscal policy in absorbing shocks is quite limited. Moreover, in developing countries, fiscal policy has a procyclical impact contrary to the role of automatic stabilisers observed in developed countries. This aspect is mentioned by Ilzetzki and Vegh (2008). This result may come for authors like Rigibon (2004) or Gopinath (2004) from the difference of shocks affecting developed countries and developing ones. For example, industrialised countries have a deeper industrial specialisation and diversification so they are relatively less affected by variations in commodity prices. Moreover, industrialised countries are generally not as exposed to natural disasters as developing countries from the Caribbean. In the United States and in Japan, hurricanes and earthquakes have less impact because of more adapted infrastructures including building codes and the importance of mitigation policies.

Optimal fiscal policy in developing countries

Perotti (2007) question the optimality of fiscal policy in developing countries. The optimal fiscal behaviour depends very much on assumptions about the interactions between credit market imperfections at the individual, firm, or government level and on the supply of external funds to countries. Different sets of assumptions lead to different implications about the optimal cyclical behaviour of fiscal policy.

Moreover Bain and Dos Santos (2004) sum up from Ebrill, Stotsky and Gropp (1999) the main qualities that an optimal tax system should have:

- Personal income tax with a small number of tax brackets, a moderate maximum marginal rate, a limited number of personal exemptions, a standard exemption to exclude low-income persons, and an extensive system of withholding at the source.
- A corporate income tax with only one rate (similar to the top personal income tax's maximum marginal rate), with uniform depreciation schedules across all taxpayer sectors, and with minimum use of fiscal incentives.
- A broad-based VAT type consumption tax with a single positive rate and a zero rate for exports, with a few exemptions, combined with a system of excise taxes applied on a few headings like tobacco and petroleum products, alcoholic beverages, and motor vehicles. VAT should have an adequate registration threshold to limit the number of traders in the system and facilitate its administration. VAT and excise taxes should apply equally to imported and domestically produced goods. The VAT base should include the product price with import duties and excise tax included.
- A property tax with minimal exemptions, a reasonable tax rate to produce the equivalent of between one and two per cent of GDP. Adequate balance should be achieved between recurrent property tax rate and property transfer tax. The tax on property transfers should not be high as it cascades and affects the real property market. Recurrent property tax provides a more stable flow of revenue to the treasury.
- A special regime for small taxpayers who cannot comply with all income tax and VAT requirements. This regime – which should be based on a simple tax base or presumptive taxation – would help incorporate the informal sector in the tax net.
- A system with minimal reliance on import tariffs, low and few import tax rates, and no taxes on exports.

According to Perotti (2007) the optimality of fiscal policy in a developing state depends on assumptions about financial markets. As a result, in order to be optimal, fiscal policy can be countercyclical in some cases or procyclical in other ones. For example, it is optimal for fiscal policy to be procyclical the less developed financial markets are, as is the case for ECCU countries.

The analysis of Perotti (2007) is based on the predominant effect of fiscal policy. This effect can be of two orders. The first one is about demand effects and the second one is about private investment crowding out[5] because of the increase in interest rates. When fiscal policy impacts demand, an optimal fiscal policy should be countercyclical in the event of recession whereas when fiscal policy affects wealth negatively, an optimal fiscal policy should be procyclical.

For example, we can state that the Keynesian fiscal multiplier[6] is a demand effect as the rise in government spending results in an increase in effective demand. Fiscal policy can also raise levels of economic activity through the impoverishment of individuals who have to increase the labour supply. As a result, production grows. Individuals suffer negative wealth effects because they have to pay for the increase in government budget spending such as in neoclassical models with government spending shocks, see Christiano and Eichenbaum (1992).

Otherwise, there is the theory of fiscal consolidation as expressed in Hemming, Kell and Mahfouz (2002). In this model, when tax revenue increases there is a permanent income rise and the public budget is sounder.

The optimal fiscal policy is the result of two factors:

- Assumptions on financial restrictions for firms and individuals
- Assumptions concerning the effects of fiscal policy.

In the benchmark there is no possibility of insurance and no precautionary savings are available. When there is no imperfection in credit markets for the government, individuals or firms, tax revenue should be procyclical and deficits countercyclical. Indeed, they should decrease in time of recession and increase in periods of expansion with a constant tax rate. Barro's tax smoothing model (1979) allows the minimisation of lifetime distortions caused by taxation.

When there are credit market imperfections (credit restrictions) for firms as in Aghion et al. (2006) during recessions the firms can less likely finance innovative investments because of profits loss. So, the government should intervene because of demand effects and increase its own expenditure or provide subsidies allowing for 'innovative investments'.

When credit market imperfections concern individuals so they cannot smooth their consumption over time, government spending should be countercyclical with a reduction of tax rates during a recession or with an increase in government spending. This last action is linked to the impact of government spending on disposable income through unemployment transfers, for example. We notice that the reduction of tax rates is a discretionary measure unlike the automatic stabilisation effect required when there are no credit market imperfections.

Table 2.7 Review of literature of optimal fiscal policy in case of recession with different assumptions inspired by Perotti (2007)

Optimal countercyclical fiscal policy	*Optimal procyclical fiscal policy*
Perfect credit markets: procyclical tax revenue and countercyclical deficits expenditure	Interactions between domestic and international credit constraints: cut in the government
Credit restrictions for individuals: reduction of tax rates or government spending increase	Liquidity premium increase during recessions due to lack of fiscal discipline and decline in private investments: no fiscal expansion
Credit restrictions for firms: increase in government spending or subsidies to 'innovative investment' sectors	Financial imperfections preventing the expansion of the tradeable sector: decrease in government spending on non-tradeable goods

So, an optimal fiscal policy can be developed through discretionary actions such as a decrease in tax rates or subsidies or automatic stabilisation like the decrease in tax revenue changing along with the ongoing economic situation.

Optimal fiscal policy can be derived even with imperfection in credit markets. There are domestic and international constraints. In time of recession, access to external funds is reduced for firms and the government. Moreover, on the domestic market there is no correct allocation of resources. Additionally, there can be a liquidity premium rise because of the lack of fiscal governance, see Caballero and Krishnamurty (2004). So, fiscal policy has to be procyclical in order to demonstrate credibility to foreign investors.

In Blanchard (2007) if government expenditure decreases for tradeable goods there is a wealth effect. Indeed, it is assumed that there is demand for tradeables that is infinitely elastic. So, a reduction in government spending provokes an increase in the labour supply and in the production of tradeables because of the cut in resources for individuals.

An assessment of fiscal policy response in the Caribbean: examples of Grenada, St Kitts and Nevis, St Lucia and St Vincent and the Grenadines for the period 1983–2001

We presented above a short literature review of fiscal policy optimality for developing states. The main assumptions are about the condition of financial markets and the effects of fiscal policy. In the Caribbean financial depth is not the same everywhere. Financial markets in the ECCU are not very developed because of the small size of member countries and the limited number of firms operating in their territories.

In contrast, countries like Jamaica, Barbados and Trinidad and Tobago use more complex products and have a longer history of financial markets. The stock exchange was officially established in Jamaica in 1968, in Trinidad and Tobago in 1981, and in Barbados in 1982, whereas the Eastern Caribbean Securities Market (ECSM) was launched in 2001.

The degree of financial integration is quite important in the ECCU with a Feldstein-Horioka (1980) approach comparing domestic savings with domestic investment. Nonetheless, this integration is mainly with foreign countries and not among ECCU members. This is due to structural factors in the financial systems of these states and the multiplicity of financial and banking actors before 2005.

Therefore, this section addresses the effect of fiscal policy and with no credit market imperfections. Some Caribbean countries may present a fiscal demand effect and other ones crowding out effects.

In the first case, when confronted with an expansionary fiscal shock, the GDP growth rate increases and a countercyclical policy is optimal. In the second case, the positive fiscal shock results in a decrease in the GDP growth rate that can be related to confidence problems due to lack of fiscal discipline, and a procyclical fiscal policy is the optimal choice.

In order to examine these issues, we built a theoretical model about a small open economy to be estimated with time series to provide the reaction (impulse) of GDP when a fiscal shock occurs. The model is based on Blanchard and Quah (1989), Schuberth and

Wehinger (1998), Dalsgaard and de Serres (1999), Fielding and Shields (2001, 2003), Buckle, Kim and Tam (2001) and Mountford and Uhlig (2002).

$$y_t^d = \omega c_t + \lambda g_t - \alpha [r_t - E(p_{t+1} - p_t)] - \beta T_t + \delta(e + p^* - p)_t \quad \text{(II.1)}$$

$$m_t - p_t = \gamma y_t - \chi r_t \quad \text{(II.2)}$$

$$y_t^s = \kappa p_t - \nu(e_t + e_t^*) - \eta r_t + \tau\theta_t \quad \text{(II.3)}$$

$$y_t^s = y_t^d = y_t \quad \text{(II.4)}$$

Laws of motion

$$T_t = T_{t-1} + \varepsilon_t^T + \varphi\varepsilon_t^\theta \quad \text{(II.5)}$$

$$\theta_t = \theta_{t-1} + \varepsilon_t^\theta \quad \text{(II.6)}$$

$$p_t^* = p_{t-1}^* + \varepsilon_t^{p^*} \quad \text{(II. 7)}$$

The variables of the model are y: GDP; g: government spending, T: current revenue, r: nominal interest rate; p: domestic price level; p*: foreign price level; e: nominal exchange rate (one unit of foreign currency: number of units of domestic currency) ; m: domestic money supply; θ: productivity level.

Variables are logarithmic ones and all the parameters are positive (α, β, δ, γ, χ, κ, η, τ, φ, ν, λ, Φ). The exogenous variables are current revenue, productivity level, foreign price level, nominal exchange rate (the exchange regime is a fixed one).

So, three shocks (innovations) can be identified: ε_t^T current revenue shock, ε_t^θ productivity level shock and $\varepsilon_t^{p^*}$ foreign price level shock.

This dynamic macroeconomic model represents a small state member of a monetary union; for example, islands of the ECCU, such as Grenada, St Lucia or St Kitts and Nevis. This model is the basis for a structural VAR that allows obtaining fiscal policy impulse. Indeed, the fiscal shock here is the one affecting the current revenue (ε_t^T).The impulse provides the reaction of the concerned endogenous variables (e.g. GDP) to one standard deviation of the variable T (current revenue). We will study the impact of a rise of current revenue so it is a negative fiscal shock as it is not an expansionary fiscal policy.

The vector form of the VAR with Z lags can be written in this way:

$$\Delta Y_t = A_0 + \sum_{i=1}^{z} A_1 \Delta Y_{t-1} + \varepsilon_t \quad \text{(II.7)}$$

Akaike and Schwartz criteria provide the number of lags. It depends on the island; some have two lags (St Kitts) and other three (Grenada, St Lucia and St Vincent).

The endogenous variables worked with are growth rates as the logarithms of the concerned variables, in first difference equations, are stationary with a KPSS test. So, it is possible to estimate the impact of an increase in a fiscal shock on GDP growth rate. The variables are yearly ones.

Results

There is some heterogeneity in the effects of fiscal policy among the countries studied. There is an important volatility of the fiscal effect. Indeed, we observe different reactions of GDP growth rates across countries and, over time, within different countries.

For the first two years following the shock there are two groups of countries: in St Lucia and St Vincent and the Grenadines a negative fiscal shock (a rise of current revenue growth rate) results in a decrease in the GDP growth rate. On the other hand, in Grenada and St Kitts and Nevis this expansion of fiscal revenue causes an increase in the GDP growth rate.

For the second group, from the third year until the seventh one, an increase in current revenue will have a negative impact on the growth rate before becoming positive and rejoining the stationary level by year ten.

For the first group, with a fiscal Keynesian impact, there is more volatility in the fiscal effect. For St Lucia the growth rate is negative but increases until becoming positive by year three. This growth rate is becoming positive for St Vincent before the second year.

For the period concerned (1983–2001) the public debt level of Grenada and St Kitts and Nevis was much more important than in St Vincent and the Grenadines and in St Lucia. For example, in St Kitts the debt level represented 115 per cent of GDP in 2000 (the debt level was multiplied by two between 1990 and 2000). At the same date St Lucia had a debt level of 39 per cent. So, it is possible to think that, other things being equal, a reduction in the public deficit, *ceteris paribus*, provoked by the rise in the current revenue growth rate, could induce some fiscal consolidation. This fiscal consolidation can be a source of confidence for foreign and domestic investors. The individuals (households) should increase their consumption as they anticipate a decrease in public debt with the rise in fiscal revenue.

As a result, the optimal fiscal strategy could have been in St Lucia or St Vincent and the Grenadines a countercyclical one; in countries like Grenada and St Kitts and Nevis, a

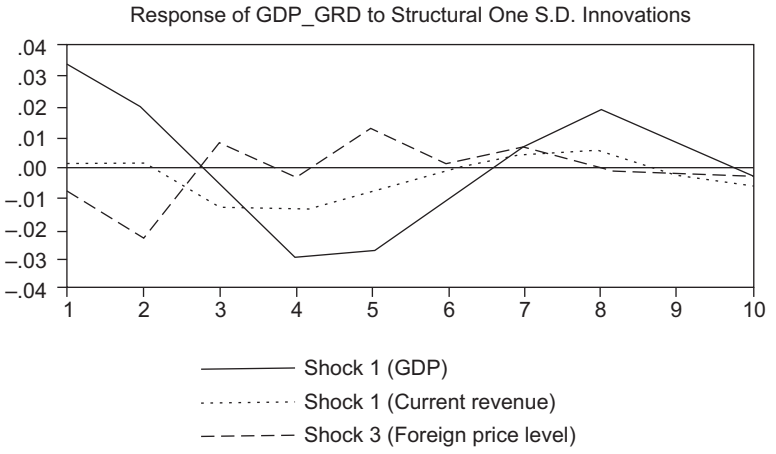

Figure 2.1 Impulse-response functions of GDP to an increase in current revenue in Grenada for the period 1983–2001

Source: Processed with World Bank Development indicators (2004) and ECCB data (2003)

procyclical one. So, this analysis is a way to assess the effect of fiscal policy in the Caribbean in order to choose an optimal fiscal strategy.

Nevertheless, the public debt situation has worsened in the ECCU since 2001 even for countries like St Lucia or St Vincent and the Grenadines. Fiscal effects are likely to be related to public debt and are quite volatile in the Caribbean.

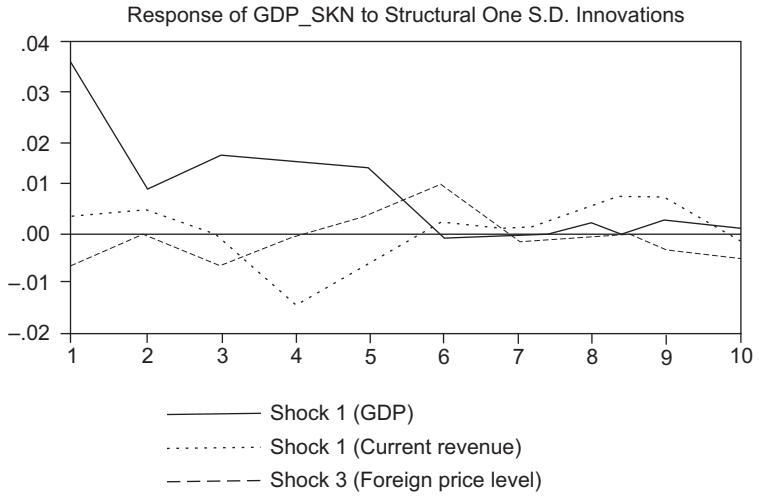

Figure 2.2 Impulse-response functions of GDP to an increase in current revenue in St Kitts and Nevis for the period 1983–2001

Source: Processed with World Bank Development Indicators (2004) and ECCB data (2003)

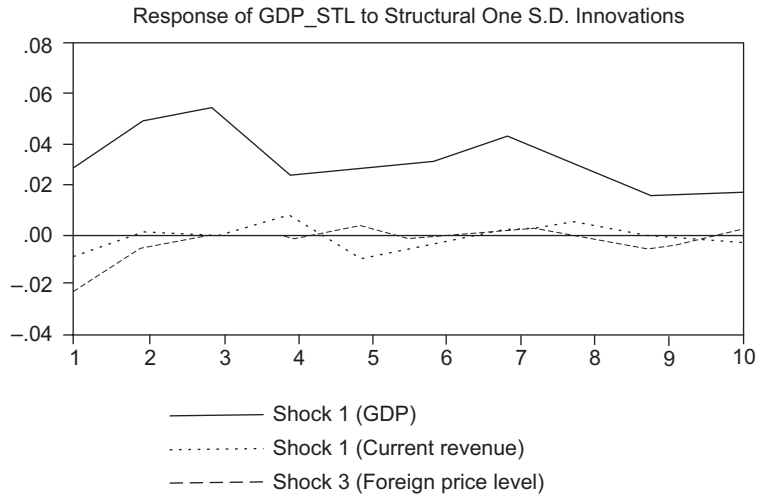

Figure 2.3 Impulse-response functions of GDP to an increase in current revenue in St Lucia for the period 1983–2001

Source: Processed with World Bank indicators (2004) and ECCB data (2003)

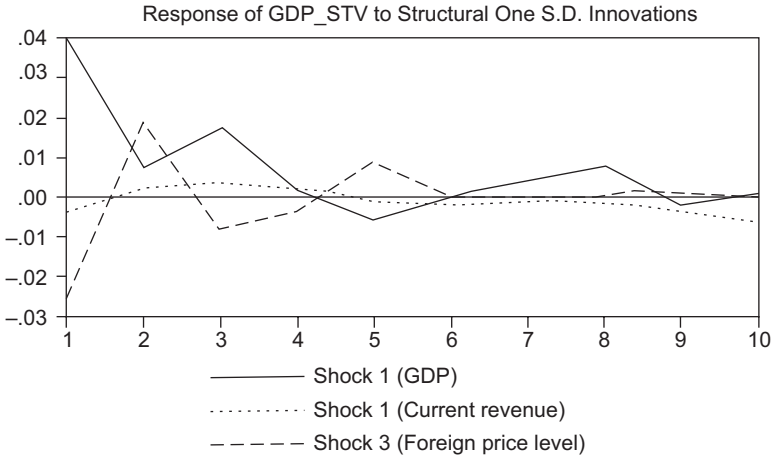

Figure 2.4 Impulse-response functions of GDP to an increase in current revenue in St Vincent and the Grenadines for the period 1983–2001
Source: Processed with World Bank indicators (2004) and ECCB data (2003)

Another important point is the low impact of fiscal shock on the GDP growth rate. The decomposition of variance provides additional information about the weight of fiscal shock in GDP growth rate changes. This weight is quite low for St Lucia and St Kitts and Nevis (about 5 per cent).

An assessment of fiscal strategies in some Caribbean countries relating to productive development policies and some fiscal reforms

Many Caribbean countries, according to the elements presented in Bain and Dos Santos (2004), do not have optimal fiscal strategies. This can be stated from the analysis of productive development policies with the use of tax incentives and the implementation of VAT in different Caribbean countries. We will base the analysis on programmes implemented in Barbados, Jamaica and Trinidad and Tobago (Artana, Auguste and Downes, [2008]; Gomez et al. [2008] and Moya et al. [2010]).

Productive development policies in Barbados, Jamaica and Trinidad and Tobago

The important allocation part of fiscal policy can be clearly established through strategic productive development policies. These policies contribute to a government's vision for its country's growth and development.

Barbados promoted industrialisation by invitation. It is possible to talk about a 'Barbados Model'. Tax incentives were used to promote foreign direct investment in export-oriented industries with a strong effort to provide public inputs. The result was not a success concerning the growth rate as it remains low compared to world averages (Artana, Auguste and Downes, 2008).

Barbados has been affected by external shocks and the answer of the authorities was to lead expansionary fiscal policies to smooth the cycle. As a result public debt increased and is close to 90 per cent of GDP. Therefore, the government decided to look for fiscal consolidation and set a plan to reduce central government debt with the objective of reaching 60 per cent of GDP by 2012 and to sustain the central government deficit below 1 per cent of GDP.

In 2006 the Barbadian government launched the country's first plan. It is called The National Strategic Plan of Barbados 2006–2025. Its goal is to achieve by 2025 a fully developed society that is prosperous, socially just and globally competitive. The targeted level of debt and deficit are written down in this plan with another fiscal goal: average fiscal sustainability at a level not exceeding 2.5 per cent of GDP (Arthur, 2007).

In this plan the economic sectors selected (agriculture, tourism, cultural services, entrepreneurship, green business) are supposed to be developed, mostly through incentives such as targeted financing, credit, investment and legislation reforms.

Jamaica has established different programmes to fuel productivity and growth. For example, the government has established the National Industrial Policy – A Strategic Plan for Economic Growth and Development, for the period 1996–2010. Its objectives are to develop an export-oriented economy with private sector-led development strategy coupled with a programme of efficient import substitution. It targets five strategic clusters in which Jamaica has traditionally had a comparative advantage and which would serve to propel growth in the overall economy: tourism, shipping and berthing, agro-processing, apparel, and bauxite and alumina.

Trinidad and Tobago has implemented the plan Vision 2020, the objective of which is to make Trinidad and Tobago a developed country by 2020, with sustained and balanced growth, diversifying the economy and spreading out the benefits of economic growth to the entire population. One of the plan's goals is to succeed in diversifying production and exports consisting mainly of energy exports.

The common points of these programmes are that they use tax incentives to attract investment in specified sectors such as tourism, information, small and medium enterprises and communication technology.

These fiscal incentives consist of fiscal relief, holidays, tax exemptions, tax credits, tax breaks, duty concessions and other waivers. All these fiscal elements concern the tax side. They may be proposed to reduce production costs and the prices for consumers, and as a result to increase competitiveness. These consumers are mainly foreigners for the sectors of tourism, export free trade zones or shipping.

These incentives impact on fiscal revenue. They are designed to encourage investments but represent a loss of earnings for the budget. For example, in Jamaica 200,000 different incentives were observed (Holden and Holden, 2005) and the loss of earnings stemming from all these incentives was about 20 per cent of government revenue.

Moreover, Gomez et al. (2008) remind us that all these incentives could result in a suboptimal tax structure. These incentives also contribute to the complexity of the fiscal system and can be one factor that contributes to the importance of the informal sector. The

sectors targeted are capital intensive. Indeed, when firms are less capital intensive than the ones aimed at, they are less likely to declare themselves and could join the informal sector.

Besides, corruption and rent-seeking behaviour can be encouraged by complex fiscal systems. When a tax measure is implemented it is necessary to know who really supports it. This element is called the fiscal incidence (Benassy-Quéré et al., 2004). When some sectors are tax exempted there is a distortion as other sectors do not receive the same treatment. Especially if these sectors are labour-intensive, they fully support the different kind of taxes on labour.

To sum up, the different fiscal incentives did not result in the improvement of productivity and growth as they are distortive, encourage lobbying and rent-seeking from the targeted sectors. Moreover misallocation may appear because the rate of return is distorted by fiscal incentives.

The implementation of VAT in some Caribbean countries

Being a part of CARICOM implies implementation of the CET. The World Trade Organization (WTO) also wants its members to resort to tariff rates that promote free trade. As a consequence, tariff revenue decreases and some alternatives for fiscal revenue have been examined. Organisations such as the IMF encourage countries to implement VAT.

Countries such as Jamaica, Barbados and Trinidad and Tobago have implemented this kind of consumption taxes. VAT was introduced in Trinidad and Tobago in 1990 and in 1991 Jamaica implemented a general consumption tax. These types of taxes have impacts both on consumers and producers and the fiscal incidence is related to elasticities of supply and demand.

Price movements were different in these three countries because different fiscal strategies were chosen, especially for the taxation of stock-in-trade (Howard, 2001). The Jamaican government implemented 17 zero-rate items, but later reduced the number of exemptions to obtain a more productive VAT.

Public response to the introduction of the VAT was more favourable in Jamaica because of a higher number of zero-rated items and other exemptions. In Barbados, some businesses increased their mark-ups so locally produced food and imported food from the CARICOM rose by 15 per cent. The standard rate of VAT (implemented in 1997) in Barbados is 15 per cent. This new tax was accompanied by administrative difficulties as businesses had to get familiar with the new tax and its return to the administration.

VAT and other consumption taxes are indirect tax which means that they are collected only when the taxpayer is buying an item which incurs the tax.

Indirect taxes are considered to be more stable than direct taxes such as taxes on income or corporate taxes as the elasticity of direct taxes to conjuncture (the ongoing economic situation) is higher. That is the reason why direct taxes provide automatic stabilisation (Benassy-Quéré etal., 2004).

These taxes on consumption are also proportional so they are not supposed to affect allocation even if they may concern redistribution, and it is for this reason that zero-rate levels of VAT are implemented for some food products. So, the purchasing power of the poor is not affected by this taxation.

Several countries are changing the structure of their tax system in order to be less dependent on international trade taxation, for example Dominica and Guyana. This shift seems to increase efficiency and so approach the optimality of their fiscal system.

Some observations regarding fiscal space

The notion of fiscal space arose after crises in the 1990s because some countries feared that by following fiscal discipline and constraints they were hampering their long term potential growth. As a result, countries sought more fiscal space. One definition is from Heller (2005, p.3):

'The availability of budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government's financial position.'

As a result the suppression of different tax incentives taking the form of tax holidays and other waivers can increase fiscal space, increasing fiscal revenue and reducing deficit. As a result fiscal sustainability should be enhanced.

Moreover, countries with low public debt levels have fiscal space in time of crisis as the rising of the debt to reasonable levels does not hamper fiscal sustainability. This last point relates to some countries in the Caribbean. It is presently the case for The Bahamas and Trinidad and Tobago.

Earlier in this paper, we presented another way to generate fiscal space through stabilisation funds and insurance mechanisms.

Stabilisation funds provide precautionary savings and transfers of real return on oil savings to the budget. So, even if the allocation of oil revenues to the fund induces a loss of fiscal revenue, it is a way to stabilise the level of activity if needed. This is the case with the HSF in Trinidad and Tobago.

Insurance acts in another way: in the event of shocks such as natural disasters, it buffers part of the shock and allows the availablity of additional fiscal funds. This is one of the aims of the CCRIF.

Conclusion

Fiscal strategy is strongly linked with government vision and plans for productive develop-ment. This fiscal strategy aimed at orienting investment allocation with tax incentives can be suboptimal.

An optimal fiscal strategy is also related to fiscal policy effect. If it is a demand effect then a countercyclical policy is optimal otherwise if fiscal policy causes crowding out it is preferable to use a procyclical policy. In the Caribbean, fiscal policy effect depends on the public debt level and appears to be quite volatile among and across countries.

Nevertheless, the implementation of VAT in several countries is a step towards approaching fiscal policy optimality even if the modalities are to be carefully assessed.

2.6 Country case studies – The Bahamas, Jamaica and Trinidad and Tobago

The Bahamas, Jamaica and Trinidad and Tobago are the wealthiest states in the English-speaking Caribbean. Both Trinidad and Tobago and Jamaica are endowed with mineral natural resources whereas tourism is a major component of value added for The Bahamas and Jamaica.

Fiscal stabilisation, as mentioned previously, provides precautionary savings during an expansion. In this model, the degree of stabilisation is estimated for single fiscal variables and not for a global fiscal stabilisation as examined earlier in this paper. Moreover, regressions that provide the elasticities are estimated with time series analysis and with an ordinary least square estimator. This provides a first approach, because of the short length of the time series, to the fiscal stabilisation provided by the different variables. In the model, the first-differences equations of the variables in logarithm are used. So, it provides growth rates variables (Guellec et al., 2001). These variables are listed in table 2.8.

Table 2.8 List of fiscal variables

	Name given to the fiscal variables series
Taxes on income,profits and capital gains	TAXINC
Taxes on international trades	TAXTRANS
Taxes on goods and services	TAXGOOD
Grants and other revenue	GRANTS
Compensation of employees	PERSEM
Current expenditure	CUREX
Subsidies and other transfers	TRANSUB
Interest payments	INT
Tax revenue	TAXREV
Other taxes	OTAX
Goods and services expenses	GOODEX
Central government debt, total	CENTDEBT
Cash surplus/deficit	OVERBAL

Source: Variables from Word Bank Indicators (2009)

Case study: The Bahamas

A quite limited fiscal stabilisation

National accounts

The Bahamas, with a population of 325,000[7], recorded a GDP of 7,498 million Bahamian dollars (B$) in 2007.

- GDP

The country is a service oriented economy, with tourism accounting for 30 per cent of GDP and financial services 20 per cent. The exchange rate regime has been fixed with a peg since 1976 to the US$. There are no restrictions on payments, transfers and current transactions.

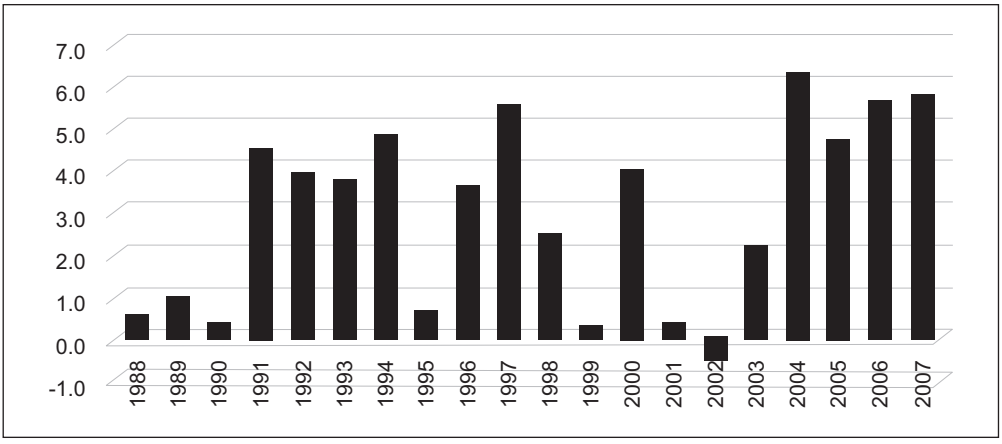

Figure 2.5 GDP growth rate in The Bahamas (annual %), 1988–2007
Source: Data from World Bank Development Indicators (2009)

Growth rate fluctuations are volatile but positive except for 2002 where there was a slight recession following 09/11. Since then growth rates have been above 4.5 per cent. Between 1988 and 1990 this rate of growth was quite low, below 1 per cent. The average growth rate between 2004 and 2007 was 5.5 per cent.

- Inflation

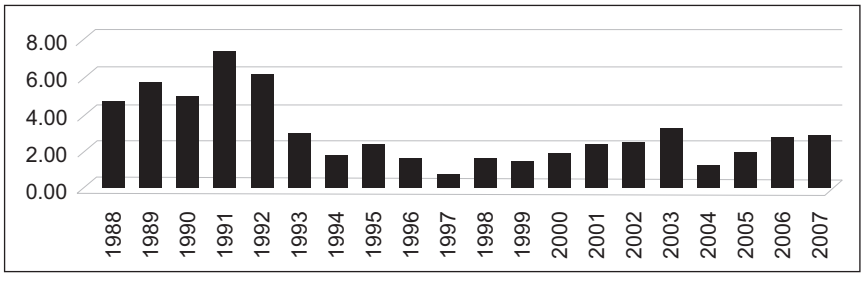

Figure 2.6 Inflation in The Bahamas (annual %), 1988–2007
Source: Data from World Bank Development Indicators (2009)

There are two periods. The first, from 1988 to 1996, has a mean rate of 3.9 per cent and the second, from 1997 to 2007, has a mean rate of 1.8 per cent. The highest peak was in 1991 at 7.1 per cent and the lowest level in 1997 at 0.5 per cent. Therefore, The Bahamas, like Caribbean countries with fixed exchange regimes, controls inflation.

Fiscal structure

- Fiscal revenue

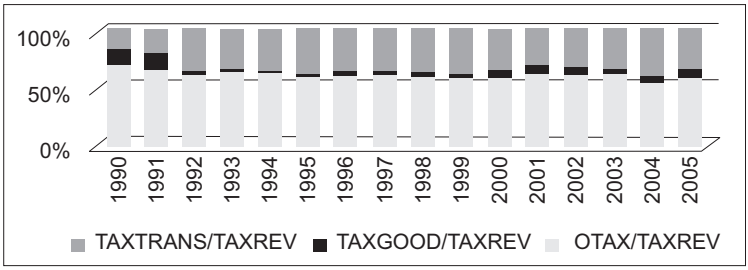

Figure 2.7 Breakdown of tax revenue in The Bahamas (%), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Tax revenue contributes to nearly 100 per cent of current revenue comprehended as the proxy of the sum of taxes on income, profits and capital gains. There is no VAT implemented in The Bahamas. Most of the country's fiscal revenue comes from taxes on international trade. They represent 65 per cent of tax revenue for the period 1990–2005. Therefore, the fiscal policy is not optimal in terms of dependence on international trade to generate fiscal revenue.

- Fiscal expense

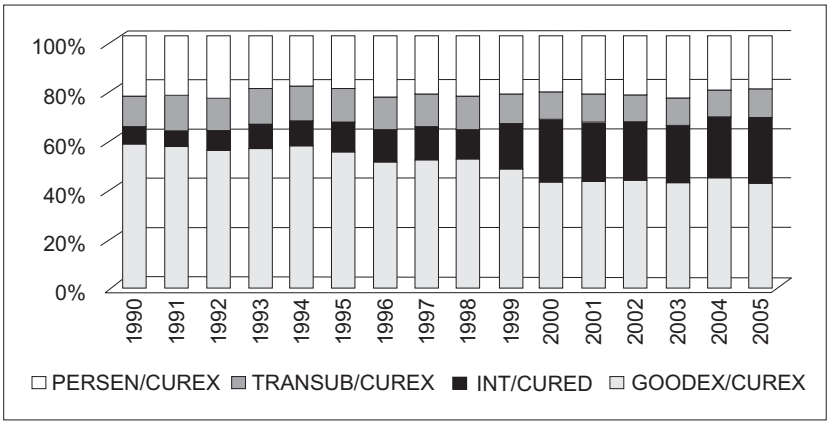

Figure 2.8 Breakdown of current expense in The Bahamas (%), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Personal emoluments represent the major part of current expense with an average of 50 per cent for the period 1990–2005. Since 1999, subsidies and transfers have gained importance, averaging 24 per cent between 1999 and 2005. This is a positive development, since this expense is an automatic stabiliser according to the literature.

- Public Debt

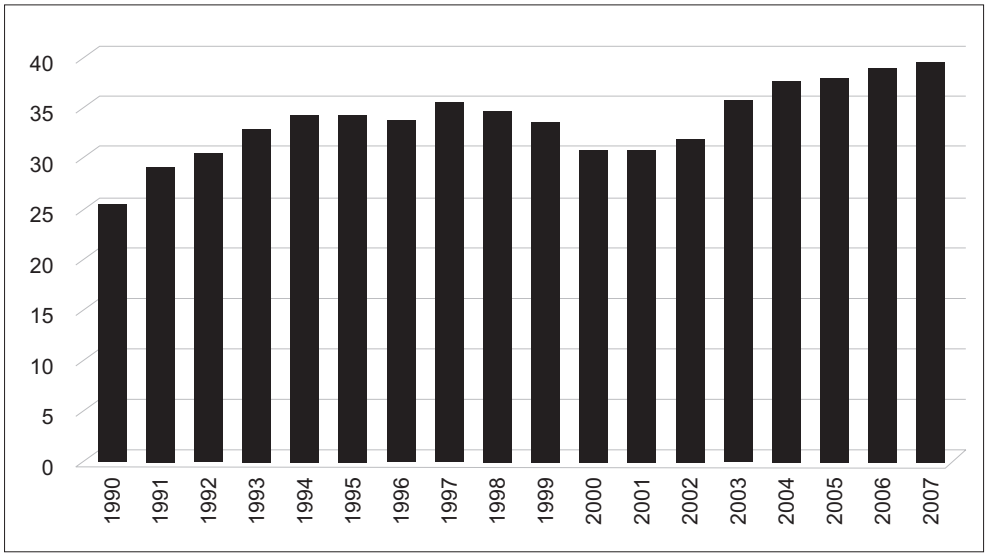

Figure 2.9 Central government debt in The Bahamas (% of GDP), 1990–2007
Source: Data from World Bank Development Indicators (2009) and Article IV consultations from the IMF

The level of public debt for central government is quite low compared to other Caribbean countries, averaging 34 per cent of GDP over the period 1990 to 2007. This low level of debt contributes to fiscal space. The debt is mainly domestic. By 2006 97 per cent of the country's debt was held by residents, a 15 per cent increase from 2003. In addition, this level is quite stable and does not seem to be affected significantly by the different external shocks faced by the country. These shocks affecting GDP can be observed in the slump of the GDP growth rate in 2001 and 2002 in the aftermath of the effect of 9/11 on tourism demand.

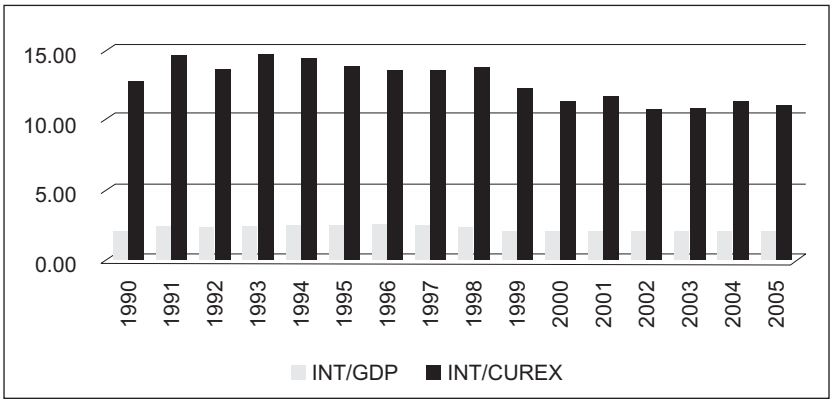

Figure 2.10 Interest payments in The Bahamas (%), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Interest payments do not represent an important part of GDP because of the light weight of public debt in the country. The average amount represents 12.6 per cent of current expense for the period 1990–2005.

- Fiscal balance

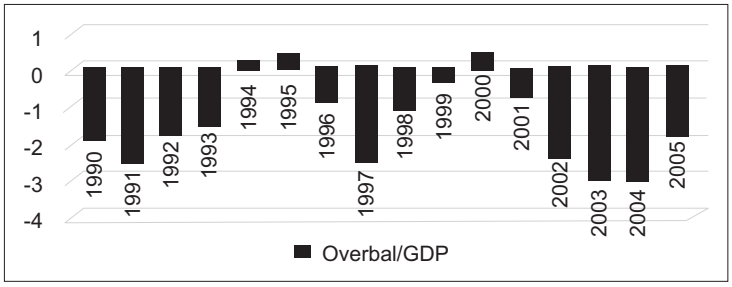

Figure 2.11 Overall balance in The Bahamas (% of GDP), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Some periods of surplus can be observed (1994, 1995 and 2000). Otherwise, the deficit is quite moderate with an average of 1.4 per cent (1990–2005).

- Fiscal policy response

This section looks at the impact of fiscal revenue and expenditure on GDP. It shows the degree of stabilisation on economic activity provided by the fiscal variables.

Therefore, the more the GDP growth rate evolution is related to the evolution of fiscal variable growth rates the more there is room for manoeuvre to use these variables in time of shocks.

The methodology used in this analysis is the same as presented in section 2.3, except that time series instead of panel data are used since we are dealing with a single state. The results may be affected by the low time-span (1990–2005). This regression will examine the efficiency of fiscal stabilisation in The Bahamas.

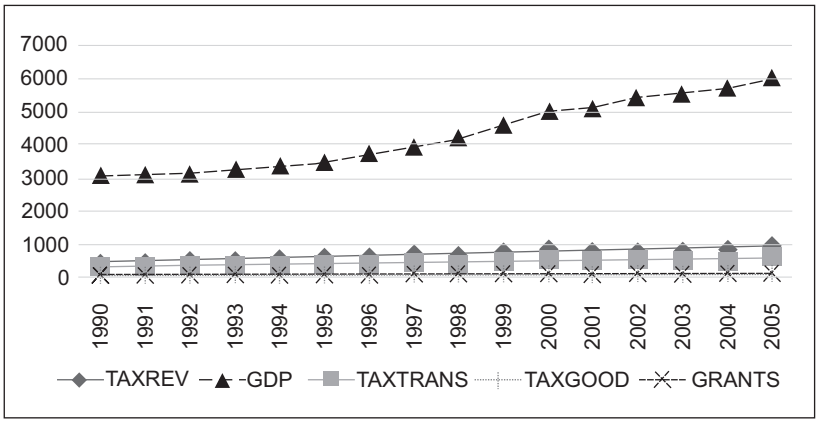

Figure 2.12 Trends in fiscal revenue in The Bahamas (millions of local currency unit), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Taxes on goods and services and grants do not contribute to growth as their amount is really not important compared to GDP. It appears, from this chart, that there are few correlations between GDP and tax revenue in The Bahamas.

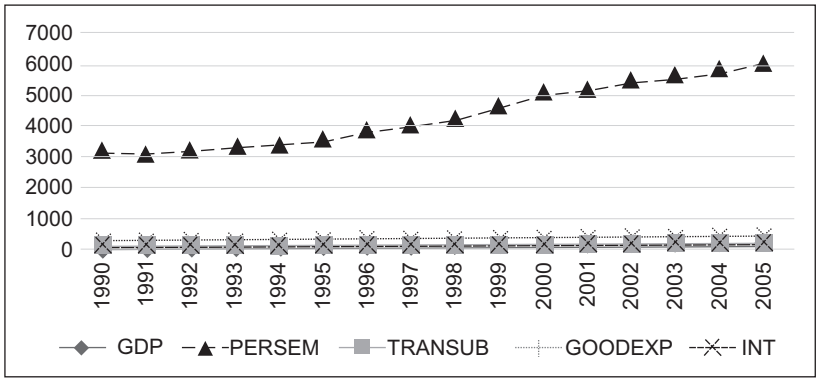

Figure 2.13 Trends in fiscal expenditure in The Bahamas (millions of local currency unit), 1990–2005
Source: Data from World Bank Development Indicators (2009)

The role of fiscal expenditure as a stabilisation tool in The Bahamas is not important as the different elements contributing to fiscal expenditure, such as personal emoluments or expense in goods and services are weak.

- Degree of fiscal stabilisation

Here is an assessment of the degree of fiscal stabilisation provided by taxes on international trade in The Bahamas for the period 1992–2005.

Table 2.9 Degree of fiscal stabilisation, 1992–2005, The Bahamas

	REGRESSION	*TAXTRANS*
	Elasticity	0.2
	Tax/GDP	0.1
	Degree of stabilisation (%)	2.4

Source: Data from World Bank Development Indicators (2009)

The regressions with other fiscal variables are not significant. The degree of fiscal stabilisation is very low at 2.4 per cent. That means that when a shock occurs, this type of tax, which represents half the tax revenue, is able to hinder only 2.4 per cent of the impact on GDP growth rate.

In conclusion, these charts show that because of the small weight of the central government's fiscal budget in GDP, the fiscal structure in The Bahamas could be difficult to use for fiscal stabilisation/buffering shocks. Moreover, the trends of the main headings of the budget and of the GDP do not seem to be correlated.

Case study: Jamaica

A significant public debt

National accounts

Jamaica's population was an estimated 2.676 million in 2007 and GDP was J$889 billion.

- GDP

In Jamaica the four most significant sectors contributing to GDP are tourism, alumina, worker remittances and the informal sector (Gomez et al., 2008).

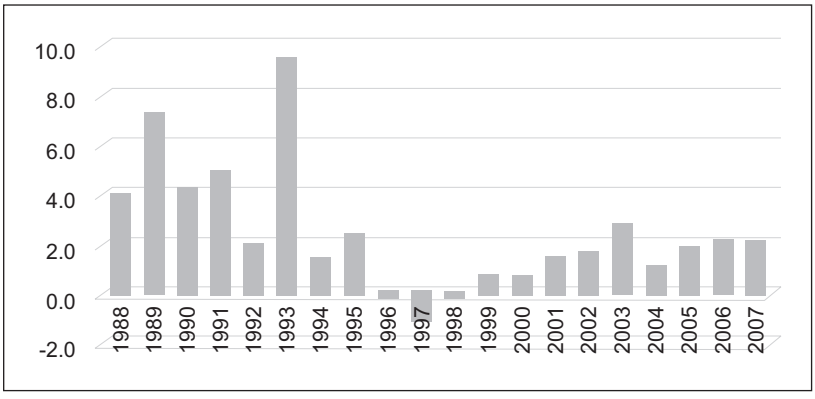

Figure 2.14 GDP growth rates (annual %), 1988–2005
Source: Data from World Bank Development Indicators (2009)

GDP growth rates were higher and more volatile between 1988 and 1995 with a mean of 4.4 per cent. Between 1995 and 1996 growth rates were slightly negative with a mean of -0.5 per cent. Afterwards, the mean was much less volatile and the pace of growth slower, with a mean of 1.6 per cent.

Between 1991 and 2007 Jamaica's unemployment rate was over 10 per cent of the labour force. The island is characterised by the importance of the informal sector, representing 40 per cent of GDP in 2000 according to (Gomez et al., 2008). This sector includes trading, low productivity services and criminal activities.

Tourism accounts for 37 per cent of exports and employs 20 per cent of the labour force directly or indirectly. Most foreign exchange earnings arise from remittances and tourism receipts.

- Inflation

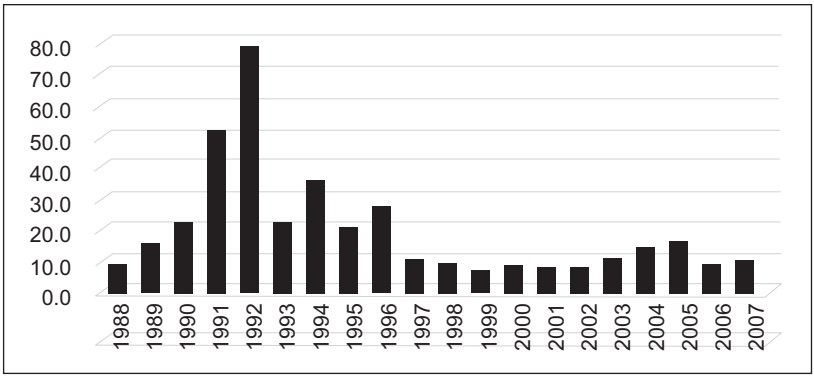

Figure 2.15 Inflation in Jamaica (annual %), 1988–2007
Source: Data from World Bank Development Indicators (2009)

The inflation profile has quite a close relationship with the evolution of GDP growth rates. Three periods can be observed. The first one reveals double-digit inflation, from 1988 until 1997, with a mean of 28.6 per cent. A peak of 77.3 per cent is reached in 1992. The second period, between 1997 and 2002, presents a real slowdown in inflation as it reaches single-digit levels with a mean of 7.7 per cent. Between 2003 and 2007 there was a rise in inflation as the average rate was 7.7 per cent. This inflation level is higher than countries like Barbados, the ECCU or The Bahamas.

Fiscal structure

Public balances from central and local government and public enterprises are not consolidated so it is difficult to appraise the real level of imbalances or surpluses.

- Fiscal revenue

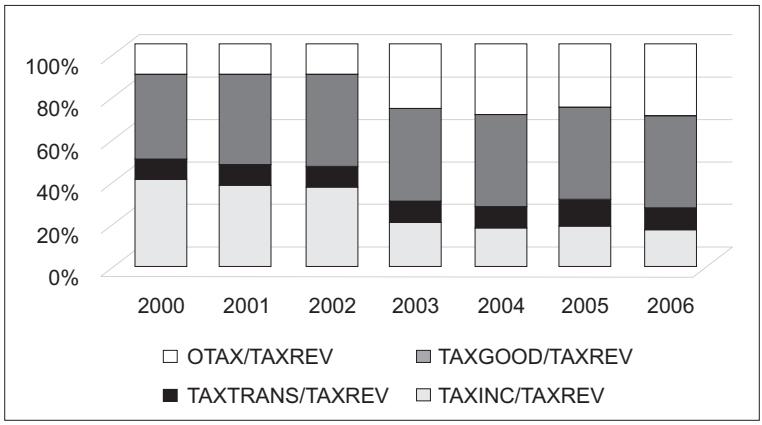

Figure 2.16 Breakdown of fiscal revenue in Jamaica (%), 2000–2006
Source: Data from World Bank Development Indicators (2009)

Tax revenue is an important part of Jamaican current revenue as it represents 93 per cent of current revenue budget for the period 2000–2006. It is noticeable that contrary to the smaller Eastern Caribbean states, taxes on international trade do not represent an important source of incomes for the government. Indeed, the average earnings provided by this heading are 10 per cent of tax revenue for the period. The main source of revenue for the Jamaican government is taxation on goods and services with an average of 42 per cent for 2000–2006. The other major heading is taxation on income, profits and capital, but its contribution regularly shrinks for the period. It represented 42 per cent of tax revenue in 2000 whereas in 2006 it accounted for only 18 per cent; thus its contribution halved in seven years.

- Fiscal expenditure

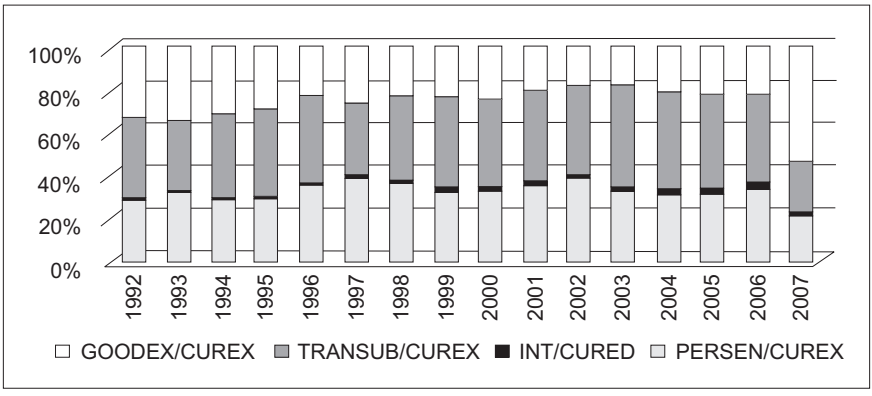

Figure 2.17 Breakdown of current expenditure in Jamaica (%), 1992–2007
Source: Data from World Bank Development Indicators (2009)

The most important part of expenses are interest payments. They represent about 40 per cent of current expenditure between 1992 and 2007. Very few subsidies and transfers were granted as this part of public expenditure is very weak, averaging 2.4 per cent for the period. This could be the result of the numerous tax exemptions proposed by the central authorities. The fiscal policy to gear economic activity was more linked to fiscal incentives resulting in tax loss than in subsidies for the aimed sectors like tourism or information and communication technology). We can also observe a decrease in taxes on income earnings since 2003.

- Public debt

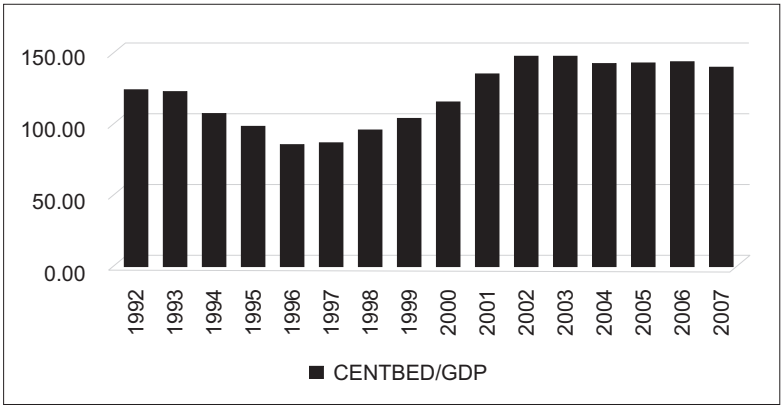

Figure 2.18 Central government debt to GDP in Jamaica (%), 1992–2007
Source: Data from World Bank Development Indicators (2009)

Between 1992 and 2000 the average level of debt was 99 per cent. It rose even further between 2000 and 2007, during which period the average level of debt was 136 per cent to GDP. The country succeeded in decreasing its level of debt between 1995 and 1998 when the level was below 100 per cent of GDP.

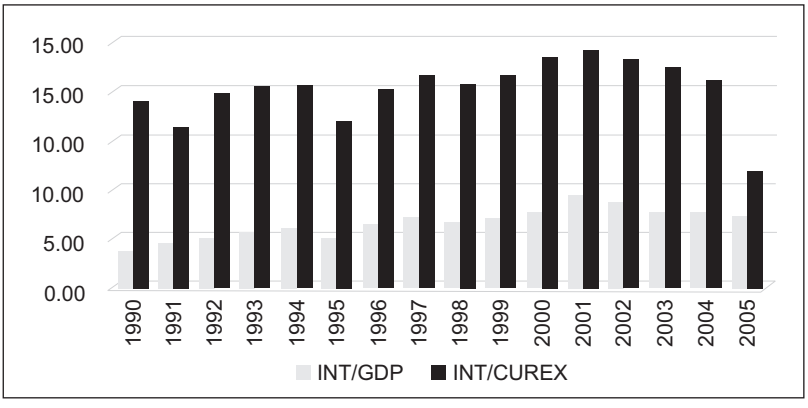

Figure 2.19 Debt service in Jamaica (%), 1992–2007
Source: Data from World Bank Development Indicators (2009)

Interest payments represented an average of 40 per cent of current expenditure for 1992–2007 and 13 per cent of GDP for the same period. In 2003, interest payments represented 48 per cent of current expenditure. Public debt is therefore a challenge for Jamaica.

- Fiscal policy response in Jamaica

Fiscal revenue response

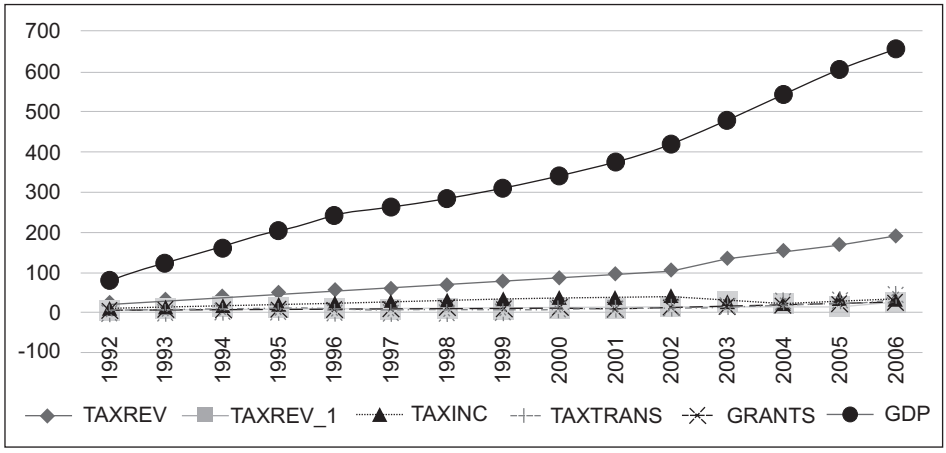

Figure 2.20 Trends in fiscal revenue in Jamaica (billions of local currency unit), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Tax revenue evolution seems to be correlated with GDP evolution. It is confirmed in table 2.10 with the assessment of the degree of fiscal stabilisation. This correlation seems to have increased since 2002. The tax revenue weight has increased compared to the other variables in a significant way during the same period.

Fiscal expenditure response in Jamaica

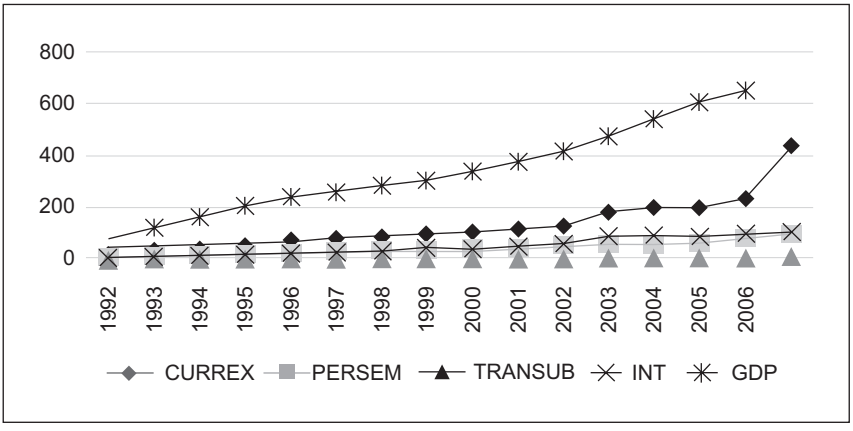

Figure 2.21 Trends in fiscal expenditure in Jamaica (billions of local currency unit), 1990–2005
Source: Data from World Bank Development Indicators (2009)

Interest payments evolution seems to have the same evolution as personal emoluments.

- Degree of fiscal stabilisation

Table 2.10 Degree of fiscal stabilisation, 1990–2005, Jamaica

	1993–2006	*1993–2006*	*1998–2006*	*1993–2004*	*1998–2006*	*1993–2001*	*1998–2004*
Regression	*TAXREV*	*TAXTRANS*	*TAXGOOD*	*CUREX*	*PERSEM*	*TRANSUB*	*INT*
Elasticity	0,5	0,1	0,7	0,2	0,0	0,3	0,1
Tax/GDP	0,2	0,0	0,1	0,3	0,1	0,0	0,0
Degree of fiscal Stabilisation (%)	11,2	0,3	8,7	5,0	-0,4	0,0	0,0

Source: Data from World Bank Development Indicators (2009)

As shown in table 2.10, several time spans are used for each regression, based on the concerned variable and the longest time span with available results.

The degree of stabilisation is not as low as in The Bahamas. It can be compared with the degree of stabilisation in the ECCU, with some important differences. The most important stabilisation in Jamaica is provided by tax on income (11.2%) and the degree of compensation of employees is about -0.4 per cent.

It seems that in Jamaica tax on income is an automatic fiscal stabiliser. This occurrence is similar to developed industrial countries such as the European Union or the United States. Nevertheless, transfers and subsidies do not affect GDP so they cannot be used for fiscal stabilisation. Compensation of employees seems to have a countercyclical action on GDP. That could mean that this discretionary heading was used by the government as tool to adjust with the conjuncture (ongoing economic situation).

Unlike the situation in Jamaica, in the ECCU taxes on international trade and transactions do not provide an important part of fiscal stabilisation. The degree provided is near zero, so GDP is not affected by this heading even if this type of taxes account for 26 per cent of tax revenue.

- Fiscal consolidation in Jamaica after the 2008 global crisis

The 2008 global crisis had a severe impact on Jamaica. For the fiscal year 2008/2009 the real GDP growth rate was -1.6 per cent. The fall is even worse for the fiscal year 2009/2010 as this growth rate was expected to be -3.5 per cent (IMF, 2010b).

This decrease in wealth was due to less significant remittances and to the drop of commodity prices that affected mining production income in the country. These elements have contributed to a loss of foreign exchange. There was also a depreciation of the J$ against the US$ of 20 per cent.

This situation reflects the fiscal position of the country as the overall fiscal balance has deteriorated and is -12.7 per cent for the fiscal year 2009/2010. It is the same for public debt which reaches 140 per cent of GDP for the same year (IMF , 2010b).

As, Jamaica already had problems of public debt sustainability the government has decided to implement several measures with the assistance of development partners like the European Union (EU), the IMF and the Inter-American Development Bank (IDB).

Several different kinds of measures were taken such as the Jamaica Debt Exchange (JDX), privatisation and loans from partners to finance structural fiscal reforms. Some of these measures concern the reduction of public indebting through direct action on the nature of the debt. This is the case with the JDX. This programme was concluded in February 2010. It concerned domestic debt which represented 701 billion J$. This exchange is based on an extension of maturity profile and a reduction of interest rates for the outstanding domestic debt and the one denominated in US$. The result expected of the JDX is a decrease of 65 per cent of maturing debt for the three coming years (i.e. by 2013) and interest savings of 3 per cent of GDP. The debt swap was a success with a participation rate over 99 per cent (World Bank, 2010).

The Jamaican government has also divested from loss-making public entities with the privatisation of sugar companies in 2009 and 2010 such as the St Thomas sugar factory (Development Bank of Jamaica Limited, 2010). Air Jamaica was also privatised. .

Concerning fiscal reforms, a loan of US$200 million was signed with the IDB to support the Jamaican government's fiscal consolidation programme. The disbursement of this loan depends on the fulfilment of fiscal measures on the revenue side, such as the rise in the general consumption tax rate from 16.5 per cent to 17.5 per cent. An increase in the rate of this tax in the tourism sector and an increase of the tax rate for personal income tax are also expected, among other measures.

Concerning expenditure, public servants will not receive a salary increase for the fiscal years 2009/2010 and 2011/2012. Fiscal policy responsibility and expenditure management are also expected to be improved (World Bank, 2010).

The IMF has provided one of the most important financing supports for fiscal consolidation in Jamaica. A 27-month Stand-By Arrangement was signed in February 2010 for an amount of US$1.27 billion, with US$640 million available immediately.

This Stand-By Arrangement has three pillars: public sector reform; a strategy to lower interest costs, address the problem of the debt overhang and raise the productivity of public expense; and financial sector regulatory reform. The success of the JDX was necessary to benefit from this arrangement from the IMF.

The EU has also granted, in August 2010, J$4 billion for two budget support programmes: the Debt Reduction and Growth Enhancement Programme and Sugar Sector Budget Support.

All these measures and assistance are expected to contribute to the improvement of Jamaica's public debt situation. The country had previous fiscal consolidation experiences, for example one beginning in 1989 that lasted for six years and succeeded in a fiscal adjustment of 23 per cent of GDP, realised mostly through primary expenditure reduction.

Fiscal consolidations may be necessary when the public debt level is not sustainable because there are risks of an increase in borrowing costs and weakening of the monetary policy efficiency (IMF, 2010a). Major public debt and fiscal deficit problems could breach

the independence of the Central Bank if it starts to buy public debt bonds as this could contribute to a rise in inflation.

It is also a burden for future generations because a non negligible part of the wealth created will be used for the payments of public debt interest and maturing debt.

Some remarks can be made about the success of these strategies. Some of the key elements regarding the success of a fiscal consolidation strategy are the age structure of the population, the growth forecast and the conditions of financing the strategy. As a population gets older, pensions can contribute to the worsening of public debt. About 8 per cent of Jamaica's population is aged over 65 years according to Index Mundi in 2009. It would be interesting to know the impact of pensions on the budget balance path for the coming years to see if this needs to be reformed or not.

Jamaica is also improving its social safety net to benefit from more automatic fiscal stabilisation and to offer the population better social protection.

The more significant growth is, the easier and the less costly it is to decrease public indebting. Jamaica suffers from high unemployment (10.6% for the fiscal year 2008/2009) with youth unemployment rates of 26 per cent in 2008. So, growth is not yet optimal.

The financing of the fiscal consolidation programme should not be costly so that it does not generate an additional burden. Concessional financing might contribute to a safer financing of fiscal adjustment.

A fiscal consolidation should be credible and provide a debt ratio target and specify the broad policies that are to be used to reach it to be successful (IMF, 2010a).

Jamaica has already succeeded with its debt swap initiative, pledging a will to make public finances healthier. Fiscal consolidation in Jamaica should be fully successful if it creates fiscal leeway for the country in case of possible shocks and if it fosters medium to long term growth.

Case study: Trinidad and Tobago

A dichotomy between the energy and the non-energy sector

National accounts

Trinidad and Tobago's population was about 1.318 million in 2005 (UN, 2008). It is the most industrialised of English-speaking Caribbean countries. The economic dynamic is energy-driven, and the main activities are oil and gas. Since 1994, the energy sector has represented 45 per cent of GDP and 80 per cent of exports but only 7 per cent of the labour force. Agriculture is residual in the national activity as it represents on average 2 per cent of value added for the period 1988–2007. The country suffers from 'Dutch disease'[8] as showed in the study by Artana, Auguste, Moya et al. (2007).

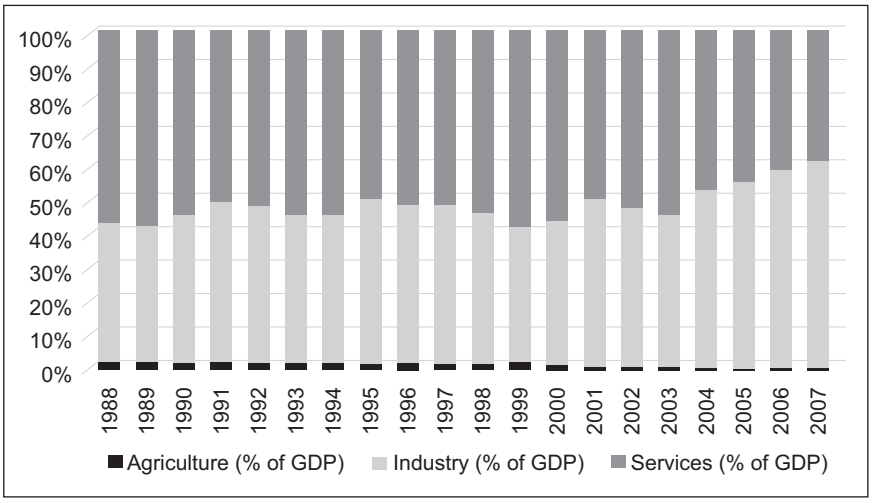

Figure 2.22 Breakdown of sectors (% of GDP), 1988–2007
Source: Data from World Bank Development Indicators (2009)

As previously stated, industry is a major part of Trinidad and Tobago's value added. It represents about 47 per cent of GDP for the period 1988–2007. At the same time, services are still important although a decrease can be observed since 2004.

- GDP

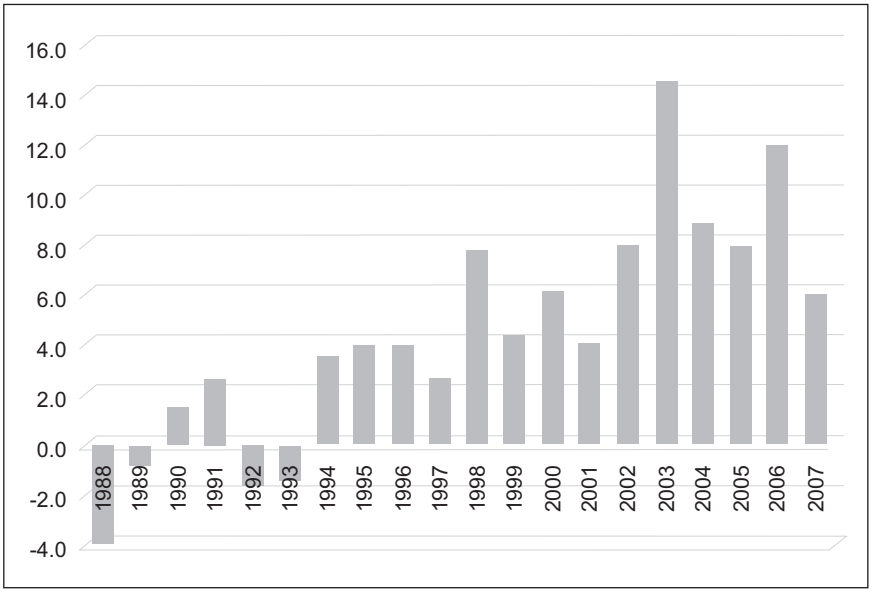

Figure 2.23 GDP growth rates in Trinidad and Tobago (%), 1988–2007
Source: Data from World Bank Development Indicators (2009)

There has been a relatively steady ascending growth rate in Trinidad and Tobago, although there was recession in 1988 and 1992–1993. Otherwise, the mean rate since 1994 is 6.7 per cent with a peak at 14.4 per cent in 2003. There is clearly a shift from low growth rates, even negative ones, to consequent growth rate in 1994. In 2002, growth rates did accelerate with an average of 9.5 per cent. This is much related to the evolution of international oil prices.

Indeed, the export of oil and related products represents up to 70 per cent of Trinidadian exports and there is a coefficient of correlation[9] of 0.78 between concentration of exports in oil and the oil price (Moya et al., 2010).

The weaker role of tourism in value added can be explained by the rise of the growth rate in 2002 after 9/11 unlike other Caribbean countries such as The Bahamas or the members of the ECCU.

- Inflation

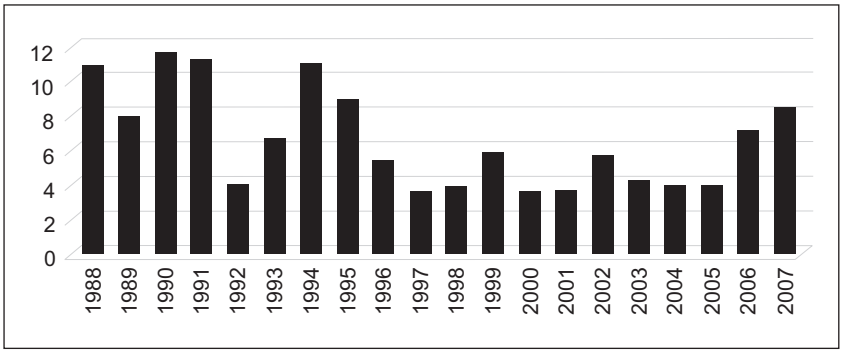

Figure 2.24 Inflation in Trinidad and Tobago (annual %), 1988–2007
Source: Data from World Bank Indicators (2009)

Three periods can be observed. The first one is from 1988 to 1995 with a mean rate of 8.2 per cent. Inflation is pacing down between 1996 and 2004 with a mean rate of 4.1 per cent. In the third and last period an increase is taking place with a mean of 7.7 per cent. So, inflation appears to be volatile for this period although it remains mostly single-digit. This level of inflation is higher than in countries with a fixed exchange regime like Barbados, The Bahamas or the ECCU.

Fiscal structure

- Fiscal revenue

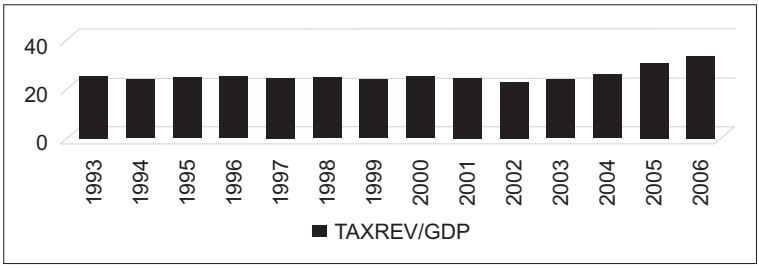

Figure 2.25 Tax revenue in Trinidad and Tobago (% of GDP), 1993–2006
Source: Data from World Bank Development Indicators (2009) and IMF article IV consultation (2001)

Tax revenue only represents 23 per cent of GDP in Trinidad and Tobago's budget for the period 1993–2006. Nevertheless, there is a noticeable rise in tax revenue growth – an increase of 32 per cent between 2005 and 2006 – whereas tax revenue as a percentage of GDP rises by 10 per cent between 2005 and 2006.

- Fiscal expenditure

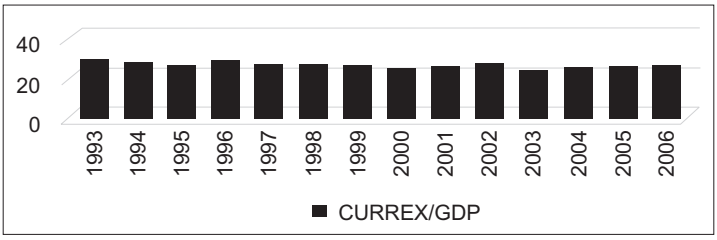

Figure 2.26 Current expenditure in Trinidad and Tobago (% of GDP), 1993–2006
Source: Data from World Bank Development Indicators (2009) and IMF articles IV consultations (1999, 2001)

The current expenditure level is quite stable. It represents an average of 24.3 per cent of GDP.

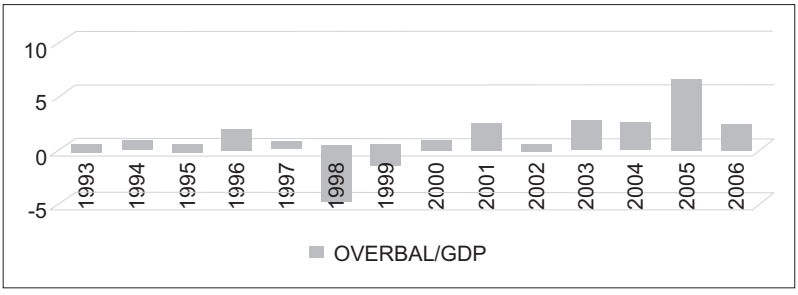

Figure 2.27 Overall balance in Trinidad and Tobago (% of GDP), 1993–2006
Source: Data from World Bank Development Indicators (2009) and IMF article IV consultation (2001)

In contrast to other countries, the overall balance in Trinidad and Tobago is rarely negative, except for 1998 and 1999. The average balance between 1993 and 1997 was 0.2 per cent, compared with 2.8 per cent between 2003 and 2006.

Much of the surplus is originated by fiscal revenue from energy. The primary deficit of the non energy sector was -14 per cent in 2006. This threatens the sustainability of fiscal policy.

Central government debt (excluding debt issue for sterilisation) is in a good position, representing only 17 per cent of GDP for the fiscal year 2006/2007.

- Fiscal policy response

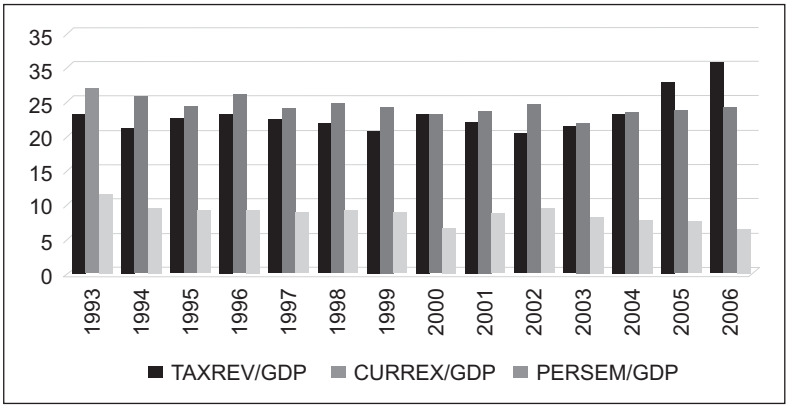

Figure 2.28 Fiscal trends in Trinidad and Tobago, 1993–2005
Source: Data from World Bank Development Indicators (2009) and IMF articles IV consultation (2001, 2009)

Revenue from taxes appears to be more stable than current expenditure. A decrease in the importance of personal emoluments can be observed, averaging 6.5 per cent of GDP in 2006 compared with 11.7 per cent in 1993.

This element is important: as can be seen in table 2.11, this heading presents a counter-cyclical role between 2002 and 2006 but as the weight of personal emoluments is decreasing and is quite low the degree of fiscal stabilisation is not very important (-0.6%). Moreover, revenue from tax presents a non negligible importance as it absorbs about 15.2 per cent of a shock on income.

Tax on income does not provide an important fiscal stabilisation (0.6%).

Table 2.11 Degree of fiscal stabilisation, 2002–2006, Trinidad and Tobago

	2003–2006	*2003–2005*	*2002–2006*
REGRESSION	*TAXREV*	*TAXINC*	*PERSEM*
Elasticity	0.5	0.4	0.7
Tax/GDP	0.3	0.0	0.0
Degree of stabilisation (%)	15.2	0.6	-0.6

Source: Data from World Bank Development Indicators (2009) and articles IV from the IMF

Conclusion

The Caribbean is dynamic in terms of fiscal strategy. However, the situation differs across countries. This divergence can be explained by sector specialisation (oil producers or non oil producers), the level of public debt and the structure of the fiscal system.

These differences impact on the optimal fiscal policy to be implemented in times of recession and on the alternatives for generating fiscal space. When the level of debt is limited the fiscal effect may more likely be a demand one and require a countercyclical fiscal policy, whereas when public debt is high there is lack of confidence and a procyclical policy should be more efficient.

The fiscal system of different countries has evolved over the last two decades with several countries adopting VAT. This can be a step towards fiscal optimality. Nevertheless, fiscal stabilisation remains quite low in the Caribbean at less than 16 per cent. So, some alternatives to the usual fiscal action have to be found.

Self-insurance schemes taking the form of stabilisation funds can help absorb shocks and insurance, such as the CCRIF, can buffer the impact of natural disasters. Stabilisation funds are implemented by countries with energy revenue and so depend on oil price evolution. The efficiency of these mechanisms is linked with their transparency, accountability and rules – good governance. One point of contention is the degree of absorption of shocks that these schemes can provide. Nonetheless, they are promising steps.

Fiscal efficiency could also be gained through the reduction of the numerous tax incentives in some countries as they are inefficient in gearing the sectors concerned and represent a loss of revenue.

Notes

1. CET is the rate of duty applied by all members of the market to a product imported from a country that is not a member, see: http://www.caricom.org/jsp/single_market/single_market_index.jsp?menu=csme
2. Fiscal space can be defined as 'The availability of budgetary room that allows a government to provide resources for a desired purpose, without any prejudice to the sustainability of a government's financial position' (Heller, 2005).
3. It is a multiple time series model that considers all variables as endogenous. Assumptions are made concerning the structure of the economy, with theoretical restrictions that are used for the identification of independent shocks (Schuberth and Wehinger, 2008).
4. That is, an impact that amplifies the economic situation whether expansion or recession.
5. That is, when interest rates increase it is more costly for firms to borrow in order to finance their investment projects. So, there is crowding out of private investment by public investment financed with fiscal policy that caused a rise of interest rates.
6. A fiscal multiplier is the ratio of a change in output to an exogenous shock in the fiscal deficit (Spilimbergo, Symansky and Schindler, 2009).
7. 2005 figures.
8. That is, resources from oil and gas result in the underdevelopment of other sectors.

9. The coefficient of correlation associates two variables. It is calculated with the covariance and the standard deviation of both variables. The maximum possible value of this coefficient is 1 for which both variables move in the same proportion and same way.

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This study examines how monetary and fiscal policies are implemented in Caribbean small states, tracing the differences and similarities in tax structure, current expenditure and current revenues. It shows the impact of monetary policy on inflation and the importance of exchange rate regimes to the effectiveness of monetary policy in the region. The authors show that fiscal stabilisation in the region is very low and as such countries within the region would benefit from insurance mechanisms and stabilisation funds.

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