



Inter-American Development Bank
Banco Interamericano de Desarrollo
Latin American Research Network
Red de Centros de Investigación
Research Network Working paper #R-401

The Political Economy of Exchange Rate Policy in the Caribbean

by

DeLisle Worrell*
Don Marshall**
Nicole Smith***

(with research assistance by Jacqueline Morris)

June 2000

* Monetary and Exchange Affairs Department, IMF, Washington, D.C. 20431; dworrell@imf.org

** Institute of Social and Economic Research, University of the West Indies, Cave Hill, Barbados;
donmarshall@hotmail.com

*** Department of Economics, University of the West Indies, St. Augustine, Trinidad; nsmith@tstt.net.tt

**Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library**

Worrell, DeLisle.

The political economy of exchange rate policy in the Caribbean / by DeLisle Worrell,
Don Marshall, Nicole Smith.

p. cm. (Research Network Working papers ; R-401)
Includes bibliographical references.

1. Caribbean Area--Economic policy--Case studies. 2. Foreign exchange rates--Caribbean
Area--Case studies. 3. Caribbean Area--Economic conditions--1945-. I. Marshall, Don D.
II. Smith, Nicole. III. Inter-American Development Bank. Research Dept. VI. Title. V.
Series.

338.9 W877--dc21

©2000

Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, D.C. 20577

The views and interpretations in this document are those of the authors and should not be
attributed to the Inter-American Development Bank, or to any individual acting on its behalf.

The Research Department (RES) publishes the *Latin American Economic Policies Newsletter*,
as well as working papers and books, on diverse economic issues. To obtain a complete list of
RES publications and read or download them, please visit our web site at:
www.iadb.org/res/32.htm.

The Political Economy of Exchange Rate Policy in the Caribbean

Contents

Section 1. Rationale of the Study and Outline	5
Section 2. The Economic and Political Context and the Evolution of the Rate	6
Economic Background	6
Political Background	7
Evolution of the Exchange Rate Strategies	9
Section 3. The OECS Monetary Union	16
Section 4. Case Studies	19
The 1967 Sterling Devaluation	20
The Switch to the US Dollar, 1973-76	21
Jamaica, 1977	22
Jamaica, 1983	24
Trinidad-Tobago, 1985	26
Antigua, 1986	28
Guyana, 1987	29
Jamaica, 1990	30
Barbados, 1991	32
Grenada, 1991	34
Section 5. Empirical Tests	35
The Model	35
Results	41
Section 6. Findings	43
References	44
Appendix	45

Acknowledgments

We are grateful for all the comments and suggestions we received, in particular from Andrew Downes, Jeffrey Frieden, Alvin Hilaire, Ruby Randall, Ernesto Stein and Mark Swinburne. The interviews and discussions we conducted with officials in Jamaica and Guyana proved invaluable in terms of insight and perceptive reflection. In this regard we wish to acknowledge National Commercial Bank in Jamaica management officials- Mark Mackenzie, Jennifer Thorpe, Denzil Halsall and Jeffrey Cobham; Bank of Jamaica officers Colin Bullock, Myrtle D. Halsall and Pauline Batchelor; and President of the Private Sector Organisation of Jamaica Charles Ross. In Guyana, we extend our gratitude to former President (1985-1991) Desmond Hoyte, former Deputy Prime Minister, Planning and Development (1985-1991) Haslyn Parris and Gobind A. Ganga of the Bank of Guyana. Finally, we especially thank Mrs. Denise Thompson for doing a fine job on the text, pulling together diverse aspects of the material, and Ms. Jennifer Burnett for her secretarial assistance in the preparation of the final draft.

Section 1. Rationale of the Study and Outline

The Caribbean Economic Community (Caricom)¹ is a promising laboratory for studying the determinants of exchange rate strategy because, in the past 38 years, member countries have experienced a variety of regimes including currency boards, a monetary union, pegs to the US dollar and sterling, a crawling peg, exchange rate auctions and freely floating exchange rates, with and without central bank intervention. These divergent strategies all had common origins in the currency boards set up by Great Britain in the immediate post-World War II years. This study searches for causes of the divergence by examining economic and political factors, using quantitative tests and case studies.

Earlier studies of the Caribbean exchange rate experience reveal that exchange rate strategy was not based on strict economic calculus, in line with similar observations for the Latin American countries included in this study. Exchange rates were not adjusted in light of perceived competitive losses, and changes were reluctantly implemented, usually long after widespread evidence of exchange rate disequilibrium became evident. In line with other studies in this project, our intention is to provide a political economy analysis of exchange rate determination, weaving elections, political alliances and interest groups into the story.

The Caribbean offers possibilities of comparisons and contrasts with Latin America. The fact that the Caribbean is so much smaller than the countries of Latin America may limit exchange rate options. There are relatively few products and services that are produced and exported by both regions. Tourism, the Caribbean's most important export, is much less important for Latin American countries in comparison with the size of their GDP. Some Latin American countries trade extensively among themselves, while Caribbean countries do not. On the whole, moreover, Caribbean countries are much more open than those of Latin America, both to trade and financial flows.

The Caribbean offers political and institutional contrasts with Latin America as well. The region has robust parliamentary systems, dating from the 1940s and 1950s, except for Guyana. There has been one brief interruption of four years, in Grenada, one of Caricom's smallest members. Trade unions have had a strong voice in Caribbean affairs, while business groups, once very influential, have declined in influence in recent years. Caricom also includes a subset of members who constitute a monetary union among themselves, the member states of the Organisation of East Caribbean States (OECS).

This study assembles information on economic, political and institutional circumstances in an effort to identify the sources of exchange rate divergence within the

¹Caricom comprises the following countries: the Bahamas, Barbados, Belize, Guyana, Haiti, Jamaica, Suriname, Trinidad and Tobago, and the countries of the Organisation of Eastern Caribbean States (OECS), namely Anguilla, Antigua and Barbuda, the British Virgin Islands, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and the Turks and Caicos Islands. Anguilla, the British Virgin Islands and the Turks and Caicos Islands have observer status only.

Caribbean. A selection of Caricom countries was necessary in order to make the study manageable, but choices were made so as to include every variety of exchange rate strategy with which countries have experimented. We include all countries that have flexible exchange rates (Guyana, Jamaica and Trinidad and Tobago), a country that has maintained a pegged exchange (Barbados), two members of the OECS monetary union and the monetary union itself.

The next section of this paper provides economic and political background information on the countries to be studied and an overview of their exchange rate strategies. The third section of the paper describes the evolution and workings of the Eastern Caribbean Central Bank (ECCB), the central bank of the OECS monetary union, and discusses the sources of its durable exchange rate peg. In Section 4 we report on case studies of major changes in exchange rate strategy, as well as major balance of payments crises that involved large adjustment programs. The case studies bring together quantitative information and descriptions of the circumstances of each situation, in a search for features that seem to be common across episodes. Section 5 reports on a quantitative analysis of the factors affecting exchange rate strategy. Data on economic and political factors were pooled for all countries and tests conducted on the significance of their impact on the level and volatility of the nominal exchange rate, the level of the real exchange rate and the choice between pegged and floating regimes.

We establish that there is a consensus of Caribbean intellectual opinion, popular opinion and political party support for exchange rates fixed to the US dollar. In Sections 4 and 5 we explore how some countries were able to maintain a fixed parity and others were not, through the interaction of political factors (such as leadership and public opinion) economic factors (such as the size of the balance of payments disequilibrium), politico-economic factors (such as the existence of a monetary union), technocratic factors (such as the internal consistency of the policy package) and timing factors. Neither economic explanations (e.g., misalignment, inflation differentials) nor political explanations (e.g., interest group pressures, government instability, political competition) by themselves explain exchange rates.

Section 2. The Economic and Political Context and the Evolution of the Rate

Economic Background

The English-speaking economies are all very small by international standards, though they vary in size from Montserrat and St. Kitts and Nevis, with populations of less than 50,000, to Jamaica, with a population of about 2.5 million. They are all islands or groups of islands, with the exception of Belize on the Central American mainland and Guyana on the northern coast of South America. They share similar economic backgrounds as historical exporters of primary agriculture, with ratios of trade to GDP in the region of 100%. In 1960 all these countries except Guyana were members of the short-lived West Indies Federation, which was dissolved in 1963. Trinidad and Tobago and Jamaica were then the most prosperous, on the basis of the exploitation of oil and bauxite, respectively, which supplemented their agricultural

earnings. Tourism was just gathering pace, and as yet there was only a little manufacturing. Most countries mainly exported sugar and other agricultural products. GDP per capita for the English-speaking Caribbean ranged from under US\$100 for the countries that now constitute the OECS to about US\$650 for Trinidad and Tobago.

The 1960s saw the rapid growth of tourism, with the introduction of jet transport and the US blockade of Cuba, previously the main Caribbean magnet for North American tourists. By 1997 tourism had supplanted agriculture as the main export in most countries, with the notable exceptions of Guyana and Trinidad and Tobago, the latter having invested heavily in the manufacture of petrochemicals and mineral production. Other manufactured exports are not significant, apart from the export of garments under special arrangements, and these are in decline. Import-substituting manufacturing is a small sub-sector; it has not reduced the demand for imports, and it does not compete with exports. The ratios of trade to GDP have remained in the region of 100% throughout the 1960-97 period. Today the most prosperous Caribbean countries are the tourism economies: Antigua and Barbuda, the Bahamas, Barbados and St. Lucia. Trinidad and Tobago has registered economic gains, less significant than for the tourism economies, on the basis of diversification into oil-based industry. Jamaica's economy has also grown, but its performance has been very unstable. Except for Belize, the agriculture-based economies have stagnated, and Guyana's economy has contracted drastically.

The English Caribbean ranks high among developing countries in indices of the quality of life such as health, education, sanitation, housing, physical amenities and the limited incidence of poverty. Except for Guyana and Jamaica, significant gains were made in all countries between 1960 and 1997. There have been improvements in Jamaica, less significant than elsewhere, while Guyana has lost considerable ground.

In the early post-World War II period the UK regularized most of its colonial currencies with the establishment of currency boards in order to manage local currencies linked to sterling. Currency boards were set up for the Bahamas, Belize, Jamaica and the Eastern Caribbean, the latter covering all territories from the Turks and Caicos (still dependencies of the UK) in the north to Guyana in the south. During the 1960s newly independent Caribbean countries replaced these currency boards with central banks. First Guyana, then Trinidad and Tobago and Barbados replaced the currency of the Eastern Caribbean Currency Authority (ECCA) with their own issue, leaving the EC dollar in circulation among the group which subsequently formed the Organisation of Eastern Caribbean States (OECS). They opted to maintain the common currency, eventually converting the currency authority into the Eastern Caribbean Currency Board in 1983.

The OECS and Barbados have elected to maintain a fixed currency peg throughout and have been able to sustain it with an open current account and intervention by the monetary authority at the fixed rate. The rate was first fixed to sterling (at EC/BDS \$4.80 to the pound, for both currencies) and subsequently switched to the US dollar, in 1975 for Barbados (with a 5% appreciation to return the currency to a convenient BDS\$2.00 per US dollar) and in 1976 for ECCA.

The currencies of Guyana, Jamaica and Trinidad and Tobago have been devalued, most drastically in the case of Guyana. The first devaluation in each case took place in circumstances of comprehensive but increasingly ineffective current account controls, the emergence of a parallel market where local currency was traded at badly depreciated rates, and a build-up of external arrears of payment. The Guyana dollar was devalued in 1987 and 1989, but neither devaluation succeeded in eliminating the parallel market, and the rate was fully liberalized in 1991. The Bank of Guyana no longer intervenes in the foreign exchange market. The Trinidad-Tobago dollar was devalued in 1985 and 1988; after a third devaluation in 1993, the currency was allowed to find its own level, though the central bank intervenes from time to time.

The Bank of Jamaica (BoJ) has had the longest and most varied experience of exchange rate adjustment. In 1977 it introduced multiple exchange rates, with depreciated rates for specified transactions. Subsequently the BoJ experimented with a predetermined exchange rate crawl. The rates were unified and a managed foreign exchange auction introduced in 1983. The rate depreciated under the exchange rate auction until 1985, thereafter remaining unchanged for some time, though the auction mechanism remained in place. The parallel market remained active throughout this period. The exchange rate was liberalized in 1991, and the rate immediately fell drastically. It continued to depreciate until temporarily arrested by the initiative of private banks and entrepreneurs in 1993. That attempt at stabilization failed in 1995, and the currency depreciated once more. However the rate has remained stable since 1997, with occasional intervention by the BoJ.

Political Background

Trade unions and political parties in the Anglophone Caribbean have roots in the social disturbances that occurred across the Caribbean in the 1930s and 1940s. Subsequently the introduction of adult suffrage and ministerial government in the 1950s provided a basis for petit bourgeois leaders to cultivate mass-based support, using a Westminster-Whitehall framework for constructing the politics of order.

Currently politics in the Commonwealth Caribbean is based on representative democracy, featuring regular free elections, a competitive party system, and the peaceful handing over of power from one party to another. In practice the parties do not concern themselves with mass politicization. Instead they have become “electoral machines led and dominated by educated professionals who act as brokers and bargainers in an attempt to assemble multiple-class coalitions.”² In the Trinidadian and Guyanese cases, party politics reflects the ethnic divisions within the countries. The nature of party politics in the Caribbean derives its true essence from the class and race dynamics that have long been a part of its history and sociology.

² See Payne (1991).

The 1960s saw the emergence of the black petit bourgeois political class, comprising state elites, some manufacturers (particularly in the cases of Jamaica and Trinidad), tourism elites and members of the intelligentsia; this class allied itself with merchant capitalists (mostly the white traditional elite). The new black leadership forged additional alliances along ethnic lines (in the cases of Guyana and Trinidad) and with other factions in society: the trade unions, the media, the Church and the NGO community along with subaltern groups like the Rastafari and community organizations.

The trade unions have remained generalist in character, with public sector employees constituting the bulk of the membership. They share a connection with labor-based political parties, witnessed by the common historical commitment to social justice concerns and the migration of union activists into electoral politics. The populist character of these institutions is derived from their labor-based constituency, and the leadership is supplied by members of the petit bourgeois class. In Jamaica, Trinidad and Guyana currency issues have been important in conflicts between public sector-based unions and ruling regimes. Except in the case of Guyana, where the political climate did not allow for unions to operate freely, governments have been obliged, due to working-class pressure, to adopt wage-protective policies in dealing with inflation. Generally the unions have expressed a preference for a fixed exchange rate in light of the white-collar character of their membership and the concern all share with depreciating currency values. This preference is shaped against the backdrop of macroeconomic growth and how politically sustainable an austerity package might be in the event of economic contraction.

These pluralist factions that make up Caribbean society must be incorporated in the enquiry into the degrees of fiscal profligacy by the countries under examination. Inflationary wage increases, subsidized consumer goods, and deficit spending constitute endemic characteristics found within the political economy of Caribbean populism. Steps to bring inflation under control and to maintain currency values often compete with other social and political pressures for increasing social services for the working majority, higher government spending on social welfare and cost of living subsidies to ease the burdens on the poor. This causes monetary and fiscal policy to clash with the requisites of a fixed exchange rate, making the adoption of a fixed or flexible exchange rate regime a decidedly political event, especially when countries experienced payments crises.

Evolution of the Exchange Rate Strategies

1960s, Fixed Exchange Rates

In 1960 major international currencies bore relatively fixed relationships to each other, in particular sterling and the US dollar, the currencies of principal interest to the Caribbean. Caribbean currencies were issued by currency boards in Trinidad-Tobago (for the Eastern Caribbean from the Virgin Islands in the north to Guyana in the south), Jamaica (for the western Caribbean), British Honduras (now Belize) and the Bahamas. The local currencies were all pegged to sterling, except for the Bahamas. Current and capital account transactions

between the Caribbean, the UK and other members of the sterling area were free of exchange controls. The currency boards were permitted limited holdings of domestic government securities, but this provision was seldom used. They were not allowed to lend to banks or other domestic entities. A chronology of major exchange rate changes, and changes in exchange regimes, appears in Table 1, together with major political and economic policy change which occurred during the period.

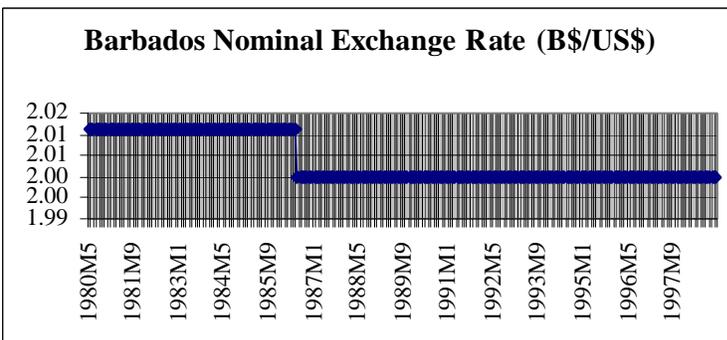
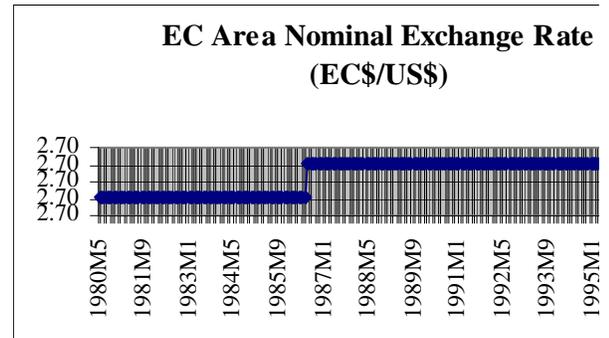
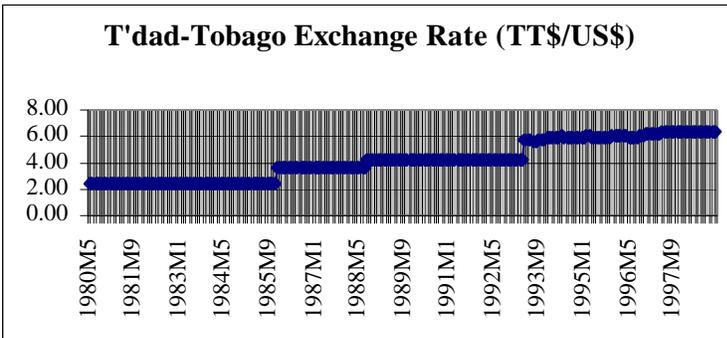
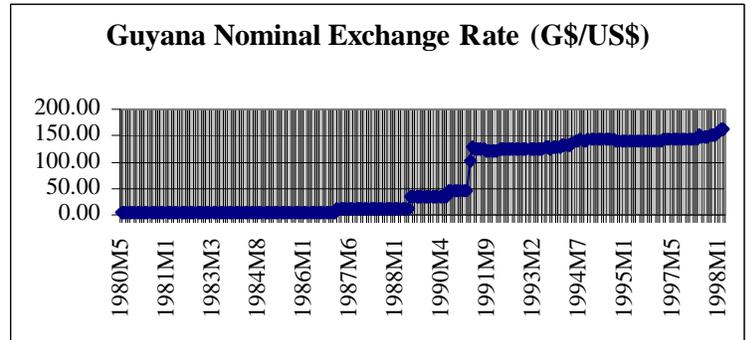
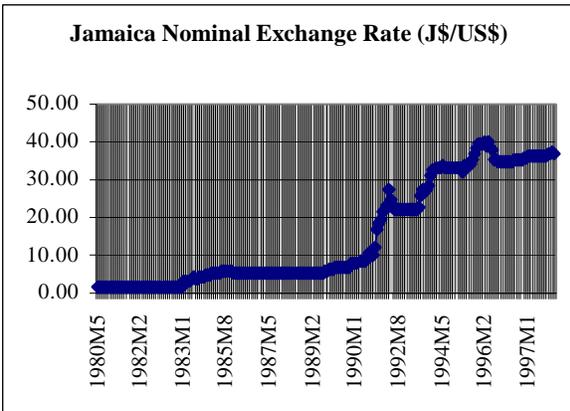
Between 1960 and 1965 central banks were established first in Jamaica (1960), then in Trinidad and Tobago (1964) and Guyana (1965). For the remainder of the 1960s their policies differed little from those of the currency boards that remained, though they enjoyed full central bank powers to offer discounts, undertake open market operations, control interest rates, control credit and set reserve requirements. The central banks all remained within the sterling area.

The peg to sterling created no difficulty so long as the US dollar/sterling rate remained unchanged. However, the maintenance of a fixed peg to a devalued UK pound proved inflationary when sterling was devalued in terms of the US dollar in 1967. Caribbean countries absorbed the one-off inflationary impulse of the 1967 devaluations, maintaining the peg to sterling.

1971-82, Exchange Rate Strategies Diverge

The problem resurfaced after the US abandoned the gold parity in 1971. At first the pound strengthened a little, but it soon began to depreciate continuously against the dollar, fueling inflation in the Caribbean. Agreements which the UK government had put in place to guarantee the US dollar value of sterling balances as an incentive for the holding of sterling reserves were wound up in 1973. Caribbean currency pegs were all switched to the US dollar soon after: Jamaica in 1973, Barbados, Guyana and ECCA in 1975, and Trinidad-Tobago in 1976. During this period exchange controls were extended to all non-domestic currencies in Trinidad and Tobago (1970), Guyana (1971), Jamaica (1972) and Barbados (1974). The patterns of nominal currency movement are shown in Chart 1.

Chart 1. Nominal Exchange Rate Movement in Relation to US\$

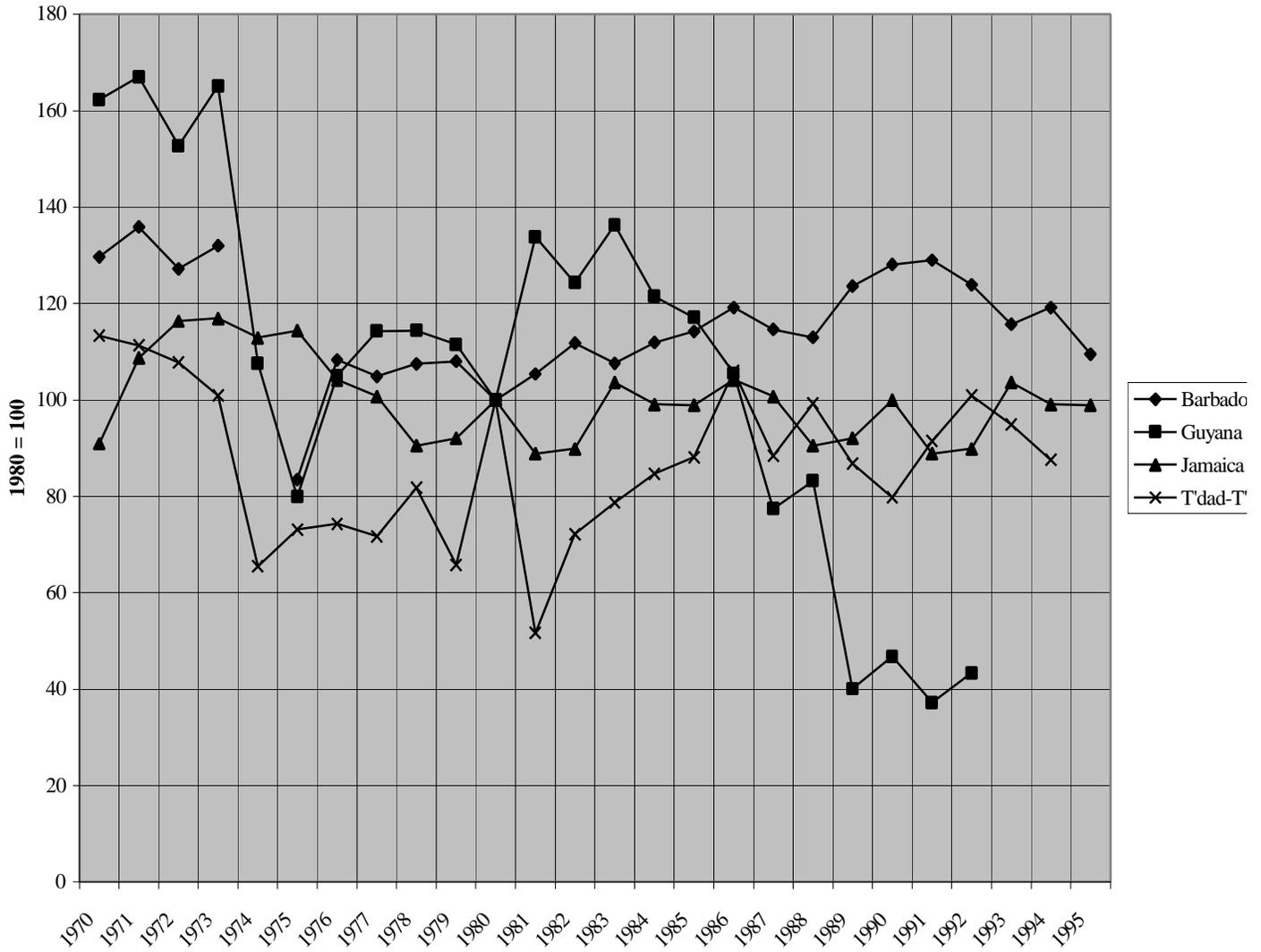


The currencies of Jamaica and Guyana were devalued during the second half of the 1970s, the former officially, the latter only on the parallel market. These countries pegged the exchange rate and rationed foreign currency via exchange controls. Trinidad and Tobago accumulated a very large store of foreign exchange reserves as a result of the oil boom during the 1970s but ran into difficulties when oil prices fell in the 1980s.

The strategy adopted by the ECCB and the Central Bank of Barbados for managing the exchange rate, also used by the Bank of Guyana and the Bank of Jamaica prior to 1976 and by the Central Bank of Trinidad-Tobago prior to 1983, differs radically from the strategies adopted by the flexible rate currencies after the dates mentioned above. The ECCB and the Central Bank of Barbados maintained the peg through passive intervention—a commitment to supply foreign exchange on demand at the fixed rate. The demand for foreign exchange for current transactions was never rationed, while foreign investment and the repatriation of foreign capital, capital gains and profits were permitted freely. Foreign exchange markets remained in equilibrium through the management of aggregate demand, and there was never a parallel market premium on the official exchange rate. In contrast, the governments of Guyana, Jamaica and Trinidad and Tobago reacted to foreign exchange shortages by rationing, in the first instance, in an effort to avoid devaluation. These attempts at rationing failed, leading to the emergence of parallel market premiums.

The major change in the real exchange rate in the 1970s came about not as a result of any nominal exchange rate change, but because of international inflation, oil price shocks and sharp swings in the prices of sugar and other primary products during the period 1973-76. Real exchange rates depreciated by proportions ranging from two-thirds to 100 percent as a result of these external shocks. Real exchange rate comparisons appear in Chart 2 for Barbados (BD), Guyana (GY), Jamaica (JA) and Trinidad and Tobago (TT).

Chart 2. Real Exchange Rates - Estimates



1983-91, Further Exchange Rate Divergence

During this period the OECS and Barbados continued to maintain their fixed pegs by passive intervention in the foreign exchange market. In Antigua, one of the largest of the OECS states, severe balance of payments difficulties emerged in the mid-1980s, reflected in growing arrears of payments on external debt, but these difficulties did not lead to any exceptional call on the foreign exchange reserves of the Eastern Caribbean Central Bank (ECCB); the value of the EC dollar remained stable, with no parallel market premium or other evidence of lack of confidence. In the second half of the 1980s, fiscal expansion in Barbados resulted in a large excess demand for foreign exchange and depletion of the foreign exchange reserves of the central bank. A major balance of payments crisis ensued in 1991, with the exhaustion of foreign exchange reserves. Some opinion in Washington favored exchange rate adjustment, but the overwhelming sentiment in Barbados favored the exchange rate anchor, and a massive program for fiscal adjustment was put in place to restore balance of payments equilibrium at the old parity.

The Guyanese government's efforts to ration foreign exchange proved increasingly ineffective, and a widening range of activity was switched to parallel markets. Small adjustments in the official exchange rate in 1984, 1985 and 1986, had no impact. In 1987 Guyana embarked on a comprehensive economic reform program to restructure the economy over several years, revive production, resuscitate the infrastructure and balance external payments. The program included a large devaluation and a relaxation of import controls.

In November 1983 the Jamaican government introduced an exchange auction as a means of allowing the market to determine the rate. This measure represented part of a change of strategy initiated by the Jamaica Labour Party administration which, in the 1980 general election, had defeated the incumbent People's National Party, responsible for the dirigiste exchange rate regime of the late 1970s. Exchange auctions continued until 1989, but from 1986 onwards there was no change in the exchange rate. The Jamaica dollar was devalued and pegged temporarily in January 1990, but in September 1991 all exchange controls were removed and the currency was allowed to float freely.

Trinidad and Tobago fell into a balance of payments crisis when the oil price fell in 1981/82. Measures to adjust aggregate demand to the reduction in the income terms of trade were inadequate and tardy. They included a 50 percent exchange rate devaluation, which did not occur until December 1985. A long process of adjustment began with a change of administration in December 1985, and it continued for the remainder of the decade, including further devaluation in August 1988.

The real exchange rate of Barbados appreciated during the 1980s, while that of Jamaica depreciated gradually from 1983 onwards. The depreciation of the Jamaican real exchange rate continued when the nominal rate stabilized in the 1986-89 period, just as it did when the nominal rate depreciated. The Guyana real exchange rate depreciated sharply, on implementation of the economic restructuring in the second half of the 1980s. The Trinidad-Tobago real exchange rate was severely depreciated by the fall of oil prices, but it subsequently appreciated subsequently before depreciating gradually in the second half of the 1980s.

1992 Onwards: Fixed and Flexible Regimes

Guyana and Trinidad and Tobago joined Jamaica in floating their exchange rates and abolishing all exchange controls on current and capital accounts. The Trinidad-Tobago exchange rate was floated and exchange controls abolished on April 13, 1993. The rate immediately fell sharply, then depreciated very gradually until 1995, when it stabilized until the end of 1996; a further loss of value at that time was followed by another period of stability.

The Guyana dollar continued to depreciate as the process of trade and exchange rate liberalization continued, and in December 1995 all exchange controls were abolished. The exchange rate stabilized until the end of 1996, then depreciated and stabilized again until early 1998.

The liberalized Jamaican exchange rate continued to depreciate, despite the Bank of Jamaica's high interest rate policy, engineered through open market sales. In 1993 a prominent businessman, hotel entrepreneur Gordon "Butch" Stewart, led an initiative to revalue and stabilize the rate. The move, which was supported by the media, the general public and the banks, succeeded in holding the rate fixed for about 18 months. However, it did not enjoy official endorsement: the Bank of Jamaica made no commitment to intervene in support of the rate, and the government did not undertake fiscal policy to contain the demand for foreign exchange so that the rate could persist. In 1995 the rate began to depreciate once more.

The floating rate currencies all showed a tendency to remain unchanged (in terms of their US dollar values) for extended periods, even when rates were fully liberalized with no official intervention or open market operations, as in Guyana. In the case of Jamaica, which has the longest record of market-driven exchange rates in the Caribbean, the typical pattern saw the exchange rate settle to an unchanging value after a period of depreciation which usually lasted no more than six months. For a while the supply of foreign exchange at that rate seemed adequate and the foreign currency market cleared. Sooner or later, however, the supply of foreign exchange fell short of the demand. The exchange rate did not fall immediately, even in the absence of official intervention. Instead, informal rationing appeared in the foreign currency market: purchasers of foreign currency found they needed to place large orders in advance, and requests were only partially fulfilled. Informal rationing sometimes persisted for periods of over a year before the rate started to depreciate. The depreciation, when it occurred, was quite rapid, aggravated by pent-up demand and speculative short-term capital outflows.

Although full liberalization of the foreign currency market came more recently in Guyana and Trinidad and Tobago, the pattern of exchange rate movements during this period is similar to that for Jamaica. This is especially remarkable for Guyana, where the central bank eschewed open market operations and intervention. Both the Bank of Jamaica and the Central Bank of Trinidad and Tobago did intervene, though intermittently, but they were usually not successful in preventing exchange rate variability. Since 1991 the Bank of Jamaica has also tried to stabilize the exchange rate through open market operations, on occasion selling government securities from its

own portfolio to drive interest rates upwards, in hopes of enticing financial institutions to replace their liquidity by importing foreign exchange. The Bank of Jamaica claimed success for this policy in 1998, when the exchange rate remained unchanged in spite of rumors of devaluation following the December 1997 general election.

Section 3. The OECS Monetary Union

Five independent English-speaking countries of the Eastern Caribbean and two dependencies form the Organisation of Eastern Caribbean states, whose common central bank is the ECCB.

The Eastern Caribbean Central Bank evolved out of currency arrangements for the East Caribbean colonial territories, covering the Lesser Antilles and Guyana, in the early 1950s. The availability of means of payment was a long-standing problem in the Caribbean, and in the 1930s and 1940s a variety of note issues appeared in attempts to alleviate the problem. By the 1950s notes issued by the Governments of British Guiana (now Guyana), Barbados and Trinidad and Tobago, and by several commercial banks were in co-circulation throughout the East Caribbean, all issued in exchange for sterling at \$4.80.

The British Caribbean Currency Board (BCCB) was established in 1950 with headquarters in Trinidad to regularize the note issue. The BCCB operated as a strict currency board, issuing currency in exchange for sterling. The withdrawal of first Guyana and Trinidad and Tobago, and later Barbados, to establish their own currencies, left the currency board—which changed its name to the East Caribbean Currency Authority in 1965—with coverage of what subsequently became the Organisation of Eastern Caribbean States (OECS). ECCA continued to operate as a currency board, issuing currency and holding bankers' deposits in exchange for foreign exchange, until October 1983, when it was converted to a central bank with the addition of powers of monetary management, including reserve requirements, interest rate directives, credit controls, rediscounts and open market operations. However, the ECCB is required to maintain foreign reserves equivalent to at least 60% of its liabilities, and there are statutory limits on the availability of credit to member governments.

Major policy decisions of the ECCB, such as decisions on exchange rate strategy, repose, in the final analysis, with the Monetary Council, the highest organ of the ECCB, which comprises the Ministers of Finance of the participating countries. The Governor of the ECCB does not sit on the Monetary Council. The Governor chairs the Board of Directors, which meets more regularly and maintains close watch on economic and monetary affairs. The Board is free to make policy within the guidelines set by the Monetary Council. It would need to refer to the Council any policy that fell outside of an existing guideline, such as a decision to alter the exchange rate strategy.

The Governor of the ECCB is appointed by the Monetary Council for a fixed term of five years, which is renewable. The Board comprises the Governor, the Deputy Governor (a career officer) and representatives appointed by each member country, who may be drawn from government or the private sector. They act in their individual capacity and are required to

consider the interests of the currency area as a whole, rather than to represent the countries that appointed them. The directors serve three-year terms.

Although all transactions are in a single currency, the financial markets of the ECCB member countries appear to be relatively independent. As with all Caribbean countries where exchange rates are pegged, interest rates follow comparable US rates over the medium term. However, in the short term, conditions on the domestic financial market cause variations around this trend. The pattern of these interest rate variations is different for each member of ECCB, contrary to what might be expected of an integrated financial market for the OECS region. The segmentation of the market along national lines is also reflected in divergences of bank liquidity. This is especially surprising because branches of international banks are among the leading financial institutions in all OECS countries, and the branches of each bank report to a single headquarters. This suggests that the costs of financial transactions between countries are much higher than is commonly supposed.

The ECCB has made little use of the monetary instruments it acquired in 1983. Its only intervention in the financial system was the stipulation of a minimum interest rate on deposits, a stipulation that arose because of a tendency for deposit rates to fall below the rate of inflation. A pervasive phenomenon in developing countries is the very wide spread between deposit and loan rates, a reflection, in the opinion of the principal author of the present study, of the relatively low volume of large transactions characteristic of all but the largest countries of the developing world. The ECCB believed that banks kept deposit rates too low in order to retain an adequate spread without making loan rates noncompetitive with international rates (after allowances for information and transaction costs). The interest rate stipulation has therefore resulted in a higher loan rate than might otherwise have been the case, but this has not affected the mix of foreign and local borrowing to the detriment of ECCB's foreign exchange reserves.

ECCB's lending to government has occasioned no fall in its foreign exchange reserves. The bank is not banker to any member government and offers no credit on overdraft or other open account. Lending to governments is chiefly by way of marketable securities. Not every national government issues securities, and no government issues them on a regular periodic basis. ECCB's lending to governments has therefore been episodic, and the amounts involved were small in relation to the monetary base (about 10% at the end of 1996).

The principal source of monetary expansion by the ECCB has been the accumulation of foreign exchange reserves. Despite its central bank status the ECCB maintains foreign reserve levels typical of its predecessor, ECCA. ECCB has made few advances to financial institutions, none of large magnitude.

The strategy of issuing domestic currency almost exclusively in exchange for foreign currency continued unchanged throughout all the metamorphoses of the BCCB. As a result there has never been a threat to the exchange rate peg. The BCCB operated in the era of fixed exchange rates, when exchange rate flexibility for small countries was considered academic. However, it became increasingly clear that the peg to sterling was inappropriate for countries whose international business was mainly with the US and where, in addition, most non-US transactions

were conducted in US dollars. The inflationary consequences of the 1967 sterling devaluation brought home this lesson to a wide audience. ECCA, along with other Caribbean monetary authorities, maintained the sterling parity. When sterling began to depreciate in the early 1970s, a switch to a US dollar peg became increasingly attractive as an anti-inflationary measure. ECCA made the switch in October 1975.

The fact that ECCB did not lend significantly to financial institutions or governments meant that external payments of the OECS region as a whole remained in balance. There was no means of financing external payments other than foreign currency receipts or capital inflow. Moreover, the national segmentation of financial markets resulted in external balance for each member country, as there were no intraregional transfers to facilitate offsetting surpluses and deficits. Therefore, we do not find evidence of economic disequilibria in the balance of payments, except in the case of Antigua and Barbuda, where a deficit emerged, financed by the accumulation of external arrears.

Furthermore, in the absence of ECCB advances fiscal deficits were contained to the financing available to governments from external creditors or the domestic private sector. As a result there were no sustained large fiscal deficits, except the Antigua case mentioned above, and an episode in Grenada, when government sold assets to close the financing gap. These two episodes are identified for close scrutiny in Section 4 on case studies, precisely because they are manifestations of economic disequilibria that might, in the absence of monetary union, have threatened the stability of the exchange rate.

Because of fiscal and balance of payments financing constraints, adjustments to the real economies of member countries of BCCB, ECCA and ECCB had to be made in response to economic shocks, of whatever kind. The cost of such adjustment has been a major obstacle to monetary union in Europe and elsewhere. However, in the Caribbean such costs appear to have been small. Countries recovered from natural disasters with remarkable speed, and real income was less variable for countries of the monetary union—and for those with fixed pegs— than for countries with flexible exchange rates. Political instability was the only cause of prolonged economic decline in member countries of the ECCB, or in Barbados, Guyana and Trinidad and Tobago before they left the arrangement.

It is surprising, in retrospect, that Barbados, Guyana and Trinidad and Tobago opted out of an arrangement which seems to have offered the substantial benefit of low and stable inflation at no measurable cost in terms of output foregone or output variability. At the time that the central banks were set up there was little media discussion on economic issues, economic information was not widely disseminated and parliamentary debates were not informative on economic matters. Only in the academic literature is there evidence of possible motivation for the establishment of the central banks, apart from the content of the central bank laws themselves. Caribbean academics criticized currency boards for their “excessive” holding of foreign reserves, in effect a loan to the rich reserve currency countries. These funds, it was argued, might be more productively used to fund domestic investment (Thomas, 1972; McClean, 1975). The PhD thesis of the principal author of this report derived an optimal level of reserves by computing the minimum of (a) the growth sacrificed by holding reserves, via investment foregone and (b) the

loss of output, compounded over time, from adjusting income fully to eliminate any adverse balance of payments shock, given the probability of such a shock (Worrell, 1975).

Political leaders evidently found these arguments persuasive. Central banks could provide funding to sustain government's social development and infrastructure programs in the face of any sudden loss of revenue. Newly established central banks assumed a portion of the national debt almost immediately. It was never envisaged that such lending would increase to an extent that the fixed peg would be in question. Statutory limits on government borrowing and on central bank credit to government were expected to insure against the exhaustion of reserves. In any event, it was the failure to observe these limits which allowed Guyana, Jamaica and Trinidad and Tobago to drift, against the wishes of their governments and populations, into a policy of depreciating exchange rates. In Barbados, too, the legal limits were breached in 1989, and the US peg was maintained only because government reversed its expenditure policies decisively at the eleventh hour.

In contrast, the ECCB always kept credit to governments well below statutory limits. The prevailing view is that this reflects the greater degree of independence of the ECCB, compared with other regional central banks. However, ECCB is not ranked significantly above the Central Bank of Barbados or the Central Bank of the Bahamas by any of the usual indices of independence, and it is surely incongruous to consider independent of government influence a bank whose supreme decision making body, the Monetary Council, is made up exclusively of ministers of finance and does not include the bank's governor as a member.

A more plausible explanation of ECCB's ability to constrain government credit is the relative economic balance among its member countries. No country is so economically dominant as to impose on others to bend the rules to its advantage, and no country accounts for such a large percentage of foreign exchange receipts that allowable limits on credit to that member might cause doubts about the sustainability of the peg. The ECCB may also have benefited from its relatively late establishment, in 1983. By the mid-1980s the contrast between the fortunes of the countries with unchanged parities and those with depreciated currencies suggested a less cavalier approach to money creation.

Section 4. Case Studies

Case studies are chosen to represent the wide variety of circumstance that attended changes in exchange rate strategy in the Anglophone Caribbean, as well as circumstances where balance of payments disequilibrium was acute but no exchange rate change took place. The 1967 devaluations were the first major exchange rate changes of the central banking era. Like the switch to the US dollar peg, they illustrate the strength of economic ties with the US. The switch of peg makes an interesting contrast because of the failure, on that occasion, to achieve the unanimity of 1967. The first major devaluation for each country is identified for discussion: Jamaica in 1977, Trinidad and Tobago in 1985 and Guyana in 1987. Two further episodes are examined for Jamaica, to show the variety of exchange rate strategy in that country: the exchange auction in 1983, and the free float in 1990. Three episodes of balance of payments crisis which did

not result in exchange rate changes are examined, in search of factors that sustained the exchange rate anchor: Antigua in 1986, and Barbados and Grenada, both in 1991.

The 1967 Sterling Devaluation

In retrospect, the Caribbean response to the 1967 sterling devaluation is a manifestation of the extent to which trading relationships had shifted from the UK to the US. Failure to devalue would have led to a decline in the profitability of sugar and bananas, still the main exports from all Caribbean countries except Trinidad and Tobago at that time; agricultural exports went mainly to the UK. However, countries devalued reluctantly, because most imports originated in the US, and the cost of living predictably jumped. Unlike later exchange rate changes, this one took place when there was a sustainable balance of payments.

Regional devaluations took place within weeks of the sterling devaluation because of speculation fueled by the perception that Caribbean currencies would sooner or later follow the UK. From a strictly economic point of view this was not inevitable: some observers pointed out that the cost saving (in local currency) from a shift in import sources from the US to the UK might have more than compensated for lower local currency receipts from agricultural exports. Evidently this shift was considered unlikely. ECCA and the Bank of Guyana devalued immediately after the sterling did. The Bank of Jamaica and the Central Bank of Trinidad and Tobago took time to consider their options. In Jamaica, speculation about an imminent devaluation led to incipient capital flight; the foreign exchange market was closed and the currency devalued. In Trinidad and Tobago, where petroleum destined for the US accounted for three-quarters of exports, the case against devaluation was persuasive: the increase in the local currency receipts from oil exports would be matched or exceeded by the increase in inflation. However, by January 1968 only Trinidad and Tobago had not devalued, and the central bank decided to fall in line with the majority.

All currencies were devalued by exactly the same percentage as sterling. Quantitative analysis was not available on which to estimate the costs and benefits of a devaluation of this or any other magnitude. Furthermore, this was the strategy most likely to calm foreign exchange markets. The latter may have been the compelling reason. In later years considerable research was done on the implications of different pegging arrangements in circumstances where a country exports to more than one currency area. None of it had any effect on policy or public opinion in the Caribbean. The value of local currency continued to be determined in relation to the US dollar, both officially and in the popular mind.

Unlike later episodes there was nothing in the economic circumstances of 1967 which necessitated a change of exchange rate. All countries achieved sustainable balance of payments outcomes, there were no parallel markets in foreign currency, domestic inflation was in line with international rates, government expenditure was funded by revenues and long-term borrowing and economic growth was led by the traded sectors.

It is tempting to attribute the decisions to devalue to the strength of the agricultural lobby, whose profitability was threatened. However, that cannot be the complete story. In Jamaica's case devaluation was forced on the authorities by a market which expected the Jamaican pound to follow sterling, even though government and the Bank of Jamaica were prepared to resist the agricultural lobby. They had good cause to do so, since agriculture was only 7% of GDP, already overshadowed by bauxite-alumina and manufacturing. The market's ill-informed action forced the authorities into a devaluation which, in any event, failed to avert a downturn in agriculture in the 1970s.

Political factors appeared to have played no overt role in decisions to devalue. The period between the sterling devaluation and Caribbean devaluations was too short for effective mobilization by trade unions and pressure groups, even in the case of Trinidad and Tobago, the last to act. The organs of public discussion were at the time in a fledgling state, and economic data and analysis were not readily available or regularly discussed and analyzed. There was, moreover, no clear difference along party lines in any country. Except for Guyana, elections were at least four years in the future, so no immediate political fallout was expected. (In Guyana the flawed election of 1968 was won by the ruling Peoples National Congress, or PNC.³)

International intellectual opinion probably affected the decisions, because in 1967 central banks and ministries of finance were all staffed or advised at policymaking levels by expatriates on loan from the Bank of England and the Bundesbank, career civil servants from the colonial service, and experts recruited via the International Monetary Fund (IMF). Of the countries under study, Guyana was the only one country with an active IMF program. However, the intellectual community had not extensively studied multi-currency models and their implications, and there was at that time no dominant view on the strategy for countries in the circumstance of the Caribbean. The monetary authorities convened a highly successful conference, jointly with the University of the West Indies (UWI), specifically to secure for the region the benefit of Caribbean intellectual opinion. Although the conference fully explored the pros and cons in the abstract, the lead time was insufficient for quantification of the impact of possible options.

The Switch to the US Dollar, 1973-76

The floating of the US dollar in 1971 meant uncertainty in the prices of most Caribbean external transactions. Furthermore, the dollar tended to strengthen vis-a-vis sterling, fueling inflation in the Caribbean. The end of the Sterling Area Agreement in 1973 released the Caribbean from an obligation to hold foreign exchange reserves in sterling, in return for a UK undertaking to defend the parity of the pound.

Jamaica was the first to switch, in 1973; that country had a greater proportion of external transactions in US dollars than did the east Caribbean (except Trinidad and Tobago). Barbados, Guyana and ECCA switched in 1975. Depreciation of sterling began with the end of the Sterling

³ The election had none of the safeguards required to assure free and fair voting, and the results were highly implausible.

Area Agreement, and the slide accelerated in 1974 and 1975. Trinidad and Tobago was surprisingly the last to switch, despite the fact that, in terms of the proportion of US dollar denominated transactions, the country had a stronger incentive than Jamaica.

Barbados' 5% revaluation was motivated solely by the convenience of the US\$0.50 rate. The Jamaican authorities devalued 15% at the time of the switch, to reverse the appreciation of the Jamaica dollar between 1971 and 1973. Other monetary authorities switched at the rate obtaining on the day the change was made.

The switch was dictated by structural considerations: the proximity of the US and the durability of the Caribbean's trading links with North America, whose dominance in the region's external transactions, already well established, was becoming even more overwhelming. The experiences of the years since 1971 brought home to the Caribbean private sector the reality of the shift in primary economic relationships from the UK to the US, and the switches occasioned no political controversy. As the Sterling Area Agreement drew to a close an increasing volume of informed opinion was heard in favor of a US peg. By the time the decision was made a strong national consensus had formed in support of this change. In the early 1970s the Caribbean had not yet evolved systems for the dissemination of economic data, nor was there an active and informed media forum on economic issues, as has evolved since. There was no political divide on the switch, and it therefore provided no ammunition for election campaigns. In Guyana and Jamaica elections were three years away; in Barbados the election was one year away (it was won by the opposition Barbados Labour Party, or BLP) while in Trinidad-Tobago the year of the switch was an election year. (The election was won by the ruling Peoples National Movement.) In neither case was the exchange rate regime an election issue.

The balance of payments, fiscal balances and other macroeconomic conditions played no part in motivating the switch. External balances were sustainable everywhere, credit to governments by monetary authorities was less than 50% of the monetary base except in Guyana (at 53%), inflation was about equal to foreign inflation plus local currency depreciation and growth was driven by tradable activity. There were no parallel markets and no significant capital flight.

The decision to switch the peg does not seem to have been much influenced by international opinion, which was in the early stages of coming to terms with flexible exchange rates. The literature on the options for small countries in a world of floating rates dates from the mid-1970s. Only Guyana had an IMF program in 1975, and the incidence of technical advisors at the region's central banks had begun to fall.

Jamaica, 1977: The Introduction of the Crawling Peg

The 1977 exchange rate change in Jamaica had its roots in fiscal policies in 1974 and subsequent years. Fiscal policies in turn reflected the objectives and strategy of the PNP administration, elected in 1972 (after a decade of JLP administration) under the leadership of Michael Manley, the most influential Caribbean leader of his generation. Both parties were nationalist and populist. The

JLP had begun a systematic policy of “Jamaicanization” in the 1960s, using incentives and moral suasion to encourage foreign corporations to sell shares in their Jamaican operations to locals.

Both parties, and the Jamaican public at large, were concerned about the exploitation of Jamaica’s bauxite resources, at that time the main source of foreign exchange, by international companies. Economists of the University of the West Indies (UWI) produced research which showed that Jamaica’s share of the value added in the bauxite-aluminum process was very low. Among the strategies suggested to improve on this share was a revision of the system of taxing bauxite and alumina, provided Jamaica could exploit its advantages over other producers.

This strategy appealed to the PNP, which took the lead in the formation of the International Bauxite Association (IBA), bringing bauxite-alumina producers together to discuss common interests, including the system of taxation. Bauxite producers were encouraged by the success of OPEC in raising the price of oil in 1973. When no swift international agreement was forthcoming about the revision of bauxite taxes, Jamaica unilaterally imposed a new levy in 1974, significantly increasing government revenues as a result. Jamaica seemed at that time to be in a strong position to lead the way in extracting a more equitable distribution of returns between countries and international companies, since it was then the world’s second largest exporter of bauxite-alumina. Jamaica additionally enjoyed the advantage of low transport costs by virtue of proximity to the dominant US market.

However, the government of Jamaica did not anticipate the impact of rising energy prices and technical change on the aluminum market. Because the production of aluminum is very energy-intensive, the rising price of oil shifted demand away from aluminum towards cheaper substitutes, including recently developed strong light-weight plastics. The aluminum market went into a prolonged slump. Furthermore, companies producing in Jamaica were able to divert an increasing share of supply to expanding mining operations in West Africa and Australia. The yield from the new bauxite levy, which provided government a large windfall of revenue and foreign exchange in 1974, fell sharply in 1975 and 1976.

Administrations led by both major parties, driven by populist inclinations, expanded government employment to provide jobs for unskilled and semi-skilled workers whenever revenues permitted. In 1974 the PNP launched a program of unprecedented magnitude, financed by the proceeds of the bauxite levy. When the yield from the levy fell in subsequent years very large fiscal and foreign exchange deficits emerged, and by 1976 the Bank of Jamaica could no longer maintain the exchange rate peg by intervention.

The PNP received electoral endorsement in an election called one year ahead of schedule in 1976. Only then did government take decisive action to address the foreign exchange shortage, tightening exchange controls on current transactions and instituting a plan to ration the use of foreign currency. Foreign exchange was to be supplied in accordance with the requirements of an “Emergency Production Plan” developed by a technical team put together for that purpose. It soon became clear that neither the production plan nor the foreign exchange budget bore much relation to the reality of aggregate demand and supply in the economy. By April 1977 the government was in discussion with the IMF on an alternative strategy involving the devaluation of

the Jamaica dollar, fiscal adjustment and other elements of what was then the orthodox adjustment package.

The about-face in strategy is evidence of conflict within the administration, between the Bank of Jamaica and career officers of the ministry of finance, on the one hand, and an eclectic group of economic advisors, including economists from the University of the West Indies, on the other. Whether the Jamaican dollar should be devalued, and the extent of the devaluation, were at the center of this debate. The compromise was the implementation of a dual exchange rate, with a 15% devaluation, but the old rate was retained for a range of transactions. When the dual rate failed to clear the market the rates were unified and further depreciation instituted. A crawling peg was agreed upon, partly to cushion the inflationary effects of further devaluation, and partly because no agreement was forthcoming as to the extent of devaluation required.

Neither trade unions nor organizations of firms or sectors played a significant role in the exchange rate decision. Sectoral interest groups for sugar and bananas, the best organized at that time, were marginalized by the economic shift to tourism and bauxite/alumina, where ownership was foreign and there was no organized domestic lobby. Trade unions were split strictly along party lines, with the Bustamante Industrial Trade Union (BITU) allied to the then weak opposition Jamaica Labour Party (JLP), and the National Workers' Union (NWU) an ally of the ruling Peoples National Party (PNP). Michael Manley, the Prime Minister, had come to prominence as leader of the NWU, and the union remained committed to his leadership after he moved onto the national stage.

The economic circumstances prior to 1977 did not presage the balance of payments crisis, apart from the large fiscal imbalance. External shocks had a relatively mild impact, on balance, and structural measures did not seriously affect supply. The terms of trade losses which Jamaica experienced because of the oil price increase in 1973-74 were partly offset by the very sharp, albeit temporary, rise in the price of sugar in 1975 and 1976. World tourism grew strongly in the early 1970s despite the rising price of oil, and Caribbean tourism grew just as quickly, except for 1975. International interest rates were somewhat higher in 1971-75 than they had been in the 1960s, but the impact on Jamaica's debt service was modest because the foreign debt was not large. Overall, external shocks had a muted impact on Jamaica's external payments balance.

Domestic inflation in the 1971-75 period was eight points above US inflation, indicating that the real exchange rate had appreciated. However, accumulated inflation had not reached levels that might have brought the government's credibility into question, and central bank credit to government was at a sustainable level. Foreign exchange reserves averaged in excess of three months' import value and there was no premium on foreign currency traded on the parallel market.

Jamaica, 1983: The Exchange Rate Auction

The switch from an official peg to an auction in 1983 was an outgrowth of a policy of trial and error in connection with renewed efforts to balance the external accounts by the JLP after its overwhelming success in the 1980 election. Mr Seaga, the new prime minister, was invited to

meet President Reagan at the White House, and the US actively promoted and participated in an international financial institution (IFI)-led financial package for Jamaica, conditional on an orthodox adjustment program. A three-year Extended Fund Facility for SDR478 million was agreed in April 1981.

The adjustment program initiated in 1981 assumed that the large scale of the official financing package, and its endorsement by the US government and the IFIs, would have encouraged a strong inflow of private foreign investment. A high profile mission to Jamaica, sponsored by the US Commerce Department and including leading US financiers and industrialists, was intended to jump-start foreign direct investment. However, partly because capital formation requires a longer gestation period than the policies seem to have allowed for, foreign private investment failed to live up to early expectations. Investment ratios increased slowly from the 1976-79 low of 15% of GDP, and foreign inflows were insufficient to fill the gap left by official flows. Furthermore, the sale of government-owned hotels, the dismantling of sugar cooperatives and the rehabilitation of sugar farms took far longer than projected, and these sales attracted domestic buyers rather than overseas firms who would have supplied foreign exchange. In effect the foreign funding from official sources financed a temporary surge in imports of consumer goods. This could not be sustained in the face of sluggish exports, and the foreign exchange deficiency worsened.

In 1982 the government made a virtue of necessity by removing legal sanctions on parallel foreign currency transactions, a recognition of dual exchange rates in practice. However, this system proved unstable: sellers claimed the market rate, while buyers sought the official rate. In November 1983 the official rate was devalued 43% to equate to the market rate. The authorities evidently feared that this rate would not persist, so they introduced an exchange rate auction in the hope that supply and demand would produce a stable exchange rate. A structural adjustment loan was agreed upon with the World Bank in June 1983, public utility tariffs were raised and the program of progressive import liberalization continued. The JLP took this strategy to the electorate in December 1983, in an early poll boycotted by the PNP.

External circumstances aggravated Jamaica's adjustment problem. Terms of trade were depressed by falling prices of bauxite and alumina, as world aluminum markets remained soft. High international interest rates dramatically increased debt service, especially following the borrowing of 1981-83. World tourism slumped in 1981 and 1982, but arrivals to Jamaica were depressed mainly by depreciation of the tourism plant in the late 1970s and unfavourable press surrounding the 1980 election, which was marred by violence and loss of life.

There were macroeconomic signals, from the inception of the adjustment program in 1981, that the exchange rate had not been restored to equilibrium. The average misalignment of the real exchange rate between 1979 and 1982, based on calculations by Worrell and Harriott (1997), was 96%. Foreign exchange reserves remained insufficient for central bank intervention—only US\$50 million on average from 1979-82—and the monetary authority's credit to government exceeded the monetary base by a ratio of 4:1. Cumulative inflation and the prolonged nature of the external payments deficit made for lack of faith in the government's ability to restore external balance, even though the domestic-foreign inflation differential was virtually eliminated in 1982.

Other favourable macroeconomic signals were a small balance of payments deficit (net of short term capital movements) and very small amounts of unidentified balance of payments items, usually thought to be capital flight.

The structural shares in GDP did not change at all between 1977 and 1983; on balance the losses from inflation outweighed the potential gains from exchange rate depreciation. Moreover, while the inflationary effects of devaluation since the mid-1970s were painfully evident, export performance had improved very little in tourism and manufacturing and had worsened in bauxite-alumina and agriculture. Trade unions maintained their opposition to devaluation, but their influence was diminished by their association with and sympathy for the failed programs of the 1970s. The Private Sector Organisation of Jamaica, now a formally constituted body with a mandate to press the viewpoint of private firms, supported the exchange rate policy and the overall strategy of measured liberalization.⁴ Currency depreciation from 1983 onwards increased the fiscal deficit because of the increased local currency costs of servicing recently contracted official financing, costs which far outweighed the small gain from fiscal drag.

The opposition boycott of the 1983 election did not completely undermine the JLP's mandate to persist with its economic strategy, including exchange rate arrangements. Public opinion polls indicated a clear lead for the JLP in advance of the election. Although there remained considerable popular debate about the appropriateness of the adjustment policies, their prospect of success and their impact on national welfare, the public was offered no coherent alternative, and no one wanted to repeat the state-directed policies of the 1970s.

Trinidad and Tobago, 1985: Devaluation to Improve the Fiscal Balance

The origin of the crisis which led to the 1985 devaluation of the Trinidad-Tobago dollar was the 1982 fall in the price of oil and the associated loss of foreign exchange and government revenue. This required a major contraction of aggregate demand, which was not immediately forthcoming. Government at first tried to reduce imports via licensing and exchange controls, but these were negated by fiscal expansion, which prevented a fall in aggregate demand. Rapid erosion of extremely large stocks of foreign reserves was accompanied by shortages and the growth of a parallel market where the US dollar attracted a significant premium. In 1984 a one-third increase in external debt and a reduction in the fiscal deficit served to slow down the foreign reserve loss, but it did not close the deficit, and the rapid decline resumed in 1985.

⁴Confirmed by the President of the Private Sector Organisation of Jamaica. In an interview with one of the authors on January 22, 1998 he noted: "From the early 1980s we advised that the market should determine the exchange rate. That was heresy in those days. By 1984-5 a market-oriented consensus was shaped by various private sector actors. The auction represented a first step to recognizing the need for the market to determine the price of foreign exchange. People were increasing foreign liabilities without any assets to support them. The mid-1980s saw a liberalization of the import regime, which meant a gradual reduction of items which fell under the purview of the State Trading Corporation. It opened up the space for other people to get into the distribution business."

With a general election due in 1986, government needed to relieve the foreign exchange shortage. However, in choosing to devalue, the PNM, whose hold on government had remained unchallenged for a generation, may have underestimated the potential of the National Alliance for Reconstruction (NAR), a recent coalition of opposition parties, which was able to turn disaffection with the severe economic downturn to its electoral advantage. In 1985 the exchange rate was devalued by 50%, though an unchanged rate was stipulated for foods and “basic” items. In the absence of associated fiscal and monetary contraction, devaluation failed to attract IFI support. The devaluation slowed the rate of foreign reserve loss considerably but did not eliminate it, and shortages persisted. The PNM, in power since the mid-1950s, was reduced to just three of thirty-six seats in parliament in the 1986 election, which was won by the NAR.

The halving of the price of oil between 1981 and 1983 meant a reduction of more than one-third in real income. Decisive and persuasive leadership was needed in order to convince the population to accept the decline in general living standards which this entailed, efficient government administration was necessary to ensure equitable distribution of the burden and special measures were needed to protect vulnerable groups. The death in 1981 of Dr. Eric Williams left government without a leader of the standing to achieve the required national consensus. Instead, the PNM administration yielded to trade union demands to increase spending in an attempt to sustain national spending power in the face of the loss of real income.

As foreign earnings from oil fell, external debt service began to crowd out imports, a situation made more acute by the relatively high interest rates that persisted on external loans during the first half of the eighties. The main indicator of the emerging balance of payments crisis was the rapid decline in foreign reserves, from US\$3,347 million in 1981 to US\$2,104 million in 1983, less than four weeks of import cover. Largely as a result of high inflation during the oil boom years the estimated degree of real exchange rate misalignment was high, 90% above equilibrium between 1979 and 1982, based on the Worrell-Harriott estimates. The balance of payments went from large surplus to large deficit, and central bank credit to government from virtually nothing to over 50% of GDP. Capital flight assumed major proportions, and a large premium emerged on the parallel market for foreign currency.

State enterprises, which accounted for a significant proportion of Trinidad and Tobago’s exports, contributed to the motivation for devaluation in 1985. The government had invested heavily in energy-based export industry in what turned out to be a successful effort to diversify exports from petroleum products. The government had also purchased some oil producing and refining operations, in whole or in part, to forestall or delay production cut-backs planned by foreign owners. The government had purchased the Caroni sugar producing company to forestall its closure, which would have meant the demise of sugar production. Government was therefore the largest exporter in 1985, and devaluation significantly improved its revenues in Trinidad-Tobago dollars. Devaluation also helped to reduce the government deficit. Increased TT dollar receipts from royalties, profits of export-oriented state enterprises and export tax receipts far outweighed the increase in the TT dollar cost of external debt service, notwithstanding the high prevailing international interest rates.

Agriculture accounted for only 2% of Trinidad and Tobago's GDP, and manufacturing about 8%; neither was large or influential enough to affect exchange rate policy. Both sectors had contracted during the oil boom of the 1970s, which fueled increases in domestic costs, rendering the non-oil sector uncompetitive.⁵ Foreign companies in the oil and energy sectors were largely indifferent to exchange rate policy, since most of their costs and product prices were in US currency. The services sectors, accounting for more than 50% of GDP, supplied the domestic market (Trinidad and Tobago has a very small tourism industry) and opposed devaluation because of its inflationary impact. However, to the extent that their costs had already been inflated by the need to buy foreign exchange on the parallel market because of official foreign currency rationing, the devaluation was welcomed as a recognition of the actual situation in the foreign currency market.

Antigua, 1986: Monetary Union as a Source of Credibility

The extraordinary build-up of foreign debt in Antigua in 1986, which financed a current account deficit of 20% of GDP, imposed a debt service burden that should have destabilized both fiscal and external balances. Debt service could not have been accommodated without a cutback in government expenditure and a reduction in imports in the absence of further borrowing. Loans of the required magnitude were not available from the ECCB, and foreign creditworthiness should have been sufficiently impaired to have eliminated the possibility of loans from that quarter. In any event the government neglected to pay in full and allowed arrears to build. Notwithstanding this, Antigua continued to have access to the external private capital market. Antigua was able to borrow credibility from its membership of ECCB in spite of its payments record.

Antigua's overborrowing had its genesis in the bunching of private investment projects in the tourism sector. Although they were all initiated by foreign interests government provided guarantees for the external loans with which they were funded. The bunching seems to have been accidental, not related to world demand or domestic changes. World tourism grew at a moderate 4% per year between 1983, the first year of this period, and 1986. Antigua was considered a mature tourism destination, not sharing in the novelty that led to exceptional growth in Aruba, the Dominican Republic and St. Lucia. There was no intensification of government incentives, elections were three years away and the Antigua Labour Party's (ALP) hold on the government was not under threat.

Neither Antigua and Barbuda's external creditworthiness nor the ALP's hold on power was threatened by a series of allegations and rumors that began in the early 1980s with an investigation of arms smuggling to South Africa, then under UN embargo, with the connivance of government officials. There had also been reports of improper financial arrangements, legal enquiries into alleged arms sales to Iraq and questions about the licensing of offshore activity. None of these incidents reduced economic prospects or created political instability.

⁵ This phenomenon is referred to as "Dutch disease," though Caribbean economists think it should be known as "Trinidad disease," because it was first pointed out in Seers (1964).

That government was not obliged to cut its spending is surprising. External creditors might have been expected to deny further loans once payments fell into arrears. Antigua and Barbuda's eligibility to borrow from ECCB was too small to significantly expand the regional money supply, and there was therefore no diminution of ECCB's foreign reserves. Nor did the government make an attempt to secure loans from the OECS private sector; no new government securities were issued in the years following the surge in debt service.

Antigua and Barbuda's membership in the ECCB enabled government to secure de facto extended repayment terms despite policy failures and credibility problems that might have derailed external payments and fiscal equilibria. The ECCB's reserves remained in excess of the monetary base for the entire period, and foreign exchange reserves accumulated as a result of exports and long-term capital inflow. This evidently reassured creditors of government's ability to pay. Foreign lenders may also have been attracted by the stability of the ALP administration and the fact that its policies were not likely to be overturned in an election.

In the absence of sanctions from creditors there was no pressure to eliminate payments arrears, and the government's efforts to do so made little impression. Admonitions came from the Caribbean Development Bank (CDB), ECCB and the IFIs, in periodic reports. They also sponsored negotiations on rescheduling of repayments. Only in 1993 did the government agree to a home-grown adjustment program, with technical assistance from ECCB and CDB, to restore fiscal balance and eliminate arrears over time.

Guyana, 1987: Devaluation and Economic Restructuring

Guyana devalued its exchange rate decisively in 1987,⁶ as an element in a multi-year economic restructuring program which turned the economy away from direction by the state and government ownership of most large enterprise, towards private ownership and market determination of prices, interest rates and exchange rates. By 1987, the failure of the command strategy was everywhere apparent. Real output had contracted perhaps 50%, public utilities, infrastructure and social services had deteriorated badly, the emigration of capital and skill was acute, external payments arrears were extremely large, debt service obligations exceeded exports and the informal market was estimated by some to have exceeded the formal market. The abandonment of state control became feasible with the death in 1985 of Forbes Burnham.

Desmond Hoyte, Burnham's successor, undertook the task of economic rehabilitation, reversing the strategy of state direction of the economy. It was a process that would take several years. By 1987 the parallel exchange rate was deeply depreciated, and devaluation was designed to return external transactions to formal markets, where costs and risks were lower because of prudential regulation and information disclosure requirements to which formal financial institutions are subject. The devaluation, which allowed for a market-determined rate, was accompanied by the dissolution of government's holding company for state enterprises and was

⁶Previous small exchange rate adjustments were token, and did nothing to close the foreign exchange gap or to inhibit the growth of parallel market activity

followed by fiscal, monetary and structural measures that attracted the support of IFIs and the donor community.

A decline in bauxite prices was the main factor in the deterioration of Guyana's terms of trade between 1983 and 1987. However, the impact on the balance of payments and real income was insignificant in comparison with the breakdown in the supply of exports. In the absence of a sufficiently large cadre of local managerial and technical skills, nationalization of all major export activities, including bauxite production, sugar production, and rice milling and marketing, resulted in a severe loss of efficiency. The prolonged shortage of foreign exchange led to neglect of maintenance, low investment and failure to keep abreast of changes in technology and tastes. The export of each major commodity declined more than 50%, despite the availability of markets.

By 1987 Guyana's external debt was 300% of GDP; high international interest rates added to an already unsustainable burden of debt service. Actual debt service payments were 21% of government revenue, but this left a large portion of these obligations in arrears. Macroeconomic indicators all suggested major disequilibrium: foreign exchange reserves were reduced to zero, there were large balance of payments deficits (averaging US\$183 million), domestic inflation averaged 16 points above world inflation (1983-89), Bank of Guyana credit to government was over 300% of the monetary base and there was a high rate of cumulative inflation.

Guyana had the highest ratio of agriculture to GDP of the countries in our sample, 28% on average between 1983 and 1989. Bauxite, at one time second in importance to sugar, averaged 5%. Manufacturing contributed 14% on average, and services (which involved exclusively domestic consumption, as Guyana attracts no tourism) amounted to 45%. Agriculture and bauxite production recovered as a result of the economic reform program, and by 1989 their respective contributions were 47% and 11% for that year alone.

There were no organized lobbies of private sector interest groups. Government owned over 50% of all production, including most exporting firms. Substantial private sector interest remained in rice production. The PNC under Burnham's leadership did not encourage advocacy, either from sectoral interests or from trade unions.

The failure of state control of the economy was so evident that it overcame political ideology, both of the PNC and the opposition Peoples Political Party (PPP), which had also advocated state control. The PPP was therefore unable to capitalize on the PNC's change of heart. Any attempt to revert to state control would have hurt their chances in the 1990 election (which was postponed until 1992, and which was won by the PPP). Because of the pervasiveness of the parallel market there was little objection to the 1987 devaluation.

Guyana's economic recovery program benefited from a variety of technical inputs, both regional and international. Teams were assembled to research and recommend on the program's many facets, including overviews sponsored by the CDB, the Commonwealth Secretariat and United Nations Development Programme (UNDP), as well as the World Bank, IMF and Inter-American Development Bank (IDB). There were also contributions from leading Caribbean economists and other social scientists.

Jamaica, 1990: Introduction of the Floating Exchange Rate

The 1990 devaluation of the Jamaica dollar came at the end of a decade which saw continuous policy adjustment in search of economic growth and balance of payments stability. In 1990 these policies, including fiscal reform, financial reform, privatization and reform in the financing of social services, had produced only anaemic growth, while inflation control was repeatedly derailed by currency devaluation, and the Bank of Jamaica's net foreign assets remained negative. Disillusion with economic performance and "adjustment fatigue" played a large part in the defeat of the JLP in the 1989 election. However, the incoming PNP administration continued the JLP program in most essentials.

Shortly before the election the JLP suspended the exchange rate auction. After the introduction of the auction in 1983 the exchange rate had depreciated over the next two years, but between 1985 and 1988 the rate remained unchanged at the twice weekly auction, despite seasonal fluctuations in the demand and supply and the fact that the Bank of Jamaica's net foreign assets remained negative. In 1988, though, the auction rate began to depreciate once more, boosting the inflation rate in what should have been an election year. (In fact the election was postponed to 1989 because of inaccuracies in the voters' lists.) Seaga's JLP administration suspended the auction and fixed the exchange rate at the depreciated value of J\$6.50 per US dollar in October 1989, just ahead of the election in December 1989.

In January 1990 Manley's incoming PNP administration devalued to J\$7.00, followed in April by a contractionary budget, and later by accelerated divestment and financial liberalization. However, the parallel foreign exchange rate remained 10-15% more depreciated than the official rate, and in November the Bank of Jamaica abandoned the process of exchange rate determination entirely to the commercial banks. They could negotiate buying and selling rates without reference to the Bank of Jamaica, though they were still required to surrender a portion of their foreign currency receipts to the central bank. The exchange rate immediately fell by 300%, well below any prior notions as to the equilibrium rate by government, bankers or the general public.

Jamaica's balance of payments difficulties in 1990 were compounded by a downturn in travel abroad by Americans, which depressed tourism throughout the Caribbean, and by the impact of Hurricane Gilbert in September 1989. However, a major factor in the precipitous decline in the exchange rate was the credibility of the government as a result of more than a decade of exchange rate depreciation and failure to contain inflation. The current account deficit of the balance of payments was not large at 2% of GDP, but the central bank's credit to government remained high at 190% of the monetary base, and credit to government by the banking system was 30% of GDP. Efforts at fiscal control were stymied by an overhang of previous debt, the servicing of which absorbed a large proportion of government revenues because of exceptionally high domestic interest rates.

With a convincing election victory and five years to the next election, the PNP was able to take decisive measures in pursuit of stable growth. However, it brought no new ideas on

economic strategy, simply modifying the JLP strategy in areas such as the exchange rate where the previous policy appeared not to be effective.

Trade unions opposed exchange rate liberalization, but they had no alternative that could stabilize the balance of payments. The Private Sector Organisation of Jamaica, a strong employers' lobby, supported liberalization but was dismayed at the extent of the subsequent devaluation. Tourism and mining interests were largely indifferent because most of their transactions were in US dollars. Manufacturers welcomed the liberalization and the subsequent devaluation, but agricultural interests were unhappy because of exchange rate uncertainty. Overall, the lobbies against the exchange rate strategy were weak and muted. The overall strategy was supported by an IMF standby loan, which came into effect in September 1990.

Barbados, 1991: Consensus on the Exchange Rate Anchor

In 1991 the government introduced a drastic stabilization program which cut import demand by one-third. The program was implemented only when foreign exchange reserves of the monetary authority were completely exhausted, and the government was faced with external debt service for which it had no resources. It had been evident since 1989 that import demand was far in excess of foreign earnings and that crisis was impending. The centerpiece of the stabilization program was a reduction in the fiscal deficit, enough to cut aggregate demand to levels that could be supported by exports, and which allowed the central bank to reduce its credit to government significantly. The program was anchored on the fixed US dollar exchange rate, and it satisfied its primary aim of restoring the reserves of the central bank to allow the exchange rate to be maintained by central bank intervention. The fixed rate, together with measures to increase labor productivity—which unfortunately meant loss of jobs—kept inflation rates below those in the US for several years. Growth resumed in 1994, and the economy has continued to expand since then.

The roots of the crisis are to be found in the decline in investment in the tradable sector. Overall investment ratios declined in Barbados in the 1980s, but even more critically, most investment was in the nontradable sector, especially residential and commercial real estate, with investment in tourism, manufacturing and sugar severely reduced. As a result, Barbados failed to improve quality and labor productivity to maintain export competitiveness, especially with countries whose labor costs, measured in US dollars, had declined markedly as a result of their currency devaluations. Rather than introduce policies to stimulate investment in tradables, government reinforced incentives for investment in housing and expanded government employment to absorb those displaced by the contracting agricultural and manufacturing industries. This unrealistic program was financed for many years by foreign market borrowing, postponing the onset of the balance of payments crisis. When, from 1989 onwards, foreign loans proved insufficient, government had recourse to the central bank, and foreign reserves deteriorated rapidly.

Political considerations contributed to the evolution of the 1991 balance of payments crisis. The decline in tradable investment was evident before the 1986 election, but the then opposition Democratic Labour Party (DLP) ran its successful 1986 campaign on the promise of a major tax cut, including stronger incentives for investment in housing. The party's crushing

election victory –24 of 27 seats in parliament–was seen largely as an endorsement of the tax cut, and the DLP felt obliged to implement the program fully, against the advice of government technicians, in order to retain its credibility. The tax cut widened the fiscal deficit, already on the increase because of growing government employment, a policy which continued through the 1980s.

An attempt was made to rectify this fiscal imbalance with the imposition of new direct taxes in 1988, cutting the deficit in half. However, the tax package seriously eroded the DLP's popularity, and with an eye to the election due in 1991 the new taxes were removed in 1989. By 1989 the signs of impending balance of payments difficulties were already clear in the declining reserves and the growing credit to government. Nevertheless, the government embarked on pre-election fiscal spending in 1990, with an acceleration of government employment, expansion of capital works and exceptional salary increases for public servants. The Gulf War-induced slump in tourism to the Caribbean aggravated the balance of payments crisis, being reflected in a decline in tourist arrivals in 1991.

Although Barbados' prices remained in line with those on international markets, the credibility of government policy was questioned in 1991. The current account of the balance of payments, though less than 1% of GDP, was not sustainable because of the large amortization of earlier market borrowings. Credit to government by the central bank amounted to 65% of the monetary base. Trade credits were reversed as companies reduced foreign liabilities to an absolute minimum in order to reduce exposure in case of a devaluation. However, the government's loss of credibility did not go so far as to stimulate a parallel market in foreign exchange. Temporary informal rationing arrangements were made by banks and the general public in the second half of 1991 when there was a delay in securing IFI loan financing, but the exchange rate never varied.

The 1991 Barbados program exposed differences of opinion among the IFIs on the merits of the exchange rate anchor. After initial hesitation, which delayed the IMF standby and compensating financing until January 1992, the IMF and IDB lent support to the adjustment program, the IDB contributing a small medium term facility. The principal merit of these facilities was to restore confidence in economic management, though the main source of renewed confidence was the swift restoration of unborrowed foreign reserves at the central bank. The World Bank withdrew its initial interest in participation once it was decided not to devalue the exchange rate.

The exchange rate anchor was supported by all influential interest groups. The fiscal measures provoked two large street demonstrations and a legal challenge to one of the provisions, but while they directed criticism at the details of the program the protesters reaffirmed their support for the fixed exchange rate. Trade unions, the most articulate and best-organized pressure group, could offer no alternative program to cut aggregate spending and maintain the fixed exchange rate. Firms, faced with the alternative of an uncertain exchange rate, took steps to reduce labor input and shaved profit margins in order to maintain sales in the weakened domestic market. A tripartite agreement for a two-year wage freeze was agreed between trade unions, employers' organizations and government, with incentives for increased labor productivity.

The program's strong points were its technical underpinnings, the government's commitment to the strategy and a deliberate effort to build consensus around a strategy which accorded with market sentiment. The technical rationale for the program, its prognosis and targets were set down in the government's 1992 strategy paper which formed the centerpiece of negotiations with the IFIs and which was subsequently published. The strategy carried conviction because it was based on empirical estimates of the relevant economic magnitudes, including estimates of changes in Barbados' external competitiveness, and included projections based on realistic assumptions embedded in an internally consistent forecast model.

Government worked actively to build a national consensus around the program. Officials of the central bank and government explained the policies and their rationale in the media and in discussions with interest groups. Their task was made easier by the overwhelming national sentiment in favor of the exchange rate anchor. This sentiment had grown stronger in the previous decade and a half, as Barbadians witnessed the widening gap between their improving living standards and the stagnation or decline in the quality of life in neighboring countries whose currencies were devalued.

Grenada, 1991: Fiscal Adjustment Within the Monetary Union

In 1991 the government put in place a structural adjustment program which was drawn up by a team of Caribbean technicians, provided to government by CDB, ECCB and UNDP. It was designed to redress a persistent fiscal deficit, and included taxation and expenditure measures. The timing of the package was an outcome of the election of 1990, which brought to power a new administration. The public finances of Grenada had been chronically in deficit, with government dissaving from 1987 onwards. A hasty sale of government shares in the telecommunications company had served to close the gap in 1989, but when the underlying current account deficit appeared again in 1990 the new administration decided to undertake comprehensive fiscal reform.

This episode deserves to be studied because fiscal deficits of the magnitude experienced in Grenada between 1984 and 1991 (ranging from 6% to 25% of GDP) would almost certainly have resulted in balance of payments crises and exchange rate changes. This was not possible because of Grenada's membership in the ECCB. Instead, the government was forced, however reluctantly, to increase taxes and reduce expenditure. The 1991 program included a freeze on government wages, new levies on personal and corporate incomes, retrenchment in the public service, a cut in government capital expenditure and further divestment of state enterprises.

The terms of trade effects on Grenada between 1984 (the year of the restoration of political stability) and 1991 are uncertain. Banana prices were sustained, but nutmeg prices declined, while import prices rose at the time of the Gulf War. There was also a decline in tourism during that period. Overall the external effects may have been close to neutral.

Macroeconomic indicators fail to disclose signs of crisis. Domestic inflation was slightly below international rates, the balance of payments (net of short term flows) registered a surplus, the ratio of investment to GDP ranged from 30% to 38%, and the economy grew at rates in excess of 5% per year.

Agriculture, which might have benefited from greater exchange rate flexibility, accounted for about 20% of Grenada's GDP. Manufacturing accounted for about 5%, almost all for the domestic market, and therefore would not have welcomed devaluation. Tourism also accounted for 5%; firms in the industry price in US dollars and prefer the certainty of the fixed US dollar peg to the potential but often elusive gains from devaluation. Other activity was nontraded, and the fixed exchange rate suited these sectors. In these circumstances the issue of an own currency and devaluation never arose as a possible alternative to fiscal contraction.

The fact of its recent election victory inclined government to take decisive action. There was ample time to reverse adverse effects on the ruling party's standing in time for the next poll in five years. The support of a high-quality technical team lent credibility to the program, and the scrutiny of the sponsors ensured internal consistency. The measures occasioned little opposition, evidently because of a general recognition of the need for adjustment and a lack of alternative programs.

Section 5. Empirical Tests

Empirical tests were carried out, pooling data for the Caribbean countries included in the study, on the determinants of the exchange rate regime (fixed versus flexible regimes), the rate of change of the nominal exchange rate, a measure of the volatility of the nominal exchange rate, and an index of the real exchange rate (relative to the mean value of the real exchange rate for each country). The tests were designed to explore the roles and interaction of economic and political variables in the exchange rate outcomes. The economic variables that may have had an influence include external factors, domestic performance and policy variables, production structures, size considerations and financial structure. The political variables include the influence of interest groups, and some characteristics of political institutions. The exchange regime, a binary variable, is tested using a logit model; for the other variables least squares estimates are used.

The Model

The very large number of candidate variables was considerably reduced, in the empirical tests, by the availability of sufficiently long series of values or proxies. We do have data for most variables that we would have liked to include, from a theoretical viewpoint, but the observation periods frequently do not match. The number of usable observations was further reduced by the introduction of lags and data transformations (for example, percentage changes). The specifications for the four relationships tested, for the exchange rate regime (REGIME), the exchange rate level (ER), the volatility of the rates (ERVOL) and the real exchange rate (RER) are summarized in Table 4.1, which also indicates the expected sign of the coefficient associated with each variable.

The External Context

The external factors for whose influence we tested were US interest rates and the demand for tourism. Empirical studies have shown that, contrary to the usual small country assumption, the demand for Caribbean tourism varies with business cycles in the tourists' countries of origin (Worrell *et al.*, 1997). *TOUR*, the change in world tourist arrivals, measures the demand for tourism services.⁷ Increases in world tourism will facilitate the fixed exchange rate, appreciate flexible exchange rates, reduce exchange rate instability (foreign exchange reserves may be allowed to accumulate) and appreciate the real exchange rate. An increase in US interest rates has opposite effects.

Macroeconomic Conditions

The control of inflation may well be an objective of exchange rate strategy, but this implies that fiscal and monetary policies are compatible with those of the US. The inflation differential between domestic and US rates, *INFDIFF*, is used to measure the degree of compatibility. If domestic inflation rates are significantly above those in the US the country is unlikely to sustain a fixed exchange rate, the exchange rate is likely to depreciate, the exchange rate is less stable and the real exchange rate will appreciate if corrective action is not taken. (Alternatively, a country might choose a lower rate of inflation than the US and seek to achieve it by an appreciation of the nominal exchange rate.)

The credibility of monetary policy depends on the reputation government has established, particularly with respect to the control of inflation. The cumulative rate of inflation is used as an indicator of the confidence that reposes in government policy. Low credibility—a high rate of cumulative inflation—undermines the fixed exchange rate, depreciates the floating rate and makes the nominal rate unstable. It should not affect the real exchange rate. *CRED*, the variable employed in the tests, is the rate of inflation cumulated over the five years prior to each observation.

The sustainability of the external balance, and therefore the risk of exchange rate change, is measured by the overall balance of payments, less short-term capital movements. Previous studies have used the current account as a measure of misalignment, but sustained current account deficits may well be compatible with exchange rate equilibrium, if they are financed by long-term capital destined for investment, especially in tradables. Our measure includes only that element of the current account that is financed by a drawdown of foreign reserves or a short term capital inflow. Large and persistent adjusted balance of payments deficits (*BOPADJ*) depreciate nominal and real exchange rates and increase instability.

The effects of fiscal strategy depend on the extent to which the government's borrowing is a source of injections to the money supply, and are measured by the ratio of central bank credit to government to money supply (*CRGCB*). Monetary injections depreciate nominal and real exchange rates and increase instability.

⁷As a measure of demand this is preferable to Caribbean arrivals, which might reflect supply conditions as well.

A high degree of capital mobility promotes exchange rate stability provided fiscal, monetary, trade and other policies are consistent with the exchange rate, but it increases instability if policy is deemed to be inconsistent. The exchange control regime is not a good indicator of the degree of capital mobility. In small open economies capital mobility is high even in the presence of tight exchange controls, which divert capital flows to the parallel market. The extent of short-term capital as a percentage of exports of goods and services, *STKXGS*, is used as a proxy for capital mobility. In view of the first sentence of this paragraph its sign is ambiguous.

The choice of exchange rate strategy, the ability to sustain a fixed rate and the stability of the nominal rate are influenced by the level of foreign exchange reserves (*FXR*). High reserve levels are needed to defend a fixed rate, or for intervention in order to reduce exchange rate instability or prevent unwarranted depreciation. Foreign exchange reserve levels do not affect the real exchange rate.

The Production Structure

The output mix may proxy the influence which sectoral interest groups seek to exert on exchange rate strategy. Agricultural sectors (*AGR*) are likely to gain a cost advantage from devaluation, provided the effect of devaluation on domestic inflation is muted. Where the contribution of agriculture to GDP is high we might expect greater exchange rate flexibility and tendencies for depreciation of nominal and real exchange rates. Tourism (we use services (*SVCS*) because a separate breakdown for tourism is not readily available) is less likely to benefit because of its high usage of imported inputs.

Other Economic Parameters

Small countries are more likely to have fixed exchange rate pegs, particularly where they have large neighbors with stable currencies, and small countries may find it more difficult to manage flexible rates. *SIZE* should be inversely related to the probability of a fixed exchange rate and directly related to the flexibility with which the rate may be managed.

Very *OPEN* economies are more likely to have pegged exchange rates, as may be inferred from the theory of optimum currency areas. The principal author of the present study has argued that Caribbean countries belong to the US currency area (Worrell, 1994). This is the reason for the observed step-wise pattern of exchange rate movement in the Caribbean. The more open the economy, the greater the probability of a fixed exchange rate and the lower the volatility of the flexible rate. If periods when the exchange rate is searching for a new level are omitted, the volatility of the rate is close to zero. The real exchange rate is unaffected by the openness of the economy.

Although size and openness cannot be excluded from the estimation because of their potential importance, we may not observe significant coefficients for our Caribbean sample because the range of variation in these variables is relatively small.

Financial Structure

The ratio of broad money to GDP ($M3$) proxies the depth of the financial market. Countries with well-developed financial markets have an essential precondition for efficient floating of the exchange rate and are more likely to have a floating rather than a fixed rate regime. The authorities may choose not to exercise this option, however, so the relationship is by no means certain. Insofar as floating regimes are inherently more volatile, this variable may also be associated with higher volatility. The trend and level of the real and nominal rates should not be affected by financial depth.

A strong investment performance may be expected to appreciate both real and nominal exchange rates, reduce exchange rate instability and increase the probability of a fixed rate regime, though these effects may be reversed if investment is predominantly in the nontradable sector. The variable I is the ratio of gross capital formation to GDP.

Interest Groups

The working hypothesis for the empirical tests is that the influence of interest groups is proportionate to their contribution to GDP, cited earlier. Workers' representatives universally oppose exchange rate depreciation in the Caribbean because of the inflationary consequences and possible decline in their members' real incomes. Where workers have a strong voice through well-established trade unions, they may be a force for exchange rate stability and the appreciation of real and nominal exchange rates. Our model includes a dummy variable ($DUMTU$) for the years when trade unions were vocal in discussions of exchange rate policy and balance of payments adjustment. $DUMTU$ takes a value of unity when we have evidence from newspaper records and parliamentary debates that trade union organizations were engaged in debate on exchange rate policy.

A dummy variable ($DUMEMP$), based on similar criteria, is used to mark those countries and years when employers' organizations are judged to have exerted a powerful influence on exchange rate policy. Employers favor exchange rate stability but one cannot say *a priori* whether their preference is for an appreciation or depreciation of the nominal exchange rate. Insofar as the real rate is seen as a measure of competitiveness, the employers' lobby favors a depreciation.

Political Institutions

A binary variable is used to represent the stability of the party system ($PARTY$). Among non-OECS countries there have been defections, but the dominant parties have soon re-emerged. In OECS countries there were several periods of shifting alliances. We hypothesize that a stable party structure is conducive to decisive action in response to balance of payments crises, making a fixed rate more probable, appreciating a flexible rate and reducing volatility.

Another working hypothesis is that the fewer parties make up the government (PIP), the more stable the administration and the greater the decisiveness in exchange rate policy. We expect the timing of general elections (GE) to have a bearing on exchange rate choices. As the date for an election draws near government becomes less inclined to depreciate the exchange rate and

provoke an acceleration of inflation. At the same time pre-election fiscal expansion may create a balance of payments disequilibrium which makes devaluation inevitable. The signs on the variable GE , the number of years to the next general election, are ambiguous.

Table 4.1 The Model Specification (Expected signs)

	Regime	ER	ERVOL	RER
TOUR	+	+	-	+
RW	-	-	+	-
INFDIF	-	-	+	+
CRED	-	-	+	
BOPADJ	+	+	-	+
CRGCB	-	-	+	-
STKXGS	+/-	+/-	-/+	+/-
FXR	+	+	-	+
AGR	-	-	+	
SVCS	+/-	+/-	-/+	
SIZE	-		+	
OPEN	+		+	
<i>Table 4.1, continued</i>				
M3	-		+	
I	+/-	+/-	-/+	+/-
DUMTU	+	+	-	
DUMEMP	+	+/-	-	-
PARTY	+	+	-	
PIP	-	-	+	
GE	+/-	+/-	-/+	

Variable Definitions

Dependent Variables

REGIME	a binary variable with a value of unity for a fixed peg, zero otherwise;
ER	the percentage change in the value of a local dollar in terms of US currency; a devaluation is a decline in the value;
ERVOL	the standard deviation of monthly exchange rate values for each year.
RER	the deflator for nontradables, divided by the deflator for tradables. The RER for each country is an index, with the mean value as the base. A relative increase in the price of nontradables causes an appreciation, represented by an increase in this value.

External Variables

TOUR	the volume of world tourism arrivals;
RW	the US 3-month treasury bill rate;

Macroeconomic and Structural Variables

INFDIF	the percentage change in local CPI, minus the corresponding change in US CPI. A relative acceleration of local CPI increases its value;
CRED	cumulative inflation over the five years prior to each year of observation;
BOPADJ	Overall balance of payments, less net short-term inflow. A positive net inflow is added to the overall deficit, or subtracted from an overall surplus;
CRGCB	net credit to government by the monetary authority as a proportion of the monetary base;
STKXGS	net short-term capital flows as a percentage of exports and service credits;
FXR	reserves divided by average monthly imports;
AGR, SVCS	percentage share of GDP;
SIZE	GDP in US dollars;
OPEN	total of exports, services credit and imports, as percentage of GDP;
M3	total monetary liabilities as a percentage of GDP;
I	gross domestic fixed capital formation as a percentage of GDP;

Political and Institutional Variables

DUMTU	dummy variable with a value of unity when, on the evidence of newspaper reports and parliamentary debates, trade unions contributed influentially to the debate about exchange rates and adjustment;
DUMEMP	similar dummy to represent the influence of employers' groups;
PARTY	value of unity when the ruling party or coalition was stable;
PIP	number of parties in government;
GE	number of years to next general election.

Results

The results are shown in Table 4.2. The major problem of the estimation proved to be multicollinearity of the variables. The first runs with a full suite of variables could not be completed in some cases because of near singular matrices. We therefore reduced the equations based on an examination of the correlation matrices, a procedure that results in a somewhat different set of variables for each equation. However, it provides greater confidence in the reliability of the estimated coefficients. The results should be taken as indicative, because of the use of several dummy variables, the need for proxies of many variables where the conceptually desirable variable cannot be measured directly, and the barely adequate number of observations. In fact, the number of observations proves insufficient in the case of the *REGIME* equation, for which we obtained no coefficient that is significantly different from zero.

Table 4.2 The Estimates (T-statistics in brackets; * denotes a coefficient significant at the 10% level or better)

	Regime	ER	ERVOL	RER
TOUR		0	0	0
RW	0	-0.14 (-0.51)	0.01 (0.64)	0.01 (0.16)
INFDIF				0
CRED	-0.03 (-1.08)	0.26 (6.39)*	0.03 (7.39)*	
BOPADJ	0	0	0	0
CRGCB	0	0.05 (6.01)*	0	0
STKXGS		0	0	0
FXR	0.09 (0.25)	1.57 (5.42)*	0.02 (0.80)	-0.01 (-1.86)*
AGR	-0.04 (-0.20)	1.13 (7.64)*	0	
SVCS	0.01 (0.05)	0.35 (3.58)*	0.01 (0.69)	
SIZE	0		0	
OPEN	0.01 (0.05)		-0.03 (-1.94)*	
M3	0.01 (0.12)		-0.01 (-1.80)	
I				-0.01 (-2.25)*
DUMTU	-0.67 (-0.24)	5.85 (2.88)*	-0.03 (-0.11)	
DUMEMP	-1.72 (-0.55)	-0.62 (-0.15)	-0.43 (-1.49)	-0.04 (-0.62)
PARTY	-1.64 (-0.26)	9.46 (1.96)*	0.13 (0.35)	
PIP	5.62 (0.89)	-70.08 (-11.61)*		
GE	0.25 (0.18)	-0.26 (-0.19)	0.09 (0.71)	
Log likelihood/ Adjusted R-sq	-6.21	0.85	0.52	0.34
No. Of Obs.	87	88	87	67

Political variables appear to be more important than economic variables, whether structural or policy, in determining the level of the exchange rate. Active involvement of trade unions in debate on economic policy, stability of the governing party or coalition, and the fact of a party with a sufficient majority to govern on its own, are more important for the magnitude of exchange rate change than are cumulative inflation, central bank credit to government, levels of foreign exchange reserves and sectoral contributions to GDP, though the latter all have a significant impact on the outcome. In contrast, political considerations have no significant impact on the volatility of the exchange rate, which is affected by cumulative inflation, central bank credit to government, the openness of the economy and the relative size of monetary liabilities. Real exchange rates are affected by foreign exchange reserve levels and investment ratios. External factors—world tourism demand and US interest rates—had no statistically significant effects.

The equation for *changes in the exchange rate* attains a high level of explanatory power, with an adjusted coefficient of determination of 0.85. The results suggest that external shocks had no significant effects on exchange rate levels. Macroeconomic variables did have significant effects, but they tended to be modest in comparison with political variables. A 10% increase in the level of foreign reserves is associated with an exchange rate that is more appreciated by 0.8 percentage points. Cumulative inflation and central bank credit to government are also statistically significant, but higher levels are associated with more appreciated rates, contrary to our priors. However, in both cases the effect is small, 0.4 percentage points and one percentage point for inflation and central bank credit, respectively, for a 10 percent change in either case. Political and institutional variables were much more influential. The number of parties in power is quantitatively the most important: a 10% increase in that number depreciates the exchange rate, in accordance with our priors, by 14% at the mean values. The dummy variables for trade union influence and stable ruling parties are significant, quantitatively less important than the number of parties in power but much more important than the economic variables. The services sector variable is quite influential, with a 10 percent larger contribution to GDP associated with an exchange rate that is 4 percentage points more appreciated. For the agricultural sector a 10 percent higher contribution to GDP was associated with a 3 percent more appreciated exchange rate, where a less appreciated rate might have been expected to be in agricultural sector interests.

The test for *exchange rate volatility* has lower overall explanatory power, with an adjusted coefficient of determination of 0.52. Political factors appear to have had little effect on exchange rate volatility, in contrast to their dominant effects on the extent of devaluation. None of the political variables or sector contributions to GDP has a coefficient that is statistically different from zero. Economic policy variables do cause greater exchange rate volatility, cumulative inflation by 8.5 percent for a 10 percent higher inflation level, and credit to government by the central bank by 3.6 percent. Structural variables also affect volatility: a country whose ratio of trade in goods and services to GDP is 10 percent higher is likely to suffer 5.2 percent more volatility in exchange rates, and where the ratio of monetary liabilities to GDP is 10 percent higher the associated exchange rate volatility is 7 percent greater.

The equation for the *real exchange rate* has a low coefficient of determination, 0.34. The level of foreign exchange reserves and the investment ratio are the only variables whose coefficients are significantly different from zero. Higher levels of reserves are associated with

depreciated real exchange rates, contrary to our priors, but the depreciation is only 0.3 percent for a reserve level that is 10 percent higher. An investment ratio which is 10 percent higher is associated with a real exchange rate that is 2.1 percent depreciated; we had no prior assumption on the sign of this variable, since the outcome depends on the balance of investment in tradables to nontradables.

Section 6. Findings

The circumstance of exchange rate management and exchange rate change in the Anglophone Caribbean have been so varied as to make generalizations elusive, but they confirm that exchange rate strategy is not solely—perhaps not even mainly—driven by economic considerations. The case studies point to the importance of the timing of elections (for example in Jamaica in 1977 and in Trinidad and Tobago), changes in leadership (in Jamaica in 1983, in Guyana and in Trinidad and Tobago), the building of a national consensus (Barbados), and the skill in the management of international economic relations (Jamaica in 1977) as important factors in the choice of an exchange rate strategy. Both case studies and empirical tests underscore the important role that trade unions may play in the outcome (as in Jamaica in 1977 and in Barbados), and the fact that a well-entrenched governing party has better options for stabilizing the exchange rate (as in the case of Antigua). Even when economic forces were at work, their effects were filtered through the perceptions of interest groups, and at least in the case of the 1967 devaluation, that led to arguably the “wrong” choice of strategy. A strong coalition of political forces may produce an outcome entirely different from that which economic circumstances might have dictated (Barbados), but not in every circumstance (Jamaica in 1977).

Economic factors may have had a greater impact on exchange rate variability and the real exchange rate. Exchange rates in Caricom countries have been quite stable, in countries with nominally floating exchange rates as well as in countries with fixed rates. What seems to make exchange rates a little more volatile are a history of relatively high inflation, high levels of central bank credit to government, a higher ratio of trade in goods and services to GDP, and a higher proportion of monetary liabilities to GDP. With respect to the real exchange rate, a strong investment performance is the principal source of appreciation.

Monetary union has been a source of exchange rate instability, and it has made for a durable fixed exchange rate among ECCB member countries. In large measure it appears that the monetary union cemented a national consensus around the exchange rate parity. Even in circumstances where the costs of fiscal adjustment were large there was no support among any interest group for a flexible exchange rate strategy, or for leaving the union, as some members had done earlier. The monetary union secured adjustment in an orthodox fashion in Grenada, but the virtually painless adjustment in Antigua, financed by external arrears, is another example of perverse market behavior.

References

Harriott, K. and Worrell, D. 1997. "Estimating Equilibrium Real Exchange Rates." Central Bank of Barbados Working Paper. Bridgetown, Barbados: Central Bank of Barbados.

Payne, A. 1991. "Jamaican Society and the Testing of Democracy." In: C. Clarke, editor. *Society and Politics in the Caribbean*. London, United Kingdom: St. Anthony's/Macmillan.

Seers, D. 1964. "The Mechanism of the Open Petroleum Economy." *Social and Economic Studies*. 13 (2).

Worrell, D. 1993. "Economic Integration with Unequal Partners: The Caribbean and North America." Woodrow Wilson International Center for Scholars Working Paper. Washington, DC, United States: Woodrow Wilson International Center for Scholars.

----. "The Theory of Optimal Foreign Exchange Reserves in a Developing Country." Montreal, Canada: McGill University. Doctoral dissertation.

Worrell, D. *et al.* 1997. "Forecasting Tourism Demand in Barbados." Central Bank of Barbados Working Paper. Bridgetown, Barbados: Central Bank of Barbados.

Appendix: Chronology of Events

Antigua	Barbados	Grenada	Guyana	Jamaica
1960 Nov.: GE won by ALP				Central bar
1961	Dec.: GE won by DLP	Mar.: GE won by GULP	GE won by PPP	
1962		Sep.: GE won by GNP	Feb.: Disturbances	Apr. GE w
1963			General strike	
1964			GE won by PNC/UF	
1965 Nov.: GE won by ALP			Oct.: Bank of Guyana. established	
1966	Nov.: GE won by DLP			
1967 Sterling Devaluation*				Feb. GE w
1968			GE won by PNC	
1969				
1970			Feb.: Republic proclaimed	
1971 Feb.: GE won by ALP	Sept.: GE won by DLP			
1972	Central Bank established.	Feb.: GE won by GULP		Feb.: GE w
1973	BDS\$ issued		GE won by PNC	J\$ peg to U
1974				
1975 EC\$ peg to US\$*	BDS\$ peg to US\$*		G\$ peg to US\$*	
1976	Dec.: GE won by BLP	Dec.: GE won by GULP	Parallel ER market emerged	Dec GE wo
1977				2 econ. Adj
1978				Dual ER, c
1979				Crawling s
1980 Apr.: GE won by ALP			GE won by PNC	Oct.: GE w
1981	Jun.: GE won by BLP			Apr.: IMF

Table 1, continued				
Antigua	Barbados	Grenada	Guyana	Jamaica
1982	Oct.: Two-year IMF SBA			Mar.: Worl
1983		May: IMF SBA:		Dec.: GE b PNP
1984 Apr. GE won by ALP		Oct.: US Intervention		Nov.: Worl
1985		Dec. GE won by NNP	Aug.: Pres. Burnham died; GE won by PNC	
1986 Arrears on Ext. Debt*	May: GE won by DLP		Jan.: Major devaluation.*	
Antigua	Barbados	Grenada	Guyana	Jamaica
1987				
1988				Sep.: Hurri
1989 Mar. GE won by ALP				Feb. GE wc
1990		Mar. GE won by NDC		Nov. ER flc
1991	Jan.: GE won by BLP	Adjustment program*		
1992	Feb.: IMF SBA, CFF*		GE won by PPP/Civic	
1993				
1994 GE won by ALP	May: GE won by BLP			
1995				
1996				
1997			GE won by PPP/Civic	
1998				

* Episode discussed in detail

Note: An extensive chronicle of policies and events appears as Appendix A of the July 1998 draft of this study.

