Western Hemisphere Department

THE CARIBBEAN
Enhancing Economic Integration

Andreas Bauer, Paul Cashin, and Sanjaya Panth

Editors

INTERNATIONAL MONETARY FUND

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Foreword

Caribbean economies have historically been among the most open in the world. While this has allowed the Caribbean to garner the benefits of trade integration and globalization, it also poses challenges, particularly given the small size of many of these island countries. Strengthened regional cooperation has enabled Caribbean countries to compete more effectively for productive foreign investment, and adjust more readily to changing patterns in global trade.

In recent years the Caribbean has made substantial progress in implementing economic reforms, both at the national and regional level. The benefits of such reforms are being realized, as over the last decade the Caribbean has seen accelerating economic growth, robust increases in foreign direct investment flows, continued low inflation, and sustained reductions in poverty. Nonetheless, the Caribbean continues to be buffeted by adverse external shocks, chiefly declining terms of trade and trade preferences, frequent natural disasters, the collapse in official development assistance, and economic and financial fragility emanating from major trading partners.

In response to the economic challenges facing the Caribbean, the International Monetary Fund (IMF) has heightened its engagement with the region, including through enhanced regional analysis of the Eastern Caribbean Currency Union and of the wider Caribbean. In our discussions with national and regional authorities, we have consistently emphasized that efforts to strengthen public finances, upgrade the investment climate, and advance regional integration and policy coordination will be key to durably raising the Caribbean's growth performance.

Caribbean integration efforts have been focused on three areas that are currently high on policymakers' agendas. First, regional financial integration, as a means of deepening financial systems and raising regional growth; second, tax incentives and investment, where harmonized regional action is key to overcoming collective action problems; and third, devising strategies to manage the erosion of trade preferences in key export markets.

The papers in this book arose from the IMF's regional surveillance work in the Caribbean and have benefited from discussions with key regional policymakers, and from the comments of participants in regional conferences, workshops, and seminars. They represent summaries of our analytical work for the region, and this volume is the second of its kind coordinated by our team in the Western Hemisphere

Department. The International Monetary Fund remains fully committed to supporting the efforts of the Caribbean people to achieve their development goals, and we look forward to continuing our close policy dialogue in the region.

Anoop Singh
Director, Western Hemisphere Department
International Monetary Fund

Preface

The opinions expressed in this publication are solely those of its authors and do not necessarily reflect the views of the International Monetary Fund, its Executive Directors, or the authorities of the countries of the Caribbean.

1 Introduction

Andreas Bauer, Paul Cashin, and Sanjaya Panth

This volume explores the policy implications for the Caribbean region of some of the forces of globalization. The Caribbean's historically very open economies have achieved relatively high income levels and strong social development. However, other parts of the developing world have also now integrated with the global economy, bringing new competitive forces and challenges to bear on the Caribbean. Several specific factors (frequent natural disasters, large public debt levels, and weak external current account positions) further render the region vulnerable to swings in the external environment. Under these circumstances, a key challenge for the Caribbean is to come together as a region, overcome the limitations posed by size, and make the most of globalization.

Chapter 2 addresses financial integration. Integrating the Caribbean's relatively underdeveloped and still segmented financial markets can confer significant benefits for the region, including higher rates of economic growth. Integration can, however, also increase risks by making capital flows more susceptible to sudden swings and creating blind zones for national regulators, especially in an environment (as in the Caribbean) of large financial conglomerates operating across different industry segments and in several countries. The chapter argues that improving macroeconomic fundamentals, bolstering monetary policy toolkits, increasing coordination among national regulators, and strengthening oversight can help reduce those risks.

Chapter 3 considers the efficacy of tax incentives in attracting investment. Caribbean countries provide extensive tax exemptions in their efforts to attract foreign investment. The chapter finds that factors such as institutional quality, infrastructure and governance are also important determinants of FDI. Furthermore, tax incentives entail significant costs, particularly when fiscal positions are already under strain from high debt. The chapter, therefore, suggests that policymakers consider reducing incentives; step up efforts to improve other determinants of investment; and make remaining incentives

more cost-effective. It argues that regional coordination can play a useful role in avoiding a "race to the bottom" with ever more generous tax incentives.

The final chapter looks at the impact on the Caribbean of the erosion of traditional trade preferences. The value of implicit assistance provided by the preferential trading regimes for sugar and banana exports to the European Union is large for some Caribbean countries facing competition from more efficient producers elsewhere in the world. There are, therefore, significant output and revenue costs for the Caribbean from preference erosion, and social costs can be large even in cases where the macroeconomic impact is limited. The chapter suggests that Caribbean countries use targeted safety nets to help vulnerable populations, raise the efficiency of agriculture where it can remain price competitive under the new trade regimes, and transition away from traditional agriculture where production is no longer economically viable.

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Financial Integration in the Caribbean

Goohoon Kwon, Sanjaya Panth, Jingqing Chai,
Alejandro Guerson, Greta Mitchell Casselle, and Rafael
Espinoza

A. Introduction[1]

Integrating national capital markets is an explicit objective of the Caribbean Community (CARICOM), as part of its drive to create a common economic space. The revised treaty of Chaguaramas, establishing the Caribbean Single Market and Economy (CSME), stipulates the removal of restrictions on the provision of banking, insurance and financial services as well as on the movement of capital across national boundaries.[2] The single-market component of the CSME has a target date of 2008 for its full establishment, while the single economy is expected to be phased in gradually over a longer horizon.

Financial integration among Caribbean nations can confer numerous benefits.[3] It can increase the availability of capital, especially to small firms and countries; reduce the cost of capital all around; and spur improved financial standards and regulations. All of this, in turn, leads to higher economic growth and improved living standards—the ultimate objectives of integration.

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[1]Some of the underlying analysis in this paper has been presented in regional fora and has also benefited from comments from some national authorities in the Caribbean.

[2]The treaty was finalized in 2001 and has so far been ratified by 12 out of the 15 members of CARICOM, which consists of 14 countries (Barbados, The Bahamas, Belize, Guyana, Haiti, Jamaica, Suriname, Trinidad and Tobago, and six Eastern Caribbean Currency Union countries) and the U.K. overseas territory of Montserrat. The Bahamas has opted out of some of provisions of the treaty; in particular, protocol II dealing with rights of establishment, provision of services, and movement of capital. Unless noted otherwise, the Caribbean or CARICOM in this paper refers to the 14 member countries of CARICOM.

[3]This study focuses on the 14 CARICOM states that are also IMF members (i.e., excluding Montserrat). Unless otherwise noted, "Caribbean" refers to the same grouping.

Financial integration is, however, not a panacea and it also poses important risks and challenges. The benefits of integration are not likely to be equally shared across all countries or institutions. As regards risks, integrated financial markets allow shocks (including sudden stops or reversals in capital flows) to spread across borders much more rapidly. At the same time, there is also the danger that an excessive focus on the regional dimension of integration can lead to increased inward-orientation—so that even as integration within the grouping increases, it falls relative to the rest of the world with a loss of the attendant benefits. Finally, integration poses a special set of challenges to national regulators who lose full control over their own financial markets precisely when the assessment and management of risks becomes more complex.

This chapter reviews the process of financial integration in the Caribbean and assesses its policy implications. It does so by reviewing the state of Caribbean financial markets and offering suggestions on issues to watch out for, or steps to take, to ensure that integration occurs in a manner that maximizes its benefits while reducing risks. The rest of the chapter is organized as follows: Section B provides an overview of the region's financial sector; Section C develops the overall case for integration; and Section D assesses the current state of financial integration in the Caribbean. The following two sections focus on policies, with Section E addressing issues that are impeding integration and Section F, the regulatory reforms necessary to support integration. Section G concludes.

B. The Regional Financial Sector in Perspective

Financial linkages often follow trade and the latter is relatively low among Caribbean countries (Table 2.1). Intraregional trade in goods has increased among CARICOM members in recent years but still accounts for only about one-tenth of regional GDP. This is broadly comparable to two other regional groupings selected for comparison purposes in this chapter: MERCUSOR+5 (southern American countries) and ECOWAS (the West African economic community). Regional trade in the Caribbean remains, however, far below levels in the other two regional groupings considered here, the EU-15 (pre-2004 boundaries of the European Union) and ASEAN+3 (Chiang Mai initiative countries). The relatively low level of intraregional trade in the Caribbean reflects, in part, the large role played by the United States as a bilateral economic partner for the countries in the region—the United States accounts for about 40 percent of the total external goods trade of Caribbean countries as well as the bulk of their trade in services.

Caribbean financial sectors are, however, large relative to the size of the regional economy and are important contributors to regional output (Table 2.2). Bank assets, excluding those of off-shore banks, are close to regional

Table 2.1. Regional Economic Blocs: Selected Indicators, 2004

	Population (millions)	GDP (US$ bn)	Income per Capita ('000 US$)	Intraregional Trade		Number of States
				Weighted	Unweighted	
				(In percent of GDP)		
CARICOM	15	40	2,676	9.5	15.7	14+1
ECOWAS[1]	254	131	514	7.1	10.4	15
MERCOSUR+5[2]	369	1,185	3,213	7.6	15.6	5+5
EU15	384	12,311	32,095	33.1	57.4	15
ASEAN+3[3]	2,031	7,991	3,934	18.4	43.0	10+3

Sources: IMF World Economic Outlook Database.

[1]Economic Community of West African States.

[2]Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela, Rep. Bol.

[3]ASEAN countries plus China, Japan, and Korea (Chiang Mai Initiative countries).

Table 2.2. Assets of Financial Institutions: Selected CARICOM Countries

	T&T 2003	Jamaica 2004	Barbados 2001	ECCU 2004	Bahamas 2003	Guyana 2004	Belize 2004	Average & Sum
	(In percent of GDP)							(Average)
Total assets	170	185	129	195	136	153	116	167
Banks	77	87	105	183	115	114	97	100
Nonbanks	94	98	25	12	20	39	19	67
	(In billions of U.S. dollars)							(Sum)
Total assets	20.4	16.7	3.3	6.0	7.5	1.2	1.2	56.4
Banks	9.2	7.8	2.7	5.7	6.3	0.9	1.0	33.6
Nonbanks	11.2	8.9	0.6	0.4	1.1	0.3	0.2	22.8
Memorandum item:								
GDP	12.0	8.7	2.6	3.1	5.5	0.8	1.0	33.8

Sources: Authorities; and Fund staff estimates.

GDP. Nonbanks are even larger than banks in Jamaica and in Trinidad and Tobago, which together account for about 65 percent of the region's financial sector. All in all, total regional financial sector assets exceed 150 percent of regional GDP.[4] Reflecting its large size, the regional financial sector accounts for about 8 percent of annual regional output, which is above the G-7 average of 7 percent. In terms of individual countries, Trinidad and Tobago's financial sector contributes to the production of one tenth of its GDP—a share comparable to that of Singapore, a major financial hub.

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[4]Excluding Haiti and Suriname owing to the lack of data.

Table 2.3. Large Financial Groups in the Caribbean, 2004

Name of the Institutions	Domicile Country	Assets (US$ bn)	Market Capitalization (US$ bn)	Founded in
First Caribbean International Bank	Barbados	$10.0	$3.3	1836/1920
Royal Bank TT Financial Holdings	T&T	$6.2	$2.8	1856
Republic Bank	T&T	$5.0	$2.1	1837
Guardian Holdings Limited	T&T	$2.8	$1.4	1847
Bank of Nova Scotia, Limited [1]	Jamaica/T&T	$4.1	$1.4	1889
National Commercial Bank	Jamaica	$1.6	$0.8	1837
Sagicor Financial Corporation	Barbados	$3.3	$0.6	1840
Jamaica Money Market Brokers	Jamaica	$1.0	$0.4	1992
CL Financial Group [2]	T&T	$4.3	…	1936 [2]
Total		$38.3		
Memorandum item:				
GDP: CARICOM 15		$39.5		

Sources: Company publications and Fund staff estimates.
[1]For subsidiaries of Scotia Bank of Canada in Jamaica and Trinidad and Tobago (T&T). Its other Caribbean subsidiaries and branches are not included here due to data limitations.
[2]For Colonial Life Insurance Company (CLICO), a flagship company of the Colonial Life Group, including CMMB, CLICO and Clico Investment Bank.

A key feature of Caribbean financial sectors is their dominance by large and long-established financial conglomerates (Table 2.3). Firms within individual conglomerates include commercial banks, merchant banks, building societies, security dealers, and sometimes also insurance companies. Most conglomerates are limited to holdings in the financial sector but in one or two cases have sizable assets in other sectors as well. The combined assets of the nine largest financial conglomerates (some of which also have mutual linkages in terms of cross-holdings) are almost the size of regional GDP. Most of the conglomerates were established before independence, which occurred in the 1960s for many of the CARICOM countries. All of the conglomerates operate simultaneously in several Caribbean countries, possess extensive networks of branches and affiliates, and, with one exception, are based entirely or mostly within the region.

The region's complex financial sectors offer a diverse range of products (Box 2.1). While banks still remain the largest segment of the financial sector in many countries, nonbanking financial institutions have grown rapidly in the larger countries. In particular, securities dealers in Jamaica and mutual funds in Trinidad and Tobago now have funds under management exceeding banking system deposits. Pension and insurance companies are also large in Trinidad and Tobago and, to a lesser extent, in Jamaica, accounting for some 40 and 20 percent of total financial assets in each country, respectively.

Box 2.1. Innovative Products and Regulatory Challenges

Jamaica's system of security dealers and Trinidad's mutual fund industry exemplify how Caribbean nonbank financial institutions are often in the vanguard internationally in offering innovative financial products, but in so doing, they often create challenges for regulators.

Jamaica. The securities sector has flourished in recent years, taking advantage of the high yield on government paper. Prompted by a confluence of factors, including regulatory and tempo-rary tax advantages, the sector has grown to play a large role in the financial system, with assets amounting to half of GDP. The impressive growth has largely come from the repo business—short-term borrowing from households through hold-in-custody repurchase arrangements (re-pos) to fund investment in long-term government paper. The net interest income generated from the difference between short- and long-term interest rates has been the main source of profits for dealers.
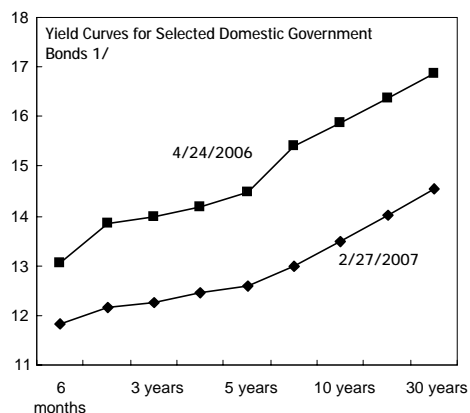
Sources: Bloomberg and Bank of Jamaica website.
1/ The yield for 6 months on 4/24/06 is proxied by 6-month TB yield issued around the same time.

Notwithstanding some recent flattening of the yield curve, the sector remains significantly ex-posed to interest rate and roll-over risk. A rise in long-term interest rates reduces the value of fixed rate assets and a sharp rise in short-term rates squeezes profitability, given the need to continuously roll over repo agreements with households. Legal ambiguities on the control rights over the underlying securities could also exacerbate risks.

Trinidad and Tobago. The mutual fund industry has grown rapidly in recent years, with funds under management surging from less than 10 percent of GDP in 2000 to nearly 40 percent of GDP in 2005. The rapid expansion is due mainly to attractive returns relative to bank deposits. All major financial institutions in the country, including banks, operate mutual funds. There are no restrictions on overseas investments.

Box 2.1 (*concluded*)

Collective Investment Schemes: Funds under Management (in T&T$ millions)

	2000	2001	2002	2003	2004	2005 [1]
Total funds under management	4,759	9,390	15,424	21,438	27,092	34,244
Money market fund	2,451	6,376	11,343	15,227	18,283	23,109
Growth and income fund	1,299	1,450	2,009	3,502	5,219	6,597
Bond fund	953	1,505	1,964	2,439	2,888	3,650
Equity fund	42	37	53	190	563	712
Pension/annuity scheme	15	23	56	82	120	152
Hybrid fund	0	0	0	0	19	24
Memorandum item:						
Deposits[2]	17948	20822	21522	21181	25872	29961
Total funds in percent of GDP	9.3	17.1	27.4	31.9	35.2	37.9

Source: Trinidad and Tobago Securities and Exchange Commission (2005).
[1] Estimates.
[2] Deposits in the consolidated financial system.

The authorities are moving to strengthen regulation. A major loophole identified by the Trinidad securities commission is that mutual funds are not required to disclose their holdings, nor to report to the authorities as they operate under trust arrangements. The authorities have already drafted amendments to address the problem, but its passage remains pending. Given the lack of reporting/disclosure requirements, Trinidad and Tobago's mutual funds are, therefore, currently de facto unregulated, similar to hedge funds or private investment clubs. Some are exposed to currency risk. Others, in particular money market funds, are exposed to liquidity risk, given that under their operating rules most funds are analogous to demand deposits (some even offer ATM cards). Although principal is meant to be protected under trust arrangements, remuneration rules in the case of losses are unclear and the public may be unaware of the inherent risks**.**

Notwithstanding the large and complex financial sectors, financial markets in the region are mostly underdeveloped and illiquid (Table 2.4). Bond markets are dominated by government securities, and secondary markets are almost non-existent, except in Jamaica. Even in Jamaica, the secondary bond markets are illiquid, due in part to an outdated settlement and custody system. As regards stock markets, there are six exchanges in CARICOM, with a combined market capitalization almost twice regional GDP. However, market turnover is extremely low. Similarly, while some financial derivatives, notably strips and structured products, are popular, they are issued over the counter and held to maturity, given the absence of secondary markets.

The complex, yet underdeveloped, financial markets pose challenges for policy makers. The extensive and sometimes opaque cross-holding structures of the conglomerates and rapid growth of novel products complicate the tasks

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Table 2.4. Turnover Ratios of Selected Exchanges, 1997–2003
(In percent)

	UK	USA	Norway	Argentina	Singapore	T&T	Barbados	Jamaica
1997	39	58	86	53	62	0	1	6
1998	62	44	86	57	61	5	5	3
1999	66	52	86	20	102	3	2	2
2000	79	51	91	20	61	3	2	2
2001	79	84	63	12	52	3	0	3
2002	99	114	100	12	72	2	28	3
2003	71	95	77	3	64	4	5	3
Average	71	71	84	25	68	3	6	3

Source: Trinidad and Tobago Securities and Exchange Commission (2005).

of designing and enforcing prudential regulations. At the same time, the illiquid nature of the markets distorts or limits the usefulness of price signals. Illiquidity can also have macroeconomic repercussions—during periods of stress, for example, the illiquidity can cause prices to overshoot and also amplify financial institutions' demand for resources from lenders of last resort. Finally, there is the challenge of fostering development of the financial sector in a fiscally prudent fashion. For example, many Caribbean countries have offered tax incentives to promote development of the financial sector but the efficacy of these efforts remains to be demonstrated.

C. The Benefits of Integration

The main benefit of financial integration is that by contributing to financial development, it can increase the rate of economic growth. The positive relation between financial development and economic growth has been extensively studied and documented in the economic literature.[5] Furthermore, Edison and others (2002) find that financial integration is strongly correlated with growth performance across countries. Although, Edison and others find that integration loses its significance after including financial development as a separate explanatory variable for growth, financial integration remains cor-

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[5]For industry level studies see Rajan and Zingales (1998), Carlin and Mayer (1999), and Giannetti and others (2002). For firm-level studies see Demirgüc-Kunt and Maksimovic (1998) and also Giannetti and others (2002). Industry and firm-level studies conclude causality from financial development to economic growth with a reasonable degree of confidence. For studies using macroeconomic data, see King and Levine (1993a and 1993b), Levine and Zerbos (1998), Beck, Levine, and Loayza (2000a and 2000b), Demirgüc-Kunt and Levine (2001), Jayaratne and Strahan (1996) and Pelgrim and Schich (2002). These latter studies using macroeconomic data establish correlation and precedence rather than causality.

related with financial development in their study. There are also strong reasons to believe that integration can lead to financial development (see below).

Financial integration contributes to financial development by improving access to financing and lowering its cost. Financial integration increases the availability of capital to the entire integrating region. First, financial flows within the region increase as both savers and investors in the less financially developed parts gain access to developed markets to intermediate their needs. Second, larger markets are more likely to attract capital from outside the region, further increasing the overall volume of available resources. Integration also reduces the cost of capital by exploiting economies of scale and leading financial intermediaries facing new competition to become more efficient. Finally, financial integration contributes to financial development by enabling the dissemination and adoption of best practices, whether by individual firms or by regulators.

Financial development, in turn, leads to growth by increasing investment and improving resource allocation. The volume of investment increases with the greater and cheaper availability of capital in deep and liquid financial markets. As regards improving resource allocation, developed financial markets better transmit price signals, which in turn enable creditors to better identify the relative risks and rewards of alternate investment opportunities. Financial development can also positively affect investment in other, less obvious ways— for example, by increasing the opportunities for diversification. Specifically, in an economy with low financial development, firms' shares tend to be held by a small group of shareholders. As these shareholders' risk remains undiversified, they require a relatively high return from their assets, which in equilibrium results in a lower level of investment. Opening the set of opportunities to diversify can, therefore, be expected to result in higher overall demand for investment.[6]

The growth benefits of financial integration can be substantial. Based on the seminal work by Rajan and Zingales (1998), a European Union (EU) study concluded that if integration were to lead to all countries in the union to gain access to financial markets as developed as that of the United Kingdom, annual average GDP growth in the European Union would increase by about ¾ percentage point. In their study, the authors present estimates derived from a world-wide sample of industries and countries of the extent to which financial development helps contribute to the growth of various industries. Applying these estimates to the Caribbean suggests that annual growth in CARICOM could increase by about 0.6 percentage point per year if, as a result of integration, all regional countries had access to financial markets simi-

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[6]This argument has been highlighted in Himmelberg, Hubbard, and Love (2002).

lar to those of Barbados (Box 2.2).[7] The countries that would benefit the most are those that are currently less financially developed (Haiti and Suriname), but virtually all the countries would share in the benefits.

Financial integration also improves economic welfare by enabling consumption smoothing. While all the growth benefits of integration may already be captured by the financial development channel, integration also confers nongrowth economic benefits by enabling countries to take advantage of asymmetries in economic cycles and to pool risks. First, integration helps countries channel savings abroad in times of excess and borrow in times of need, so that even if the average amount of savings (and therefore investment and growth) remains unchanged, consumption becomes smoother, which directly contributes to welfare. This is particularly relevant for the Caribbean where the national savings cycle of Trinidad and Tobago, a major energy producer, is asynchronous with that of the rest of the (energy-importing) Caribbean. Second, as regards risk pooling, Caribbean countries as a group are very prone to severe natural disasters but at most only a subset of them experience such disasters at any given time. Cross-border investments, therefore, reduce the variability of returns over time, which is beneficial even if it is not necessarily accompanied by higher average returns.

Integration by itself is not sufficient to generate higher growth—concomitant macroeconomic and structural reforms may be necessary. Economic growth is driven by either increases in the factors of production or productivity improvements—financial development, thus, facilitates increased production but does not directly do so itself. For such facilitation and, hence, growth, strong institutions are critical to realizing the benefits of financial integration. For example, if judicial enforcement of creditors' property rights is poor, foreign banks are as unlikely to lend as are local banks. And if red tape is extensive, businesses will not invest even with increased access to capital. Similarly, accounting standards and disclosure requirements, supervisory capacity, and market infrastructure are all important (see Sections E and F). Second, weak macroeconomic positions may impede financial integration from leading to greater investment—for example, if high debt levels lead to concerns among investors about macroeconomic and hence financial stability, or if the increased financing made available by integration is "captured" by the state for government consumption.

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[7]Excludes Montserrat for lack of data. Barbados was selected on the basis of a measure of financial development that comprises the sum of bank credit to the private sector and stock market capitalization, both in relation to GDP. Other measures of financial development could also be considered, in which case countries other than Barbados, would be in the lead. This would affect the estimate of the magnitude of the benefits of integration but would not change the result that they would be positive.

Box 2.2. Financial Integration and Growth: Estimating the Benefits

Rajan and Zingales (1998) identified how financial development causes growth and also provided a means for estimating the size of the benefits. Their model is based on the notion of financial dependence — that different industries have different levels of need for "external" financing (i.e., from outside of the firm's own cash flow) because of differences in technologies. Also, the opportunities for external financing are greater and the costs lower in economies with a higher level of financial development. Intuitively, therefore, firms and industries with higher financial dependence should grow faster if they have access to financially developed markets.

A study by the European Commission (Gianetti and others, 2002) used this methodology to estimate the growth benefits of European integration. The authors estimated the contribution of financial development to industry growth across the world and just across the European Union. They found little difference between the two estimates, suggesting that financial development affects industry growth in similar fashion across the world. The authors then simulated how fast each industry in each EU country would grow if it had access to markets as financially developed as in a benchmark economy (e.g., the United Kingdom). For any given EU country, they then aggregated across industries to derive country-wide growth estimates. These varied significantly, depending on both the current level of financial development and the composition of industries. Consistent with the predictions of Rajan and Zingales, however, all countries less financially developed than the benchmarks stood to benefit from integration, with the most financially dependent industries and the least financially developed countries benefiting the most.
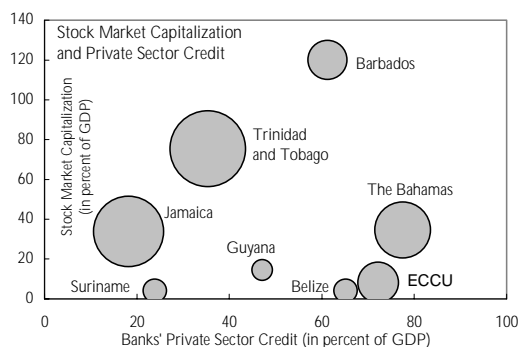
Sources: Country authorities; and Fund staff estimates.
[1] Size of bubble indicates country GDP in U.S. dollars
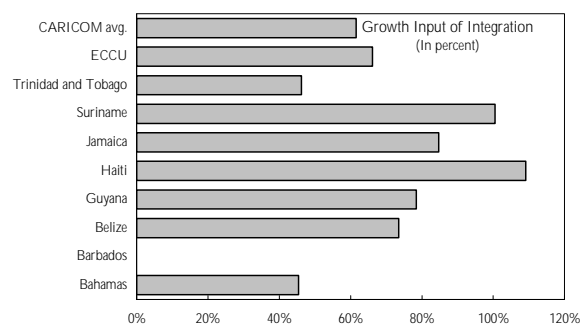
Sources: Country authorities; and Fund staff estimates.

Applying the results of these studies to the Caribbean can provide some useful insights. For several Caribbean industries, we used the coefficients derived by Gianetti and others for industry growth from their world-wide sample and the measures of financial dependence derived by Rajan and Zingales to estimate how fast that industry would grow in each Caribbean country if it had access to markets as financially developed as in Barbados. We then took simple averages across the industry-level growth rates thus obtained to derive country-specific growth estimates for each country (see below).

> ### Box 2.2 (*concluded*)
>
> The results can only be considered illustrative because (i) Caribbean technologies may differ from those elsewhere, leading to different levels of financial dependence; and (ii) all Caribbean countries do not have the same (and only just) the set of industries and in equal proportion that we are implicitly assuming. However, while the magnitude of the growth estimates may be uncertain, the direction is less so. Varying the financial dependence assumption for the Caribbean by one standard deviation in either direction, for example, leads to growth increase estimates in the range of 0.3–0.9 percentage point.

A further caveat is that regional integration should be a means to, not a substitute for, global integration. All of the benefits from regional financial integration outlined above also apply in the case of global financial integration, but even more so. Fundamentally, accessing financial markets that are even more developed than the most developed in the region can increase firm-level and national growth further. For example, using the United States instead of the United Kingdom as the benchmark, the EU study finds annual average European growth to increase by just under 1 percent (instead of ¾ percent) per year and we similarly find Caribbean growth to increase by 1.8 percent per year instead of 0.6 percent if the United States is selected as our benchmark (instead of Barbados). Indeed, there is a danger that by erecting extraregional walls even as intraregional ones are being brought down, inward-looking regional integration may, over the long run, impede the growth of those countries that would naturally have developed extraregional financial linkages. At the same time, commonalities (in existing legal frameworks for example) as well as greater availability of local information (about clients and risks) and scale considerations may make regional integration easier than immediate global integration. But the fact remains that the ultimate objective should remain global integration and countries should seek to reduce extraregional barriers to financial linkages at the same time that they reduce intraregional ones.

D. The Current State of Financial Market Integration

Financial markets in the Caribbean are still relatively fragmented although integration has been increasing and markets are closely linked through ownership channels. The existing empirical literature employs three broad approaches to measure integration: (i) examining price-based indicators such as interest parity; (ii) examining quantity-based indicators such as gross capital flows and savings-investment correlations; and (iii) assessing regulatory or institutional factors. Data availability is a significant issue in the Caribbean—

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Figure 2.1. Market Shares of Regional Banks in CARICOM
(In percent of bank assets, 2004)
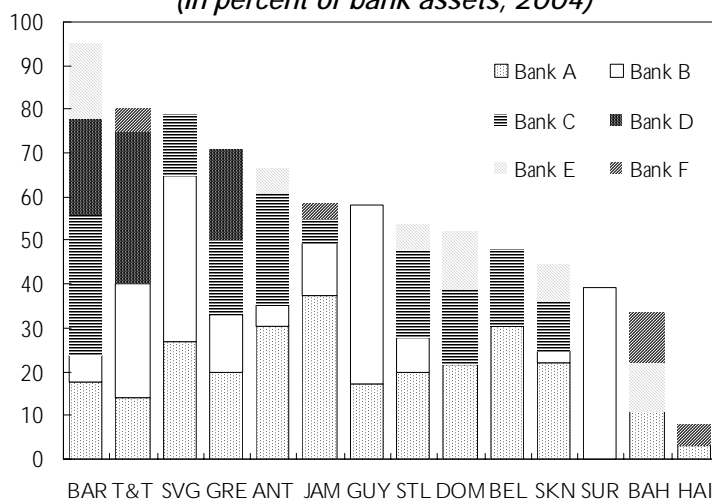
Sources: Country authorities and Fund staff estimates.

the absence of country-pair information on capital flows limits the assessment of quantity-based indicators. Likewise, the absence of forward exchange markets hinders the analysis of bond market integration by making it difficult to disentangle price movements in different markets into those being driven by exchange rate factors and those driven by interest rate movements. Nevertheless, it is possible to arrive at meaningful conclusions by examining each financial market segment (banking, bond market, stock market) in turn and by deriving a macroeconomic measure of regional financial integration.[8]

Banking

Large regional banks dominate Caribbean markets (Figure 2.1). The share of bank assets held by foreign banks averages about 60 percent—most of it by regional conglomerates or extraregional foreign banks with extensive regional presence. This share is high from a cross-regional perspective, given that European banks operating in other EU countries account for less than a quarter of union-wide bank assets (Figure 2.2). Central America also has regional banks but the extent of dominance, as measured by share in total bank assets, is limited at one third (Brenner and Morales, 2006). While large Latin American countries, in particular Mexico and Argentina, have overall foreign bank ownership at rates comparable to the Caribbean, the banks are mostly from outside the region, with the stakes of regional banks at low single digits (IDB, 2002).

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[8]The off-shore financial industry is also sizeable in many Caribbean countries but it is not included in the data and analysis.

Figure 2.2. Foreign Ownership of Banks[1]
(In percent of bank assets, unweighted average)
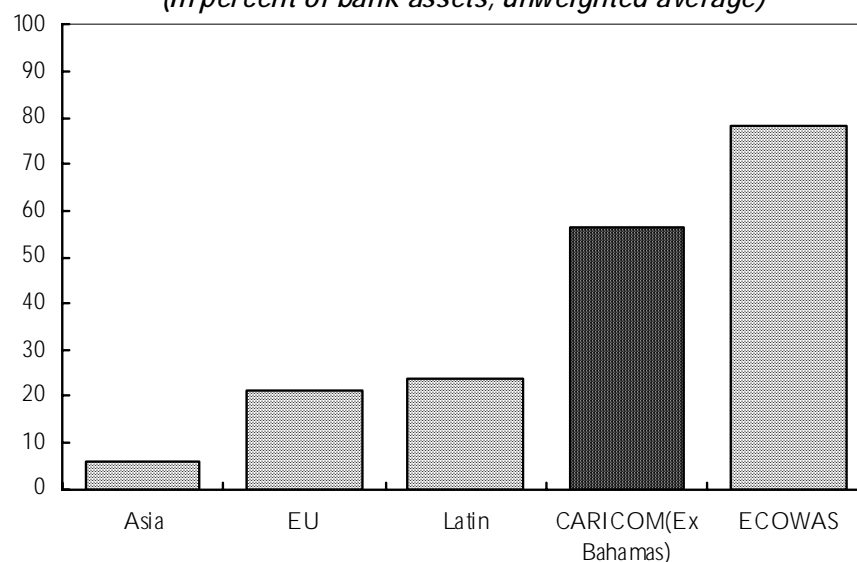
Sources: Country authorities; and Fund staff estimates.

[1]2004 for Latin and CARICOM countries, 2003 for ECOWAS, 2001 for Asia, and 1997 for EU countries.

Cross-border banking is, however, less extensive than cross-border bank ownership (Figure 2.3). Foreign assets and liabilities of CARICOM banks account for about a quarter of their assets, with most of the transactions likely to be vis-à-vis countries in the region.[9] The share is higher than those in Latin America and West Africa but far lower than in the European Union, and contrasts with the dominance of foreign ownership of Caribbean banking. This result also contrasts with the European Union, where cross-border transactions play an increasingly prominent role since the creation of a single capital market.

The high degree of cross-border ownership in the Caribbean reflects regulatory barriers. While bank-to-bank cross-border transactions are allowed, cross-border provision of financial services to nonbank clients is largely prohibited in the region. Large regional financial groups, in particular two banking groups from Trinidad and Tobago, have, therefore, expanded their operations regionally through establishment of new entities in neighboring countries or mergers and acquisitions (Rambarran and Elbourne, 2006).

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[9]In a survey conducted by the central bank, CARICOM countries account for 85 percent of Trinidad and Tobago banks' loans and investment abroad (IMF Country Report No. 06/29). Information on the cross-country financial exposure of banks is not generally available in other countries of the region.

Figure 2.3. Foreign Ownership and Foreign Liabilities[1]
(In percent of bank assets)
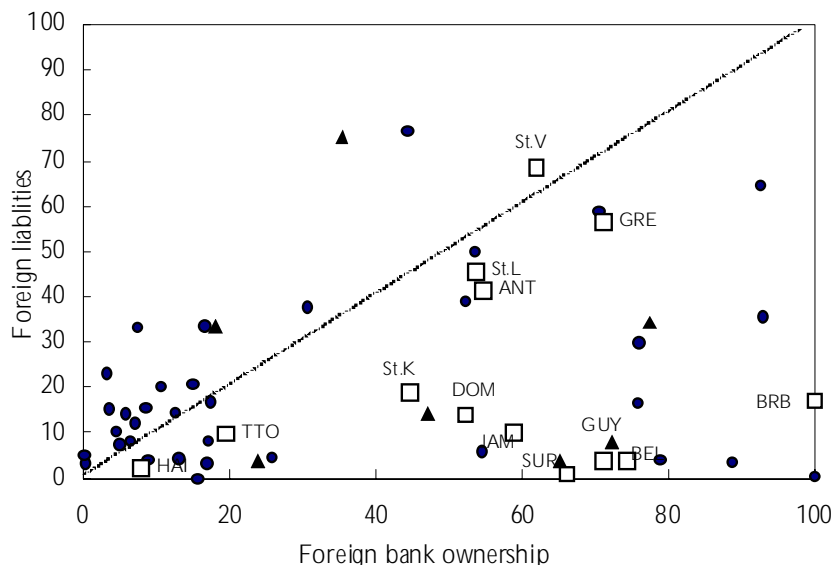
Sources: Country authorities; and Fund staff estimates.

[1]2004 for Latin and CARICOM countries, 2003 for ECOWAS, 2001 for Asia. The reference year for EU countries is 1997 as EU country banks' foreign liability data for later years are not comparable with those of other country banks.

Bond markets

Bond markets in the region are dominated by government securities. The dominance reflects the high public sector debt of most CARICOM countries. At end-2004, public debt-to-GDP ratios of regional countries averaged about 100 percent. There is, however, a stark difference between Trinidad and Tobago (which has relatively low debt but a high share of regional output) and the rest of the Caribbean. All in all, aggregate public debt is about 75 percent of aggregate regional output, with Jamaica's debt alone accounting for 40 percent of total outstanding public debt of regional countries.

The creation of a regional bond market centered in Trinidad has encouraged cross-border holding of bonds (Figure 2.4). Access to cross-border funding eased with the increase in oil-related liquidity in Trinidad and Tobago and capital account liberalization in larger Caribbean countries. Trinidad's regional bond market issued US$850 million between 1997 and 2006. The fund-raising takes the form of direct listing by regional governments or, more often, issuance of derivatives (certificates of participation/interest) of government paper originally underwritten by regional financial institutions. For-

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Figure 2.4. Public Sector Debt Financed by
Other CARICOM States, end-2005
(*In percent of total*)

Sources: Country authorities and Fund staff calculations.
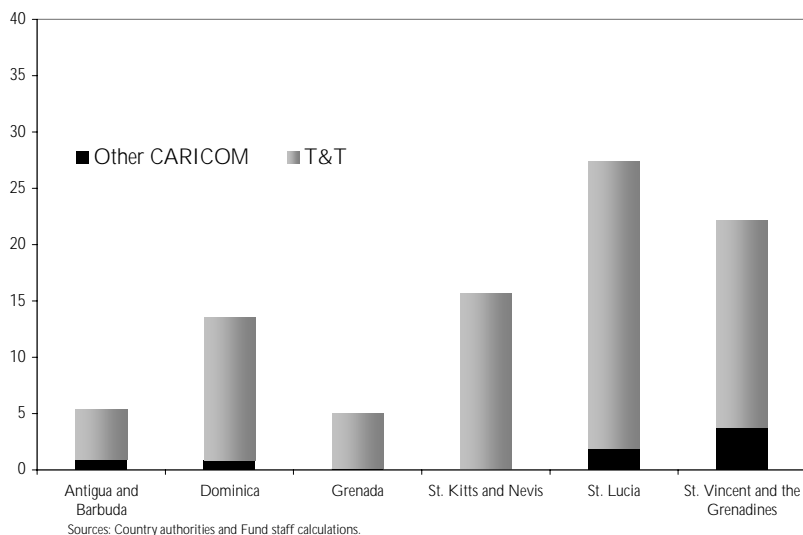
eign issuers, mostly public sector borrowers from smaller CARICOM countries, accounted for about a quarter of all bonds issued in Trinidad and Tobago during fiscal year 2005, up from 5 percent in 2000. More recently, an Eastern Caribbean Regional Government Securities Market has been established to develop an integrated bond market in smaller Eastern Caribbean countries but activity there remains nascent.

However, within-region offshore borrowing remains small compared with extraregional borrowing. In 2005, CARICOM borrowers issued Eurobonds totaling US$1.6 billion, which is five times as large as all bonds placed by regional issuers in Trinidad and Tobago that year.

Regional interest rates, while converging recently, remain largely uncorrelated (Table 2.5). The rolling 12-month correlation of exchange rate—adjusted Treasury bill rates of CARICOM countries was, on average, 0.2 over the last five years. This correlation is considerably lower than those of EU and ECOWAS countries. The numbers are largely invariant to assumptions about exchange rate expectations, partly in reflection of the recent macroeconomic stability in the Caribbean.

The dispersion in interest rates has narrowed but remains high (Figure 2.5). A common measure of convergence (called sigma convergence) looks at the standard deviations of treasury bill rates among countries. Over the last decade, the dispersion in rates has mostly been declining for six Caribbean countries but it still remains pronounced. Notably, however, dispersion has actually increased in recent years within the ECCU, reflecting diverging credit and

Table 2.5. Interest Rate Correlations (Jan. 2000–Dec. 2005)

	Assumptions about exchange rate expectations		
	Backward-Looking (1)	Perfect Foresight (2)	Combination of (1) and (2)
CARICOM			
T&T-Other CARICOM [1]	0.2	0.2	0.2
T&T-USA	0.9	1.0	0.9
ECOWAS			
Ghana-Other ECOWAS [2]	0.6	0.2	0.3
Ghana-USA	0.7	0.3	0.4
EU			
Italy-Germany	1.0	1.0	1.0
USA-Germany	0.8	0.4	0.6

Source: Fund staff estimates.

[1] The Bahamas, Barbados, Belize, Grenada, Guyana, and Jamaica.
[2] Gambia, Nigeria, and Sierra Leone.

Figure 2.5. Cross-Country Standard Deviation of Short-Term Interest Rate, Adjusted for Exchange Rates
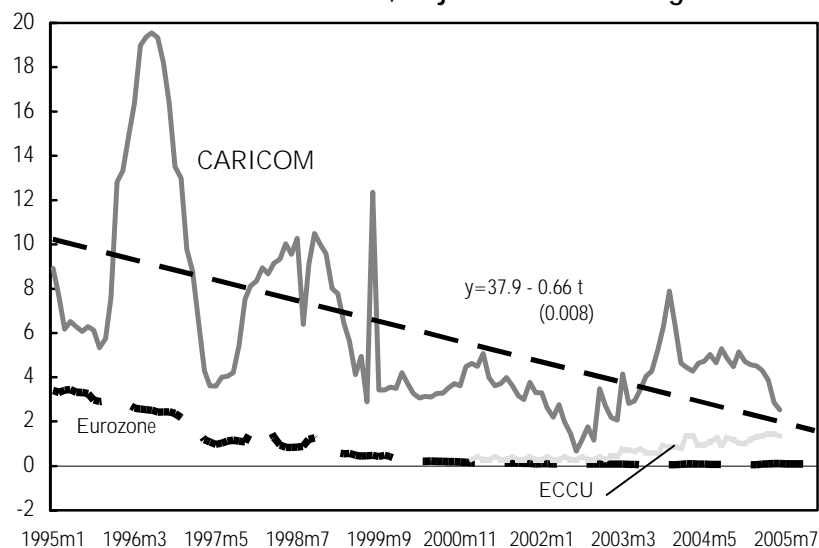
Source: Fund staff estimates.

inflation risks. The current level of interest rate disparity in the Caribbean is very large compared to the fully integrated government bond markets in the European Union, which closely monitors this variable as a measure of regional financial integration (Adam and others, 2002; and ECB, 2004).

Figure 2.6. Number of Cross-Listings in Caribbean Stock Exchanges
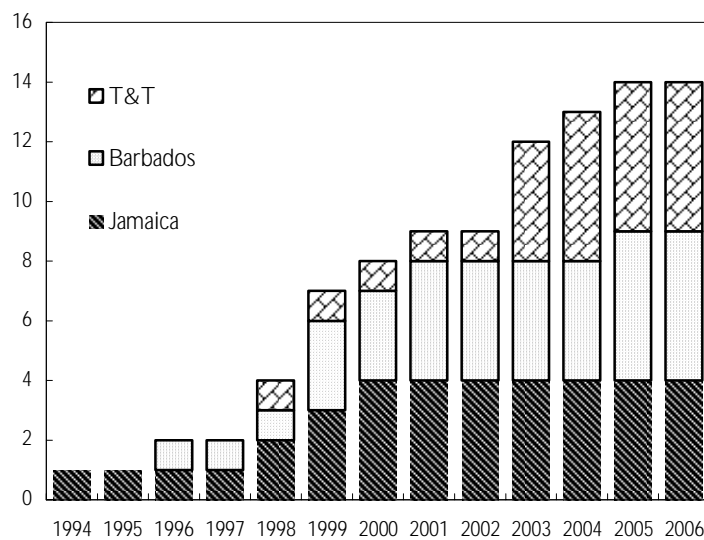
Sources: Country authorities; and Fund staff estimates.

Equity markets

Caribbean stock markets are dominated by cross-listed stocks (Figure 2.6). Cross listing of CARICOM companies in the various national stock exchanges has increased substantially over the last decade and, in the process, has boosted market capitalization of individual exchanges. The cross-listed companies are among the largest in the region, are mostly financial sector companies, and represent some 40 percent of the consolidated regional market capitalization. In relation to the economy, the total capitalization of cross-listed companies amounts to 25 percent of regional GDP.

Price differentials of identical stocks listed in multiple exchanges are, however, large and volatile in CARICOM (Figure 2.7). Market data for cross-listed stocks indicate that the price differentials, or cross-market premia, in the Caribbean are on average 6–7 percent, which is much wider than those observed within the European Union and MERCOSUR (Figures 2.8 and 2.9). This is also larger than the average margin for cross-listed stocks between the United States and various emerging markets but similar to differentials among ASEAN stock exchanges.[10]

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[10]See Yeyati, Schmukler, and Horen (2006) for U.S. emerging market differentials.

Figure 2.7. Average Cross Market Premium
(In percent)
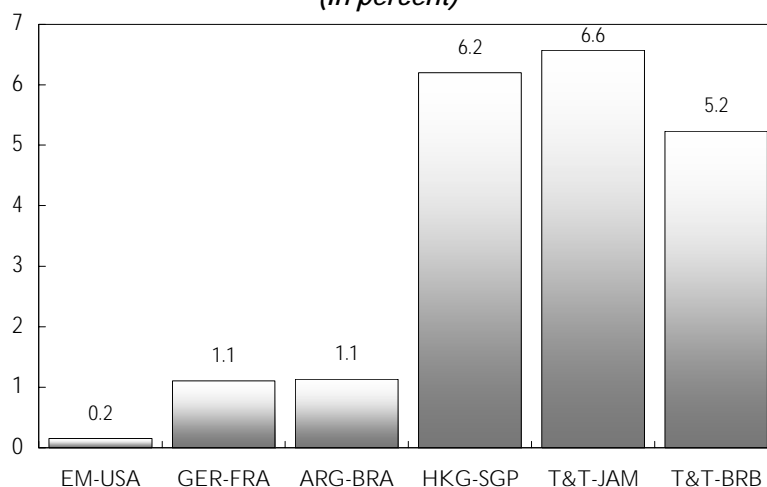
Sources: Country authorities; and Fund staff estimates.

Analysis of cross-market premia movements over time provides further strong evidence of the low integration of Caribbean stock markets. Regression analysis shows that it would take about 18 trading days for half of the cross-market premia for the same stock to disappear between Jamaica and Trinidad and Tobago, and over 40 days between Barbados and Trinidad and Tobago (Figure 2.10 and Appendix 2.1). This common measure of price convergence, known as the "half-life," is much shorter for stocks cross-listed in other markets.

The segmentation of Caribbean stock markets is so severe that low financial development alone cannot explain its extent. Lack of price convergence can sometimes reflect factors other than market integration. For example, even in a fully integrated national financial market, some price disparity could be sustained between two exchanges indefinitely because of underdeveloped market and trading infrastructure. In such situations, the poor infrastructure exacts such a large cost on trading between the two exchanges that arbitrage is not worthwhile. To see if this is the case here, we estimate for the various market-pairs the price differential below which no further convergence occurs (see Appendix 2.1 for details on the methodology). This "threshold" level is about 8 percent in the Caribbean, far greater than in other regions (Figure 2.11). More importantly, the convergence speed *outside* the threshold is also significantly slower in the Caribbean, reinforcing the finding of low integration. Market participants broadly attribute the stock price disparities to extremely low turnover associated with high concentration of stock ownership and to regulatory barriers, including a variety of trading and investment

Figure 2.8. Equity Prices and Cross-Market Premia in CARICOM
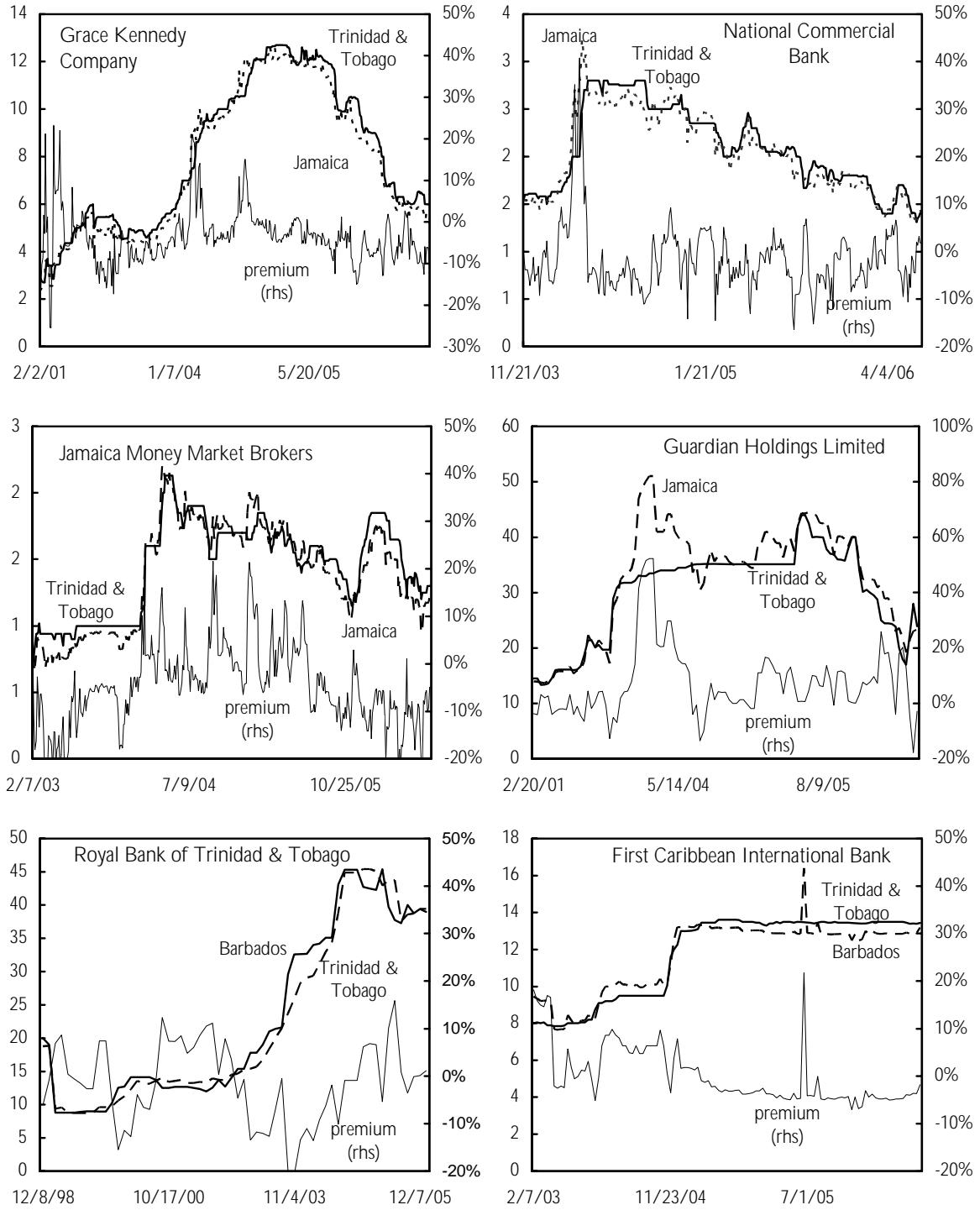
Sources: Barbados Stock Exchange; Jamaica Stock Exchange; and Trinidad and Tobago Stock Exchange.

Figure 2.9. Cross-Market Premia in Various Regional Markets
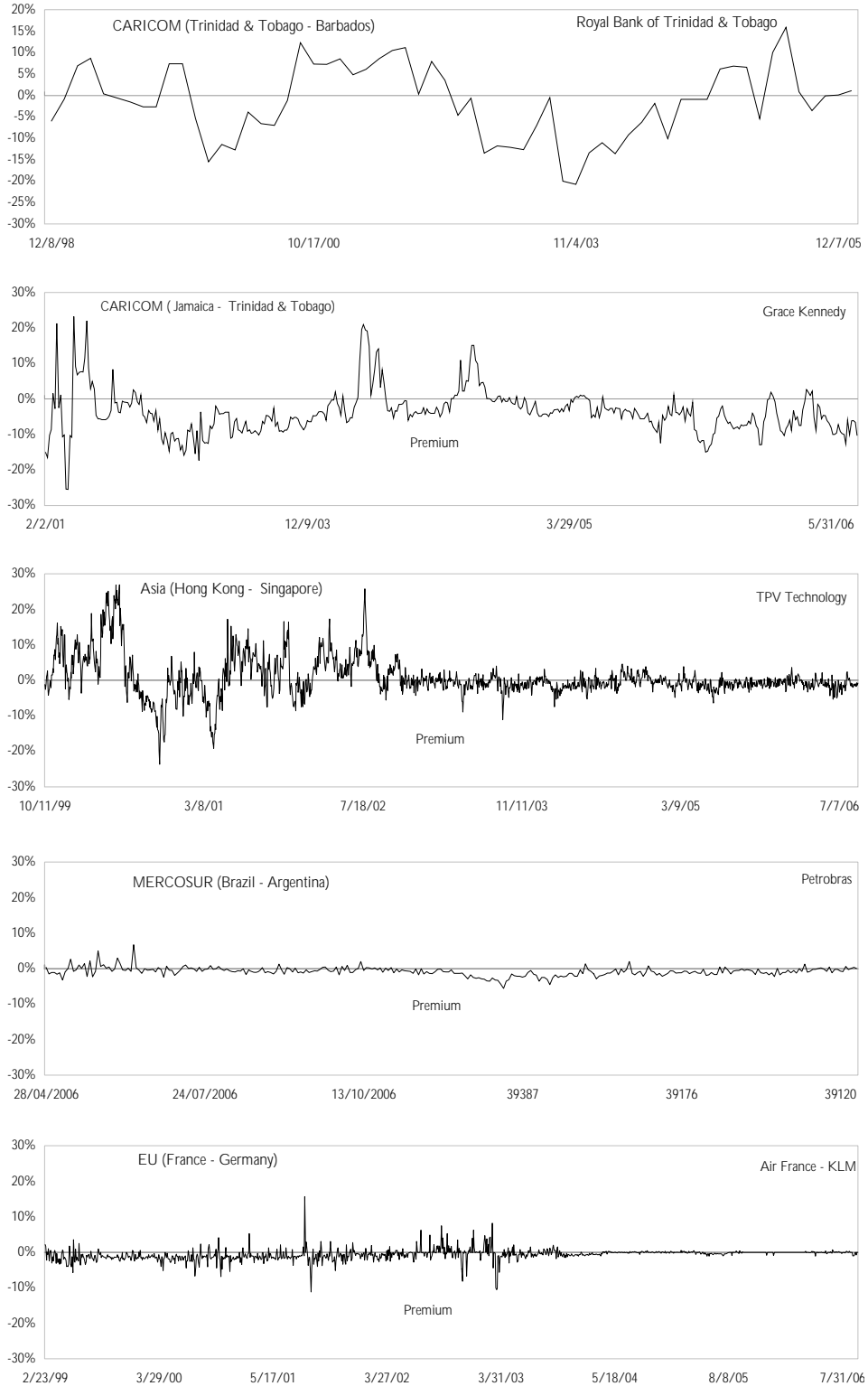
Source: Bloomberg.

Figure 2.10. Half-Life of Price Convergence
(In the number of trading days)
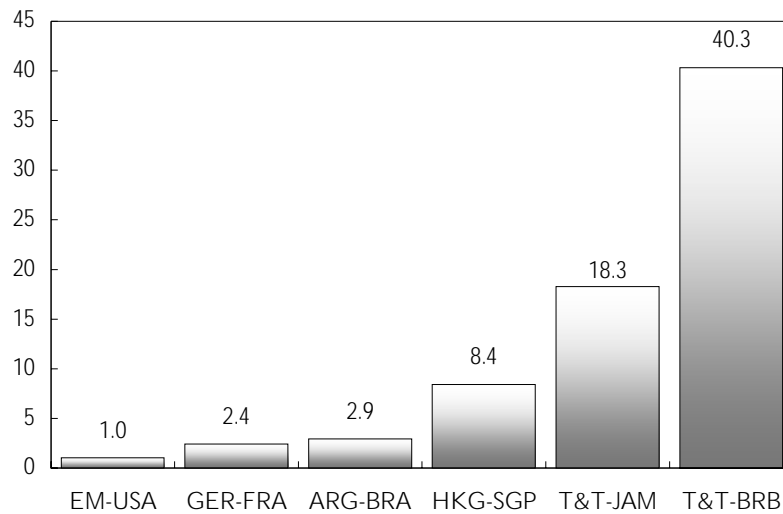
Sources: Country authorities; and Fund staff estimates.

Figure 2.11. Price Convergence
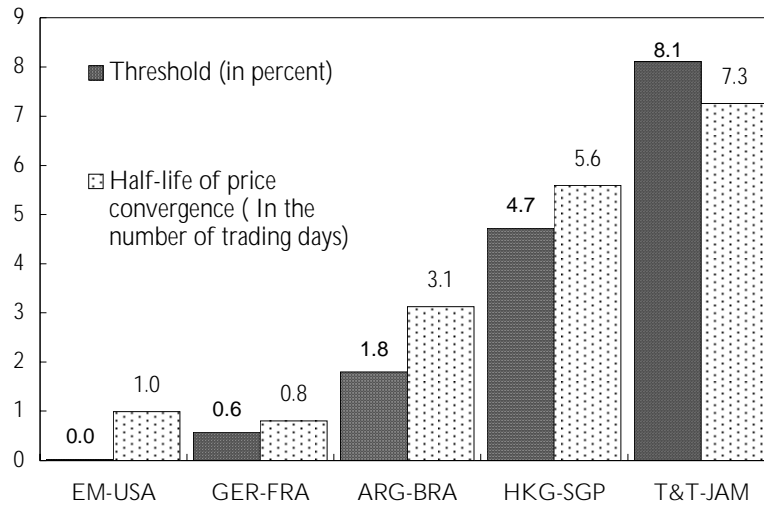
Sources: Country authorities; and Fund staff estimates.

restrictions (see Section E). IMF staff estimates suggest that transaction costs alone—including taxes, commissions, fees, and implicit market impact costs arising from bid-offer spreads—account for about one-third of the no-arbitrage threshold level in the Caribbean.

Balance of payments data

The dynamics of the external current account can also provide information on the extent of financial integration. The key idea, originally applied to measure global (rather than regional) financial integration, is that countries that are less integrated with global financial markets are likely to have to adjust their external balances more quickly in the event of external shocks (Taylor, 2002). For any given country, the more binding the external financing constraints, the faster the adjustment speed and, hence, the less integrated with global financial markets. We extract a measure of regional (rather than global) integration by distinguishing between intraregional and extraregional trade flows in the econometric estimation (see Appendix 2.2 for details on the methodology).

The methodology relies crucially on a number of assumptions that may not always hold. A key assumption is that intraregional financial flows broadly mirror intraregional trade. There is both theoretical and empirical support for this assumption[11] but it may not hold at all times or in specific contexts, including possibly that of the Caribbean. Second, the observed dynamics could be due to policy rather than financial integration (for example a shift in stance toward more swiftly correcting macroeconomic imbalances). Third, the measure examines net flows rather than gross flows—the latter (and hence financial integration) may have changed without affecting the former. Finally, by focusing on only goods, the methodology does not take account of financial flows associated with trade in services.

Subject to the above caveats, the analysis of intraregional trade dynamics broadly confirms the finding of low financial integration in the Caribbean. Empirically, the speed of current account adjustment is typically expressed in half-life (as for stock price premia). The half-life of regional trade adjustment is under 1½ years in CARICOM countries, about half of the duration in the Asian region and under a third of the adjustment time in the EU-15 (Figure 2.12). The speed is broadly similar that of ECOWAS countries but somewhat faster than for the MERCUSOR+5 grouping. This result is robust to some possible biases and data limitations.

The adjustment speed of regional trade balances slowed in the Caribbean after 1990, consistent with an increase in regional financial integration in the recent decade. The adjustment speed, as measured by the half-life, was less than one year in 1975–1990 when capital controls were widely prevalent in

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[11] See Fernandez-Arias and Siegel (1998); Rose and Spiegel (2002); Forbes and Chinn (2003); and Eichengreen and Park (2004).

**Figure 2.12. Half-Life of Intra-Regional
Trade Balance Adjustment**
(1975–90 versus 1990–2005)
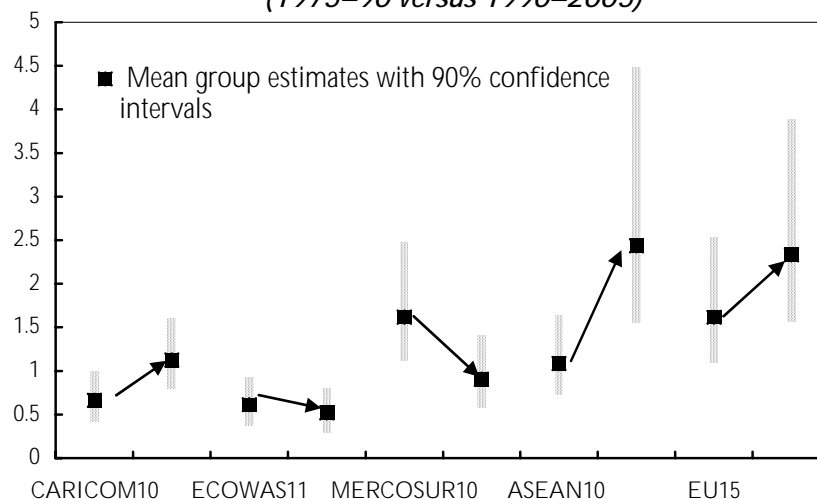
Source: Fund staff estimates.

the Caribbean. However, it almost doubled during 1991–2005 (see Figure 2.12). This finding of increasing integration is again consistent with those from the analysis of bond and equity markets.

E. Barriers to Regional Financial Integration

Financial integration in the Caribbean, while increasing, has been hampered by both policies and infrastructure. Policies on exchange and capital controls obviously impact on integration, as do various regulations governing the functioning of financial institutions. Poor market infrastructure, such as the state of the payment and settlement system, can impede integration even with pro-integration policies in place. We consider these issues so as to draw policy conclusions about possible steps to encourage sound financial integration.

Financial liberalization and the CSME

The gradual process of financial liberalization undertaken by Caribbean countries since the 1990s has generally resulted in fewer exchange and capital controls. Starting in the early 1990s, foreign exchange markets were liberalized and exchange control regulations relaxed in Jamaica, and Trinidad and Tobago, and to a lesser extent in the ECCU and Barbados. The removal of controls has, however, also accelerated recently in the ECCU as part of its

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Table 2.6. Examples of Exchange and Capital Controls in the Caribbean, end-2005

	De Facto Exchange Arrangements	Exchange Tax	Current Account Transactions	Capital Transactions	Provisions Specific to Financial Sector [3]
Trinidad and Tobago	Managed floating			Approval required for inward direct investment exceeding 30 percent of the firm shares.	Limits on institutional investors' (insurance, pension funds, etc.) outward investments. Restrictions on purchase of foreign assets including capital market securities.
Jamaica	Managed floating				Limits on institutional investors' (insurance, pension funds, etc.) outward investments.
Suriname	Conventional peg		Approval required for most non-import external payments.	Approval required for all transactions involving outward remittances of FX, and for local investment in real estate and stock market by nonresidents [1]	Foreign transactions of banks are restricted to those undertaken for the account of their customers. Limits on institutional investors' (insurance, pension funds, etc.) outward investments.
Barbados	Conventional peg		Approval required for payments exceeding BDS$250000.	Approval required for most securities transactions, credit operations, real estate transactions, and all direct investments.	Approval required for banks' foreign borrowing to finance their domestic operations Limits on institutional investors' (insurance, pension funds, etc.) outward investments.
Belize	Conventional peg	1.25 percent on FX purchases		Approval required for most securities transactions, credit operations, real estate transactions, and all direct investments.	Restrictions on banks' foreign and FX denominated operations. Nonresidents can only use offshore banks.
Guyana	Conventional peg			Controls on all credit operations.	Approval required for banks' lending to nonresidents and lending locally in FX.
The Bahamas	Conventional peg	1.5 percent on outward remittances	Approval required for payments exceeding BDS$500000.	Approval required for all outward capital transfers, which are restricted. Extensive controls on nonresident purchase of domestic shares, most credit operations and direct investments.	Approval required for banks' lending to nonresidents and lending locally in FX.
The ECCU [2]	Conventional peg			Alien holding license is requied for purchase of local real estate by nonresidents.	Approval required for banks' lending to nonresidents.

Sources: 2006 Annual Report on Exchange Arrangements and Exchange Restrictions and country authorities' websites.

[1] For CARICOM nationals, only registration is required within 30 days of purchase.

[2] Refer to Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.

[3] For Belize, Guyana, The Bahamas, and the ECCU, information on controls on institutional investors outward investments is not available.

commitments to the CSME. The ECCU countries repealed the Exchange Control Act in late 2005 (which required, among other things, prior approval for outward remittances greater than about US$100,000) and Barbados is currently in the midst of liberalizing its capital account.

Generally applicable controls have, however, remained fairly extensive. For example, several countries require prior government approval for most categories of capital transactions, both inward and outward (Table 2.6). While in some cases these approvals have been granted liberally, the process raises transaction costs for all types of capital movements. In some Caribbean countries, government approval is still needed for clearing and settlement in specified currencies even for some current account transactions. And even in cases where controls have been eliminated on the books, they remained effective in practice. In the ECCU, for example, some financial institutions that are authorized dealers in the government securities markets appeared unaware of the repeal of the Exchange Controls Act even one year after the fact.

Controls on the cross-border activities of financial institutions remain extensive. Banks' operations abroad and local operations in foreign exchange generally require prior approval by the authorities (see Table 2.6). There are also extensive controls regarding non-bank financial institutions, which particularly impact on market-makers and hinder the development of secondary markets. For example, in Jamaica, an exchange control regulation prohibits securities firms from dealing on their own accounts in foreign securities other than those issued by U.S., U.K., and Canadian sovereigns.

Finally, there are also specific regulations governing nonfinancial institutions that impede intraregional capital flows. For example, social security funds mobilize significant amounts of savings in the region, and could potentially play an important role in deepening the regional capital markets However, legislation in many member states does not allow for social security funds to be invested abroad, even within CARICOM (Table 2.7). In addition to impeding the development and deepening of regional financial markets, this restriction hinders the ability of financial institutions to spread out country risks, including with regard to hurricanes.

Several policy prerequisites are critical for the successful intraregional opening of the capital account. As highlighted at the outset of this paper, integrated capital markets increase countries' and their financial institutions' exposure to shocks. Therefore, to withstand and address this increased exposure, countries need to ensure that (i) their macroeconomic conditions and policies are sound; (ii) national monetary authorities have flexible market-based policy instruments to effectively manage domestic liquidity in the more

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Table 2.7. Pension Funds' Investment by Location, Dec. 2003
(In percent)

	Local	Regional	International
Anguilla	77	8	14
Antigua and Barbuda	100	...	...
Bahamas	100	...	...
Barbados	92	6	2
Belize	100	...	...
Dominica	100	...	...
Grenada	91	9	...
Guyana	96	4	...
Jamaica	100	...	...
Montserrat	43	36	21
St. Kitts and Nevis	98	1	1
St. Lucia	89	7	4
St. Vincent and the Grenadines	79	21	...
Trinidad and Tobago	100	...	...
Regional average	90	12	8

Sources: Country authorities; and Fund staff estimates.

volatile environment; and (iii) appropriate regulatory and supervisory frame-works are in place.

The current generally favorable economic environment presents an op-portunity to make further progress in addressing macroeconomic imbalances to support integration. While there has been some consolidation, public debt in Caribbean countries remains among the highest in the world among emerging market countries (Figure 2.13). Caribbean external current account deficits, already large by international standards, have recently widened with the increase in global energy prices. Efforts taken by regional countries earlier this decade to strengthen fiscal balances appear to be running out of steam (Figure 2.14). Jamaica's fiscal primary surplus, for example, while still sub-stantial by international standards, has fallen by over 3 percentage points of GDP since 2003. Weak macroeconomic fundamentals risk undermining capi-tal account liberalization even within CARICOM, which could severely set back regional financial integration.

Capital account liberalization also requires increasing dexterity on the part of the monetary authorities. Liberalization heightens the sensitivity of capital flows to interest rate differentials. For countries with floating exchange rate regimes, it is, therefore, important to effectively exercise the flexibility that is inherent in the system to manage flows. Letting the exchange rate as well as

Figure 2.13. Total Public Debt
(In percent of GDP, end-2006)
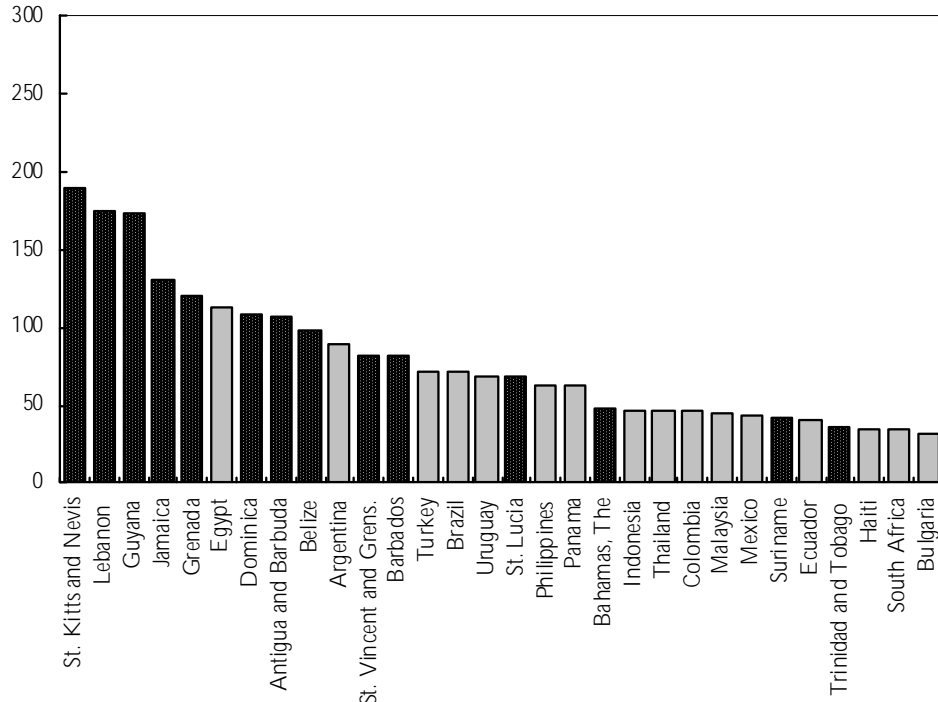
Sources: Country authorities; and Fund staff estimates.

Figure 2.14. Overall Fiscal Balances [1]
(In percent of GDP)
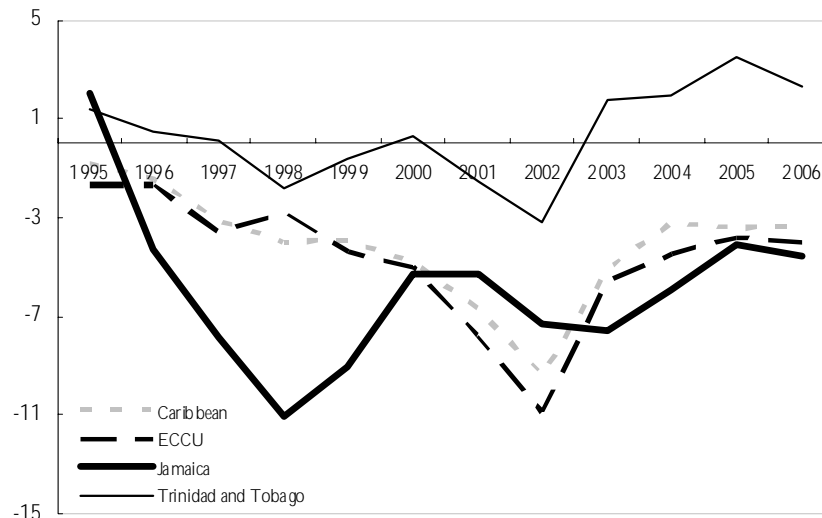
Sources: Country authorities and Fund staff estimates.
[1] Caribbean aggregate is a simple average; ECCU figure is a weighted average.

Table 2.8. CARICOM: Features of Key Securities Exchanges in the Caribbean, 2005

	Trading			Listing requirements		Disclosure Requirements	Exchange controls		Withholding tax	
	Days per Week	Settlement Dates	CSD [1]	Minimum Share Capital (US$m equivalent) [2]	Minimum Public Shareholding		CARICOM Investors	Other Foreign Investors	CARICOM Investors [3]	Other Foreign Investors
Trinidad and Tobago	3	T+3	Yes	0.63	25%	Bi-annually	No	Yes	0%	20%
Jamaica	5	T+3	Yes	0.00	20%	Quarterly	No	Yes	0%	25%
Barbados	3	T+3	Yes	0.50	0%	Quarterly	No	Yes	0%	15%
The Bahamas	5	T+3	Yes	1.00	25%	Annually	Yes	Yes	0%	0%
Eastern Caribbean	5	T+1	Yes	3.70	20%	Annually	No	No	0%	0%
Guyana	1	T+5	No	2.49	20%	Annually	Yes	Yes	0%	15%

Sources: Caribbean Trade and Investment Report 2005 and stock exchange websites.

[1] For Jamaica, CSD does not exist for fixed income securities.

[2] For Barbados, it is the issuer's minimum asset value.

[3] The Double Taxation Agreements among CARICOM states provide for zero tax on dividends.

interest rates move in both directions avoids creating incentives for markets to make one-way bets and hence reduces the risks of destabilizing capital flows in either direction. For fixed exchange rate regimes, higher volatility of capital flows will feed directly into domestic liquidity, making it all the more important for the central bank to have tools at its disposal to manage liquidity conditions effectively.

Therefore, countries need to ensure that their market-based monetary policy instruments are effective to manage liquidity in an integrated environment. Insufficient government paper for central banks to conduct open market operations has been an issue in some Caribbean countries in recent years. Moreover, minimum deposit rates (at different levels in different jurisdictions) remain in place that could potentially constrain the ability of central banks to manage the impact of intraregional capital flows.

Market infrastructure and requirements on trading

Notable progress has been made in upgrading and modernizing the trading and settlement system for equities. Jamaica moved in 2000 to electronic trading of equities, followed by Barbados in 2001 and Trinidad and Tobago in 2005. Central depositories have been in place since 2003 in all the stock exchanges, allowing to some extent efficient custody arrangements and timely transfer of shares across borders. The stock markets of Jamaica, Barbados and Trinidad and Tobago are currently in the process of being linked electronically. The ECCU launched its own securities exchange in 2003 on a modern trading platform and has also established its own depository for stocks.

Nevertheless, a number of structural weaknesses in infrastructure and regulatory requirements remain (Table 2.8). Some jurisdictions have not yet fully dematerialized government securities into electronic forms. No central de-

pository exists for bonds in Jamaica, the region's largest national debt market, and there is no electronic settlement, hindering the development of secondary market (Box 2.3). There also exist many differences in market rules and requirements. Listing requirements and tax treatment, for example, vary considerably across the national jurisdictions. A 2005 survey by the Trinidad Stock exchange shows that the inconsistency of financial reporting requirements posed a particularly onerous burden for market participants. Differences in national rules regarding corporate governance and treatment of collateral are likely to further dampen investor demand.

Weak infrastructure and inconsistent requirements across markets add to transaction costs and, thereby, contribute to market segmentation. Brokerage commissions in the Caribbean, together with taxes, trading fees and other transaction costs, are estimated to exceed 1 percent of the transaction value, which is very high by international standards (Figure 2.15). This makes frequent trading, in particular arbitrage trading involving simultaneous buying and selling, prohibitively expensive.

Strengthening market infrastructure and harmonizing regulations will require steps at both national and regional levels. Individual jurisdictions will need to continue to strengthen their local market infrastructure, for example, by establishing central depositories for debt instruments where none exist currently. At the regional level, a concerted effort to harmonize listing and reporting requirements would help integrate stock exchanges and facilitate cross-border trading. Equally important is the establishment of common mechanisms and frameworks for cross-border transactions in the region. Key steps include establishing a common legal framework for enforcing cross-border collateral; creating a regional securities depository or a mechanism for linking the existing national depositories; and cross-border sharing of credit information. The establishment of a regional credit rating agency (CariCris) in 2004 is an important step in this regard.

F. Regional Supervision Issues

Financial integration poses special challenges for supervisors**.** Integrated markets allow shocks to spread across borders much more rapidly. Integration may also introduce risks that are not yet known and may render the assessment and management of risks more difficult by increasing the complexity and reducing the transparency of financial institutions. In parallel, growing integration between bank and nonbank activities creates a "blind zone" for bank supervisors, who usually have knowledge of, and jurisdiction over, a

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Box 2.3. Clearance and Settlement Systems in Selected Jurisdictions

Trinidad and Tobago

- The settlement system is modern. A Real Time Gross Settlement (RTGS) system has been in place since late 2004. A custody and electronic settlement system is also in place for government securities including bills, notes and bonds.

- Nonetheless, the legal framework for payments and settlement presents some important weaknesses. The legal basis is incomplete in that it supports paper-based payments systems but lacks the elements required for the operation of modern electronic payments system. Full contingency arrangements are also still to be finalized. A National Payment System Council was established as a forum of discussion on payment system matters, which should help in the final preparation of the required additional regulations.

- While both equities and bonds can be traded electronically in the Stock Exchange, actual secondary trading, especially for bonds, seldom takes place. The Central Depository, established in 2003, provides record-keeping, custody and clearing. However, many fixed income securities issued earlier are not yet in the electronic registry. Neither is the central bank's electronic bond registry linked to the Stock Exchange's trading system. Overall, settlement of securities is slow, taking place in a T+5 framework.

Jamaica

- The payment and settlement system is being updated. The Bank of Jamaica operates CIFTS (Customer Inquiry and Funds Transfer System) for large transactions among financial institutions. The CIFTS runs in a T+1 framework, which is slow and inefficient compared with the Real Time Gross Settlement system in Barbados and Trinidad and Tobago. The central bank is currently modernizing the payments and settlement infrastructure to bring the systems in line with international best practice, including by launching a RTGS system. A supplementary settlement system of Automated Clearinghouse (ACH), which is used mainly for smaller inter-bank transactions and takes three days to settle.

The trading and settlement systems for equities are more advanced than bonds. Equities are immobilized at the Central Securities Depository (CSD). Neither equities nor debt securities have, however, been dematerialized. Equities are traded electronically and transferred through book entry forms in the CSD, to which the trading system of the stock exchange is linked. A caveat is that securities should be blocked in the seller's account *before* the trading, rendering short-trading impossible. By contrast, bonds are traded in an OTC market and remain in paper form throughout the transaction process, with transfers manually recorded on paper. Payments for bonds are executed through the CIFTS or by issuing checks. Given delays in check clearance (in principle, T+3), this exposes market participants to several risks including counterparty and operational risks, which are particularly pronounced for cross-border transactions.

fraction of the operations and risks of financial conglomerates. This further compounds the challenges faced by supervisors as the conglomerates and mixed groups become increasingly organized less along jurisdictional lines and more along functional lines, motivated in part by opportunities for tax arbitrage across countries.

Figure 2.15. Two-Way Trading Costs in Stock Markets

(In basis points)
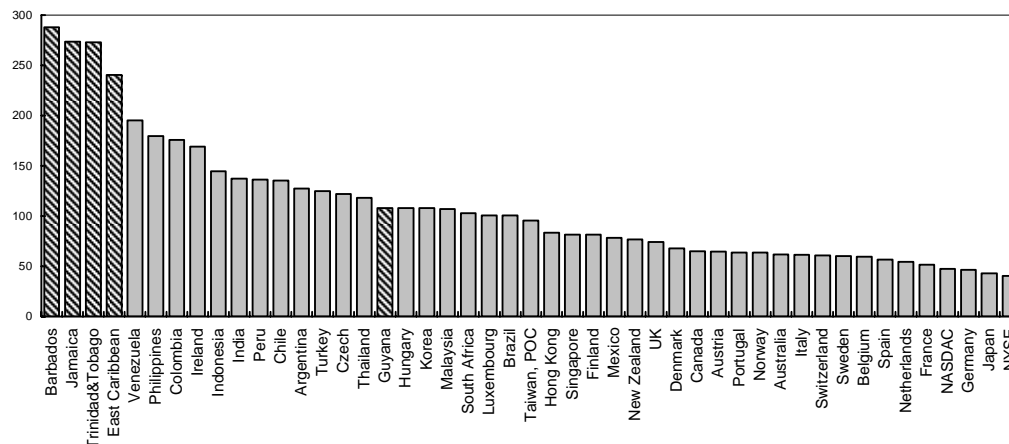
A regionally integrated financial system, as envisaged in the CSME, needs to be anchored by sound financial stability arrangements that address the related risks. Managing the integration process requires appropriate domestic and regional legal and regulatory frameworks; effective mechanisms for information sharing between domestic and regional supervisors; tested arrangements for cross-border supervision; clearly acknowledged home/host country responsibilities; and comprehensive strategies for contingency planning, crisis management, and resolution. CARICOM member states have made important progress in aligning regulatory and supervisory frameworks toward best practice, but challenges remain. These challenges are well recognized by national supervisory authorities, with most acknowledging that much remains to be done.

Platform for on-going supervision

Regional integration amplifies the need for adequate national supervisory systems, which are uneven in the Caribbean.[12] Many supervisors lack sufficient operational independence. Some cannot grant and withdraw licenses, set legally binding prudential rules, or independently issue regulations. Risk-based supervision remains to be fully implemented, with compliance checklists often still in use, which prevent supervisors from developing a holistic view about banks' risk-management practices and financial vulnerabilities. Similarly, accounting practices remain inconsistent (although CARICOM member

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[12] This paragraph draws on Financial Sector Assessment Programs/Basel Care Principles for various countries in the region, completed during 2002–05.

states are committed to adopting international accounting standards) and licensing regimes in some jurisdictions warrant strengthening. Weak national prudential norms and practices (capital adequacy, loan classification/provisioning, large exposures, country risk, and market risks) are, however, in the process of being strengthened, with a number of amendments recently passed in some jurisdictions and further substantive prudential changes anticipated during 2007–08.

Supervision of conglomerates remains a particular challenge. Preliminary results from an ongoing survey by CARTAC of financial supervisors in the region are illustrative. Seven of the 23 respondents to the survey do not have memoranda of understandings with other domestic agencies on consolidated supervision; 10 do not conduct any consolidated supervision and 18 had never conducted on-site inspections of financial conglomerates. Thirteen respondents also reported facing legal impediments on information sharing.

Recognizing the challenges posed by conglomerates, countries are taking steps to improve their supervision at the national level. Recent legal amendments enacted in Trinidad and Tobago allow information-sharing for the purposes of consolidated supervision and steps are being taken to require financial holding companies (FHC) to be licensed; mixed-conglomerates to restructure by establishing FHC; and prudential norms to be applied on a consolidated basis. Similarly, Barbados has embarked on a project to improve prudential information by requiring more granular data from financial institutions and is working on developing guidelines on consolidated supervision. In Jamaica, a review is underway to amalgamate various existing pieces of legislation governing banking type entities into a single consistent framework that is also expected to establish prudential principles governing FHC.

Framework for cross-border supervision

A Multilateral Memorandum of Understanding (MOU) among several (though not all) national supervisors was introduced in May 2004.[13] This follows other ongoing efforts at regional cooperation in the area of supervision (Box 2.4). The MOU is structured to facilitate cooperation, consultation, and exchange of information. Some member states also have bilateral MOUs in place. The multilateral MOU addresses a number of critical issues, but there is scope for improvement in many areas, including crisis management, safety net and resolution issues, and supervision of cross-border conglomerates.

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[13] Signatories to the multilateral MOU are the Central Bank of Barbados; Central Bank of the Bahamas; Central Bank of Belize; Central Bank of Trinidad and Tobago; Cayman Islands Monetary Authority; Financial Services Commission, British Virgin Islands; Bank of Jamaica; Financial Services Commission, Turks and Caicos; and the Central Bank of Netherlands Antilles.

Box 2.4. Harmonizing the Regional Supervisory Architecture and Practices

Harmonization of supervisory architecture and practices has been a key agenda item of the Caribbean Group of Banking Supervisors (CGBS). The CGBS, alone and jointly with the Financial Stability Institute, has been arranging regional technical assistance in the application of new and/or emerging international supervisory standards such as consolidated supervision and Basel II. A CGBS technical working group has a specific mandate to harmonize laws and supervisory standards across the region; harmonize the approach to the restructuring of financial groups; develop a standardized accounting and reporting framework; improve information sharing between regional regulatory agencies; and arrange thematic regional training seminars and regional supervisory conferences.

There has been notable progress in information sharing across regulatory agencies. A CGBS database, which is accessible to all CGBS jurisdictions, provides comprehensive and chronological information, including details of the ongoing work of the Harmonization Project, enhancements of legal and supervisory structures, methodologies, procedures and practices, prudential data reporting arrangements, and status on publication of prudential data by respective member regulatory authorities.

Progress is also being made in the harmonization of supervisory standards. The Group of CARICOM Central Bank Governors has recently endorsed the following principals proposed by the technical working group[1]:

- Ensure cross-jurisdictional consistency in regulatory reporting and definitions, inclusive of the definitions of what constitutes "capital base" and "acceptable group structures," in order to avoid regulatory arbitrage.

- Empower regulators to prescribe in legislation the accounting treatment to be used for reporting to the regulator for prudential purposes (especially in instances where conventional accounting treatment or IFRS standards are at variance or inconsistent with more stringent prudential standards promoted for deposit-taking entities).

- Ensure consistency between the approach taken in amending legislation for consolidated supervision and the revised Basel Core Principles.

- Enhance further the relationship between the Regulator and the External Auditors for risk-based supervision to be conducted efficiently, since regulators must be able to rely on the work of the external auditors.

- Establish legislation to address the entry protocols and scope of foreign regulators, who wish to perform on-site examinations in member jurisdictions.

Further progress, however, needs to be made in many other areas. Key challenges identified by the CGBS include harmonizing holding company legislations in ways to grant powers to regulators to supervise holding companies and the operations of the entire group on a consolidated basis; adopting regional agreement regarding the appointment of a lead regulator where relevant; and establishing better legal and other arrangements to facilitate information sharing between supervisory authorities. The CGBS has concluded that a harmonized regional approach would have to accompany individual country efforts to establish an appropriate framework.

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[1]Opening Remarks by Audrey E. Anderson, Senior Deputy Governor at The Financial Stability Institute & Caribbean Group of Banking Supervisors Regional Seminar on Conglomerate and Consolidated Supervision, April 11–13, 2007.

Crisis management preparation warrants further strengthening. There is no common regional early warning system. Most individual supervisory agencies in the region do not have sufficient data on financial conglomerates and their cross-border transactions, making it challenging to trace linkages between institutions and countries. This information is necessary to map potential systemic vulnerabilities and to perform a comprehensive analysis of possible contagion. Also, legal frameworks for domestic interventions have been strengthened in a number of jurisdictions but measures should be mapped out to deal with potential cross-border crisis situations. Similarly, remedial measures have been identified at the national levels but steps have not been taken to assess, harmonize, or reconcile remedial enforcement rules and practices across the region.

Coordination on safety net and resolution issues should be strengthened. There are three national deposit insurance schemes operating in the region (Bahamas, Jamaica, and Trinidad and Tobago). However, there are differences in coverage and definitions and there are no burden-sharing arrangements to handle the failure of a regional bank. Similarly, national central banks traditionally provide emergency liquidity but member states have not yet developed a regional plan on how the lender of last resort principle would operate in a regional context. Finally, national bankruptcy legislation and insolvency proceedings need to be reconciled to deal with the potential of a regional bank or group failure.

The initial focus on creating a stability framework for the core cross-border conglomerates should be useful. These entities have complex cross-border and cross-functional operations (Figures 2.16 and 2.17), requiring cooperation of not only bank regulators but also securities, insurance and other supervisors across the Caribbean. A comprehensive stock-taking of the regional systemic implications of the conglomerates would help pinpoint the specific challenges to regional supervision broadly identified in the preceding two paragraphs.

G. Conclusion

Financial integration is proceeding apace in the Caribbean. National financial sectors are large and complex in CARICOM countries. Linkages are close when measured in terms of ownership—a distinguishing Caribbean feature is the dominant role played by regional financial conglomerates that have extensive cross-country holdings comprising commercial banks, merchant banks and securities dealers. However, linkages in terms of financial flows, while growing, are still lower than in some other regional blocks in the world. The establishment of the Caribbean single market and economy is expected to further boost regional financial integration.

Figure 2.16. First Caribbean International Bank Group Corporate Ownership
(as of June 30, 2004)

First Caribbean International Bank Ltd
(Barclays: 43.8%, CIBC: 43.8%, Public: 12.5%)

First Caribbean International Bank (Jamaica) Ltd. Public: 17.7%

First Caribbean International Bank (Bahamas) Ltd. Public: 17.7%

First Caribbean International Bank (Cayman) Ltd.

First Caribbean International Bank (Barbados) Ltd.

First Caribbean International Bank (Offshore) Ltd.

First Caribbean International Securities Ltd.

First Caribbean International Building Society

First Caribbean International Finance Corp. (Bahamas) Ltd.

First Caribbean International Finance Corp. (Cayman) Ltd.

First Caribbean International Trust & Merchant Bank (Barbados) Ltd.

First Caribbean International Nominees Company (Bahamas) Ltd.

First Caribbean International Finance Corp. (Netherlands Antilles) Ltd.

First Caribbean International Finance Corp. (Barbados) Ltd.

First Caribbean International Land Holdings (TCI) Ltd.

First Caribbean International Nominees Company (Cayman) Ltd.

First Caribbean International Finance Corp. (Leeward & Windward) Ltd.

First Caribbean International Land Holdings (Barbados) Ltd.

Key

Holding Company

Holding Company Subsidiaries

Licensee

FSC Licensee

Other Jamaican Deposit-Taking Licensee

Affiliates

37

Figure 2.17. Colonial Life Financial—Organization[1]
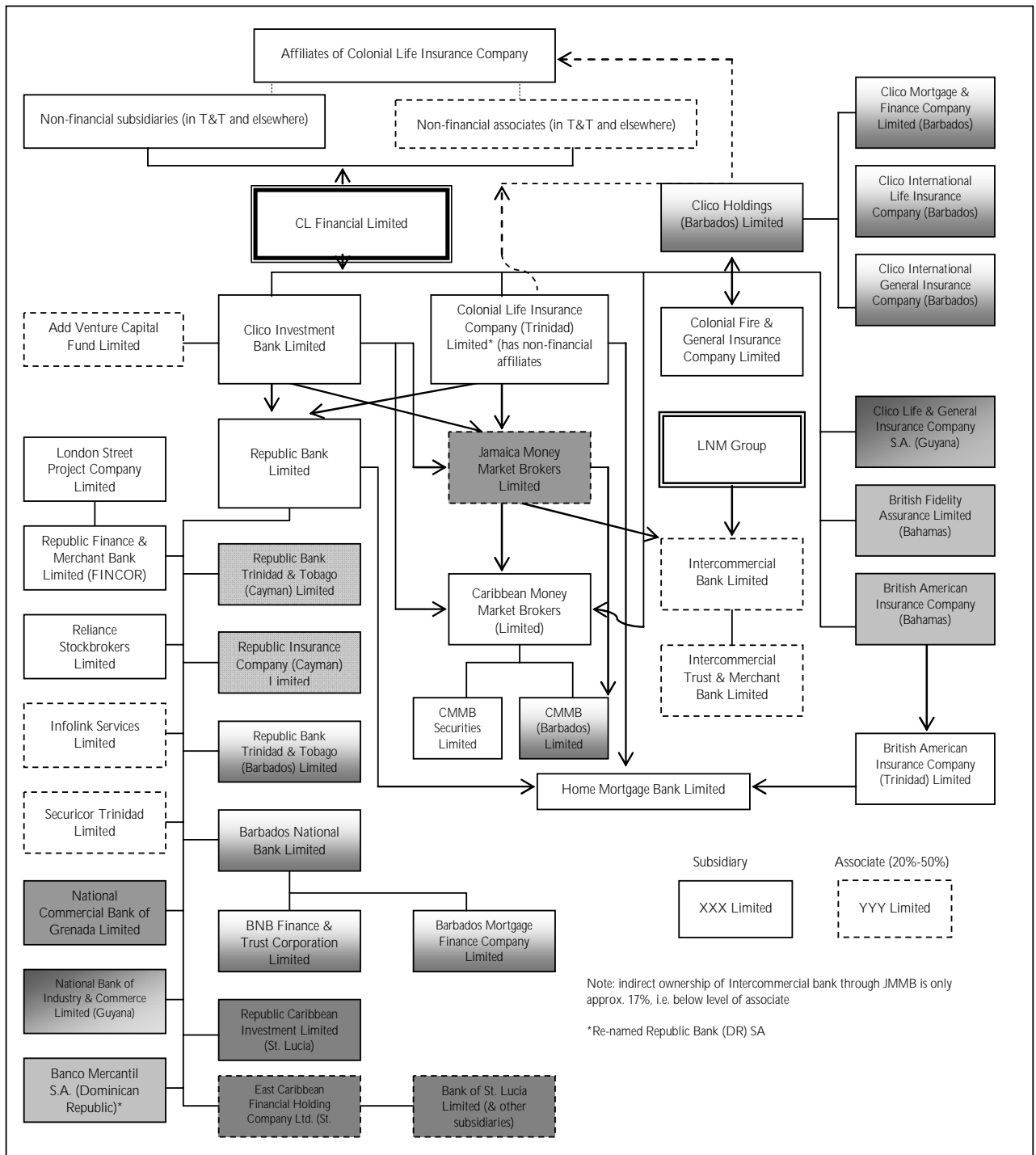
[1] The figure is intended to indicate the wide sectoral and geographic range of the group's activities and the complexity of some of its holdings rather than providing a comprehensive listing of all group affiliates. Two group sub-holding companies, Clico Securities Limited and Investors Holdings Limited, are not shown.

Integration can lead to substantial benefits, but realizing them requires initiatives along several fronts. It will be important to ensure that regional financial integration occurs as part of a process of, rather than a substitute for, countries' global integration; regional integration should, therefore, not lead to an increase in extraregional barriers. Structural reforms to strengthen the business environment will help ensure that regional financial integration leads to financial development, without which the growth benefits of integration will not accrue. Macroeconomic policies will need to be geared toward strengthening fundamentals and ensuring flexibility. Finally, integration poses a special challenge for financial sector supervisors who should invigorate efforts at regional cooperation and coordination, especially with regard to the supervision of conglomerates, while they continue their efforts to strengthen oversight at the national level.

Appendix 2.1. The Dynamics of Cross-Listed Stock Prices

The *cross-market premium* for cross-listed stock prices is defined by

$$p_t = 100 \left(\frac{ER_t^1 S_t^1}{ER_t^2 S_t^2} - 1 \right)$$

where ER^1 and ER^2 are the exchange rates of country 1 and 2 (local currency per US\$), and S^1 and S^2 are the stock prices in the regional markets, in local currency.

The stock prices are transaction, rather than quoted, prices of a cross-listed stock at the end of each trading day. We have excluded the prices of a stock for certain days when the stock was not traded or traded only in one of the two exchanges, in order to control for the effect of illiquidity on the speed of price convergence.

We run autoregressive regressions, correcting for both conditional heteroscedasticity and serial correlation. For that, we apply the maximum likelihood estimator on the following GARCH(1,1) model:

$$\begin{cases} \Delta p_t = \beta p_{t-1} + \sum_{k=1}^{3} \varphi_k \Delta p_{t-k} + \varepsilon_t \\ \sigma_t^2 = \alpha_0 + \alpha_1^i \varepsilon_{t-1}^2 + \lambda_1 \sigma_{t-1}^2 \end{cases}$$

where the first equation is the mean equation for the price premium, and the second the variance equation of GARCH models, with one ARCH lag (coefficient α_1) and one GARCH lag (coefficient λ_1).We include three lags of the dependent variable to control for the serial correlation in the data. We use the Quasi-Maximum Likelihood Estimator to account for the non-normality of errors that are evident from the Jarque-Bera test.

Our analysis of the premium dynamics is augmented by taking into account non-linear adjustment, which helps distinguish between the effect of under-developed markets and that of low financial integration. For that, we utilize the Threshold Auto-Regression (TAR) methodology, which was introduced by Tong (1978) and popularized by Obstfeld and Taylor (1997) for the PPP literature. Below is our TAR specification, based on Yeyati and others (2006):

$$
\begin{cases}
\Delta p_t = \alpha + \beta^{in} I^{in} p_{t-1} + \beta^{out} I^{out} (p_{t-1} - \text{sign}(p_{t-1})\, c) + \sum_{k=1}^{3} \varphi_k \Delta p_{t-k} + \varepsilon_t \\
\sigma_t^2 = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \lambda_1 \sigma_{t-1}^2 \\
I^{in} = 1 \ \text{if}\ c > p_{t-1} > -c, \ \ 0\ \text{otherwise} \\
I^{out} = 1 \ \text{if}\ p_{t-1} > c \ \ \text{or}\ -p_{t-1} > c, \ \ 0\ \text{otherwise}
\end{cases}
$$

where the first two equations refer to the GARCH dynamics of the premium, while the last two equations define the dummies I^{in} and I^{out} that divide the explanatory variables into two samples. As before, the first equation is the mean equation while the second equation is the variance equation characteristic of GARCH models, with one ARCH lag (coefficient α_1) and one GARCH lag (coefficient λ_1). The threshold *c* is chosen optimally following a maximum likelihood algorithm. More precisely, for each *c* in a certain range, the likelihood of each model L^{TAR} (c) is computed and the number that maximizes L^{TAR} is chosen as the threshold. The TAR – GARCH model requires a long span of data to ensure convergence and robustness. Hence, the method is not of much use for short samples or highly illiquid stocks.

Appendix 2.2. Current Account Dynamics and Financial Integration

Taylor (2002) assesses the extent of global capital mobility over the course of the last 100 years, covering 15 major economies. Following the theoretical framework of Trehan and Walsh (1991) on the long-run budget constraint, the speed of adjustment of the current account to its equilibrium or steady state level is used as a measure of financial integration in the world economy as follows:

$$\Delta ca_{it} = \alpha_i + \beta_i\, ca_{it-1} + (\lambda_i + \varepsilon_{it})$$

where ca_i is the current account balance in percent of GDP of country *i* in each region and λ_i is a country-dummy. The dummy is designed to capture unobservable time-invariant country effects, such as institutions. The error variable, $\varepsilon_{it,}$ captures shocks to the open economy resulting from a variety of sources: technology, tastes, monetary or fiscal policy, world interest rates, oil prices and so on. β_i is taken as a summary statistic pertinent to the ability of countries to smooth shocks to saving and investment, and related to broadly

defined transaction costs that might impede capital mobility. The intuition is that a country with good access to capital markets can finance current account deficits over several periods, whereas a country with limited access to foreign capital needs to quickly rebalance its current account due to the long-run budget constraint. Thus, a rapid adjustment would mean that current account deficits cannot remain open for long, and hence that financial integration is low.

We apply this concept to the regional level, following Bayoumi and Rose (1993), which examined the dynamics of regional savings and investment within the United Kingdom. We estimate the following partial adjustment model for 5 regional economic blocks (66 countries) over 30 years:

$$\Delta ca^*_{it} = \alpha_i + \beta_i^* ca^*_{it-1} + \gamma_i ca'_{it-1} + (v_t + \lambda_i + \varepsilon_{it})$$

where ca^*_i is the intra-region trade balance of country i in percent of GDP, which is computed by summing bilateral net imports of each country to other countries in the region. v_t is a time-dummy, which captures the impact of unobservable time effects on trade dynamics such as regional economic crises or global liquidity crunch. ca'_{it-1} is the lagged extraregional current account balance, which intends to control for the effect of extraregional current account balances on intraregional balances (for example, an intraregional deficit can be covered by extraregional surpluses).

A variety of estimators, including the mean group estimator and the fixed effects estimator, were used to test the robustness of the above findings, in particular given possible distortions from small sample biases in the dynamic panel model. The generalized method of moments (GMM) estimator was also applied for subperiod regressions as a cross-check, given the Nickell (1981) bias of the fixed effects estimator in a short dynamic panel. The results on the regional level are robust to the choice of the estimators, although they are less so on the country level in part due to small sample biases in individual time-series regressions.

References

Adam K., T. Jappelli, A. Menichini, M. Padula, and M. Pagano, 2002, "Analyze, Compare, and Apply Alternative Indicators and Monitoring Methodologies to Measure the Evolution of Capital Market Integration in the European Union," Center for Studies in Economics and Finance, University of Salerno, Working Paper, January.

Bayoumi, T.A., and A.K. Rose, 1993, "Domestic Savings and Intra-national Capital Flows," *European Economic Review*, Vol. 37, pp. 1197–1202.

Beck, T., R. Levine, and N. Loayza, 2000a, "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics,* Vol. 46, pp. 31–47.

———, 2000b, "Finance and the Sources of Growth," *Journal of Financial Economics,* Vol. 58, pp. 261–300.

Brenner P., and R.A. Morales, 2006, "Consolidated Supervision of Financial Groups in Central America," in *Central America: Structural Foundations for Regional Financial Integration*, ed. by P. Brenner (Washington: International Monetary Fund).

Carlin, W., and C. Mayer, 1999, "Finance, Investment and Growth," CEPR Discussion Paper No. 2233 (London: Centre for Economic Policy Research, September).

Demirgüç-Kunt, A., and R. Levine, eds., 2001, *Financial Structure and Economic Growth, A Cross-Country Comparison of Banks, Markets and Development* (Cambridge, Massachusetts: MIT Press).

Demirgüç-Kunt, A., and V. Maksimovic, 1998, "Law, Finance and Firm Growth," *Journal of Finance,* Vol. 53, pp. 2107–37.

Edison, H., R. Levine, L. Ricci, and T. Slok, 2002, "International Financial Integration and Economic Growth," Working Paper 02/145 (Washington: International Monetary Fund).

Eichengreen, B., and Y.C. Park, 2004, "Why Has There Been Less Financial Integration in Asia than in Europe?" Monetary Authority of Singapore Staff Paper No. 28 (Singapore: Monetary Authority of Singapore).

European Central Bank, 2004, *Report on EU Banking Structures* (November).

Fernandez-Arias, E., and M.M. Siegel, 1998, "North-South Customs Unions and International Capital Mobility," *Journal of International Economics,* Vol. 46, pp. 229–51.

Forbes, K., and M. Chinn, 2003, A Decomposition of Global Linkages in Financial Market Over Time, National Bureau of Economic Research, Working Paper No. 9555 (Cambridge, Massachussets: National Bureau of Economic Research).

Giannetti, M., L. Guiso, T. Jappelli, M. Padula, and M. Pagano, 2002, "Financial Market Integration, Corporate Financing and Economic Growth," European Commission Economic Paper No. 179 (November).

Inter-American Development Bank, 2002, "Financial Integration," *Beyond Borders: The New Regionalism in Latin America* (Washington: Inter-American Development Bank), pp. 101–24.

Jayaratne, J., and P. Strahan, 1996, "The Finance-Growth Nexus: Evidence from Bank Branch Deregulation," *Quarterly Journal of Economics*, Vol. 111, pp. 639–70.

King, R.G., and R. Levine, 1993a, "Finance and Growth: Schumpeter May Be Right," *Quarterly Journal of Economics,* Vol. 108, pp. 713–37.

———, 1993b, "Finance, Entrepreneurship and Growth," *Journal of Monetary Economics*, Vol. 32, pp. 513–42.

Levine, R., and S. Zervos, 1998, "Stock Markets, Banks and Economic Growth," *American Economic Review,* Vol. 88, pp. 537–58.

Nickell, S., 1981, "Biases in Dynamic Models with Fixed Effects," *Econometrica*, Vol. 49, pp. 1417–26.

Obstfeld, M., and A.M. Taylor, 2004, *Global Capital Markets: Integration, Crisis and Growth* (Cambridge: Cambridge University Press).

Pelgrin, F., and S. Schich, 2002, "Panel Cointegration Analysis of the Finance-Investment Link in OECD Countries," OECD Working Paper No. 02–2002 (Paris: OECD).

Rajan, R., and L. Zingales, 1998, "Financial Dependence and Growth," *American Economic Review*, Vol. 88, pp. 559–87.

Rambarran, J. and C. Elbourne, 2006, "Caribbean Mergers and Acquisitions, Recent Experiences and Lessons," paper presented at the XXXVIII Annual Monetary Studies Conference, Caribbean Center for Monetary Studies, Barbados.

Rose, A.K., and M.M. Spiegel, 2002, "A Gravity Model of Sovereign Lending: Trade, Default and Credit," National Bureau of Economic Research, Working Paper No. 9285 (Cambridge, Massachussets: National Bureau of Economic Research).

Taylor, A., 2002, "A Century of Current Account Dynamics," J*ournal of International Money and Finance*, Vol. 21, pp. 725–48.

Tong, H.,1978, "On a Threshold Model," in *Pattern Recognition and Signal Processing*, ed. by C.H. Chen (Amsterdam: Sijthoff and Noordhoff).

Trehan, B., and C.E. Walsh, 1991, "Testing Intertemporal Budget Constraints: Theory and Applications to the U.S. Federal Budge and Current Account Deficits," *Journal of Money, Credit and Banking*, Vol. 23, pp. 206–23.

Trinidad and Tobago Securities and Exchange Commission, 2005, *Development of the Securities Market in Trinidad and Tobago, 1997 to 2003, with Prospects for the Future* (Port of Spain, Trinidad and Tobago).

Yeyati, L.E., S.L. Schmukler, and N. Van Horen, 2006, "International Financial Integration through the Law of One Price," World Bank Working Paper WPS2897 (Washington: World Bank).

3

Tax Incentives and Foreign Direct Investment: Policy Implications for the Caribbean

Luis Cubeddu, Andreas Bauer, Pelin Berkmen, Magda Kandil, Koffie Nassar, and Peter Mullins

Policymakers across the Caribbean have long recognized the benefits of foreign direct investments (FDI) and actively sought for levers to attract them. As a consequence, special incentives for foreign investors have proliferated throughout the region, mainly in the form of tax holidays, which exempt qualified investors from paying corporate income taxes and import duties for periods that can be as long as 25 years.

However, several developments suggest that a reassessment of existing policies to promote FDI is in order. Sharply higher debt levels throughout the region are forcing governments to consider steps to achieve fiscal consolidation, including the scaling back of tax incentives. In addition, the existing literature is, on balance, striking a cautious tone about the merits of these incentives. Studies for developing countries mostly suggest that benefits of investment incentives in terms of increased FDI are limited, particularly if they are put in relation to their estimated costs.

Governments have so far been reluctant to move ahead decisively with the reform of tax incentives. Foreign investment is deemed necessary to generate jobs and promote economic development, particularly as countries in the region struggle to adjust to the gradual dismantling of trade preferences and export-processing zones.[1] In addition, the perception of increased capital mobility and competition for FDI has put pressure on governments to maintain incentives, particularly in light of the emergence of extraregional free trade agreements such as CAFTA-DR (Central America–Dominican Republic–United States Free Trade Agreement). Against this background, policymakers have found it difficult to dismantle their investment incentive schemes unilaterally, out of fear that other regional and extraregional competitors will not follow suit and thus obtain an advantage in attracting FDI.

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[1]Chapter 4 discusses the impact of trade preference erosion on the Caribbean.

Past efforts to overcome this problem through a common regional investment policy for the Caribbean Community (CARICOM) have proved largely ineffective, as member countries adopted incentive schemes that deviated from the agreed harmonized framework.

This chapter seeks to contribute to the policy debate in the Caribbean about the appropriate use and scale of tax incentives to stimulate FDI. To set the stage, we briefly review recent fiscal developments and take stock of the main tax incentives that are being offered in the region (Section A). We then investigate whether tax systems and tax incentives are important determinants for attracting FDI. For this, the chapter reviews FDI trends in the Caribbean over the past 15 years, takes stock of the existing empirical evidence in the literature, and provides further econometric evidence regarding the role that tax systems have played in attracting FDI in the region and in developing countries more broadly (Section B). Even if taxes play a role in attracting FDI, decisions about tax incentives should be based on whether the benefits to the economy and society from the higher investment levels outweigh their costs. This issue is discussed in Section C, where we investigate the revenue losses from existing tax incentives and assess the comparative merits in terms of cost-effectiveness of alternative tax incentives. On the basis of this analysis, Section D derives policy implications for a more rational and efficient use of tax incentives in the Caribbean, and discusses how regional coordination could help overcome collective action problems. Section E summarizes our conclusions.

A. Background

Fiscal authorities in many countries of the Caribbean are facing difficult policy choices.[2] A sharp accumulation of public debt in recent years (Table 3.1) has forced many countries to enter a phase of fiscal consolidation to address looming debt sustainability problems. Because of limited scope for expenditure cuts, attention is focusing on raising revenues as the main avenue for improving fiscal outcomes. Cutting back on tax incentives, which are widespread in the region, is one option to consider in this regard. However, there are concerns that such a step could also reduce competitiveness and the capacity to attract investments, and thus ultimately hurt growth prospects.

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[2]For the purpose of this study, we refer to the Caribbean as a group of 15 countries that includes the ECCU members, The Bahamas, Barbados, Belize, Dominican Republic, Guyana, Jamaica, Haiti, Suriname, and Trinidad and Tobago.

Table 3.1. Summary of Fiscal Indicators in Caribbean Countries, 2004–06[1,2]
(In percent of GDP, unless otherwise stated)

Variable	Antigua & Barbuda	The Bahamas	Barbados	Belize	Dominica	Dominican Republic	Grenada	Guyana	Haiti	Jamaica	St. Kitts & Nevis	St. Lucia	St. Vincent & the Grens.	Suriname	Trinidad & Tobago	Ave.
Revenues	22.7	18.2	34.0	24.0	33.0	17.6	36.0	37.3	9.5	30.0	36.1	25.4	32.8	26.1	31.5	27.6
Tax revenue	19.8	16.4	32.9	21.2	29.5	16.3	24.9	31.8	9.2	26.4	27.7	23.8	26.6	21.9	29.7	23.9
Direct taxes	3.4	0.8	13.1	6.0	6.9	3.9	4.3	14.8	2.0	10.8	8.3	5.4	7.8	10.7	23.8	8.1
Corporate income tax	2.0	0.0	5.9	n/a	2.3	2.2	2.7	6.7	0.9	2.2	5.2	2.5	3.9	5.7	17.7	4.3
Personal income tax	1.4	0.0	5.0	n/a	3.8	1.2	1.2	7.5	1.1	8.5	0	2.7	3.6	4.4	4.5	3.2
Property tax revenue	0.4	0.8	2.2	0.2	0.9	0.4	0.4	0.6	0.0	0.0	0.5	0.2	0.2	0.0	0.1	0.5
Royalties (oil/mining)	0.0	0.0	0.0	0.5	0.0	n/a	0	0.9[3]	0.0	0.1	0.0	0.0	0.0	0.1	1.4	0.2
Indirect taxes	16.2	15.6	19.8	15.2	22.5	12.4	20.6	16.9	7.2	15.6	19.4	17.6	19.0	11.2	6.0	15.7
Of which: custom duties[4]	3.0	9.7	3.0	7.8	5.1	1.8	6.5	2.3	2.7	2.4	6.4	8.7	5.0	3.4	1.6	4.6
Overall balance	-7.2	-2.7	1.1	-5.0	1.2	-4.7	-3.2	-9.8[5]	-1.3	-5.2	-4.5	-4.5	-8.0	-1.5	5.0	-3.3
Primary balance	-2.6	-0.6	4.7	2.1	5.6	0.2	0.6	-0.1	-0.5	10.3	3.6	-1.4	-3.7	0.5	7.7	1.8
Public debt	121.7	48.5	73.8	95.7	108.9	47.6	126.8	151.5	35.2	135.8	189.6	60.1	81.3	35.4	38.9	90.0
Corporate income tax yield[6]	0.066	n/a	0.157	n/a	0.076	0.088	0.089	0.147	0.026	0.066	0.149	0.075	0.099	0.150	n/a	0.099

Source: Fund staff estimates.

[1] Central government, except for Guyana (Nonfinancial Public Sector), and Dominican Republic (Combined Public Sector: NFPS and central bank).
[2] Average 2004–06. The Bahamas: FY 2003/04–2005/06.
[3] Average of 2004-05. Paid directly to the decentralized agencies (Guyana Forestry Commission & Guyana Geology and Mines Commission). Not included in NFPS tax revenue.
[4] Includes service charges.
[5] After grants.
[6] The ratio of Corporate Income Tax Revenues/Corporate Income Tax Rate, in percent of GDP.

Table 3.2. Fiscal Indicators in Caribbean Region, 1990–2006[1]

	1990–94	1995–99	2000–04	2004–06
Public debt (in percent of GDP)	56.0	58.2	89.2	90.0
Public debt (share of revenues)	2.6	2.5	3.6	3.3
Revenues (in percent of GDP)	21.8	23.5	24.7	27.6
Corporate income tax (in percent of GDP)	3.0	3.3	3.9	4.3
CIT rate (in percent)	35.2	33.1	32.2	31.8
Average tariff (in percent)	...	14.5	14.2	14.7

Sources: Authorities data; and authors' calculations.
[1] Simple average of sample of 15 Caribbean countries.

Recent fiscal developments

Public indebtedness has risen sharply over the past 15 years, and debt sustainability has become a concern in a number of countries. Public debt as a share of GDP (Table 3.2) has steadily increased from an average of 56 percent of GDP in 1990–94, to about 90 percent of GDP in 2004–06. As a consequence, debt service costs now weigh heavily on the budgets of many countries in the region.

Governments confronted rising debt pressures by reducing their fiscal deficits, though these efforts have waned in recent years. The average overall central government deficit in the Caribbean fell from about 4.2 percent of GDP in 1990 to about 3.3 percent of GDP in 2004–06. More recently, however, the fiscal picture has become more mixed, driven mainly by increased spending including on the Cricket World Cup.

- The observed fiscal adjustment was primarily achieved through a larger revenue effort. Central government revenues in the region have risen from an average of 22 percent of GDP in 1990–94 to more than 27 percent in 2004–06, reflecting in part the adoption of the VAT by some countries (Table 3.3). Corporate income tax (CIT) revenues also contributed, rising from an average of about 3 percent of GDP in 1991–94 to more than 4 percent of GDP in 2004–06, notwithstanding a decline in statutory rates.[3] However, despite this improvement, corporate income taxes still contribute a relatively modest share to total tax revenues in most countries, especially in the ECCU.

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[3]The top statutory CIT rate was reduced from an average of over 35 percent in 1990–94 to about 32 percent during 2004–06. This decline in statutory tax rates is in line with observed trends elsewhere in the world. Devereux, Griffith, and Klemm (2002) provide evidence about the reduction of statutory corporate tax rates in industrialized countries, while Keen and Simone (2004) do so for developing countries.

Table 3.3. General Features of the Tax System in Caribbean Countries[1]

Variable	Antigua & Barbuda	The Bahamas	Barbados	Belize	Dominica	Dominican Republic	Grenada	Guyana	Haiti	Jamaica	St. Kitts & Nevis	St. Lucia	St. Vincent & the Grens.	Suriname	Trinidad & Tobago
Direct taxes															
Corporate income tax rates[2]	35.0	...	37.5	25.0	30.0	25.0[3]	30.0	35.45[4]	35.0[5]	33.3	35.0	33.3	40.0	36.0	25.0[14]
Personal income tax rates[2]	55.0	...	37.5	25.0	25.0	40.0	30.0	33.3	35.0[5]	25.0	...	30.0	40.0	38.0	25.0
Personal income tax threshold (share of per capita GDP)	...	...	0.7	2.8	2.3	1.4	5.4	1.3	1.0	1.0	...	1.4	1.2	...	0.3
Final withholding rate on payments to non-residents															
Interests	20.0	...	15.0	...	...	...	...	...	...	...	25.0-33.3	...	...	20	...	10-25
Rents	20.0	...	15.0	...	20.0-25.0	...	...	...	...	25.0-33.3	10	...	10	...	20.0-30.0
Dividends	20.0	...	15.0	...	15.0	25.0[3]	...	15	20	25	10	...	...	25	10.0-25.0
Royalties	20.0	...	15.0	...	25.0	...	...	...	...	25.0-33.3	10	25	20	...	5.0-30.0
Management fees	20.0	...	15.0	...	25.0	...	...	...	...	25.0-33.3	10	25	20	...	20.0-30.0
Covenants	0.0	...	20.0	...	25.0	...	...	...	...	20	10	...	20	...	20.0-30.0
Entertainers	0.0	...	25.0	...	30.0	...	...	...	...	25	10	...	...	...	20.0-30.0
Depreciation schedule	Decl. bal.	n/a	Decl. bal.	Decl. bal.	Straight line	Straight line	Straight line	Decl. bal.[6]	Straight line	Decl. bal.	Decl. bal.	Decl. bal.	Decl. bal.[7]	Decl. bal.	Decl. bal.
Initial allowance (in percent)	n/a	n/a	30.0	...	...	...	...	20.0	...	20.0	20.0	20.0	20.0	...	...
Loss carryforward period	6 yrs.[8]	...	9 yrs.[9]	...	...	5 yrs.	5 yrs.[8]	...	5 yrs	No	5 yrs.[8]	6 yrs.[8]	6 yrs.[8]	3 yrs[10]	...
Indirect taxes															
VAT[11]	...	...	15.0	...	15.0[12]	12.0[3]	...	...	10.0	12.5	...	...	...	...	15.0
Sales tax	...	...	...	8,12	...	7.5	...	...	...	...	...	...	5,7	8,10,25	...
Consumption/Excise tax	15	...	...	...	...	20	5,8,10,15	0-128	...	...	4-17	5-35	5-40	5-25	...
Simple Average Tariffs[13]	19.6	34.0	13.1	12.3	12.9	10.5	15.0	12.1	9.0	12.3	15.4	13.9	13.8	13.1	9.2

Sources: Country authorities; and Fund staff.

[1] Based on tax code for 2003–05.

[2] Highest marginal rate.

[3] In 2005, the DR increased the CIT rate from 25 to 30 percent and the VAT rate from 12 to 16 percent. Starting in 2007, the CIT rate is set to decline gradually to 25 percent by 2009.

[4] Manufacturing noncommercial corporations pay 35 percent on net profit, Non-manufacturing commerical corporations pay 45 percent on net profit.

[5] The rate was lowered to 30 percent as of October 2006.

[6] Some assets are subject to accelerated depreciation or straight line depreciation rules. Initial allowances of 20 percent applies to machines; different rates for different assets.

[7] Declining balance with initial allowance of 10 percent for buildings and 20 percent for equipment.

[8] Cannot reduce taxable income by more than 50 percent in any one year.

[9] Except for losses on life insurance business.

[10] Loss-carry forward is only granted to enterprises which maintain regular accounts with consistent annual balances. Losses incurred after the first 3 years of operations maybe carried forward over the next 7 years.

[11] Main rate. Many countries exempt food staples and medicines. In *Barbados* certain items are zero rated; a 7.5 percent tax applies to hotel accomodations. In *Jamaica* taxpayers in the toursim are liable to ½ of the prevailing rate. In Suriname, 10 percent applies to goods, 8 percent to services, 25 percent to luxury goods. In *Trinidad & Tobago*, services performed abroad are zero-rated.

[12] Dominica introduced a VAT in March 2006 at a standard rate of 15 percent.

[13] Includes other duties and charges.

[14] Fifty-five percent for oil companies.

Fiscal consolidation will have to continue in many countries if debt levels are to be brought down to more comfortable levels. While in some cases debt restructuring may facilitate the return to a sustainable debt position, even in such cases a commitment to a substantial fiscal effort is usually needed to achieve sustainability and the necessary support from creditors.[4]

- Further improvements in fiscal balances may require further revenue mobilization efforts. While expenditure restraint, and cuts in some cases, will be necessary, considerable social and infrastructure needs persist throughout the region, which limits the scope for adjustment on the expenditure side. In light of this, options to increase public revenues will need to be considered.

- The streamlining of tax incentives could be one option to improve revenues. Tax incentives erode the tax base and thereby limit revenue buoyancy. Streamlining tax incentives would also help to limit some of the other potentially harmful effects of tax incentives, such as distortions to resource allocation and unproductive rent-seeking and corruption.

Tax incentives in the Caribbean

Tax incentives are pervasive in the Caribbean. Virtually all countries in the region have special incentive regimes, most of them to stimulate private investment. These incentives grant qualified investors a more favorable treatment compared to the general taxpayer (Table 3.4). While most tax incentives are aimed at foreigners, some countries also make them available to domestic investors.[6] Usually, tax incentives are only directed at a few sectors in the economy, mostly export-related industries. In some cases, tax incentives form part of a regional initiative to promote development in key sector (e.g., the Hotel Aids Act in the case of tourism).

CIT holidays are the most widely used incentives in the region. All 15 countries covered by this study (Table 3.5) currently offer CIT holidays, with exemption periods ranging from 5 to 25 years. Longer exemptions are usually granted to key sectors of the host economy (e.g., tourism and manufacturing). Many countries in the region also fully exempt offshore banking and insurance from the corporate income tax.

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[4]Belize, Dominica, the Dominican Republic, and Grenada have recently restructured part of their public debt. Moreover, Guyana and Haiti continue to benefit from global initiatives (Heavily Indebted Poor Countries Initiative and Multilateral Debt Relief Initiative) to reduce the debt of highly indebted poor countries.

[6]Limiting incentives to FDI has often been justified on grounds that the cross-border ownership of capital improves the efficiency of the domestic economy.

Table 3.4. Summary of Tax Incentives in Caribbean Countries

Country	Tax Holidays	Other Incentives
Antigua & Barbuda	Up to 5 years (hotels). 10–15 years (mfg)+ [1] Up to 15 years (enclave enterprises/ export-oriented)	Reduced tax rate available only through special permission of the government. Reduced tax rate on Custom duties and VAT. No taxes for offshore banking insurance. Incentives for export processing zones.

Barbados	Up to 11 years	Reduced tax rate on Custom duties and VAT.
		Special treatment to investment.
		Export allowance provisions.
		Credit of 50 percent of the net foreign currency earned.
		Deductions:
		  Special treatment accrued to investment under the Fiscal Incentives Act.
		  Foreign currency earnings credit of 50 percent of the net foreign currency earned.
		  Losses maybe carried forward for 9 years.
		  Branch profits to the extent that the branch has reinvested.

Belize	Up to 5 years	Reduced tax rate on Custom duties and VAT.
		Exemptions:
		  Receipt of less than BZ$54,000 per year.
		  Rental receipts less than BZ$1,650 per month and sole source of income.
		  Interest on savings.
		  Employment income.
		  Charitable contributions up to BZ$30,000 per year.

Dominica	Up to 20 years (hotels).
	10–15 years (mfg)+ [1,2]
	10–15 years (mfg)+ [1,2]
		Investment allowance or tax credit.
		Reduced tax rate on Custom duties and VAT.
		No taxes for offshore banking insurance.
		Exemptions for expenses incurred in generating income.
		Tax holiday of 15 years for enclave enterprises.
		Exemptions on withholding tax:
		  Expenses incurred in accruing the income.
		  Interest accruing from deposits in banks in Dominica.
		  Interest accrued on any loan charged on the public revenue.
		  Interest earned from loans made by commercial banks in long-term
		    housing mortgage schemes.

Dominican Republic	15–20 years (export processing zones)
	
	5 years (renewable energy generation)
	
	20 years (frontier zones)
	10 years (tourism sector)
		Export processing zones are exempt from CIT taxes, taxes on construction,
		  corporations, local taxes, import taxes, export or re-export taxes,
		  patent taxes, assets or net wealth taxes.
		Nonprofit and charitable organizations are exempt from income taxes
		  as well as import duties, VAT and local taxes.
		Equal treatment for domestic and foreign investors
		Tax exemptions are established by law, although there is some room
		  on how to apply qualifying criteria.

Grenada	Up to 10 years (hotels). 10–15 years (mfg) + [3,4] Up to 15 years (enclave enterprises/ export-oriented)	Reduced tax rate on Custom duties and VAT. Exemptions on expenses incurred in generating income. Projects with exports over 60 percent are given tax holidays. No taxes for offshore banking and insurance. Investment allowance or tax credit

Table 3.4 (*continued*)

Country	Tax Holidays	Other Incentives
Guyana	5–10 years [5]	Noncommercial companies face a 35 percent corporate income tax. *Exemptions include:* Import duty for all oil products, imports from CARICOM, fuel imports from Venezuela and Curacao, vehicles for public servants, and certain manufacturing equipment and raw materials. Introduced on January 1, 2007, tax credit for VAT on goods imported for business, and zero rate on large working capital items. Up to 75 percent reduction in corporate income tax for exporters of non-traditional products outside the CARICOM area. Nontraditional agro-processing; communication technology, petroleum exploration and refining, mineral extraction, and tourism. Charitable organizations are exempt from CIT, withholding tax, and property tax. *Exempted types of income:* 50 percent of capital gain on developed property. 25 percent of capital gain on underdeveloped property. Interest and other income which attract withholding tax. Treasury bill discounts earned by commercial banks. Donations to companies, limited to 10 percent of their chargeable income. *Transparency:* Tax exemptions are published annually, starting in 2004. Exemptions are established at the level of laws. Some exemptions are given under the Customs Duties Orders.
Haiti	Up to 15 years	Tax holiday: Zero rate for up to 15 years, gradually increase thereafter starting at 15 percent. Tax incentives are established by law, with no discretion. Available to both domestic and foreign investors. Sectors: Exports and re-exports, agriculture, craft, manufacturing, tourism and associated services, free trade zones. Exemptions of turnover tax for local manufacturers that import their new material and export their production or sell to an exporter. Offshore banking, nonprofit organizations, and charitable organizations are exempt from customs and income tax. Export processing zones are exempt from: royalties, local taxes (except license), VAT and other indirect taxes, and custom duties/fees on equipment imports.
Jamaica	Up to 15 years	Investment allowance or tax credit. Reduced tax rate on Custom duties and VAT. Income from qualifying activities in the export zone is exempt from tax indefinitely. *Exemptions:* Charitable, religious, scientific and educational organizations. Other enterprises under the Industrial Incentives Act, the Export Industry Encouragement Act, the Hotel Incentives Act, the Shipping Incentives Act, the Motion Picture Industry Encouragement Act, the Jamaica Export Free Zone Act, the Foreign Sales Corporation Act, the Income Tax Act, in respect of prescribed agricultural activity the Cooperative Societies Act, and the Resort Cottages Act. Income and Incentives on Capital expenditure to an approved organization in a special development area. Income derived from hotels may be exempt up to 15 years.
St. Kitts & Nevis	5–10 years (hotels). 10–15 years (mfg) + [6] Up to 15 years (enclave enterprises/ export-oriented)	No taxes for offshore banking insurance. Enterprises under the Fiscal Incentives Act 1974 and the Hotel Aids Ordinance. Export allowance at the end of tax holidays calculated as a rebate of a portion of income tax, based on export profits as a percentage of total profits.

Table 3.4 (*concluded*)

Country	Tax Holidays	Other Incentives

St. Lucia	Up to 15 years (hotels).
	10–15 years (mfg)+ [6]
	Up to 15 years (enclave enterprises/
	 export-oriented)
		Reduced tax rate on Custom duties and VAT.
		Investment allowance or tax credit.
		No taxes for offshore banking insurance.
		Exemptions:
		 Income from and contributions to non-profit institutions
		 All expenses which are wholly and exclusively incurred in the production.
		  of income
		 Capital allowances (initial and annual) on plant and equipment and on
		  industrial buildings.
		 Contributions to nonprofit institutions.

Suriname	Up to 10 years	Holiday period depends on the value of the investment and employment
		 generation.
		Tax incentives are based on the Investment Law of 2001.
		The Raw Material Act, based on a presidential resolution, has a lower level
		 of regulation.
		Reduced tax rate on Custom duties and VAT.
		The exemption does not apply if the profits, after set-off of losses, amount
		 to twice the invested capital.
		Sectors: agriculture, fishery/aquaculture, mining, forestry, tourism (except casino),
		 construction, manufacturing, road transport, and trade.
		Exemptions of import duty and turn over tax in case of
		 Imports of investment goods according to Investment Law 2001
		 Imports of project goods if they are financed by investment donors according
		  to the Tariff Act
		 Imports of all goods from the Caricom which are wholly produced
		  within the community, according to the Tariff Act (with the exemption
		  of sales tax)
		 Imports of raw materials according to the Raw Material Act
		 Nonprofit organization and charitable institutions do not pay taxes
		A Currency License in Respect of
		 Repayment of foreign equity obtained to finance investment
		 Distribution of profits and/or dividends
		 Interest payments on, and the principal repayment of foreign loans
		 Inter alia, management, technical assistance, know-how and license fees
		A Permit in Respect of
		 Residence and establishment of foreign personnel
		 Secondment of foreign personnel
		 Establishment of a company
		 Import and export of goods and services
		*Both domestic and foreign investors have the same incentive*s.

Trinidad & Tobago	Up to 5 years	Reduced tax rate on Custom duties and VAT. Allowance to companies which export to countries outside of CARICOM. An allowance that equals 150 percent of all promotional expenses is deducted from profits. An allowance that equals 15 percent of capital cost. An allowance that equals a maximum of 25 percent of the value of investment is deducted from chargeable profits. *Deductions:* Wear and tear on plant and machinery and buildings used in the production of income. Bad and doubtful debt. Rates and taxes on real estate. Premium paid on fire insurance. Payments by an employer to an improved fund.

Source: Country authorities.

[1] Exemption for CIT and duties and VAT on imports of plant, equipment, and inputs for approved cases.
[2] No dividend taxes during the tax holiday.
[3] Exemption for CIT and duties and VAT on imports of plant, equipment, and inputs for approved cases.
[4] No dividend taxes during the tax holiday.
[5] Holidays are limited to new firms that create employment in depressed areas or in specific fields. In general, limited to 5 years, with a few exceptions up to 10 years; nonrenewable.
[6] Exemption for CIT and duties and VAT on imports of plant, equipment, and inputs for approved cases.

Table 3.5. Developments in Corporate Income Tax (CIT) Across Caribbean Countries

Variable	1990–94	1995–99	2000–04
1. CIT Revenue (in percent of GDP)			
Average[1]	3.11	3.48	4.02
Minimum (Haiti)	0.59	1.07	1.68
Maximum	5.44	6.33	9.66
	(Guyana)	(Guyana)	(Trinidad & Tobago)
2. CIT Rate (percent)			
Average	35.2	33.1	33.2
Minimum	33.0	25.0	25.0
	(Grenada)	(Dominican Republic)	(Dominican Republic)
Maximum (Guyana)	47.0	45.0	45.0
3. CIT Yield[2]			
Average[1]	0.093	0.105	0.127
Minimum (Haiti)	0.017	0.03	0.048
Maximum	0.155	0.154	0.307
	(Guyana)	(St. Kitts & Nevis)	(Trinidad & Tobago)

Sources: Country authorities; and Fund staff calculations.

[1]Data in all sample periods exclude The Bahamas with zero CIT rate. In addition, Barbados and Trinidad and Tobago are excluded in 1990–94, and Barbados is excluded in 1995–99 due to data limitation.

[2]Ratio of Corporate Income Tax Revenue to GDP/CIT Rate (percent of GDP).

Exemptions from indirect and other taxes are also commonly offered. Much like the CIT holiday, indirect tax incentives exempt qualified investors from paying custom duties and VAT on imports for a defined period of time. Other commonly used incentives include employment tax credits (to encourage job creation) and property tax exemptions, including privileged access to preferential land. These incentives are particularly targeted at export-oriented industries, including tourism.

Many countries provide investment cost recovery incentives (investment allowances and accelerated depreciations) as part of their CIT regimes. Investment allowances provide for the deduction of a percentage of the initial investment from taxable income, in addition to the normal allowable depreciation. They are a common feature of the tax code in about half the countries in our sample, and on average allow the immediate write-off of 20–30 percent of investments in machines (the allowed write-off may differ depending on the asset). Accelerated depreciation schemes are found in 9 out of the 15 countries in our sample, and distinctions are made in certain cases between investment in equipment and structures. In contrast to investment allowances, they do not increase the total allowable depreciation for an investment beyond its original cost, but by allowing a faster deduction of investment costs they reduce the distortion of a tax on capital.

Investment incentives are not always fully rules-based and automatic. In most countries, governments retain some discretion in determining the extent of the incentive, including the duration of tax holidays. In some cases the authorities even have discretion over the qualification process, as eligibility criteria are not clearly specified in the Law. For example, in Belize the approval and the duration of income tax holidays for specific investment projects are in the hands of the Minister of Finance. In the Dominican Republic, many investment incentives have been granted through administrative decisions, without congressional authorization, and are not reflected in the tax code.

Moreover, little information is publicly available on concessions that have already been granted. Most countries do not publicize and/or keep a central registry of decisions to grant tax incentives. Also, in many cases—particularly when tax holidays are involved—beneficiaries are either not required to submit financial information to the tax authorities or these requirements are not effectively monitored and enforced. As we will argue in more detail below, the failure to collect basic information about the use of tax incentives is an important shortcoming because it makes it almost impossible to undertake a proper evaluation of the costs and benefits of these incentive schemes.

B. The Effectiveness of Tax Incentives

Whether tax policy, and in particular tax incentives, can attract FDI is a key question for policymakers. We begin our investigation of this subject with a look at the available data for the Caribbean. Unfortunately, little can be said about the composition of FDI, since most available data are aggregates and do not distinguish between the different components of FDI, such as equity increases, investment in new plants, retained earnings and mergers and acquisitions.

Overall, FDI in the Caribbean region has grown both as a share of GDP and in absolute dollar terms over the past two decades, in line with global trends. The average share of FDI to GDP (Table 3.6) increased from 3 percent of GDP in 1990–94 to 5.2 percent of GDP in 2000–05. FDI reached US$3 billion during 2000–05, US$2 billion more than a decade earlier. FDI grew in all countries, except Guyana and Suriname.

However, the share of the Caribbean in global and regional FDI has been volatile and has declined somewhat from the early 1990s. During the second half of the 1990s, the Caribbean suffered a significant loss in FDI market share that was only partially reversed more recently. FDI as a share of total inflows into Latin America and the Caribbean reached about 4 percent during 2000–05, after a decline to 2.8 percent during 1995–99. Still, this share remains below the 4.9 percent market share that the Caribbean held in the early 1990s.

Table 3.6. FDI in the Caribbean Region

	1990–94	1995–99	2000–05
	(In percent of GDP)		
Caribbean Sample (weighted avg)	**3.0**	**4.6**	**5.2**
Dominican Republic	2.0	3.8	4.1
Trinidad and Tobago	5.4	10.1	7.7
Jamaica	3.2	4.1	7.1
ECCU	9.1	10.6	13.2
Other[1]	1.9	2.7	2.8
	(In US$ million)		
Caribbean Sample	**856**	**1,987**	**3,042**
Dominican Republic	171	594	870
Trinidad and Tobago	264	605	869
Jamaica	161	285	581
ECCU	158	248	386
Other[1]	103	255	335
Memorandum items:	(In percent)		
Caribbean FDI/LAC FDI	4.90	2.81	3.98
Caribbean FDI/World FDI	0.43	0.31	0.39

Sources: UNCTAD; and Fund staff estimates.

[1]Includes The Bahamas, Barbados, Belize, Guyana, Haiti, and Suriname.

Table 3.7. Net FDI in the Caribbean Region, 1990–2005
(In percent of GDP)

	1990–94	1995–99	2000–04	1990–2005
Antigua and Barbuda	8.4	5.9	14.3	9.9
Bahamas	0.2	3.6	3.6	2.7
Barbados	0.7	0.7	0.8	1.0
Belize	3.4	3.6	4.8	4.3
Dominica	8.2	10.6	8.5	9.1
Dominican Republic	2.0	3.8	4.3	3.4
Grenada	7.8	10.3	14.7	10.6
Guyana	16.4	8.9	6.2	10.4
Haiti	0.3	0.2	0.3	0.3
Jamaica	3.2	4.1	7.2	4.9
Saint Kitts and Nevis	13.2	13.2	22.7	16.0
Saint Lucia	9.3	9.1	10.6	9.9
Saint Vincent and the Grenadines	9.4	20.6	11.5	13.4
Suriname	-1.2	-0.2	-5.9	-2.2
Trinidad and Tobago	5.4	10.1	7.9	7.7

Source: United Nations Conference on Trade and Development (UNCTAD).

The intraregional distribution of FDI is uneven. The region's largest econo-mies, the Dominican Republic, Jamaica, and Trinidad and Tobago, received over three-fourths of the region's total FDI during 1990–2005. However, when measured relative to GDP, ECCU countries stand out as the largest re-cipients of FDI (about 11 percent of GDP during 1990–2005).[7]

FDI flows are highly persistent. Countries with the largest initial stock of FDI (measured as a share of GDP) also attract the largest inflows. This find-ing is consistent with that of other empirical studies, and suggests the exis-tence of agglomeration externalities.[8] In addition, we find that the countries from where FDI originates vary little over time (Table 3.8).[9]

FDI tends to be highly concentrated in key export sectors, reflecting factor endowments (see Table 3.8). In the case of the ECCU close to 60 percent of FDI has gone to tourism, while in Trinidad and Tobago over 90 percent of FDI has been absorbed by the oil and gas sector. The distribution of FDI is more balanced in the case of the Dominican Republic, reflecting the size and diversity of its economy. There is some evidence that FDI in oil and mining activities (e.g., gold mining in Guyana) responds to changes in commodity prices. Given the recent increase in commodity prices, FDI may increase in these sectors responding to higher internal rates of return on investment.

The observed FDI trends over time and across countries raise a number of questions. Why have Caribbean countries not fared particularly well in the competition for FDI, despite the existence of widespread tax incentives? Why are there strong intraregional variations in FDI inflows, despite the fact that there appear to be much less differences in terms of tax policy, including incentives across countries? These observations already suggest that country-specific factors other than tax systems could be important in determining FDI flows. We will assess this question more formally in the following sections.

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[7]During 1990–2005, FDI-to-GDP averaged under 4 percent for a group of small developing country islands including Fiji, Malta, Maldives, Mauritius, and Seychelles.

[8]Persistence of FDI flows could be due to other factors, including (i) herding behavior of firms; (ii) the fact that it takes time to build new plants/buildings, and inflows are phased over a period of time until the completion of the project; and (iii) the fact that an important portion of FDI is measured as retained earnings of multina-tional corporations, there is a natural persistence to these flows. Data for the ECCU and Trinidad and Tobago suggest that reinvested earnings account for about 20 percent of total FDI, while equity investments vary be-tween 60–80 percent.

[9]Over 40 percent of FDI to the region originates from the United States and Canada, and another 30 percent from Europe. Intraregional investment flows are small, accounting only for about 10 percent of total inflows in the case of the ECCU. The origin of FDI is likely determined by geographical proximity and historical ties.

Table 3.8. FDI by Sector and Country of Origin

	ECCU (1997–2005)	Dominican Republic (1994–2005)	Trinidad & Tobago (1996–2005)	Guyana (2000–05)
FDI by sector (in percent of total)				
Tourism	58.3	22.0	...	...
Energy (petroleum/electricity)	0.2	17.6	90.7	...
Mining	...	2.2	...	30.9
Agriculture	...	...	...	18.0
Industry/manufacturing [1]		28.7	0.8	7.0
Services (telecom/finance)	0.4	24.3	...	30.3
Other	41.1	5.1	8.5	13.8
FDI by country of origin (in percent of total)				
United States	24.4	29.8	55.3	...
Canada	2.8	15.6	2.8	...
Europe	19.7	37.1	29.9	...
Of which:				
Italy	13.6	...	...	...
Spain	...	18.5	...	...
United Kingdom	...	...	25.3	...
Caribbean	11.1	...	...	...
Other	42.1	17.5	12.0	...
FDI by type (in percent of total)				
Equity (incl. land sales)	57.4	...	81.3	...
Reinvested earnings	18.1	...	21.5	...
Other	39.2	...	-2.8	...

Sources: Country authorities; and Fund staff estimates.

[1] Includes Free Trade Zones in the case of the Dominican Republic.

Existing empirical evidence

While the literature does not provide a standard model for evaluating the impact of tax policy on FDI, it offers a framework for considering the set of decisions that firms face in the determination of their investments. Horstmann and Markusen (1992) point out that this decision process consists of three distinct and sequential steps. First, a firm must choose whether to access a market or region by producing at home and exporting, or by producing abroad. Conditional on choosing to produce abroad, the firm must then decide where to locate its production. Once a location is selected, the

firm has to decide on the scale of its investment, which in theory should be an amount such that the marginal product of capital equals the cost of capital. Taxes affect decisions in all three steps, although likely to a different extent. The first two stages of the decision are discrete choices where the firm chooses the option that generates the highest expected after-tax profit. The decision of how much to invest, conditional on choosing a location, will depend, inter alia, on the marginal effective rate (after incentives) at which the return from the investment is taxed.

A large and growing body of empirical literature suggests that FDI is sensitive to tax policy, although to an extent that varies greatly across studies (Box 3.1).[11] The responsiveness of FDI to taxes depends on the tax measure used (statutory, average or marginal tax rates), the sectoral composition and type of FDI considered (new plants, plant expansions, mergers and acquisitions, joint ventures, equity increases), the industry being considered, and other characteristics of the tax regime (Box 3.2). In addition, other country-specific factors are believed to play an important role in FDI determination. Estimations will be biased if these factors are not controlled for. Most studies focusing on developing countries have found that factors such as infrastructure, business climate, the legal system, the availability of skilled labor, and macroeconomic and political stability were more important determinants than taxes to a firm's investment and location decisions.[12]

Studies for the Caribbean suggest that taxes have played a limited role in attracting FDI. Using a panel sample of ECCU countries for the period 1990–2003, Chai and Goyal (2006) find that the benefits of tax incentives, in terms of increased FDI, are far outweighed by the tax revenues forgone, estimated in the range of 10–16 percent of GDP. Similarly, a recent survey of about 160 multinational firms operating in the Caribbean (see FIAS 2004; and World Bank, 2006) found that tax concessions did not rank among the most important factors for investment decisions. Instead, the availability of telecommunications services, power supply, political stability, a favorable attitude toward FDI, and labor productivity played a more important role in attracting investment.

However, the importance of taxes appears to be more pronounced in the tourism sector. According to a recent survey of multinationals in the Caribbean (FIAS, 2004), investment in the tourism sector is more sensitive to tax

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[11]For a detailed literature survey, see Devereux and Griffith (2002), Hasset and Hubbard (1997), Hines (1999), Mooji and Ederveen (2003), and Zee, Stotsky, and Ley (2002).

[12]Lim (1983), who found a negative relationship between incentives and FDI, argued that incentives were symptomatic of an attempt to mitigate an otherwise unfavorable environment for investment.

Box 3.1. Literature Review

The literature on tax policy and FDI is vast and increasingly sophisticated for the case of industrial countries. This is particularly true for the United States, where industry and firm-level data are now readily available. While earlier studies used statutory corporate rates to measure the tax effects on aggregate FDI, more recent studies have relied on some type of effective tax rate and distinguished between the different FDI components. In addition, the availability of industry and firm-level data has allowed researchers to study the location decisions of firms. What follows is a short summary of the different studies and methodologies:

- Time-series studies[1] estimating the responsiveness of aggregate FDI to annual changes in tax policy have found a strong and positive correlation between FDI levels and the after-tax rates of return at the industry or country level. Studies using U.S. data find that the sensitivity of FDI to changes in the corporate tax rates ranges between –0.5 and –1.0 (i.e., a 1 percent reduction in taxes leads to a 0.5–1.0 percent increase in inbound investment), while intra-European investment flows appear to be even more responsive to taxes.

- A series of cross sectional studies have analyzed the effect of taxation on the ownership of capital of U.S. multinationals in foreign countries, using firm-level survey data compiled by the U.S. Commerce Department. Mody and Wheeler (1992) uncover strong evidence for the existence of agglomeration externalities, while finding that taxes do not play a significant role in investment decisions after controlling for a number of important factors, including openness, infrastructure, market size, and labor costs. More recent studies, by Hines and Rice (1994) and Altshuler, Grubert, and Newlon (2001), however, found that capital ownership was quite responsive to different tax measures and that these tax elasticities have increased substantially over time. Studies about the effect of subnational taxation on the distribution of FDI across U.S. states found that new plants were less likely to be established in states with higher income taxes (Swenson, 1998), and that state taxes influenced the origins of FDI across the United States. (Hines, 1996).

- Discrete choice models have analyzed the effect of taxes on location decisions, using firm-level survey data. Kemsley (1998) finds that U.S. firms are more likely to use exports to serve foreign markets that have heavy tax burdens than those with low ones. Devereux and Griffith (1998) study the choice of U.S. firms, conditional on having chosen to locate in Europe, to produce in France, Germany, or the United Kingdom, and find that statutory rates have considerable more predictive power than the effective (marginal and average) rates. More recent work by Buettner and Ruf (2007) on location decisions of German multinationals in EU countries confirms these findings.

- Panel data studies using aggregate data on FDI flows have found taxes to have a significant impact on investment flows. Devereux and Freeman (1995) use a panel of seven industrialized countries to show that effective marginal tax rates have a negative and significant impact on FDI flows relative to GDP. More recent work by Billington (1999) and Yong (1999) have yielded similar results.

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[1]See Hartman (1984); Boskin and Gale (1987); Newlon (1987); Young (1988); and Slemrod (1990).

Box 3.1 (*concluded*)

For developing countries, taxes appear to have a more modest impact on FDI, with other factors playing a more important role. Shah (1995) examines the effects of tax incentives using different methodologies across a set of developing countries. He finds that while tax incentives may encourage new investment, particularly in machinery and equipment and in export-oriented sectors, they significantly erode the tax base. More recent studies by Gastanga, Nugent, and Pashamova (1998) and Wei (2000a) using a panel data set for developing countries have found that, after controlling for country-specific effects, different tax measures have a small and adverse effect on FDI. These findings are also consistent with survey studies conducted by the OECD (1994 and 1995) across Asian and transition economies, where tax incentives were found to have a limited role in the investment and location decision of multinational firms, with basic economic and institutional environment being far more critical. A case study by the McKinsey Global Institute (2003), which covered four large emerging economies and five industry sectors reached similar conclusions. However, data constraints in most developing countries limit the analysis regarding the role of taxes on the investment and location decisions of multinationals. In fact, most studies continue to use aggregate FDI data, and tax measures are often limited to statutory corporate rates, which do not capture the extent of tax incentives.

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incentives relative to other sectors. In fact, generous incentives have been in place since the 1960s, including through regional initiatives such as the *Hotel Aids Acts*, which grant firms tax holidays and special exemptions from indirect taxes. Currently, the bulk of the tourism resorts in the region are foreign owned and tourism receipts have grown to represent on average close 25 percent of GDP. In pressing for investment incentives, the tourism sector has often argued that:

- Investments in tourism are associated with important positive spillovers, including employment generation, access to new technology, and agglomeration externalities (e.g., once a hotel is set up, others will follow).

- Unlike other sectors, investments in tourism are somewhat different in that they are normally associated with large upfront and sunk investment. Therefore, unless guarantees and incentives are provided foreign firms would be reluctant to invest, particularly where institutions and property rights are weak.

To summarize, while most studies find that FDI is sensitive to taxes, the international empirical evidence is not conclusive. The magnitude by which taxes and tax incentives influence investment decisions varies considerably across studies and has tended to be smaller in developing countries, including the Caribbean.

Box 3.2. Taxation of Foreign Income and FDI

In theory, the impact of tax incentives on a firm's investment decisions depends on the tax regime in the firm's country of origin.

• Under a *source-based system,* income earned abroad is not taxed in the home country. In this case, a decline in host country taxation increases the net return on investment, and has a potential positive impact on FDI. Most EU countries have *source-based* tax systems.

• Under a *residence-based system*, income earned abroad is taxable, but firms can claim a credit on taxes paid abroad. Since a decline in host country taxation will be associated with a higher tax liability at home, changes in host country taxation (e.g., through the introduction of tax incentives) would generally not have an impact on FDI, unless a firm has an excess tax credit position (in which case an increase in host country taxes does affect the net return on investments). The United States, Japan, Greece, Ireland, Spain, and the United Kingdom all tax income on a global basis.

However, according to empirical studies, the impact of home country tax regimes on FDI is mixed. Slemrod (1990) finds no clear evidence indicating that investors from countries that exempt U.S. profits from home country taxation are more sensitive to tax changes than investors from countries granting foreign tax credits. Tanzi and Bovenberg (1990) argue that excess foreign credit and tax deferrals render the distinction between tax credit and tax exemption systems of little importance, while others claim that *residence-based* systems are de facto *source-based* systems, because taxation of repatriated earnings can usually be avoided. Another study by Hines (1996), however, found that investors from Germany (which exempts foreign-source income) were more likely to locate in lower-tax U.S. states than investors from the United Kingdom (which provide tax credits).

Further empirical work: Determinants of FDI in the Caribbean

We build on the existing literature for developing countries by using panel data to examine the sensitivity of FDI in the Caribbean to different tax measures. Data were compiled for our set of 15 Caribbean countries between 1990 and 2004, a summary of which is provided in Appendix 3.1. As a first step, we evaluate whether statutory tax rates can help explain FDI flows using different estimation techniques. Subsequently, we extend this analysis by using marginal effective tax rates (METRs), in an attempt to better capture the effect of tax incentives.

We start by estimating the determinants of FDI using pooled OLS methods.[13] The regressions are estimated without country-specific dummy variables because much of the interesting variation in the data is across countries—most of our explanatory variables are either very slow moving or con-

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[13]Alternative estimation methods yield broadly similar results. Details are presented in Appendix 3.2.

Table 3.9. Results Using Pooled OLS
Dependent Variable: Log (FDI/GDP)

	Baseline	With Time Trend	With Lag-FDI	Both	With Initial Stock of FDI	With METR	With METR Buildings
CIT rate	-0.09***	-0.09***	-0.08***	-0.08***	-0.09***	---	---
	-8.62	-8.51	-7.81	-8.04	-8.27		
METR	---	---	---	---	---	-0.01*	-0.03***
						-1.82	-3.11
FDI Incentives	1.54***	1.54***	1.30***	1.30***	1.33***	0.17	0.43**
	7.23	5.23	8.91	9.19	6.02	0.84	2.04
FDI Restrictions	-3.14***	-3.14***	-2.66***	-2.66***	-3.18***	-1.40***	-1.71***
	-10.14	-8.88	-9.68	-9.86	-9.91	-8.65	-7.86
Governance	3.76**	3.76**	2.56**	2.56**	4.05***	4.66***	5.14***
	2.51	2.51	2.20	2.20	2.60	2.81	2.90
Infrastructure	0.63***	0.63***	0.63***	0.63***	0.63***	0.48***	0.46***
	3.78	3.79	5.44	5.52	4.16	2.86	2.61
ECCU dummy	0.44***	0.44***	-0.08	-0.09	---	0.47***	0.47***
	3.32	3.32	-0.72	-0.79		3.21	3.13
Initial stock of FDI	---	---	---	---	0.15***	---	---
					3.83		
Constant	-3.92***	-3.96***	-3.43***	-3.38***	-3.91***	-3.46***	-3.81***
	-5.81	-5.66	-6.61	-6.09	-5.84	-5.07	-5.54
Time trend	---	0.004	---	-0.005	---	---	---
		0.18		-0.27			
Lag FDI	---	---	0.07***	0.07***	---	---	---
			5.30	5.33			
Observations	122	122	122	122	122	122	122
R-Squared	0.72	0.72	0.79	0.79	0.72	0.59	0.60

Source: Authors' calculations.

Numbers below coefficients are z statistics based on panel-corrected standard errors.

* significant at 10 percent; ** significant at 5 percent; ***significant at 1 percent level.

stant. However, the time-series dimension of our data set is retained to avoid suppressing useful information about within-country variation. To overcome a potential omitted-variable bias problem, we control for as many determinants as possible and include dummy variables for the ECCU, where FDI has been traditionally very high. The results are summarized in Table 3.9.

- Statutory CIT rates are found to have a significant impact on FDI. We find that a 1 percentage point reduction in statutory taxes rates leads to about a 0.6 percent of GDP increase in average in inbound investment.[14] This result is similar to those found elsewhere in the literature for industrialized countries, and suggests that statutory tax rates are a more important determinant of FDI in the Caribbean than in other developing country studies.

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[14]Given that FDI in our sample averages 7 percent of GDP, an 8.6 percent increase in this ratio corresponds to a 0.6 percentage point increase in the FDI to GDP.

- Measures of FDI restrictions and incentives also play a significant role in explaining capital inflows. While FDI restrictions (in the form of foreign ownership limitations and exchange controls) are an important deterrent of FDI, incentives (in the form of tax concessions and free trade zones) play a significant, yet less important, role than restrictions in attracting capital inflows. The number of tax treaties does not seem to affect FDI.

- Measures of institutional quality and infrastructure development (proxied by phone lines) are found to be significant and important determinants of the FDI. The governance indicator developed by Kaufman and others (2005) did better than other institutional measures, including the ICRG political and social risk indices and the World Bank's Doing Business indicators. In line with the results of the recent survey of multinational firms operating in the Caribbean, the development of telecommunications (proxied by the number of telephone lines per 1,000 inhabitants) turned out to be a more relevant measure of infrastructure than paved roads, which were also positively related to FDI but not statistically significant.

- Other determinants commonly used in the literature are less relevant. Measures like openness, macro stability, GDP per capita, and schooling/education are positively related to FDI but not statistically significant. The level of public indebtedness, meant to capture future tax pressures, is not statistically significant, and its sign is not robust to the different specifications, perhaps reflecting the fact that countries that are able to attract FDI are also able to obtain other forms of financing.

FDI is on average more than 3 percentage points of GDP higher in the ECCU than other Caribbean countries. This may reflect special circumstances (i.e., the high reliance on tourism) or non-linearities associated with agglomeration externalities. [15] On the latter point, we find that the initial (1990) stock of FDI captures the same effects as the ECCU dummy. This finding provides some support to the first-mover advantage hypothesis.[16]

FDI persistence plays a small yet significant role in explaining FDI differences across countries. With the introduction of a lagged FDI term in our pooled OLS regression, the long-run elasticity of the CIT is unchanged. However, the importance of FDI incentives/restrictions and governance declines somewhat, while the ECCU dummy is no longer significant. The latter

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[15]The share of tourism receipts in GDP is also positively associated with FDI, however, its statistical significance is not robust to changes in specification.

[16]Markusen (1990) demonstrates that a firm's early decision to invest in a region (including because of an accident of history) can promote the creation of specialized services that reinforce the areas attractiveness.

finding suggests that the high FDI to GDP ratios observed in the ECCU could be attributed to the stickiness of capital inflows. Controlling for a time trend does not affect our estimations significantly. This implies that changes in CIT rates, governance, and infrastructure development can explain the evolution of FDI over time, despite their slow-moving nature.

To better capture the tax burden on investment, we estimate marginal effective tax rates (METRs) on foreign investments and introduce them into our regressions.[17] METRs are often considered to be a more comprehensive measure of the tax pressure than statutory rates, because they incorporate the impact of other relevant provisions of the tax code. We find that METRs have a much smaller impact on FDI. The economic and the statistical significance, however, are higher in the case of buildings (which have a much lower depreciation rate than machines). This finding is consistent with the fact that much of FDI in the region is in the tourism sector, a large component of which is buildings. It should be noted, however, that our METR measure still provides an imperfect measure of the tax liability of an investor because it only captures part of the provided tax incentives (since it excludes the impact of tax holidays and incentives on indirect taxes, particularly import duties).

Determinants of FDI in developing countries

To gain additional perspective, we extend our analysis to a larger set of developing countries.[18] In particular, we examine whether the determinants of FDI that were identified for the Caribbean also hold more generally for developing countries. While focusing on the Caribbean region allows us to analyze FDI determinants taking regional characteristics as given, the broader developing country set allows us to capture factors that differentiate the Caribbean region from the rest of developing countries.

For the sample of developing countries, our baseline model does not explain differences in FDI across countries as well as for the Caribbean countries alone. The results are summarized in Table 3.10.

- Statutory CIT rates are found to have a significant but much smaller impact on FDI. A 1 percentage point reduction in statutory taxes rates leads to less than a 0.1 percent of GDP increase in FDI, which is more in line with findings of previous studies focused on developing countries.

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[17]METRs were computed for all countries in the region for the 1990–2004 period. Appendix 3.3 contains a description of the methodology and documents METRs across countries over time.

[18]For this purpose, data for a set of 80 developing countries (including the Caribbean) was compiled for the 1990–2004 period (see Appendix 3.1).

Table 3.10. Results Using Pooled OLS
Dependent Variable: Log (FDI/GDP), Developing Countries

	Baseline	With Time Trend	With Lag-FDI	Both	With Small Island Dummy	With Openness
CIT rate	-0.01***	-0.01***	-0.001	-0.001	-0.01***	-0.01***
	-2.66	-2.66	-0.41	-0.40	-2.68	-3.03
FDI Incentives	-0.05	-0.05	-0.06***	-0.05**	-0.1*	-0.02
	-0.92	-0.94	-2.64	-2.35	-1.66	-0.41
FDI Restrictions	-0.22***	-0.22***	-0.05***	-0.05***	-0.17***	-0.18***
	-16.06	-16.07	-3.02	-3.23	-9.80	-10.77
Governance	0.92**	0.9**	0.35	0.29	1.08***	0.04
	2.29	2.31	0.85	0.71	2.65	0.10
Infrastructure	0.16***	0.15***	0.04	0.05	0.12***	0.14***
	3.60	3.49	1.10	1.28	2.96	3.09
Small island dummy	---	---	---	---	0.28***	---
		2.41	-0.50	-0.52	3.07	
Openness	---	---	---	---	---	0.005***
						11.43
Constant	0.58	0.37	0.11	0.95*	0.6**	0.50*
	2.08	0.73	0.40	1.69	2.14	1.85
Time trend	---	0.007	---	-0.03*	---	---
		0.48		-1.88		
Lag FDI	---	---	0.75***	0.76***	---	---
			9.63	9.94		
Observations	392	392	390	390	392	392
R-Squared	0.16	0.16	0.64	0.64	0.17	0.22

Source: Authors' calculations.

Numbers below coefficients are z statistics based on panel-corrected standard errors.

* significant at the 10 percent; ** significant at 5 percent; ***significant at 1 percent level.

- While FDI restrictions play a significant role in explaining FDI, the FDI incentives measure is no longer statistically significant. This finding is consistent with other studies, including Desai and others (2004), and Mody and Murshid (2002). The fact that FDI incentives matter for FDI distribution within the Caribbean, but not in the larger developing country sample, may reflect region-specific characteristics, including higher competition for FDI.[19]

- While measures of institutional quality and infrastructure development continue to be significant, they are a less important determinant of FDI. The governance indicator developed by Kaufman and others (2005) again performs better than other indices. Much like in the case of the Carib-

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[19]A possible explanation is that since multinationals have stronger bargaining power in small-island economies, FDI might be higher in the Caribbean region because it is easier to obtain investment incentives.

bean, the development of telecommunications is a more relevant measure of infrastructure than roads.

- Other determinants commonly used in the literature such as macro stability, GDP per capita, and schooling are not statistically significant. The level of openness of the economy, however, is found to be positively and significantly related to FDI.

- FDI is on average more than 2 percentage points of GDP higher in small island economies than in other developing countries. This may reflect special circumstances, including tourism dependence, the lumpiness or indivisibility of FDI, and competition.

- The explanatory power of the regression improves substantially after controlling for FDI persistence. However, with a lagged FDI term in our pooled OLS regression, most variables including the CIT rate are no longer significant, with the exception of the FDI restriction composite. Controlling for a time trend does not affect our estimations significantly, in line with the results for the Caribbean subsample.

To summarize, these findings broadly confirm the existing empirical literature on the subject. While we find that FDI is sensitive to tax policy, other factors such as institutional quality, infrastructure development, and FDI restrictions are also important determinants of FDI flows. FDI incentives do not appear to have a significant impact on FDI flows in the larger developing country sample, unlike in the Caribbean subsample where incentives seem to matter. In addition, controlling for the persistence in FDI flows reduces the significance and magnitude of the impact of taxes and other variables.

The empirical results are subject to a number of caveats. First, we do not have a comprehensive measure that encompasses all investment incentives. While we capture some of the tax incentives (limited to the corporate income tax and those specified in the tax code), we do not capture other incentives such as exemptions from indirect or property taxes, as well as incentives offered outside the tax code.

Second, we do not control for home country tax policies, owing to lack of a consistent data set. Finally, since we only have aggregate FDI flows, we cannot capture the impact of tax incentives across sectors and on different components of FDI.[20]

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[20]Data from firm-level surveys compiled by the U.S. Commerce Department are scarce for most of the Caribbean countries in our sample.

C. The Efficiency of Tax Incentives

Even if tax incentives are effective in attracting FDI, policymakers should weigh the benefits against possible costs. Tax incentives will only be efficient policy instruments if their benefits exceed costs. According to Zee, Stotsky, and Ley (2002), these costs essentially consist of distortions to resource allocation arising from the fact that only some investments/sectors benefit from incentives, foregone revenue, resources required to administer incentives, and social costs of corruption and/or rent seeking activities connected with the abuse of incentive provisions.

Because of insufficient information estimating the costs and benefits of tax concessions is difficult and therefore seldom constitutes the basis for policy decisions. Typically, efforts to assess the efficiency of tax incentives are limited to an estimation of costs in terms of revenue forgone.

Revenue costs

The revenue loss from tax concessions has two dimensions. First, there will be investment projects that would have taken place even without tax incentives. The revenue foregone from these projects represents a cost to the government. In addition, the availability of incentives could lead to potential abuse by firms that are not eligible to benefit from them, thus generating additional revenue losses.

Because of the difficulty to identify the amount of investment that would have taken place without investment incentives, cost estimates often focus on the total revenue loss from all tax concessions. This tends to overestimate the costs, since it also counts lower revenue from firms that would not have invested in a particular country without the incentives. Potential tax collections are estimated based on statutory tax rates and tax bases, while effective tax collection is based on the actual revenue collection. While the impact of tax incentives will be embedded in this gap, a variety of other factors may also contribute to it, such as the efficiency of tax collection and tax administration.

A rough estimate for the Caribbean based on a tax gap methodology shows that existing tax incentives appear to be costly. The average tax gap for the CIT alone is estimated at about 5½ percent of GDP across our sample of 15 Caribbean countries for the period 1995–2004, and consistent with a ratio of effective to potential tax receipts of only about 40 percent.[21] In estimating the potential corporate income tax, and in absence of reliable national accounts data across countries in our sample, we assume that corporate income repre-

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[21]The income tax gap has been on a declining trend, falling from 6.2 percent of GDP in 1990–94.

Table 3.11. Potential Less Actual Taxes (1995–2004)
(In percent of GDP)

	Corporate Income Taxes[1]	Import-related Taxes	Total
Caribbean (average)	**5.6**	**5.2**	**10.8**
Dom. Republic	4.0	3.9	7.9
Trinidad	3.3	2.4	5.7
Jamaica	6.2	3.9	10.1
ECCU	5.4	5.7	11.1
Other	6.1	5.7	11.8

Source: Authors' calculations.
[1] Assumes corporate sector represents ¼ of total GDP.

sents one-fourth of GDP, a figure consistent with national accounts data for Jamaica. If indirect taxes (custom tariffs) are included, the total tax gap doubles to over 10 percent of GDP.[23] These estimates are somewhat lower than those provided by Chai and Goyal (2006) for the ECCU during 1990–2003.

As noted, the gap between potential and actual taxes is only indicative but not conclusive of the true cost of tax incentives and should therefore be interpreted with caution. The tax gap (Table 3.11) represents an upper bound on revenue losses associated with incentives as some foreign investment projects would not have taken place in their absence. Moreover, other factors such as evasion, inefficiencies in tax administration, or the business cycle position (i.e., the effect of carry-forward of losses) contribute to keep tax revenues below potential. On the other hand, the tax gap also does not capture the distortions in resource allocation associated with tax incentives that discriminate across sectors. By favoring one form of economic activity (such as tourism) over another, tax incentives distort relative prices, and facilitate rent seeking and corruption by making the tax system more complicated and non-transparent.

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[23]In estimating potential revenues from custom duties we multiply imports by the average tariff rate published in the IMF Trade Statistics.

Relative cost-effectiveness of tax incentives

Because of the difficulties in conducting cost-effectiveness assessments, the literature has developed some guidance for policymakers about the comparative merits of alternative types of tax incentives.[24]

- Direct tax incentives. Tax incentives that provide for a faster recovery of investment costs (such as investment allowances, investment tax credits, or accelerated depreciation) are generally preferable to income tax holidays. The latter are costly, because they are prone to revenue leakage through transfer pricing and other abuses. In addition, the effectiveness of tax holidays is believed to be limited because the benefit is not directly linked to the desired investment activity, and because it is of little value for projects that achieve their profitability in the more distant future. Incentives that grant faster investment cost recovery are, by contrast, less prone to abuse through income shifting, easier to control, and leave the government the potential to collect revenue from highly profitable investment projects.

- Indirect tax incentives. Incentives in the form of partial or full exemptions of indirect taxes are very costly because of the high risk that qualified purchases are diverted to unintended beneficiaries. Also, in a functioning VAT system an exemption on the purchase of inputs is not very valuable to the beneficiary, since VAT on inputs would be creditable. Additional considerations for the tourism sector can be found in Box 3.3.

- Statutory basis of incentives. Tax incentives should have their statutory basis in the tax law and not be established in legal instruments that can be changed on an ad hoc basis. Similarly, access to incentives should be fairly automatic upon the fulfillment of a set of objective criteria, and the public entities in charge of administering the incentives should have little room to determine the eligibility and/or the extent of the benefit. Incentive schemes with little discretion are more likely to limit socially wasteful activities such as rent-seeking and corruption, and thus more likely to be cost-effective.

D. Policy Implications

What implications can be drawn from this analysis for policy? The empirical results of our study, which are consistent with the bulk of the existing evidence in developing countries, suggest that tax policy has had an impact on foreign investment flows to the Caribbean. At the same time, however, there

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[24]See McLure (1999), Chalk (2001), and Zee, Stotsky, and Ley (2002).

Box 3.3. Indirect Tax Incentives in the Tourism Sector

Advocates for tax incentives in the tourism sector have often argued that the tourism tax base is highly mobile, in that demand is very price sensitive. If tourists can readily substitute between broadly similar locations, lower tax rates (in the form of lower VAT) could be justified on the basis of optimal taxation—the higher the elasticity of demand the lower the tax.

However, there is no clear evidence that demand for tourism is more elastic than that for other goods and services. Studies for The Bahamas suggest that changes in relative prices between competing locations played only a minor role in tourist destination decisions, though they did affect marginally the amount spent by the tourist while in the country (IMF, 2005). Gago and others (2006) find that in the case of Spain, the imposition of hotel and lodging taxes had only minor effects on the activity level of the hotel industry.

Strategies to create a unique tourist destination could help lower the elasticity of demand. However, in the case of the Caribbean exploiting uniqueness will likely require some regional coordination since countries offer somewhat similar opportunities for tourists. Thus, while the elasticity of demand for each country in isolation is relatively high, collectively they face a much lower elasticity if they were to limit intraregional tax competition. This argument should not be overstated given competition with countries outside the region.

Hence, if incentives are to be provided, some form of coordination to avoid excessive tax competition would be useful. The suggested approach to coordination outlined in the next section applies also to the tourism sector. There may also be scope for harmonization in some of the difficult tax policy and administration issues such as the tax treatment of foreign tour operators.

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appear to be other factors such as the quality of institutions and infrastructure that have a large positive and very significant effect on FDI. This suggests that there are limits to the role that tax incentives and, more generally, tax policy can play in attracting FDI. Instead, addressing structural, institutional, and other policy shortcomings would appear to be at least equally valid—if not more promising—avenues to foster investment inflows and economic development.

The fact that tax incentives may have significant revenue costs also raises efficiency issues. While the absence of data precludes a thorough cost-benefit analysis, the very rough indicative calculation in the previous section shows that the revenue costs of tax incentives could be significant, and strategies to stimulate FDI through tax incentives could therefore well be uneconomical. Reducing the scope of tax incentives and putting the savings to use on other aspects that have been shown to affect FDI decisions, such as a sound mac-

roeconomic environment or better infrastructure and institutions, could on a net basis improve the prospects for attracting foreign investment to the region.[25]

Even if policymakers prefer to maintain tax incentives, there is scope for efficiency gains through improvements in their design. The types of incentives that are currently most widely used in the region deviate in a number of aspects from best practice, and they could be replaced by other more cost-effective instruments.

Improving the design of tax incentives

Overall, there are good reasons for the Caribbean to continue to follow the global trend of lowering CIT rates, while broadening the tax base, including by reducing the level of tax incentives. This approach would (i) lower the level of taxation at the margin;[26] (ii) improve the equity of the system by leveling the playing field for all firms; (iii) increase economic efficiency by removing distortions created by incentives; and (iv) reduce the complexity of the tax system. While statutory rates in the Caribbean have fallen by an average of 2 percentage points since 1995, this decline has been much sharper in the OECD, where statutory rates have been reduced by 7–8 percentage points over the same time period. In this context, CIT rates in the Caribbean have become relatively less competitive.[27]

Tax incentive regimes should be reformed based on a number of basic principles:

- Legal basis. Tax incentives should be consolidated in one law (or in the relevant tax laws), be available to all firms on the same terms, and be granted through a fairly automatic and objective administrative process that leaves little—if any—discretion.

- Phasing out of tax holidays. Tax holidays should not be renewed and new holidays should not be granted. Tax holidays and exemptions are especially inefficient in promoting investment in new enterprises, which are often unprofitable in the early years and unlikely to benefit from the incentive.

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[25]In the absence of reliable infrastructure (roads, electricity, water, and phone service), governments often resort to second-best solutions (i.e., tax incentives) to attract FDI.

[26]While the METR could increase, the marginal rate on repatriated profits would fall.

[27]While the average CIT rate in the OECD fell to 27.8 percent in 2007, the average rate in the Caribbean is still roughly 32 percent.

- Use of depreciation allowances. If tax incentives for investment are to continue, these should normally be in the form of accelerated depreciation allowances. Such schemes are known to be a well-targeted and transparent way of encouraging investment. However, they should not be too generous otherwise they can encourage the development of capital intensive over labor intensive industries. Investment allowances need to be carefully considered since they favor investment in short-lived assets, and are prone to abuse.

- No undermining of indirect tax reform. Incentives provided to existing indirect taxes should not be extended to new indirect taxes. This is particularly relevant given the global trend of offsetting the revenue losses of lowering tariffs through the adoption of modern broad-based indirect taxes such as the VAT and excises.

- Acquired rights and time-bound limits. When tax incentives are repealed, investors eligible for the prior incentives should typically be grand-fathered. If incentives are to continue, then they should be subject to a time limit to ensure a regular review of their costs/benefits and whether they continue to meet the purpose for which they were introduced.[28]

- Transparency. All tax incentives other than holidays should be reviewed to determine their cost and effectiveness. The cost of the incentives should be published alongside the annual budget expenditure figures, in the form of a tax expenditure budget. However, this will require an effort to collect systematic information on the granting of tax concessions and beneficiaries.

A broader tax base with a low corporate rate facilitates tax administration. In particular, it is simpler to administer uniform tax provisions which are granted to all, such as a low CIT rate or accelerated depreciation, then trying to administer specific incentives such as tax holidays. Moreover, the streamlining of tax incentives should be accompanied by efforts to modernize and professionalize revenue administration. Foreign investors often press for tax holidays to avoid high tax compliance costs, including from corruption. Properly administering an accelerated depreciation scheme, considered a superior choice to tax holidays, will demand a more sophisticated and well-trained administration.

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[28]The time limit will depend on the type of incentive, but a review should be carried out at least every five years and preferably more frequently.

Regional coordination

Reforming tax incentive systems require coordination at the regional level. Countries are often reluctant to reduce tax incentives for fear of loosing investment to neighboring countries who offer more generous incentives, whether real or perceived. Countries may try to outdo one another in providing incentives, leading to a "race to the bottom" in the region, resulting in tax rates that might be too low and tax bases too narrow given fiscal constraints. Addressing this collective action problem requires some form of regional tax coordination.

Such coordination should follow some basic principles. These include protecting the tax base and strengthening the tax system of each country; maintaining a friendly tax environment for investment in the region through moderate and predictable taxes; avoiding tax discrimination and tax competition; and respecting national sovereignty. Based on those principles, a *regional code of conduct* could include the following elements:

- Transparency. The investment incentives of each country, including its laws, regulations, guidelines, and administrative procedures, should be transparent and readily available. Each country should produce an inventory of existing tax incentives and strive to publish a tax expenditure budget for its incentives.

- Nondiscrimination. Domestic and foreign investors should be able to make investments in a country on the same terms, and there should be no discrimination between foreign investors from different countries.

- Limiting tax competition. Countries within the region should not compete by granting tax holidays, lower tax rates, other incentives (both monetary and in-kind), or preferential administrative treatment, which unduly favors a particular location for investment.[29] The region may wish to establish certain minimum rates for the corporate income tax and the standard VAT, as well as maximum limits on the overall size of benefits that can be granted to individual projects (scaled by project size).

- Rollback of existing investment incentives. Current investment tax incentives should be reviewed and assessed against the above criteria. Agreement should be sought on a timetable to phase-out incentives failing to meet those criteria.

The success of regional coordination efforts will depend on each country's compliance with the code of conduct and the existence of effective mecha-

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[29]Some have acknowledged that a code of conduct could increase incentives for third countries to cut their taxes, because they then know that the signatories are less likely to follow.

nisms to enforce it. An important design issue is whether there is a mechanism to ensure enforcement of the code. A legally binding code requires a body that has legal power to enforce the code, including imposing penalties for infringements, and a judiciary to rule on disputes. The most likely regional body to monitor a code would be CARICOM, given that it already has a role in monitoring regional agreements, while the recently formed Caribbean Court of Justice could fill the judicial role. However, countries may be reluctant to give up sovereignty on these issues by entering into legally binding arrangements. If so, countries could at least agree on a nonbinding code that is essentially a moral obligation of participating countries and relies on each country's goodwill.[30] In addition, there may be opportunities for tax harmonization in other areas, including tax administration, taxpayer information sharing, and tax issues affecting large taxpayers such as transfer pricing methodologies. Box 3.4 includes some examples of other regions that have attempted tax coordination to reduce tax competition.

In addition, success in harmonizing tax incentives hinges critically on the political backing and commitment of member countries. Past harmonization attempts in the Caribbean, including the Harmonized Scheme of Fiscal Incentives to Industry introduced in the 1970s by CARICOM, have failed because of the lack of a strong regional institution with the political mandate to guide, supervise, and enforce the agreement. The apparent success of tax coordination in the European Union reflects the willingness of member states to participate and mechanisms to enforce compliance. The experience in the European Union and Central America also indicates that developing a code conduct, and conducting an inventory of existing incentives, is a time-intensive process, which must be carefully prepared and sequenced to ensure a successful agreement is reached.

E. Conclusions

The reliance of many Caribbean countries on wide-ranging tax incentives to attract FDI merits reconsideration. The empirical results of this study, which are consistent with the existing literature, suggest that tax incentives and tax policy more broadly have had a positive, yet limited, impact on foreign investment flows to the Caribbean. However, because of data deficiencies it is not possible to ascertain whether the provided incentives have been efficient,

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[30]While the EU code of conduct for business taxation is nonbinding, it does have political force. Meanwhile, state aid rules are enforceable under EU law, such that if the rules are breached the member state is required to recover the aid together with interest. In the ongoing efforts to establish a Central American code of conduct (see Box 3.4), the current draft envisages monitoring by a standing technical group, which would report to the Council of Ministers.

Box 3.4. The Experience with Tax Harmonization in Other Regions

European Union

The European Union has been successful in establishing a number of rules and proposals for tax coordination. These include:

- *Sixth VAT Directive.* This directive seeks a uniform basis of assessment for VAT. The directive provides a minimum standard rate for VAT of 15 percent, and lists goods and services that may be exempt or taxed at a lower rate.

- *Code of Conduct for business taxation.* This is a nonbinding code of coordination whereby members agree to rollback, and not introduce, measures that unduly affect the location of investments.

- *EU State Aid rules.* The tax systems of member states must also be in line with EU state aid rules. These rules prohibit any aid granted by a member state or through state resources, in any form, that distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods, in so far as it affects trade within the European Union. In contrast to the business taxation code, state aid rules are enforceable under EU law, such that if they are breached the member state must recover the aid together with interest.

- *Common consolidated corporate tax base.* The European Union is also researching the possibility of developing a common corporate tax base, with profits being distributed between countries on a formula basis. The perceived benefits of this approach include reducing the compliance costs resulting from the need to deal with 25 tax systems within the European Union; doing away with transfer pricing problems at least within the European Union; allowing for the offset and consolidation of profits and losses on an EU basis; simplifying many international restructuring operations; avoiding many cases of double taxation; and removing many discriminatory situations and restrictions. A key and as yet unresolved issue is the appropriate formula for the allocation of the tax base. Allocation in part by capital itself, as in some of the U.S. states, may actually make tax competition worse.

Central America

Central America and the Dominican Republic, in the context of the free trade agreement signed with the United States, are in the process of developing a code of conduct on tax incentives. The idea of the code arose from a concern in the region that countries would increasingly seek to provide tax incentives to attract U.S. investment, resulting in an erosion of the already low tax base.

As a first step, finance ministers from the region set up a technical working group on tax coordination and established a regional Council of Finance Ministers. The working group, which is supported by the IMF, IADB, and the Spanish government has compiled a matrix of existing tax incentives, prepared a draft code of conduct on tax incentives for investment, as well as a regional model for tax treaties to avoid double taxation of income and capital. The draft agreement on tax incentives envisages limits on the concession of new incentives but would grandfather existing ones. Observance of such limits would be monitored by a standing technical group, reporting to the Council of Ministers.

given that they have likely imposed considerable costs in terms of revenue losses and other economic distortions. In the circumstances, a more sparing use of tax incentives may be warranted, particularly in light of the fiscal adjustment that is needed in many countries to address high debt levels. Instead, policies to promote FDI could focus more strongly on other instruments that have consistently been shown to have a large positive and very significant effect on FDI, such as improving the quality of institutions and infrastructure.

A number of steps could be taken to achieve a more rational and efficient use of tax incentives. A general strategy of lowering CIT rates, while broadening the tax base, including by streamlining tax incentives, would seem to be a promising avenue to ensure the continued attractiveness of the region as an investment destination. In this context, the design of existing tax incentive systems could be enhanced by phasing out tax holidays and—if deemed necessary—replacing them with investment cost recovery incentives. There is also room to curtail exemptions on indirect taxes. Tax incentives should receive a legal basis, become less discretionary, and their costs should be made more transparent. Implementing such changes in the region may require a stronger coordination effort, to help overcome collective action problems that otherwise could hamper reform efforts at the national levels.

Appendix 3.1. Data Sources and Definitions

Foreign direct investment. Data on aggregate FDI (inflows and stock) are taken from UNCTAD's World Investment Report, which is also broadly consistent with the FDI inflow data from IFS. FDI inflows as a share of GDP is the dependent variable.

Fiscal measures. We use two tax policy measures based on information found in the annual World Wide Corporate Tax Surveys published by Ernst and Young, as well as Caribbean-specific tax surveys conducted by Bain and dos Santos (2004) and Rider (2004). While statutory CIT rates were compiled for all developing countries in our sample, marginal effective tax rate were computed for only our Caribbean sample, given data requirements. In addition, we collected data from UNCTAD on the number of tax treaties to control for double taxation factors.

FDI incentives and restrictions. To capture other forms of FDI incentives and restrictions, we use two series on FDI incentives and restrictions indices compiled by Wei (2000b), extended to the Caribbean by Chai and Goyal (2006). These indices, which range between 0 and 4, are based on the descriptions of government policies by PriceWaterhouseCoopers' Investment Guides. Accordingly, FDI restrictions are the sum of four binary variables on

(i) control on foreign exchange transactions; (ii) exclusion of foreign firms from certain strategic sectors,; (iii) exclusion of foreign firms from other sectors; and (iv) restrictions on the share of foreign ownership. Similarly, FDI incentives are the sum of four binary variables on (i) existence of special incentives for foreigners to invest in certain industries or geographic areas; (ii) tax concessions specific to foreign firms; (iii) cash grants, subsidized loans, reduced land for use, and other nontax concessions; and (iv) special promotion for exports (including export-processing zones).

Governance. We use several sources to capture institutional factors, including (i) the governance index compiled by Kaufmann (2005), capturing six dimensions of governance (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption); (ii) the ICRG political and social risk indices; and (iii) the World Bank's Doing Business indicators.

Infrastructure. As a proxy for infrastructure development we use telephone lines per 1,000 people, as well as paved roads as a percent of total roads.

Other measures. We use other variables commonly used in this literature, including (i) secondary school enrollment as a proxy for degree of human capital; (ii) debt to GDP as a proxy for tax pressures looking forward; (iii) GDP per capita as a proxy for level of development; and (iv) openness (measured as the sum of exports and imports as a share of GDP inflation). In addition, we compute a macro stability index constructed as a weighted average of inflation, fiscal deficits, exchange rate and reserve volatility (similar to the one calculated by Jaramillo and Sancak, 2007). Finally, we include tourism receipts as a share of GDP, to capture the special features of this sector.

Appendix 3.2. Alternative Estimation Methods

Regressions are reestimated using panel data random-effects and fixed-effects methods to test the robustness of our results. We find that while random-effects regressions yield results similar to those in pooled OLS, the explanatory power of our fixed-effects regressions drops significantly (see Appendix Tables A3.1 and A3.2, which summarize the results). Fixed-effect regressions focus on the within-country variation, and by controlling for unobserved country-specific effects are protected from omitted variable biases. However, since most of our explanatory variables are either constant (FDI incentives and restrictions) or slow moving (governance and infrastructure), our fixed-effects regressions must be interpreted with caution since they tend to produce less precise estimates.

In our fixed-effect regression using the Caribbean subsample we find that a 1 percentage point decline in the statutory corporate rate is associated with

Appendix Table A3.1. Results Using Alternative Methodologies
Dependent Variable: Log (FDI/GDP)

	Pooled OLS	Random Effects	Fixed Effects
CIT rate	-0.09***	-0.07***	-0.06**
	-6.23	-3.51	-2.44
FDI Incentives	1.54***	1.32**	---
	5.35	1.97	
FDI Restrictions	-3.14***	-2.59***	---
	-9.11	-4.21	
Governance	3.76***	1.90*	1.23
	2.84	1.68	1.09
Infrastructure	0.63***	0.66**	0.39
	3.89	2.47	1.16
ECCU dummy	0.44***	0.54	---
	2.43	1.24	
Constant	-3.92***	-3.28*	0.79
	-6.51	-1.86	0.41
Observations	122	122	122
R-Squared	0.72	0.71	0.08

Source: Authors' calculations.
Numbers below coefficients are t/z statistics.
* significant at 10%;** significant at 5%; ***significant at 1% level.

Appendix Table A3.2. Results Using Alternative Methodologies
Dependent Variable: Log (FDI/GDP), Developing Countries

	Pooled OLS	Random Effects	Fixed Effects
CIT rate	-0.01*	-0.01	-0.01
	-1.78	-0.67	-0.53
FDI Incentives	-0.05	-0.02	---
	-0.72	-0.13	
FDI Restrictions	-0.22***	-0.19**	---
	-5.70	-2.21	
Governance	0.92*	2.27***	3.15***
	1.65	3.08	3.65
Infrastructure	0.16**	0.06	0.14
	2.51	0.65	0.95
Constant	0.58	0.08	-1.02
	1.29	0.12	-1.09
Observations	392	392	392
R-Squared	0.16	0.15	0.09

Source: Authors' calculations.
Numbers below coefficients are t/z statistics.
* significant at 10%; ** significant at 5%; ***significant at 1% level.

a 0.4 percentage point increase in FDI to GDP (compared to 0.6 percent using pooled OLS). However, improvements in governance and infrastructure, while contributing positively to FDI are not significant. Meanwhile, in our larger developing country sample we find that while changes in statutory rates are not significant in explaining changes in FDI flows, improvements in governance are positively related to FDI.

It should be noted that we excluded the lagged dependent variable in the fixed-effect regression, since this would produce biased coefficients. A proper way to control for the lagged FDI would be to run dynamic-panel data estimation methods. However, as with fixed-effect estimations, these methods would not produce precise estimates given that most of our explanatory variables are slow moving or constant and that dynamic-panel data methods are based on differencing the data to get rid of unobservable country-specific factors.

Appendix 3.3. Estimating Marginal Effective Tax Rates

METRs are estimated for investments in two assets (machinery and buildings) across all sectors using the cost of capital approach developed by Hall and Jorgenson (1967) and extended by King and Fullerton (1984) and more recently by Devereux and Griffith (1998). The user cost of capital includes both the opportunity cost of forgoing investments and direct costs such as depreciation and taxes. We build on the work of Sosa (2006), who estimated METRs for the ECCU, and extend it to include other Caribbean countries for 1990–2004.

Definition: The METR is defined as $\dfrac{(r+\delta)(\tau - Z)}{(r+\delta)(1-Z) - \delta(1-\tau)}$,

where

$r =$ real interest rate;
$\delta =$ economic depreciation rate of capital;
$\tau =$ statutory CIT rate;
$Z =$ present value of depreciation allowances.

Data and assumptions: The CIT rates, the nonresident withholding tax rates, and the depreciation schedule are taken from the tax code of the respective countries using information in Bain and dos Santos (2004) and the annual World Wide Corporate Tax Surveys published by Ernst and Young. In line with the literature, we use country and time-specific inflation rates and assume exchange rates are unchanged in real terms. Real interest rates are set at 10 percent, and the lifetime of assets are assumed to be 20 years in the case

Appendix Table A3.3. Corporate Income Tax in Caribbean, 1990–2004
(*In percent*)

	Statutory Rate			Marginal Effective Tax Rate [1]			METR/Statutory Rate		
	1990–94	1995–99	2000–04	1990–94	1995–99	2000–04	1990–94	1995–99	2000–04
Antigua and Barbuda	40.0	40.0	37.0	33.5	33.6	30.5	0.84	0.84	0.83
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	...	...	...
Barbados	37.0	40.0	38.5	20.4	22.4	21.3	0.55	0.56	0.55
Belize	41.0	35.0	29.0	37.7	31.5	25.5	0.92	0.90	0.88
Dominica	35.0	33.0	30.0	21.3	18.1	15.8	0.61	0.55	0.53
Dominican Republic	35.0	25.0	25.0	26.5	18.5	15.8	0.76	0.74	0.63
Grenada	35.0	35.0	33.0	19.7	19.2	17.9	0.56	0.55	0.54
Guyana	47.0	45.0	45.0	31.5	30.2	30.4	0.67	0.67	0.67
Haiti	35.0	35.0	35.0	17.2	18.6	18.5	0.49	0.53	0.53
Jamaica	33.3	33.3	33.3	24.1	22.6	22.3	0.72	0.68	0.67
St. Kitts and Nevis	40.0	39.2	35.4	28.5	27.6	24.2	0.71	0.70	0.68
St. Lucia	33.3	33.3	31.3	27.6	27.4	26.3	0.83	0.82	0.84
St. Vincent and the Grenadines	40.0	40.0	37.0	26.5	26.5	23.7	0.66	0.66	0.64
Suriname	45.0	40.8	36.8	33.6	29.7	26.3	0.75	0.73	0.71
Trinidad and Tobago	42.0	35.6	35.0	33.4	27.0	26.4	0.79	0.76	0.75
Caribbean average	**35.9**	**34.0**	**32.1**	**25.4**	**23.5**	**21.7**	**0.70**	**0.69**	**0.68**

Sources: Country authorities; and Fund staff estimates.

[1] Excludes impact of tax holidays.

of machinery and 50 years for buildings. A weighted average METR is calculated assuming (in line with the OECD) that two-thirds of all assets are in machines and one-third is in buildings. We abstract from personal income taxes (PIT) since multinational corporations (those making FDI) do not make investment/location decisions on the basis of the PIT position of their shareholders. In addition, we exclude other fiscal and nonfiscal incentives in the host country, as well as tax holidays, since they are often granted on a discretionary basis.

Results: METRs are on average roughly 70 percent lower than the top statutory rates, though the importance of incentives appears to have increased slightly over time. METRs differ across countries with Barbados, Dominica, and Grenada offering the largest incentives (Appendix Table A3.3)

Caveats: METRs are forward-looking measures of the tax burden of an investment which just covers the cost of capital, and hence are better suited to evaluate investment decisions conditional on a firm having made its location decision.

Average effective tax rates (AETR), which measure a firm's overall profitability, are better suited to assess location decisions. Unfortunately, available FDI data are of an aggregate nature and do not separate FDI into new FDI and expansionary FDI. That said, AETRs lie somewhere in between the METRs and the statutory rates.

References

Andrews, L., and K. Williams, 1999, "Improving the Administration for Granting Tax Concessions in the OECS" (unpublished; Basseterre, St. Kitts and Nevis: Eastern Caribbean Central Bank).

Altshuler, R., H. Grubert, and T. Newlon, 2001, "Has U.S. Investment Abroad Become More Sensitive to Tax Rates?" in *International Taxation and Multinational Activity*, ed. by J. Hines (Chicago: University of Chicago Press).

Bain, L., 1995, "Tax Concessions and Their Impact on the Revenue Base of the ECCB Territories" (unpublished; Basseterre, St. Kitts and Nevis: Eastern Caribbean Central Bank).

Bain, L. and P. dos Santos, 2004, "Survey of the Caribbean Tax Systems," CARICOM Secretariat Report (Georgetown, Guyana).

Billington, N., 1999, "The Location of Foreign Direct Investment: An Empirical Analysis," *Applied Economics*, Vol. 31, pp. 65–76.

Buettner, T., and M. Ruf, 2007, "Tax Incentives and the Location of FDI: Evidence from a Panel of German Multinationals," *International Tax and Public Finance*, Vol. 14, No. 2, pp. 151–64.

Chai, J., and R. Goyal, 2006, "Tax Concessions and Foreign Direct Investment in the ECCU," in *The Caribbean: From Vulnerability to Sustained Growth*, ed. by R. Sahay, D.O. Robinson, and P. Cashin (Washington: International Monetary Fund), pp. 258–84.

Chalk, N., 2001, "Tax Incentives in The Philippines: A Regional Perspective," IMF Working Paper 01/181 (Washington: International Monetary Fund).

Cummins, J., K. Hassett, and R. Hubbard, 1996, Tax Reforms and Investment: A Cross-Country Comparison, *Journal of Public Economics*, Vol. 62, pp. 237–73.

Desai, M., F. Foley, and J. Hines, 2004, "Capital Controls, Liberalizations, and Foreign Direct Investment," *Harvard NOM Research Paper*, No. 04–24, Cambridge, Massachusetts.

Devereux, M., and H. Freeman, 1995, "The Impact of Tax on Foreign Direct Investment: Empirical Evidence and the Implication for Tax Integration Schemes," *International Tax and Public Finance,* Vol. 2, pp. 85–106.

Devereux, M., and R. Griffith, 1998, "Taxes and the Location of Production: Evidence from a Panel of U.S. Multinationals," *Journal of Public Economics,* Vol. 68, pp. 335–67.

———, 2002, "The Impact of Corporate Taxation on the Location of Capital: A Review," *Swedish Economic Policy Journal,* Vol. 9, pp. 79–102.

————, and A. Klemm, 2002, "Corporate Income Tax Reforms and International Tax Competition," *Economic Policy*, Vol. 35, pp. 451–95.

Easson, A., 2004, *Tax Incentives for Foreign Direct Investment* (New York: Kluwer Law International).

Foreign Investment Advisory Service, 2004, *Caribbean Foreign Investor Perceptions Survey* (Washington: World Bank and International Finance Corporation).

Gago, A., X. Labandeira, F. Picos, and M. Rodriguez, 2006, "Taxing Tourism in Spain: Results and Recommendations," DEA Working Paper No.16 (Palma, Spain: Universitat de les Illes Balears).

Gastanaga, V., J. Nugent, and B. Pashamova, 1998, "Host Country Reforms and FDI Inflows: How Much Difference Do They Make?" *World Development*, Vol. 26, pp. 1299–314.

Grubert H., and J. Mutti, 2000, "Do Taxes Influence Where U.S. Corporations Invest?" *National Tax Journal*, Vol. 53, pp. 825–39.

Hall, R..E., and D. W. Jorgensen, 1967, "Tax Policy and Investment Behavior," *American Economic Review*, Vol. 57, pp. 391–414.

Hartman, D., 1984, "Tax Policy and Foreign Direct Investment in the United States," *National Tax Journal*, Vol. 37, pp. 475–88.

Hassett, K., and R. Hubbard, 1997, "Tax Policy and Investment," *Fiscal Policy: Lessons from Economic Research*, ed. by A.J. Auerbach (Cambridge, Massachusetts: MIT Press), pp. 339–85.

Hines, J., 1996, "Altered States: Taxes and the Location of Foreign Direct Investment in America," *American Economic Review*, Vol. 86, pp. 1076–94.

————, and E. Rice, 1994, "Fiscal Paradise: Foreign Tax Havens and American Business," *Quarterly Journal of Economics*, Vol. 109, pp. 149–82.

————, 1999, "Lessons from Behavioral Responses to International Taxation," *National Tax Journal*, Vol. 52, pp. 305–22.

Horstmann, I., and J. Markusen, 1992, "Endogenous Market Structures in International Trade (natura facit altum), *Journal of International Economics*, Vol. 32, pp. 109–29.

International Monetary Fund, 2005, The Bahamas: Selected Issues and Statistical Appendix, IMF Country Report No. 05/224 (Washington: International Monetary Fund).

Jaramillo, L., and C. Sancak, 2007, "Growth in the Dominican Republic and Haiti: Why Has the Grass Been Greener on One Side of Hispaniola?" IMF Working Paper 07/63 (Washington: International Monetary Fund).

Kaufmann, D., A. Kraay, and M. Mastruzzi, 2005, "Governance Matters IV: Governance Indicators for 1996–2004," World Bank Policy Research Working Paper Series No. 3630 (Washington: World Bank).

Keen, M., and A. Simone, 2004, "Tax Policy in Developing Countries: Some Lessons from the 1990s, and Some Challenges Ahead," in *Helping Countries Develop: The Role of the Fiscal Policy*, ed. by Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste (Washington: International Monetary Fund), pp. 302–352.

King, M.A., and D. Fullerton, 1984, *The Taxation of Income from Capital* (Chicago: University of Chicago Press).

Lecraw, D., 2003, "Investment Incentives and Harmonization" (unpublished; Basseterre: Eastern Caribbean Central Bank).

Lim, D., 1983, "Fiscal Incentives and Direct Foreign Investment in LDCs," *Journal of Development Studies*, Vol. 19, pp. 207–12.

Markusen, J., 1990, "First Mover Advantage, Blockaded Entry, and the Economics of Uneven Development," *NBER Working Paper No. 3284* (Cambridge, Massachusetts: National Bureau for Economic Research).

McKinsey Global Institute, 2003, *New Horizons: Multinational Company Investment in Developing Countries* (San Francisco).

McLure, C.E., 1999, "Tax Holidays and Investment Incentives: A Comparative Analysis," *Bulletin for International Fiscal Documentation*, Vol. 53, pp. 326–39.

Mintz, J., 1995, "Tax Holidays and Investment," in *Fiscal Incentives for Investment and Innovation*, ed. by A. Shah (New York: Oxford University Press), pp. 165–94.

Mody, A., and A. Murshid, 2002, "Growing Up with Capital Flows," IMF Working Paper 02/75 (Washington: International Monetary Fund).

Mody, A., and D. Wheeler, 1992, "International Investment Location Decisions: The Case of U.S. Firms," *Journal of International Economics,* Vol. 33, pp. 57–76.

Mooji, R., and S. Ederveen, 2003, "Taxation of Foreign Direct Investment: A Synthesis of Empirical Research," *International Tax and Public Finance*, Vol. 10, pp. 673–93.

OECD, 1995, "Taxation and Foreign Direct Investment: The Experience of the Economies in Transition" (Paris).

Rider, M., 2004, "Corporate Income Tax and Tax Incentives," Working Paper 04–28, International Studies Program, Georgia State University (Atlanta).

Sahay, R., 2005, "Stabilization, Debt, and Fiscal Policy in the Caribbean," IMF Working Paper 05/26 (Washington: International Monetary Fund).

Shah, A., ed., 1995a, *Fiscal Incentives for Investment and Innovation* (New York: Oxford University Press).

———, and J. Slemrod, 1995b, "Do Taxes Matter for Foreign Direct Investment?" in *Fiscal Incentives for Investment and Innovation*, ed. by A. Shah (New York: Oxford University Press), pp. 481–501.

Slemrod, J., 1990, Optimal Taxation and Optimal Tax Systems, *Journal of Economic Perspectives*, Vol. 4, pp. 157–78.

Sosa, S., 2006, "Tax Incentives and Investment in the Eastern Caribbean," IMF Working Paper 06/23 (Washington: International Monetary Fund).

Swenson, D., 1994, The Impact of U.S. Tax Reform on Foreign Direct Investment in the United States," *Journal of Public Economics*, Vol. 2, pp. 243–66.

Tanzi, V., and A. Bovenberg, 1990, "Is There a Need for Harmonizing Capital Income Taxes Within the EC Countries" in *Reforming Capital Income Taxation*, ed. by H. Siebert (Tubingen, Germany: Mohr).

Tanzi, V., and Shome, P., 1992, "The Role of Taxation in the Development of East Asian Economies," in *The Political Economy of Tax Reform*, ed. by T. Ito and A. Krueger (Chicago: University of Chicago Press), pp. 31–65.

UNCTAD, 2000, *Tax Incentives and Foreign Direct Investment: A Global Survey* (New York: United Nations).

———, 2004, *World Investment Report* (New York: United Nations).

———, and DTCI, 1996, *Incentives and Foreign Direct Investment* (New York: United Nations).

Wei, S., 2000a, "How Taxing Is Corruption on International Investors?" *Review of Economics and Statistics*, Vol. 82, pp. 1–11.

———, 2000b, "Local Corruption and Global Capital Flows," *Brookings Papers on Economic Activities: 2*, Brookings Institution, Vol. 2, pp. 303–54.

World Bank, 2005, *Towards a New Agenda for Growth: Organization of Eastern Caribbean States* (Washington: World Bank).

Young, K., 1988, "The Effects of Taxes and Rates of Return on Foreign Direct Investment in the United States," *National Tax Journal*, Vol. 41, pp. 109–21.

4

The Macroeconomic Impact of Trade Preference Erosion on the Caribbean

Montfort Mlachila, Paul Cashin, and Judith Gold

A. Introduction[1]

The banana and sugar industries of the Caribbean have enjoyed significant trade preferences for several decades. Preferential access to protected European markets has afforded Africa, Caribbean, and Pacific (ACP) producers higher export prices than otherwise, and thus provided them with implicit income transfers. Reforms to the European Union's banana and sugar regimes over the last 15 years have eroded those preferences, and recent reforms will further reduce the implicit income transfers. The erosion of trade preferences has important economic and social effects, given the dependence of Caribbean countries on the production and export of these traditional export crops.

The countries of the Caribbean are among the most vulnerable to terms of trade losses arising from trade preference erosion. This vulnerability arises from a large share of bananas and sugar in total exports, the very high degree of preferential access granted by the European Union, and the region's heavy dependence on the European Union as an export market.

This chapter complements previous studies by considering the macroeconomic effects of the erosion of EU preferences for Caribbean banana- and sugar-producing countries.[2] As a first step, the analysis measures the value of (banana and sugar) trade preferences, illustrating its precipitous decline since the early 1990s. Second, the chapter discusses the macroeconomic impact of

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[1]This chapter has benefited from contributions from Pelin Berkmen, Pawel Dyczewski, Nkunde Mwase, Catherine Pattillo, Emilio Pineda, Mariana Torres, and Evridiki Tsounta, along with analytical work carried out by Katerina Alexandraki, Ruben Atoyan, Hans Peter Lankes, and Azim Sadikov.

[2]The 11 Caribbean countries examined include Dominica, Grenada, St. Lucia, St. Vincent and the Grenadines, and Suriname (banana-exporting countries); Barbados, Guyana, Jamaica, St. Kitts and Nevis, Trinidad and Tobago (sugar-exporting countries); and Belize (exporter of both bananas and sugar).

the cuts in implicit assistance, particularly on output growth in preference-dependent Caribbean countries.

The remainder of this chapter is structured as follows. Section B briefly reviews the recent institutional and market changes in EU preference schemes for bananas and sugar. Section C examines the results of studies that have attempted to measure the impact of preference erosion on the Caribbean. Section D sets out the movement of export prices, volumes and receipts for banana- and sugar-exporting Caribbean countries, while Section E estimates the value of implicit assistance provided through trade preferences. Section F illustrates the macroeconomic impact of preference erosion, while Section G examines policy implications and trade preference erosion in the work of the Fund. Section H concludes.[3]

B. Caribbean Traditional Industries: Description and Historical Overview

Banana industry

The export banana industry of many Caribbean countries was established after the Second World War, in order to supply the United Kingdom market and replace unprofitable sugar production in the Caribbean. While at its peak in the early 1990s the banana industry comprised about 20 percent of (Windward Islands and Belize) GDP, it has declined to less than 5 percent of GDP in recent years.[4] Even so, banana exports remain important—for example, accounting at present for about 15 percent of merchandise export receipts and remaining a key employment source in the rural districts of most of the Windward Islands.[5] Banana production in the Windward Islands and Belize is entirely in private hands, with the government providing some financial and other support to producers. In contrast, banana production in Suriname has traditionally been a public sector activity.

Production yields are significantly lower in the Caribbean when compared with Latin American banana producers. Banana farms in most Caribbean countries are typically less than 10 acres in size, and are often located in difficult terrain (steep hillsides and narrow valleys). The combination of less fa-

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[3]Data sources are provided in Appendix 4.1. A review of recent literature, the technical derivation of estimates of the value of preferences, and the export impact of the erosion of EU preferences for the banana sector can be found in Mlachila and Cashin (2008). The partial equilibrium framework that has been used to estimate the macroeconomic effects of trade preference erosion is also discussed in Mlachila and Cashin (2007).

[4]The Windward Islands comprise Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines.

[5]The number of registered banana growers in the Windward Islands has fallen from about 24,000 farmers in 1993 to about 5,000 in 2004, with the number of workers deriving income from banana production exceeding the number of farmers by a factor of three. Despite these declines the industry remains a major employer, particularly in rural regions (IMF, 2001; NERA, 2004).

vorable topography, climate, and labor conditions results in low yields per acre and relatively high production costs (NERA, 2004).[6]

For four decades prior to 1993, ACP producers enjoyed preferential access as traditional suppliers to the United Kingdom market. Prior to 1993, individual EU members maintained distinct policies for banana imports, including preferential regimes for member states' overseas departments or former colonies (e.g., France imported from Martinique and Guadeloupe, Cameroon and Côte d'Ivoire, while the United Kingdom imported from the Windward Islands and other ACP countries).[7] Historically, ACP bananas were exported to the United Kingdom under preferential agreements codified in the banana protocol of the various Lomé Conventions (cooperation agreements between the then European Community and ACP countries, which commenced in 1975 and expired in 2000).

The European Union's preferential regime for bananas has undergone significant change over the last 15 years. Along with the implementation of the EU Single Market in 1993 came a common policy and marketing structure for banana imports. Under the so-called EU Banana Regime, preferential arrangements for ACP bananas were extended under a new import regime that encompassed the entire European Community (Dickson, 1993).

ACP producers were granted a duty-free quota that was allocated to each country on an historical basis. The post-1993 EU-wide system, however, eliminated internal trade barriers to allow the free circulation of ACP bananas, exposing high-cost Caribbean producers to more competition. The most severe blow for Caribbean producers came in 1998, when country-specific ACP quotas were removed. This allowed more efficient African countries to compete directly with less efficient Caribbean producers to fill the ACP quota. As a result, Cameroon and Ivory Coast banana exports to the European Union experienced strong growth, while those of the Windward Islands declined.

The EU banana regime operated on the basis of an annual ACP banana quota for duty-free export to the European Union, and an annual quota for bananas from Latin America ("dollar" bananas) subject to a tariff. The importation of bananas into the European Union also required a license, and

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[6]For a comprehensive description of problems faced by Windward Islands banana producers, see Sandiford (2000) and Myers (2004).

[7]In particular, the United Kingdom allowed duty free access for bananas from Caribbean ACP countries of Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines, Jamaica, Belize and Suriname. For an historical study of the Caribbean banana trade, see Clegg (2003).

Figure 4.1. Real Banana Prices, January 1997–April 2007
(U.S. dollars per metric ton)
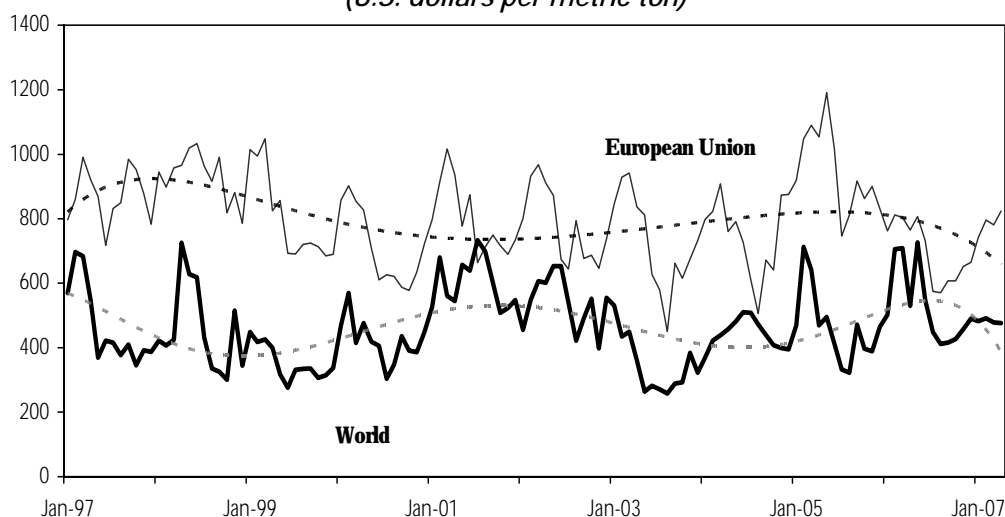
Sources: International Monetary Fund, Commodity Price System; and World Bank.
Notes: Banana (world) Central American and Ecuador, is the U.S., importer's price, f.o.b. U.S. ports; banana (European Union) is the import price, c.i.f. European ports. Dashed lines are measures of the long-run trend (smoothed versions) of the respective real price series. All nominal price series were deflated using the export unit value index of industrial countries.

the licensing system allowed the banana-exporting countries the possibility of sharing in the associated economic rents (Williams and Darius, 1998). As a result, the price of bananas in the European Union averaged some 80 percent more than the world (free market) price (Figure 4.1).[8] Following World Trade Organization (WTO) rulings that the European Union's banana import regime discriminated against Latin American exporters, in late 2001 the European Union pledged to switch to a tariff-only system by the beginning of 2006, and requested a WTO waiver authorizing tariff preferences for ACP countries under the Cotonou Agreement (successor agreement to the Lomé Conventions) until 2007. Under this compromise, the European Union agreed that the waiver would apply only if the new tariff is set at a level that maintains total market access for all WTO member suppliers, including non-ACP countries.

Recent reforms to the EU banana regime (moving from quotas to a tariff-only system) will further erode preferences for Caribbean banana producers. Beginning January 1, 2006, the European Union moved to a tariff-only regime (no quotas or licenses) with a permanent MFN (most favored nation) tariff of €176 per ton for Latin American bananas, and a duty-free 0.775

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[8]See Borrell (1999), Guyomard and others (2004), and Williams and others (1999) for analyses of the economic effects of the Single European Market.

million-ton quota for ACP countries.[9] The appropriate (quota-equivalent) level of this tariff remains in dispute, and has been challenged by Latin American exporters and the United States.[10] While the conversion of quotas into tariffs will afford some protection to ACP banana-exporting countries, Caribbean banana exporters are likely to face strong competition from more efficient African and Latin American producers.

The European Commission has developed assistance plans to support the adjustment of ACP countries to the reformed banana regime. Assistance from the European Commission to Caribbean banana-exporting countries is being provided through (i) the Special Framework of Assistance (1999–2008), which was designed to boost the productivity of producers, encourage diversification (away from agriculture), and provide social protection;[11] and (ii) export revenue stabilization schemes, such as STABEX. Under the Special Framework of Assistance (SFA), since 1999 the European Union has committed €157 million for adjustment assistance to the Windward Islands and €22 million to Belize. However, the disbursement of SFA resources to Caribbean countries has been extremely slow, with the bulk of committed amounts remaining undisbursed and virtually no disbursements since 2003 (Figure 4.2).

Sugar industry

Under the Lomé Convention (and now the Cotonou Agreement), trade preferences for sugar have been granted to ACP countries by the European Union since 1975. EU internal sugar prices are maintained at three to four times the world price through production quotas, import tariffs and export subsidies (Figure 4.3). Under the Sugar Protocol ACP countries export 1.3 million tons of sugar duty-free at EU internal prices, with limited additional access (at preferential tariff rates) under a special preferential sugar (SPS) quota. The preferences are given by way of individual country quotas at prices similar to those received by domestic producers.

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[9]The shift to a tariff-only regime has engendered considerable controversy regarding what level of tariff protection would be equivalent to the previous quota-based regime, particularly as it pertains to maintaining market access for non-ACP suppliers. Previous EU proposals of a single MFN tariff of €230 per ton and later €187 per ton were challenged by Latin American banana exporters, and both were rejected by WTO arbitrators on the grounds that the tariff would not at least maintain total market access for MFN suppliers.

[10]In November 2006, Ecuador (the world's largest banana exporter) formally initiated a process to challenge the current level of the MFN tariff (€176 per ton) before the WTO. On June 29, 2007 the United States lodged a complaint to the WTO, requesting a WTO panel to review the European Union's banana-importing regime, stating that it harms exports from Latin American countries.

[11]The Special Framework of Assistance (SFA) was established in 1999, when the preferential trade arrangements traditionally enjoyed by ACP banana producers were found to be incompatible with WTO rules, to help the twelve ACP traditional banana suppliers (including the four Windwards countries and Belize) adapt to the new market conditions.
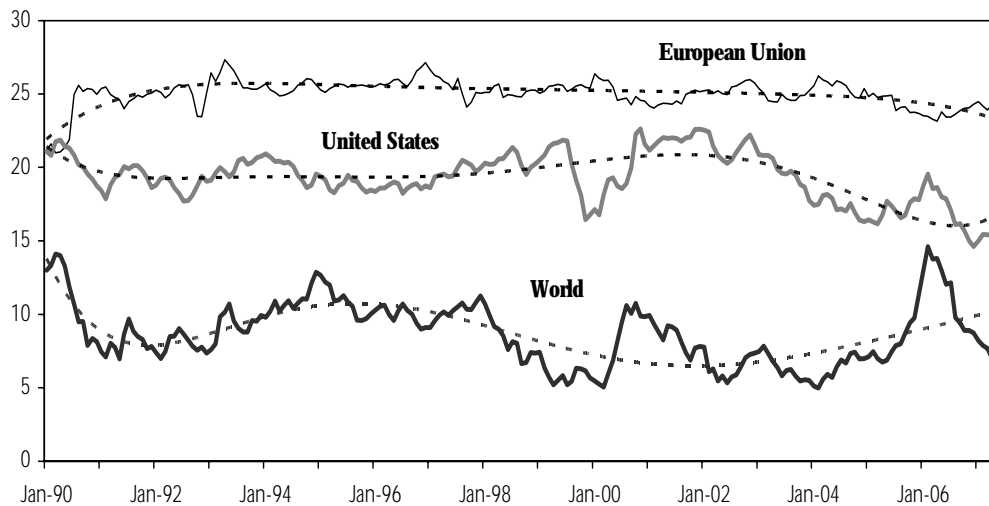
Figure 4.2. Caribbean: Status of EU Banana Support [1]
(In millions of Euros)
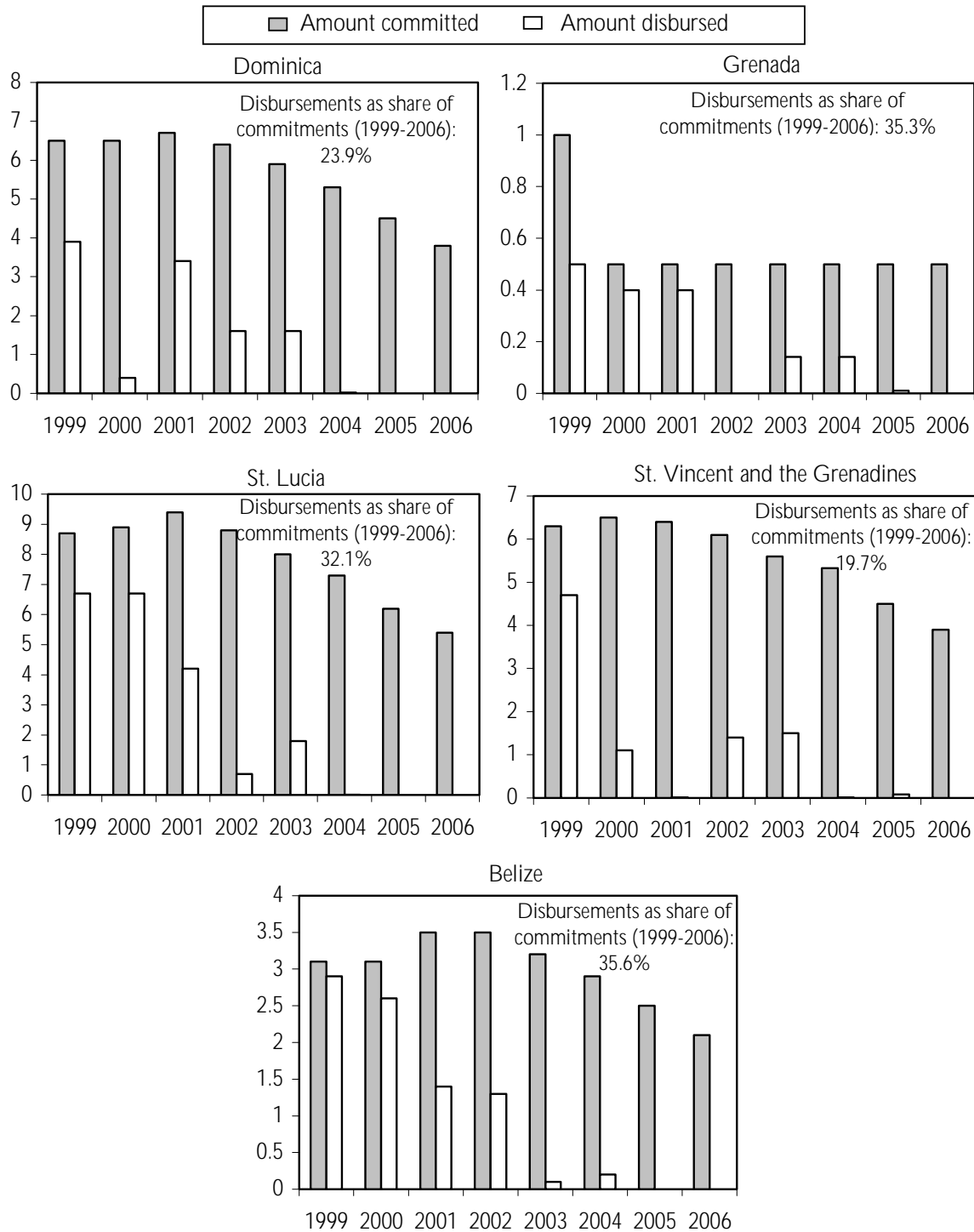
Sources: Delegation of the European Commission, Barbados; and the Government of Belize.

[1] Under Special Framework of Assistance, as at 31 March 2007.

Figure 4.3. Real Sugar Prices, January 1990–April 2007
(U.S. cents per pound)

Source: International Monetary Fund, Commodity Price System.

Notes: Sugar (United States) is the U.S. import price, CSCE nearest futures, c.i.f. New York; sugar (European Union) is the European Union negotiated import price for raw unpacked sugar from ACP countries, c.i.f. European ports; sugar (world) is the free market price, CSCE nearest futures, c.i.f. New York. Dashed lines are measures of the long-run trend (smoothed versions) of the respective real price series. All nominal price series were deflated using the export unit value index of industrial countries.

As a result of moves to reform the Common Agricultural Policy, in November 2005 EU agriculture ministers agreed to a four-year, 36 percent phased price reduction. The import price will be lowered from €523 per ton to €335 per ton by 2009 for raw sugar imported from ACP countries, based on cuts of 5 percent in 2006, 13 percent in 2008, and 22 percent in 2009.[12] SPS quotas would be eliminated. Sugar imports under the Everything But Arms (EBA) initiative will expand until 2009, when they will cease to be restricted. EU farmers would be compensated for about two-thirds of lost revenue. The proposed reform would imply significant adjustment costs for ACP countries that now enjoy preferential access to the EU market. Of the six sugar-exporting Caribbean ACP countries—Barbados, Belize, Guyana, Jamaica, St. Kitts and Nevis, and Trinidad and Tobago—Belize and Guyana will be the most significantly affected.[13]

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[12]The sugar reform does not alter the provisions of the Sugar Protocol, and ACP countries will continue to have preferential market access to EU markets at zero duties with a guaranteed price.

[13]One of the traditional sugar-exporting Caribbean ACP countries, St. Kitts and Nevis, ceased production of sugar following the harvest of 2005. Similarly, Trinidad and Tobago announced in early 2007 that it was developing an exit strategy from sugar production, following its 2007 harvest.

The EU Commission is developing an assistance plan to support the adjustment process of ACP sugar-exporting countries. The assistance packages are to be tailored to country-specific development needs based on Adaptation Strategies as set out in National Action Plans, which were submitted to the European Union in April 2006. The plans provide estimates of implementation costs, as a basis for determining the per-country assistance needs under the European Union's financial framework for 2007–13. The intention is to strengthen the competitiveness of sugar sectors where these sectors are considered to be economically viable, and promote diversification where the sector is not sustainable.[14] The Caribbean response has been varied, with envisaged measures ranging from increasing production and enhancing added value to the mitigation of adverse social impacts of the downsizing or closure of the industry. Following an initial amount of €40 million in assistance for 2006, the European Union will provide funding of €667 million for the period 2007–10, with an initial allocation of €165 million for 2007. The amounts for 2011–13 are yet to be decided.[15]

C. Preference Erosion and the Caribbean[16]

Preference erosion can occur through a number of channels. Erosion can occur when the number of beneficiaries entitled to preferential trade treatment rises, or when a preference-granting country lowers its applied tariff while keeping its preferential tariffs unchanged, or (as in the case of the European Union's banana and sugar markets) when a preference-granting country lowers its preferential tariffs (National Economic Research Associates, 2004).

Virtually all studies on the effects of international trade liberalization—notably by reducing preferential trading arrangements—agree that it is globally welfare enhancing. The theoretical case for removing trade preferences can be made easily. Granting trade preferences allows the development of trade that would not exist, usually at the expense of third countries. A country that receives trade preferences enables its exporters to charge a higher price than they would receive if they were selling to a nonpreferential market. While the extra production benefits the exporting country, there is an oppor-

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[14]Strategies for diversification and transformation include adding value through the development of sugar refining and Caribbean brand packaging; diversification into energy sectors such as bio-ethanol; sustaining supplies of raw material to the rum industry; and recognition of sugar's place in tourism, soil conservation and enhancing the environment.

[15]The total allocation for the period 2007–10 is €667 million for the 18 Sugar Protocol countries, allocated among the Caribbean as Guyana (€ 84 million); Barbados (€35 million); Belize (€45 million); Jamaica (€78 million); St. Kitts and Nevis (€42 million); and Trinidad and Tobago (€42 million).

[16]For a more detailed review of the literature on preference erosion, see Mlachila and Cashin (2008).

tunity cost—the resources used in production could be used more productively elsewhere, especially if the country is an inefficient producer. For the country granting preferences, there is likely to be an increase in domestic prices owing to the entrance on the market of inefficient producers. For third countries, exclusion from trade preferences leads to a loss in competitiveness and therefore to lower production—this in turn can reduce its imports, leading to an overall decline in global trade (Baldwin and Murray, 1977; Stoeckel and Borrell, 2001).

There is widespread agreement that losses from preference erosion are likely to be concentrated in a few countries and products. Two recent analyses of the potential effects on middle-income and low-income countries of reduction in preferences in the United States, the EU, Canada, and Japan, find that the negative impact is concentrated in less than ten countries, and about six products.[17] Alexandraki and Lankes (2004) demonstrate that the aggregate loss is quite small, between 0.5 and 1.2 percent of total exports of middle-income countries. However, they also show that the loss is concentrated in just three products where preference margins are high: sugar, bananas—and to a far lesser extent—textiles and clothing. Countries with the greatest export losses arising from preference erosion are Mauritius, St. Lucia, and Belize, with Dominica and St. Vincent and the Grenadines also among the 10 most-affected countries (Table 4.1).[18] Subramanian (2003) finds that preference erosion would lead to a reduction of just 1.7 percent in the aggregate value of low-income country exports. While the losses are large in absolute terms only for a few countries such as Bangladesh, Cambodia, Mauritania, and Malawi, a number of others suffer sizable losses relative to exports.

Banana-exporting countries

The erosion of trade preferences over the last two decades has already had a significant impact on Caribbean banana producers. During the 1990s exports from the Windward Islands, Belize and Suriname fell dramatically, driven by competition from African ACP countries, uncertainty as to the status of the banana regime, and the rise of the services sector. Employment declines were ameliorated by banana growers working on a part-time basis, taking early

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[17]Alexandraki and Lankes (2004) examine the effect on middle-income countries and assume a hypothetical 40 percent cut in the preference margin for exporting countries; Subramanian (2003) focuses on low-income countries and assumes a 40 percent reduction in MFN tariffs in export markets.

[18]Amiti and Romalis (2006) also find significant negative impacts of preference erosion on the Windward Islands, owing to their assumption of an infinite supply response.

Table 4.1. Contribution of Major Export Products to Preference Margin

	Total preference margin [1]	Percent of margin accounted for by preferences for:			
		Sugar	Bananas	Textiles and clothing	Other products
Mauritius	39.9	84	0	13	3
St. Lucia	**32.9**	**0**	**94**	**1**	**4**
Belize	**29.3**	**47**	**23**	**0**	**30**
St. Kitts and Nevis	**28.7**	**94**	**0**	**0**	**6**
Guyana	**24.2**	**95**	**0**	**1**	**4**
Fiji	24.1	96	0	1	2
Dominica	**15.9**	**0**	**97**	**0**	**3**
Seychelles	12.2	0	0	0	100
Jamaica	**9.7**	**67**	**8**	**7**	**18**
St. Vincent and the Grenadines	**9.4**	**0**	**89**	**0**	**11**
Albania	8.9	0	0	48	52
Swaziland	8.2	97	0	1	2
Serbia and Montenegro	7.6	28	7	10	56
Honduras	6.7	56	9	19	15
Tunisia	5.9	0	1	79	20
Côte d'Ivoire	5.7	8	51	2	38
Morocco	5.7	0	4	64	33
Dominican Republic	5.5	23	16	27	34
Middle-Income countries [2]	4.9	42	19	12	27
Largest beneficiaries [3]	15.6	51	24	8	17

Source: Alexandraki and Lankes (2004).

Note: Caribbean countries are in bold.

[1]As a percent of the trade-weighted average world market price of the country's exports.

[2]Average for 76 middle-income developing countries, weighted by margin.

[3]Eighteen countries with average preference margins greater than 5 percent.

retirement, seeking employment in other industries, or emigration. The Windward Islands in particular have been successful in diversifying into tourism and financial services, which have more than offset the decline in banana export earnings.

Most existing estimates show that the loss from trade preference erosion for Caribbean banana-exporting countries will be large. On the basis of an EU tariff level close to the current €176 per ton and individual country supply elasticities, NERA (2004) finds that banana production in the Windward Islands countries would decline by between 11−21 percent from its end-2005 level.

In a comprehensive review of the literature on banana preference erosion, the FAO (2004) makes a number of interesting observations. Contrary to most studies—which typically make ad hoc assumptions on the level of tariff reductions[19]—the studies cited in FAO (2004) are more realistic as they typically measure the effects of moving to a tariff-only regime in 2006, and modify tariff levels and supply elasticities. A key finding is that there is no tariff that would maintain the status quo—in terms of providing the same level of implicit assistance—a central objective among ACP countries, especially in the Caribbean. In particular, a low tariff would undoubtedly benefit Latin American suppliers and adversely affect EU domestic and ACP suppliers, and vice versa.
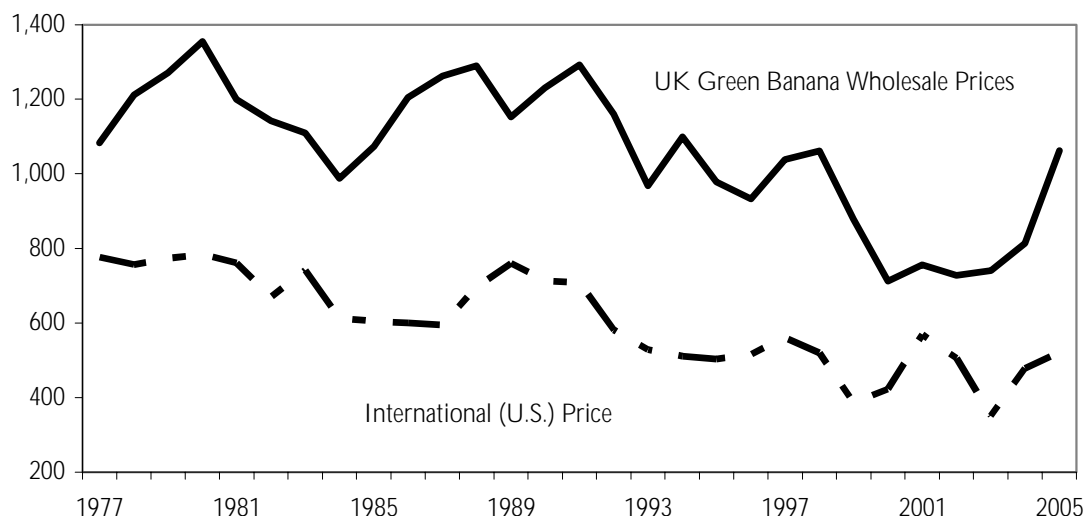
Sugar-exporting countries

The few studies on the implication of sugar preference erosion generally concur that the majority of Caribbean sugar industries have very little prospect of survival. The protected markets in the European Union have afforded higher prices to Caribbean commodity exporters than they would have obtained on the free market, on average over 250 percent higher than the world prices in the past 15 years. This preferential trade contributes significantly to the Caribbean region's employment, export receipts and output. Nevertheless, even with this price advantage, the majority of the sugar industries in the region have not been profitable for many years. As a result, a recent study concluded that other than the sugar industries in Belize and Guyana, all other industries in the Caribbean appear to have an unprofitable future following preference erosion, leading to their probable eventual closure (LMC International, 2003). While the sugar industries in Belize and Guyana have the potential to remain profitable, they will need to undertake significant reforms, including the closure of marginal estates and sizable new investment to upgrade plants and develop value added.

Virtually no studies exist that document both the value of implicit assistance from trade preferences and its evolution over a long period. Almost all the studies reviewed here take a snapshot of the state of affairs for one year or just a few years. However, in order to understand how countries arrived at their present situation, it is useful to measure the value of preferences over time. The following sections do so for Caribbean countries over a period of almost three decades.

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[19]For example, two important analyses are those of Vanzetti and others (2004), and Borrell and Bauer (2004). These contributions differ in assumptions on values and distribution of quota rent, price elasticities, and exchange rates.

Figure 4.4. Evolution of Real Banana Prices
(In 2000 U.S. dollars per metric ton)

Sources: IMF, World Economic Outlook; World Bank; WIBDECO; U.S. Department of Agriculture; and Fund staff estimates.

D. Evolution of Export Prices, Quantities, and Values

Banana-exporting countries

Real banana export prices have exhibited a secular downward trend over the past three decades. United Kingdom real banana prices generally remained steady through the early 1990s and declined thereafter, until a sharp, weather-related uptick in prices in 2005 (Figure 4.4). An important influence was the decision to partially liberalize the European market from 1993, which increased competition and dampened prices. International (free market) prices also show a steady downward trend, with occasional peaks during the late 1980s and early 2000s—the latter resulting from weather-induced shortages.

The evolution of banana export volumes from the Caribbean over the past three decades displays a bell shape. However, there are notable differences between the Windward Islands and Belize and Suriname. For the Windward Islands, volumes rose steadily between 1977 and the early 1990s, and declined thereafter, with the total volume exported in 2005 about half that of 1977 (Figure 4.5). The exception to this trend is Grenada, where exports were always small and the country largely ceased to export any meaningful quantities after 1996. Belize is the only country that did not suffer

Figure 4.5. Caribbean: Banana Export Volumes
(In thousands of metric tons)
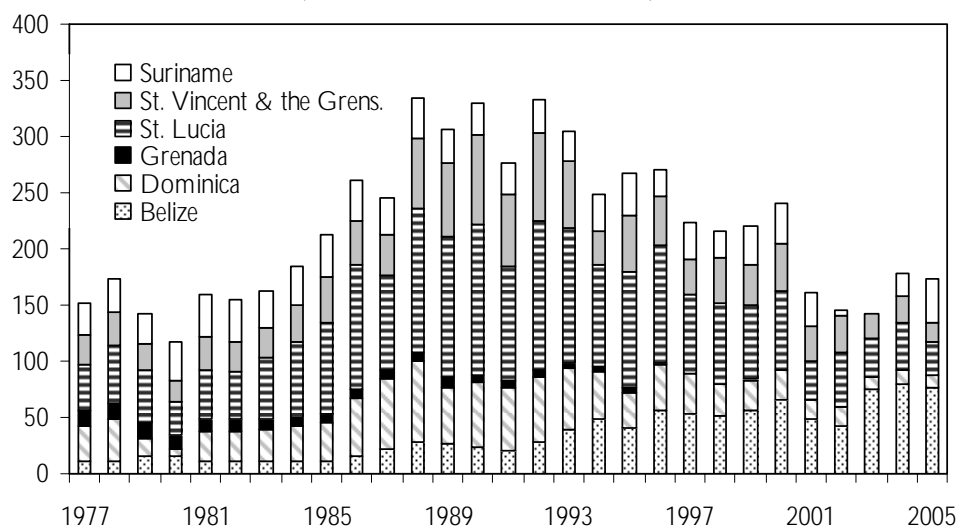
Sources: Country authorities; WIBDECO; and Fund staff estimates.

significant declines in export volumes during the period 1990–2005, becoming the largest Caribbean exporter by end-2005. For Suriname, export volumes rose very slowly in the 1990s. However, owing mainly to mismanagement the industry collapsed in 2002, only to recover in 2004.

The evolution of export values also has a bell shape. Total Windward Islands banana export receipts peaked at over 20 percent of GDP in 1989, fell dramatically after 1993, and declined to about 5 percent of GDP in 2005 (Figure 4.6). Banana exports have been particularly important for Dominica, St. Lucia, and St. Vincent and the Grenadines, accounting for about 40–70 percent of total merchandise exports, depending on the period. For Belize, export values rose substantially between 1990–2005, mainly reflecting the increased volumes noted above while unit prices generally declined. For Suriname, export values generally rose during the period, peaking in 2000, before collapsing in 2002.

Sugar-exporting countries

Real sugar export prices have also trended downwards in recent years. European sugar prices experienced a steady decline until 2001, yet have subsequently recovered (Figure 4.7).

Caribbean sugar export volumes were roughly constant over the previous decade, with a sharp decline in 2005. While export production peaked at over

Figure 4.6. Caribbean: Banana Export Earnings
(In millions of U.S. dollars)
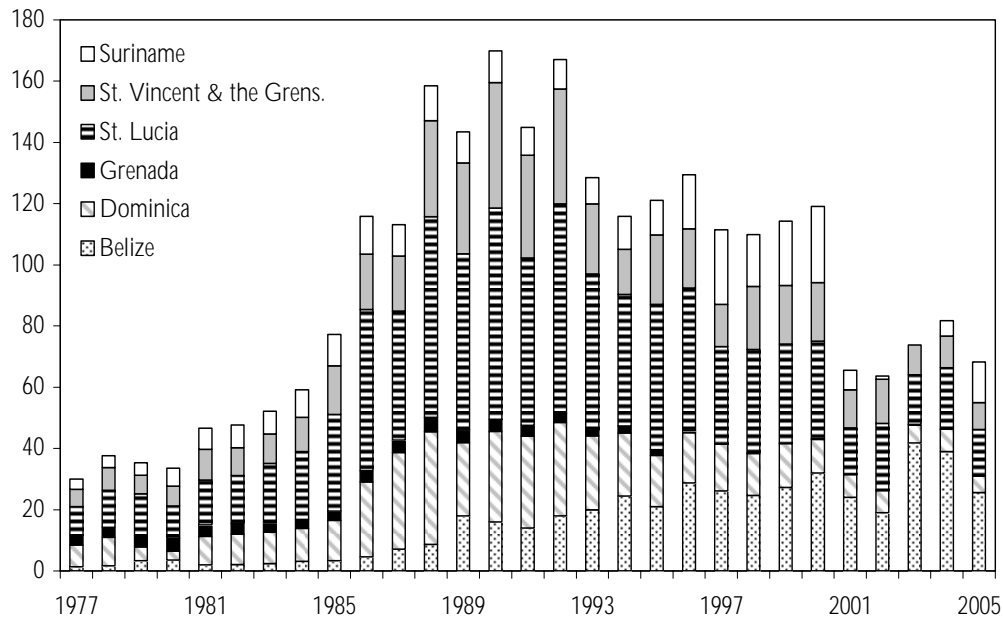
Sources: Country authorities; WIBDECO; and Fund staff estimates.

Figure 4.7. Evolution of Real Sugar Prices
(In *2000 U.S. cents per pound)*

Source: IMF, Commodity Price System.

Figure 4.8. Caribbean: Sugar Export Volumes
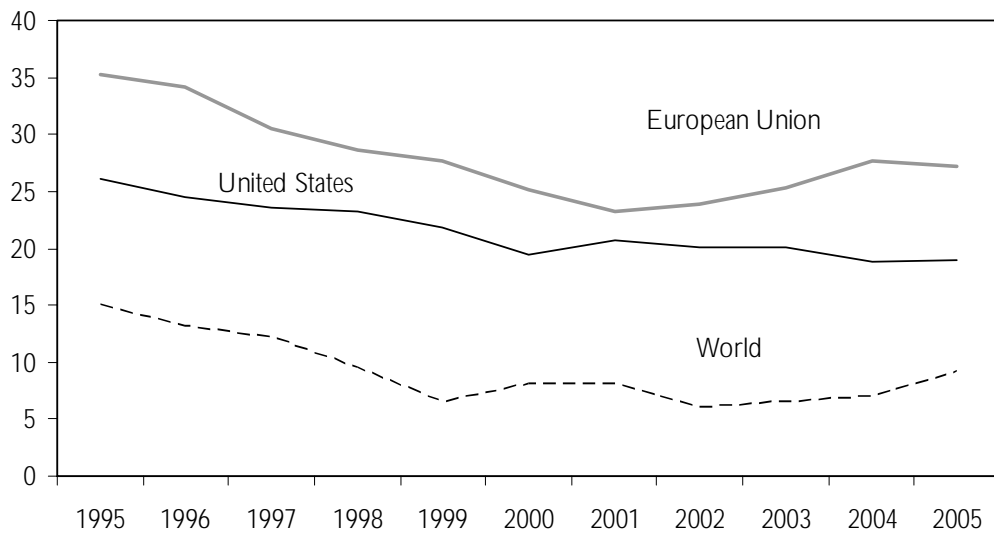*(In thousands of metric tons)*
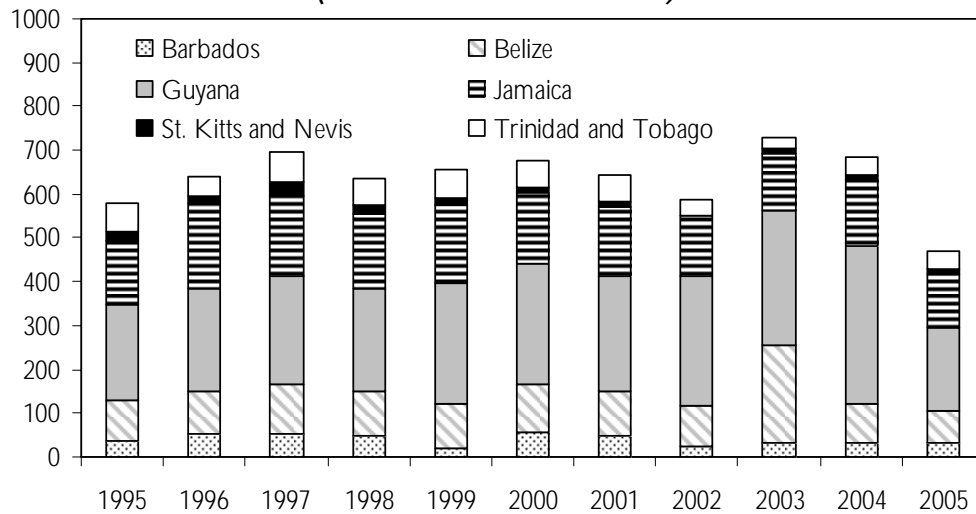
Source: Food and Agriculture Organization.

700,000 metric tons in 2003, the contributions from Guyana and Belize have fallen in recent years (Figure 4.8). Exports from Barbados and Jamaica were largely unchanged over the 1995–2005 period, while those of St. Kitts and Nevis and Trinidad and Tobago were halved.

Export values peaked in 1997, earlier than export volumes. While sugar exports have remained particularly important for Guyana and Belize, they have drastically diminished in importance for St. Kitts and Nevis, Barbados, and Trinidad and Tobago (Figure 4.9).

E. Implicit Assistance from Trade Preferences[20]

The additional export revenue that Caribbean producers derive from preferential access to the European market represents an implicit income transfer. The amount of this implicit transfer can be calculated using a price-gap methodology—that is, the difference between the preferential European market price (for each of bananas and sugar) and the best price that could be obtained on unrestricted markets (the international market price). Expressing relevant market prices in free-on-board (f.o.b.) terms and scaling the price gap by the actual export volume (in metric tons) provides a measure of the

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[20]This section draws upon Atoyan (2006), and Mlachila and Cashin (2007). Additional details are provided in Appendix 4.1.

Figure 4.9. Caribbean: Sugar Export Values
(In millions of U.S. dollars)
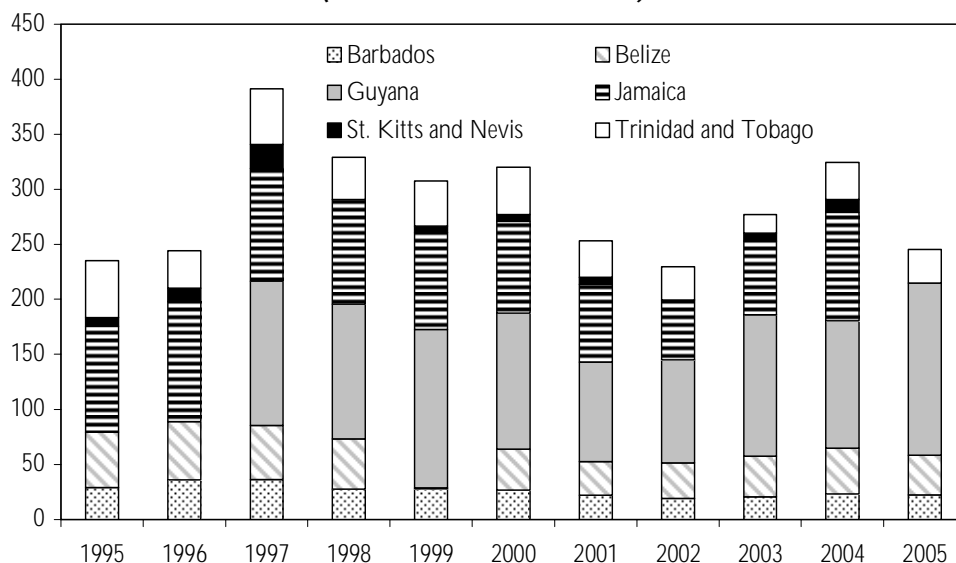
Source: United Nations, COMTRADE.

value of this implicit transfer for each of bananas and sugar.[21] In line with Alexandraki and Lankes (2004), we define the preference margin (*m*) for a given product as the proportion by which the average unit price received by a preference recipient *j* exceeds that received by an MFN exporter (world price):

$$m = (P^j / P^W) - 1 \tag{1}$$

where P^j and P^W are the price received by country *j* and the world price, respectively. The implicit value of preferences for each producer *j* at time *t* is simply the product of the difference in prices and the quantity exported Q_t^j:

$$(P_t^j - P_t^W)Q_t \text{ or } (m\, P_t^W)Q_t. \tag{2}$$

Several assumptions underly this computation. First, that there is no product differentiation in terms of quality, size, and origin. Second, a perfectly competitive price is assumed. Finally, all preferential rents accrue to exporters.[22] To the extent that some of these assumptions are not verified in

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[21]This computation is likely to be the lower bound of the true price gap, as the use of f.o.b. Caribbean and world market prices does not reflect likely differences in the efficiency of transport and insurance between ACP suppliers and their competitors on world markets.

[22]This methodology assumes that the entire rent from the trade preference accrues to the exporting country (which tends to overestimate the implicit transfer) and that world (international) prices are not affected by preferences (which tends to underestimate the implicit transfer).

practice, then the computed value of preferences is likely to be somewhat exaggerated. However, this price gap method is considered by the World Trade Organization as the most transparent and objective (Sanchez, 2004).

Implicit assistance

Implicit assistance to banana exporters is calculated according to the formulation presented above (in Equation (2)). A complication is the prices used in the computation. There are two sets of banana prices that can be used. In the *first approach*, we use the wedge between United Kingdom wholesale prices for Caribbean ACP banana exports and the international (United States) landed prices for "dollar" banana exports. The *second approach* uses unit export prices for Caribbean ACP banana exporters and compares them with unit export prices for Latin American "dollar" exporters. Both approaches have advantages and disadvantages:

- The first approach has the merit of data availability and transparency. The data for this approach are available throughout the period under study (1977–2005). However, this approach will represent the upper bound to the true amount of implicit assistance received by banana-exporting countries, as it assumes that the full margin between the European Union and international (free market) prices accrues to exporters.[23]

- The second approach is probably closer to the lower bound of the true value of implicit assistance, as the price used is the f.o.b. price at the point of export. One drawback is that data are not available for all countries for the full period.

Regardless of the measure used, the level of implicit assistance delivered through EU trade preferences to banana exporters has been considerable (Table 4.2). Three stylized facts emerge from an analysis of the preference calculations (here measured using the first approach).

- First, the value of implicit assistance has been quite high for all Windward Island countries (except Grenada), averaging about 8 percent of GDP for the period 1977–2005. In contrast, implicit assistance to Belize and Suriname was much lower, averaging less than 3 percent of GDP.

- Second, the pattern of implicit assistance follows the same bell-shape as the evolution of export volumes, peaking in the late-1980s and early-1990s, and declining to levels below those observed at the beginning of the period by 2005 (Figures 4.10 and 4.11).

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[23]This method will also tend to overestimate the true preference margin, as both price series include transport, insurance and discharging costs, which are typically higher in EU markets relative to those of U.S. markets.

Table 4.2. Implicit Assistance from EU Banana Preferences, 1995–2005
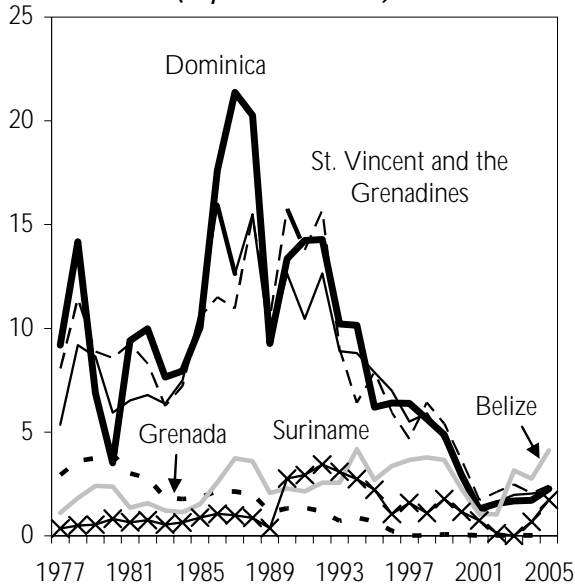#### (*In millions of U.S. dollars*)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Avg.
	(Calculations based on European wholesale and U.S. landed prices)											
Belize	**16.8**	**21.6**	**23.9**	**26.1**	**26.8**	**18.8**	**9.3**	**9.7**	**31.1**	**29.2**	**43.8**	**23.4**
In percent of total export of goods and services	5.6	7.0	7.2	8.0	6.4	4.3	2.2	2.1	6.3	5.8	8.0	5.7
In percent of GDP	2.6	3.8	4.2	3.8	3.7	2.3	1.0	1.1	3.0	3.0	4.4	3.0
Dominica	**13.6**	**15.0**	**15.5**	**14.4**	**13.0**	**7.9**	**3.4**	**3.9**	**4.3**	**4.7**	**6.4**	**9.3**
In percent of total export of goods and services	12.2	12.3	11.3	9.5	8.3	5.5	2.8	3.2	3.6	3.6	4.6	7.0
In percent of GDP	6.2	6.4	6.4	5.6	4.9	2.9	1.3	1.6	1.7	1.7	2.3	3.7
Grenada	**1.9**	**0.7**	**0.0**	**0.0**	**0.3**	**0.2**	**0.1**	**0.1**	**0.2**	**0.1**	**0.0**	**0.3**
In percent of total export of goods and services	1.5	0.5	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2
In percent of GDP	0.7	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
St. Lucia	**43.6**	**39.8**	**31.8**	**37.5**	**31.1**	**20.4**	**6.6**	**11.2**	**14.1**	**15.5**	**18.0**	**24.5**
In percent of total export of goods and services	11.5	11.3	8.9	9.6	8.5	5.3	1.9	3.5	3.6	3.3	3.6	6.4
In percent of GDP	7.9	7.0	5.5	5.9	4.6	3.0	1.0	1.6	2.0	2.0	2.2	3.9
St. Vincent and the Grenadines	**21.0**	**16.7**	**13.8**	**20.5**	**17.8**	**12.2**	**5.9**	**7.7**	**9.4**	**8.3**	**10.4**	**13.1**
In percent of total export of goods and services	15.4	11.2	9.4	13.0	10.1	6.9	3.4	4.3	5.4	4.7	5.5	8.1
In percent of GDP	7.9	5.9	4.7	6.4	5.4	3.6	1.7	2.1	2.5	2.1	2.4	4.1
Suriname	**15.4**	**9.0**	**14.7**	**12.2**	**15.7**	**10.3**	**5.7**	**1.1**	**0.0**	**7.8**	**22.4**	**10.4**
In percent of total export of goods and services	2.8	1.4	2.2	2.1	2.8	1.7	1.1	0.2	0.0	0.8	2.0	1.6
In percent of GDP	2.2	1.0	1.6	1.1	1.8	1.2	0.7	0.1	0.0	0.7	1.7	1.1
	(Calculations based on fob unit export values)											
Belize	**2.6**	**2.3**	**1.1**	**11.6**	**14.4**	**16.4**	**8.0**	**5.4**	**6.3**	**5.9**	**5.0**	**7.2**
In percent of total export of goods and services	0.9	0.7	0.3	3.5	3.5	3.7	1.9	1.2	1.3	1.2	0.9	1.7
In percent of GDP	0.4	0.4	0.2	1.7	2.0	2.0	0.9	0.6	0.6	0.6	0.5	0.9
Dominica	**7.4**	**5.0**	**5.0**	**5.8**	**7.5**	**5.0**	**2.3**	**2.7**	**2.7**	**3.4**	**2.5**	**4.5**
In percent of total export of goods and services	6.6	4.1	3.7	3.8	4.8	3.4	1.9	2.2	2.3	2.7	1.8	3.4
In percent of GDP	3.4	2.1	2.1	2.3	2.8	1.8	0.9	1.1	1.0	1.3	0.9	1.8
Grenada	**0.6**	**0.1**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**
In percent of total export of goods and services	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
In percent of GDP	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Lucia	**17.4**	**16.2**	**10.7**	**13.4**	**16.2**	**14.0**	**5.6**	**8.7**	**7.1**	**9.2**	**7.2**	**11.4**
In percent of total export of goods and services	4.6	4.6	3.0	3.4	4.4	3.6	1.7	2.7	1.8	1.9	1.4	3.0
In percent of GDP	3.2	2.8	1.8	2.1	2.4	2.0	0.8	1.3	1.0	1.2	0.9	1.8
St. Vincent and the Grenadines	**8.2**	**6.7**	**4.5**	**9.4**	**9.7**	**8.4**	**4.0**	**5.4**	**2.7**	**3.1**	**4.1**	**6.0**
In percent of total export of goods and services	6.0	4.5	3.1	6.0	5.5	4.7	2.3	3.0	2.2	2.6	2.2	3.8
In percent of GDP	3.1	2.4	1.5	2.9	2.9	2.5	1.1	1.5	1.0	1.1	1.0	1.9
Suriname	**0.7**	**10.7**	**14.6**	**10.3**	**12.7**	**15.9**	**-1.9**	**-0.3**	**0.0**	**-0.4**	**2.7**	**5.9**
In percent of total export of goods and services	0.1	2.1	3.0	2.4	3.0	3.2	-0.4	-0.1	0.0	0.0	0.2	1.2
In percent of GDP	0.1	1.2	1.6	0.9	1.4	1.8	-0.2	0.0	0.0	0.0	0.2	0.6
Memorandum items:												
Average banana unit values for EU exports												
(U.S. dollars per tonne)	466	437	443	483	506	449	423	441	436	441	508	458
Free market (fob) unit value (U.S. dollars per tonne) [1]	275	280	310	286	266	242	260	266	263	251	261	269
EU export unit values (as a percent of free market prices)	170	156	143	169	190	185	163	166	166	176	195	171

Sources: Country authorities; IMF, World Economic Outlook; U.S. Department of Agriculture; and Fund staff estimates.
[1] Based on Ecuador bananas exported to the United States.

- Finally, the level of implicit assistance for the Windward Islands has generally been higher than that of official development assistance (ODA) (Figure 4.14) and lower than ODA for Belize and Suriname. For example, preference-based implicit assistance received by St. Lucia over the past three decades is about double that received as ODA. In addition, ODA flows to Caribbean banana-exporting countries have fallen over time (Figure 4.15).

Figure 4.10. Caribbean: Implicit Assistance Derived from EU Banana Trade Preferences
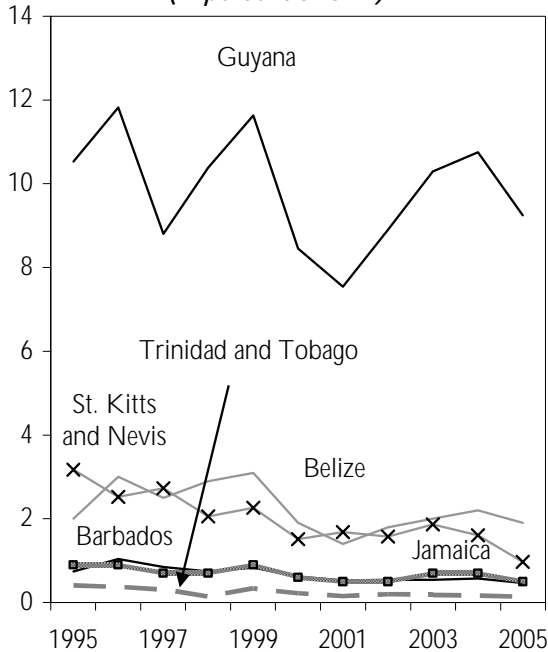*(In percent of GDP)*

Source: Fund staff calculations.

Figure 4.11. Caribbean: Implicit Assistance Derived from EU Banana Trade Preferences
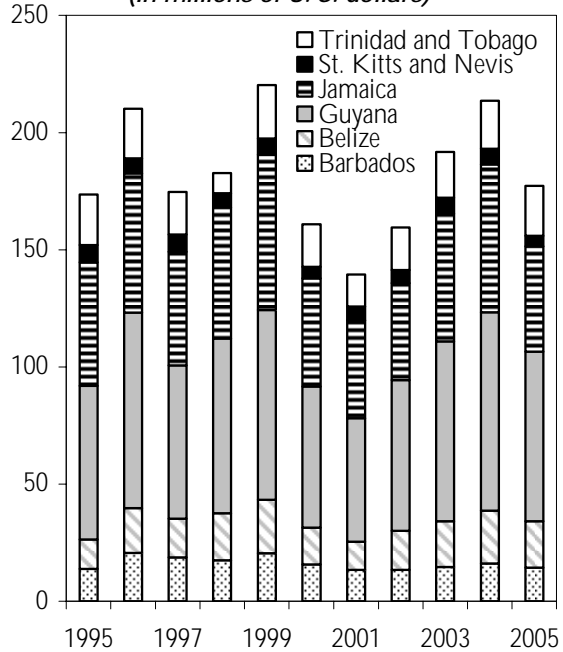*(In millions of U.S. dollars)*
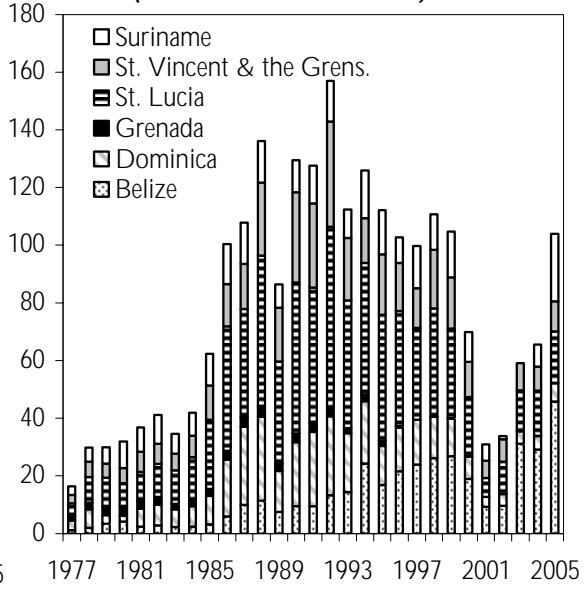
Source: Fund staff calculations.

Figure 4.12. Caribbean: Implicit Assistance Derived from EU Sugar Trade Preferences
(In percent of GDP)

Source: Fund staff calculations.

Figure 4.13. Caribbean: Implicit Assistance Derived from EU Sugar Trade Preferences
(In millions of U. S. dollars)

Source: Fund staff calculations.

Figure 4.14. Caribbean: Nominal External Assistance (Official and Implicit)
(In percent of GDP)

Official Development Assistance   ☐ Implicit Assistance
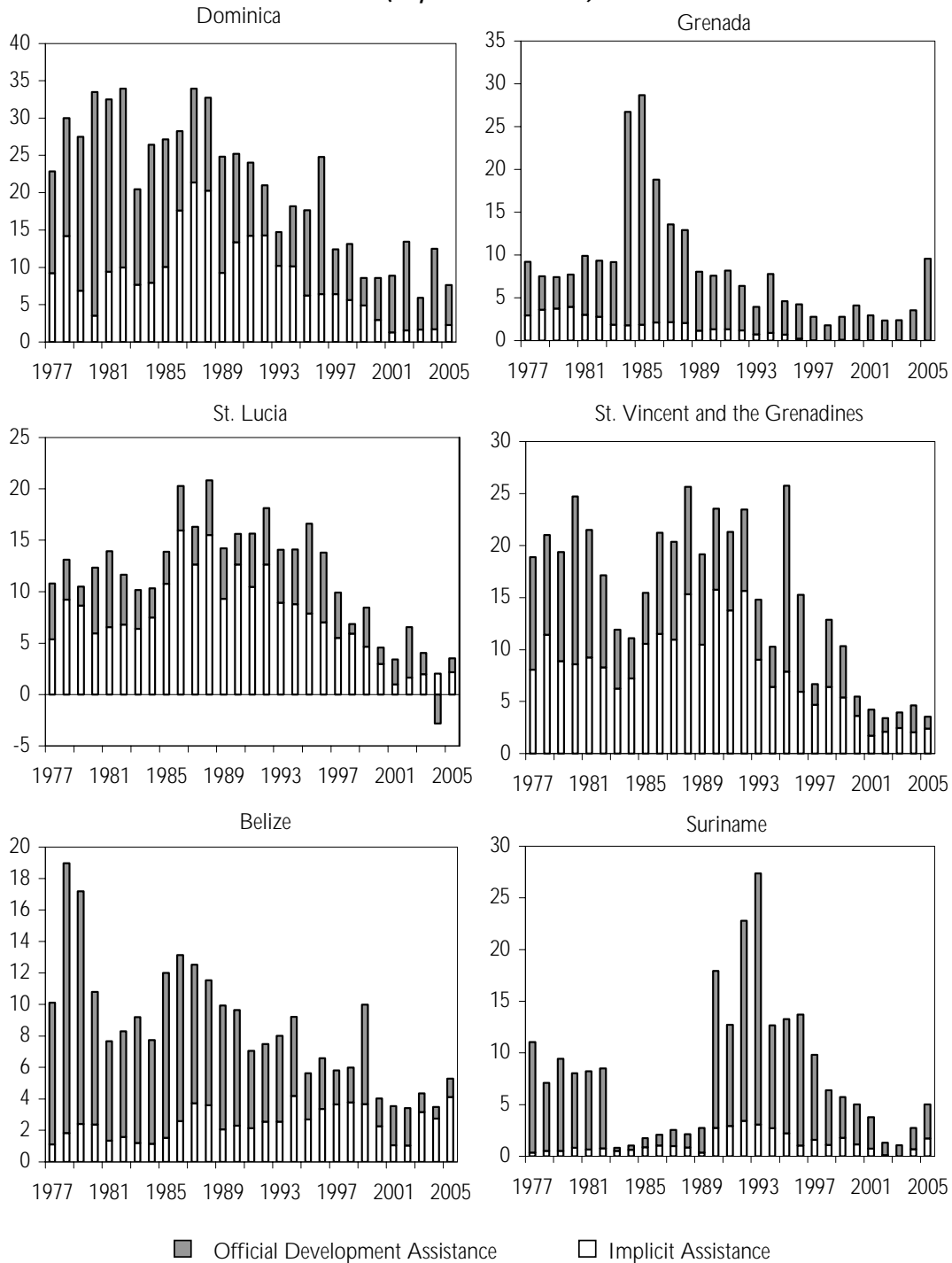
Sources: Country authorities, OECD; and Fund staff calculations.
Note: Official Development Assistance (ODA) as defined by the OECD includes: grants, net concessional loans (including amortization payments), and technical cooperation from official agencies (including state and local governments, or by their executive agencies).

Figure 4.15. Caribbean Banana Producers: Official Development Assistance (ODA), 1975–2005
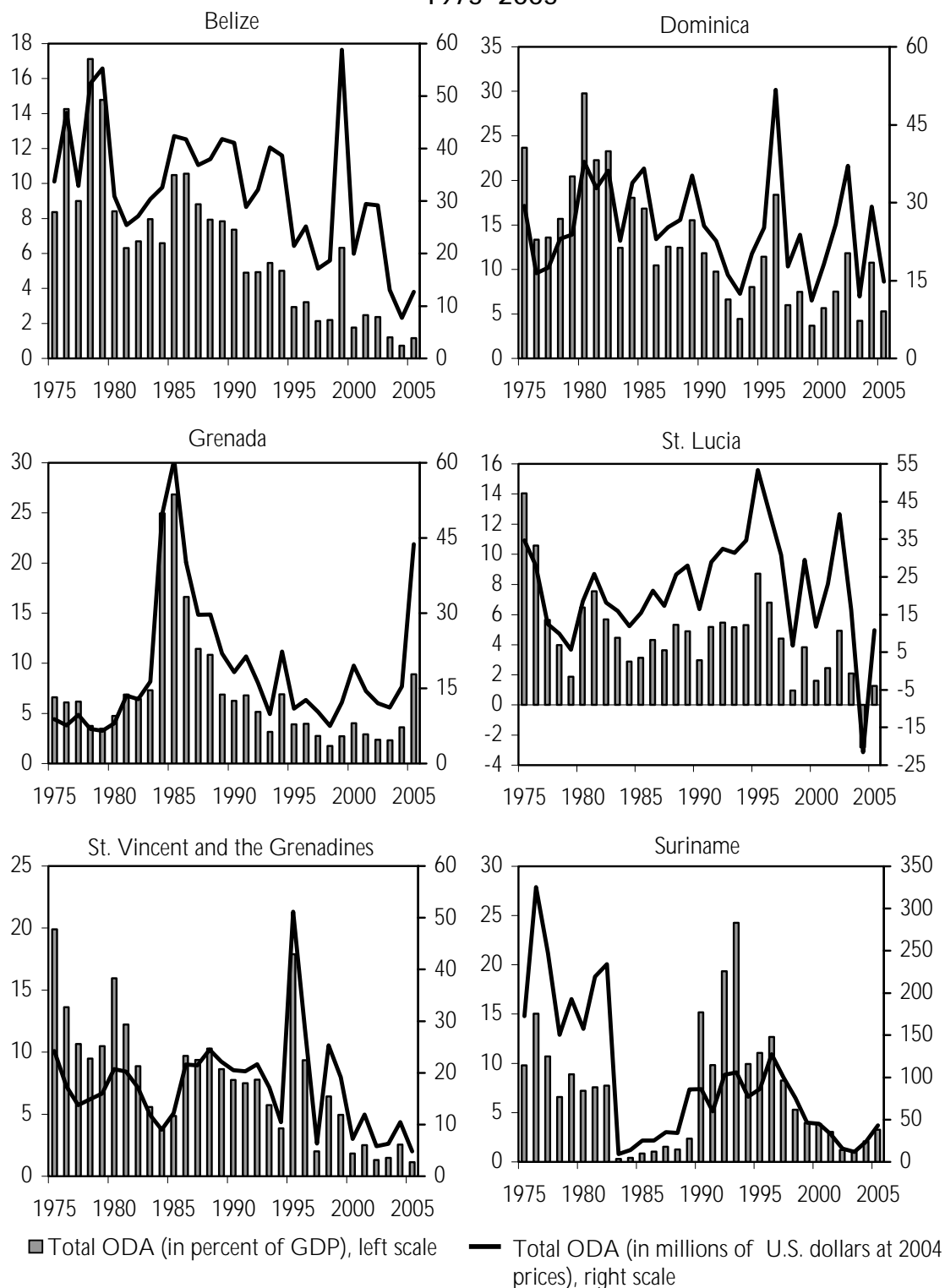
☐ Total ODA (in percent of GDP), left scale ▬▬ Total ODA (in millions of U.S. dollars at 2004 prices), right scale

Source: Organization of Economic Co-operation and Development, Development Database on Aid.

Levels of implicit assistance calculated using the second method of f.o.b. unit values are lower than those obtained with the first approach, but the trends are similar. For instance, using the first method implicit assistance averaged 3.9 percent of GDP for the period 1995–2005 for St. Lucia, while the second method calculates implicit assistance as 1.8 percent of GDP (see Table 4.2). The true value of implicit assistance most likely lies between the two measures.

Implicit assistance to Caribbean ACP banana-exporting countries peaked in the mid- to late 1990s. Based on the second approach, income transfers peaked for most Windward Islands countries in the mid-1990s, when they were at least three percent of GDP for Dominica, St. Lucia, and St. Vincent and the Grenadines. These transfers have declined in subsequent years, largely owing to the contraction in the volume of exports, but in 2005 still comprised about 1 percent of GDP for these countries. In contrast, transfers to Belize and Suriname peaked in the late 1990s at about 2 percent of GDP.

Implicit assistance has remained sizable for some Sugar Protocol signatory Caribbean countries, while declining for others (Table 4.3).[24] Implicit assistance has remained extremely important in Guyana, averaging nearly 10 percent of both GDP and export receipts. Assistance also remains sizable in Belize, comprising about 2 percent of GDP and about 4½ percent of exports (Figures 4.12 and 4.13). At the same time, implicit assistance has declined as a share of exports and GDP in Barbados, St. Kitts and Nevis, and Jamaica, reflecting increased nonsugar exports and a downsizing of the sugar industry. Implicit assistance was never significant in macroeconomic terms in Trinidad and Tobago, although it served as an important source of income for the rural population. In addition, with the exception of Guyana, Caribbean ODA flows for sugar-exporting countries have declined over the last three decades (Figure 4.16).[25]

EU trade preferences for bananas and sugar have afforded the Caribbean ACP countries considerable—albeit declining—income transfers in the past. The erosion of these preferences will have macroeconomic implications, which in some cases will be quite significant.

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[24]Since there are two different EU raw sugar prices, one for the Sugar Protocol and the other for the SPS sugar, calculations were based on actual shipments of sugar under each of these schemes.

[25]Implicit assistance to sugar exporters was also calculated according to formulation in Equation (2). For sugar, a single price differential is used in the computation. The wedge is the difference between the announced minimum EU raw sugar price and the world free market price (derived from contracts traded on the Coffee, Sugar and Cocoa Exchange, New York), both expressed in U.S. dollars and on a f.o.b. basis. For additional details, see Mlachila and Cashin (2008).

Table 4.3. Implicit Assistance from EU Sugar Preferences, 1995–2005
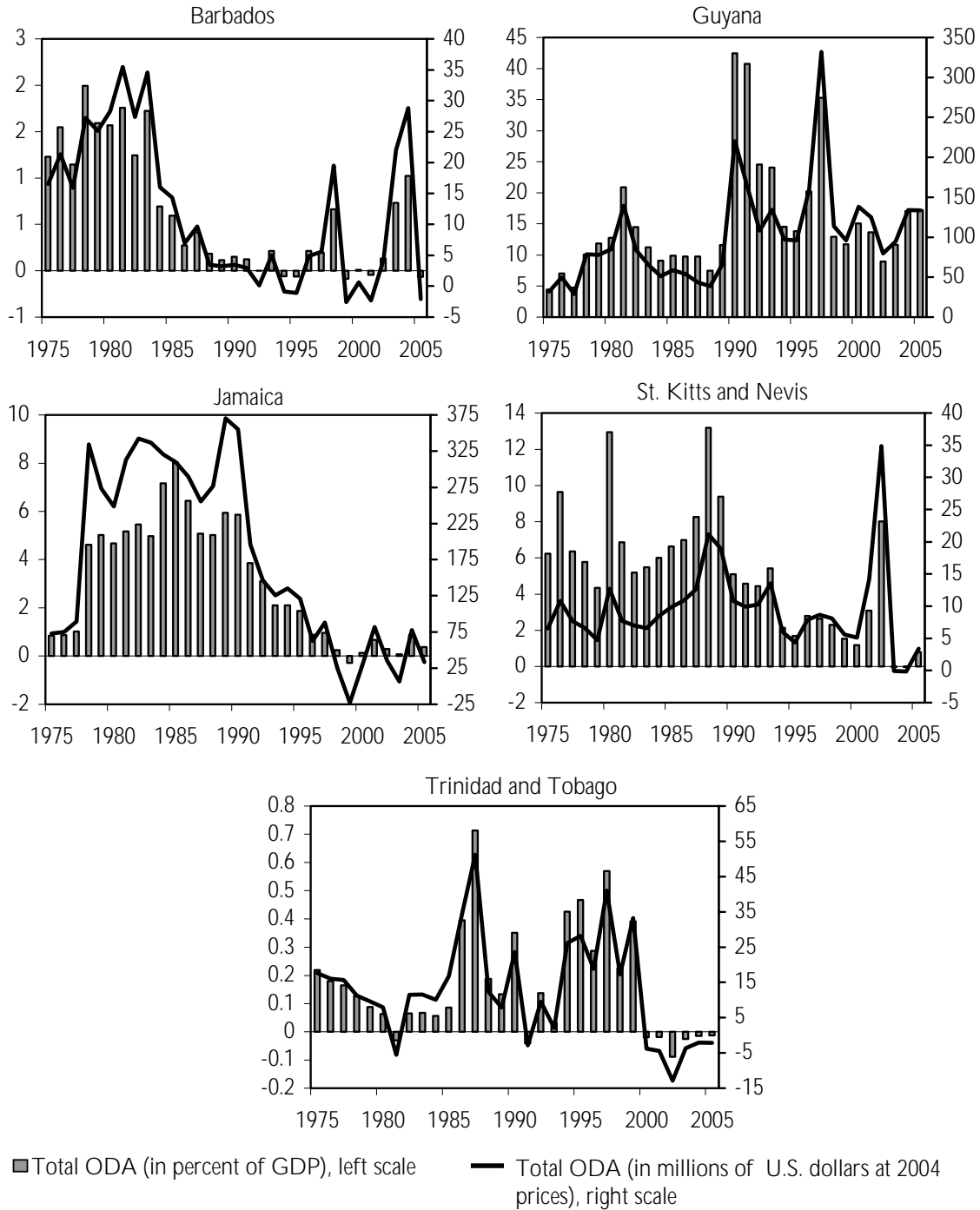(*In millions of U.S. dollars*)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Avg.
Barbados	**13.8**	**20.7**	**18.7**	**17.5**	**20.5**	**15.9**	**13.4**	**13.5**	**14.7**	**16.2**	**14.4**	**16.3**
In percent of total export of goods and services	1.1	1.6	1.5	1.5	1.6	1.2	1.0	1.1	1.0	1.1	0.8	1.2
In percent of GDP	0.7	1.0	0.8	0.7	0.8	0.6	0.5	0.5	0.5	0.6	0.5	0.7
Belize	**12.7**	**19.1**	**16.6**	**20.1**	**22.8**	**15.6**	**12.1**	**16.5**	**19.6**	**22.5**	**19.8**	**18.0**
In percent of total export of goods and services	4.3	6.2	5.0	6.2	5.5	3.6	2.8	3.5	4.0	4.4	3.5	4.5
In percent of GDP	2.0	3.0	2.5	2.9	3.1	1.9	1.4	1.8	2.0	2.2	1.9	2.2
Guyana	**65.5**	**83.4**	**65.4**	**74.6**	**81.0**	**60.2**	**52.5**	**64.3**	**76.7**	**84.6**	**72.3**	**71.0**
In percent of total export of goods and services	10.5	11.7	8.8	10.8	12.1	8.9	7.9	9.6	11.5	11.2	10.1	10.3
In percent of GDP	10.5	11.8	8.8	10.4	11.6	8.5	7.5	8.9	10.3	10.8	9.3	9.9
Jamaica	**52.7**	**59.5**	**48.4**	**56.0**	**66.2**	**46.1**	**42.0**	**41.4**	**54.4**	**63.2**	**45.0**	**52.3**
In percent of total export of goods and services	1.5	1.8	1.4	1.7	1.9	1.3	1.3	1.3	1.5	1.6	1.1	1.5
In percent of GDP	0.9	0.9	0.7	0.7	0.9	0.6	0.5	0.5	0.7	0.7	0.5	0.7
St. Kitts and Nevis	**7.3**	**6.2**	**7.5**	**5.9**	**6.9**	**5.0**	**5.8**	**5.6**	**6.9**	**6.6**	**4.4**	**6.2**
In percent of total export of goods and services	6.2	4.9	5.3	4.1	4.8	3.3	3.8	3.7	4.2	3.4	1.9	4.1
In percent of GDP	3.2	2.5	2.7	2.1	2.3	1.5	1.7	1.6	1.9	1.6	1.0	2.0
Trinidad and Tobago	**21.7**	**21.3**	**18.0**	**8.7**	**22.9**	**18.2**	**13.7**	**18.2**	**19.5**	**20.4**	**21.4**	**18.5**
In percent of total export of goods and services	0.7	0.7	0.6	0.3	0.7	0.4	0.3	0.4	0.3	0.3	0.2	0.4
In percent of GDP	0.4	0.4	0.3	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Memorandum items:												
EU intervention price, raw sugar, (Euros per tonne)	524	524	524	524	524	524	524	524	524	524	524	524
Free market price, (U.S.dollars per tonne)	293	264	251	197	138	178	181	138	153	166	222	198
EU intervention price (as a percentage of free market price)	179	199	208	266	379	294	289	381	343	315	236	281

Sources: Country authorities; IMF, World Economic Outlook; European Union; and Fund staff estimates.

F. The Macroeconomic Impact of Preference Erosion

The macroeconomic impact of preference erosion is analyzed using two different empirical methods: a partial equilibrium model, and a vector autoregression analysis. The main advantage of the partial equilibrium approach is that it combines simplicity with comprehensiveness in terms of allowing for an identification of first-round effects of preference erosion on a range of real, external, and fiscal variables. However, the approach also has its weaknesses, most importantly the fact that it is static, and does not fully take into account all possible interactions between aggregates beyond first-round effects. These shortcomings are the specific advantages of the vector autoregression (VAR) model, which is dynamic and does allow for full interactions between the variables. However, the VAR examines the macroeconomic impact of shocks to implicit assistance afforded by preferences based on historical data. While informative, the method does not take into account the regime change that occurred with the large erosion of preferences.

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Figure 4.16. Caribbean Sugar Producers: Official Development Assistance (ODA), 1975–2005

■ Total ODA (in percent of GDP), left scale   — Total ODA (in millions of U.S. dollars at 2004 prices), right scale

Source: Organization of Economic Co-operation and Development, Development Database on Aid.

Partial equilibrium approach

The impact of preference erosion on the trade balance, output growth, and the overall fiscal balance is estimated using a simple partial equilibrium model. The model is based on a national accounting framework and calibrated using assumptions about the evolution of commodity prices and exchange rates, export supply and import demand elasticities, and consumption multipliers (see Mlachila and Cashin (2008) for additional details). The impact of the erosion of trade preferences is obtained by contrasting a baseline scenario for trade, output and fiscal outcomes (that assumes no preference erosion) with an alternative scenario (that incorporates the effect of the erosion of EU preferences).

The erosion of trade preferences will affect export prices received by Caribbean commodity exporters. Overall, the estimates suggest that the new EU banana regime is expected to result in about a 14 percent reduction in the EU price received for ACP banana exports.[26] Banana production levels of 2005 are used as the baseline for projections. The export price decline for Caribbean sugar producers follows the time path set out by the European Union, resulting in a cumulative 36 percent decline by 2009.

Reforms introduced by the European Union to their sugar and banana trade regimes will have a large potential impact on some Caribbean countries. This adverse shock will entail adjustment costs that are significant in macroeconomic terms in those countries which have large domestic sugar and banana sectors (relative to exports and GDP). IMF staff projections presented here indicate that these export revenue losses will have direct implications for output and fiscal balances.

Banana exporters

The expected impact of the erosion of banana preferences on output and exports is largest in St. Vincent and the Grenadines and Belize, and least for Grenada. The most significant impact on output is in St. Vincent and the Grenadines, followed by Belize and St. Lucia, while for Grenada output losses are likely to be negligible (given its very limited banana production). The decline in banana prices associated with preference erosion is expected to result in the permanent diminution of export revenues, with the trade bal-

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[26]This estimated price change is close to that derived by National Economic Research Associates (2004), which was calculated using price-gap methods.

ance deteriorating only marginally in most countries owing to an associated import decline.[27]

Preference erosion is expected to raise overall fiscal deficits in the affected countries (Figure 4.17). The short-run impact is largest in Dominica, with the effect declining in subsequent years. For St. Vincent and the Grenadines and Belize, preference erosion for bananas is expected, over the medium term, to result in a cumulative deterioration of the overall balance of about 0.5 percent of 2005 GDP, while fiscal effects for St. Lucia are slightly lower at about 0.3 percent of 2005 GDP.

Sugar exporters

The decline in sugar preferences is expected to have the largest impact in Guyana (Figure 4.18). The decline in sugar prices is estimated to lead to a cumulative decline in GDP by 2010 when the full reduction in the sugar price has taken place, of up to 6.5 percent of 2005 GDP. This reflects the large impact on export earnings, with the impact on the trade balance more subdued as the decline in GDP is assumed to lead to significantly lower imports. The implications for the fiscal balance are also large.

Smaller impacts are expected in the other Caribbean countries. The second-largest impact on output, exports and fiscal balances is on Belize. The impact on the other sugar-producing countries is smaller, reflecting the limited role of the sugar industry in these economies. The implication for loss of income is somewhat larger than that for exports because of the multiplier effect. The magnitude of the various effects is smallest for Trinidad and Tobago and St. Kitts and Nevis—for the latter, this exercise cannot measure implications as sugar production ceased in 2005.

It is important to note that the projected macroeconomic implications of preference erosion are static in nature. Over time, affected countries are likely to adjust to the loss in preferences by shifting resources into other sectors of the economy and/or raising the efficiency of their traditional sectors. The ultimate impact on output and income will depend on the success in increasing the efficiency of the reformed banana/sugar sector and on the productivity of the other sectors. In countries with low levels of productivity in their sugar and banana industries, shifting resources into other sectors may well raise overall efficiency and output in the longer term, and therefore ultimately benefit the economy.

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[27]All projections are based on the assumption of a MFN tariff of €176 per metric ton from 2006 onward. The projections also assume, implicitly, that transport will remain available at affordable costs. However, below a certain volume threshold freight costs may become prohibitive, which would result in a far sharper contraction of banana exports.

Figure 4.17. Caribbean: Impact of Banana Preference Erosion, 2007
(In percent of GDP in 2005)
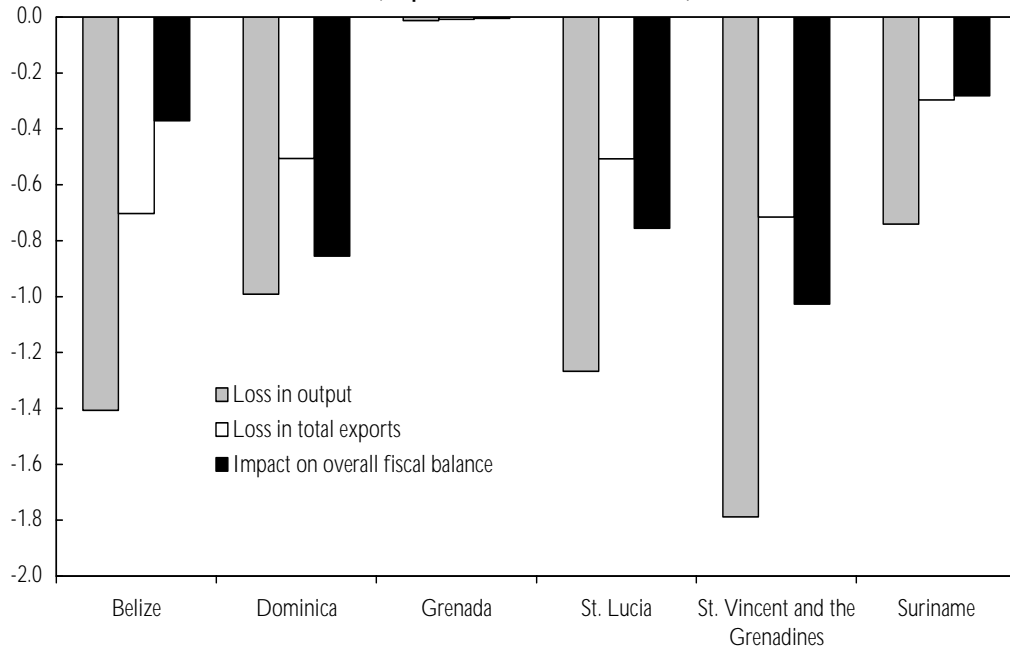
Source: Fund staff calculations.

Figure 4.18. Caribbean: Impact of Sugar Preference Erosion, 2010
(In percent of GDP in 2005)

Source: Fund staff calculations.

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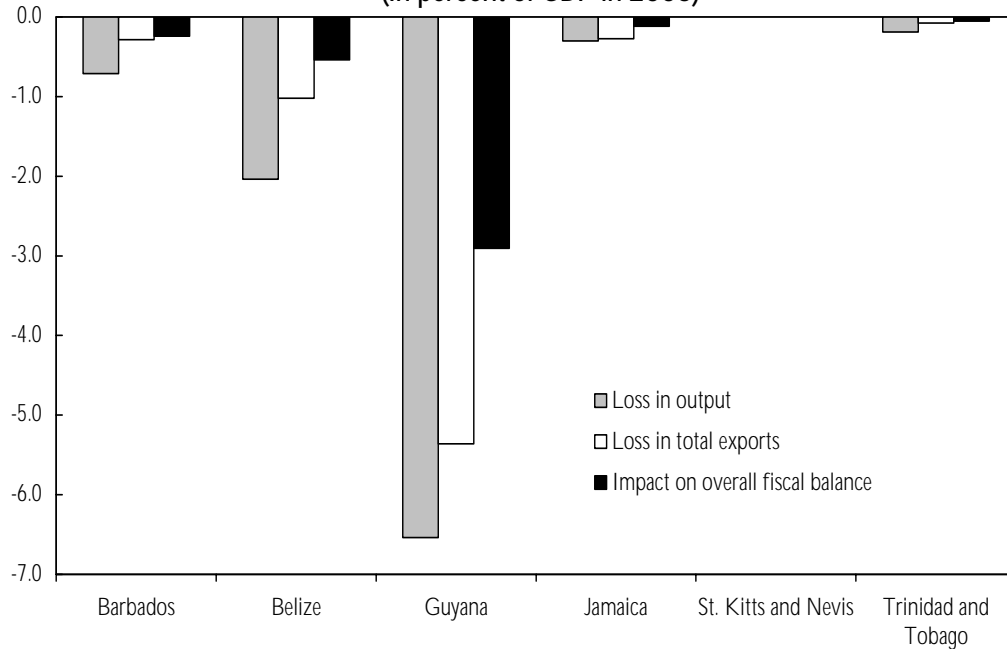
Even in countries where the projected macroeconomic implications of preference erosion appear modest, there may be important adjustment costs and adverse social consequences during the transition. These adjustment and social costs would not be captured in the simple partial equilibrium model. For instance, the production of both sugar and banana are land- and labor-intensive, and the expected declines in output may therefore create significant shifts in wages, employment, and land prices. The transition may also trigger important contingent fiscal liabilities, particularly in countries where the production of sugar and bananas is being conducted by state-owned enterprises. These considerations have important implications for policy makers, and underline the importance of developing country-specific responses to facilitate the adjustment and minimize social and economic transition costs.

Vector autoregression (VAR) analysis

A VAR analysis was conducted separately for the banana-exporting Windward Islands, and sugar-exporting Guyana. It reveals large and important macroeconomic effects from shocks to the magnitude of implicit assistance provided through trade preferences.[28]

Windward Islands[29]

For banana exporters, we model a panel VAR of the form:

$$y_{it} = A_0 + A_1 y_{it-1} + ... + A_p y_{it-p} + \varepsilon_{it} \tag{3}$$

where y_{it} is a k vector of variables in the system to be estimated; $A_0...A_p$ are matrices of coefficients; and ε_t is a vector of innovations. The variables being examined (for the period 1977–2005) for the four Windward Islands are: implicit assistance as calculated above in Section E (*IAID*), the current account (*CUR*), gross official reserves (*RES*), gross domestic product (*GDP*), and central government revenues (*REV*). For our system, the y_{it} is a stacked vector of individual country (*i*=1,...,4)) variables: *IAID, CUR, RES, GDP,* and *REV*, in that order.[30] This Cholesky ordering is based on a priori notions about the relative endogeneity of the variables, starting with the least

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[28]An advantage of the VAR-type reduced form approach is the ability to exploit historical dynamics observed in the data to assess the likely macroeconomic impact of the erosion of trade preferences. See Deaton and Miller (1995), which uses this approach to estimate the impact of commodity price shocks on components of GDP in African countries.

[29]This section draws upon Mlachila and Cashin (2007).

[30]All variables are in real terms (see Appendix 4.1) for a full description and derivation of the data).

endogenous.[31] The appropriate lag length for endogenous variables was estimated at five, based on Akaike information criterion results. In what follows, the analysis focuses only on the results of a shock to *IAID* on other variables.

A positive shock to the level of implicit assistance has an initially positive and significant impact on growth, and external and fiscal balances (Figure 4.19).[32] The current account and the reserves growth rate both improve by about 4 percentage points on impact, while real GDP and revenue growth rates improve by about 1½ percentage points. The effect of *IAID* on the current account and reserves dies out after one year, while that on GDP and government revenues persists longer and dies out after about three years. Following an initial rise in output growth owing to the positive shock to implicit assistance, the persistence of the increase in output growth likely reflects the historical dependence of the Windwards on trade preferences and the export of bananas.

Implicit assistance also explains a large share of the variability of the macro-economic variables. Variance decompositions from the estimated VAR model show what proportion of the forecast error variance (at different forecast horizons) can be attributed to the *IAID* shock. For the Windwards, the variance decomposition reveals that the impact of *IAID* shocks is strongest for *GDP* (where it explains about 30 percent of the variance), while for the other variables this peaks at about 20 percent.
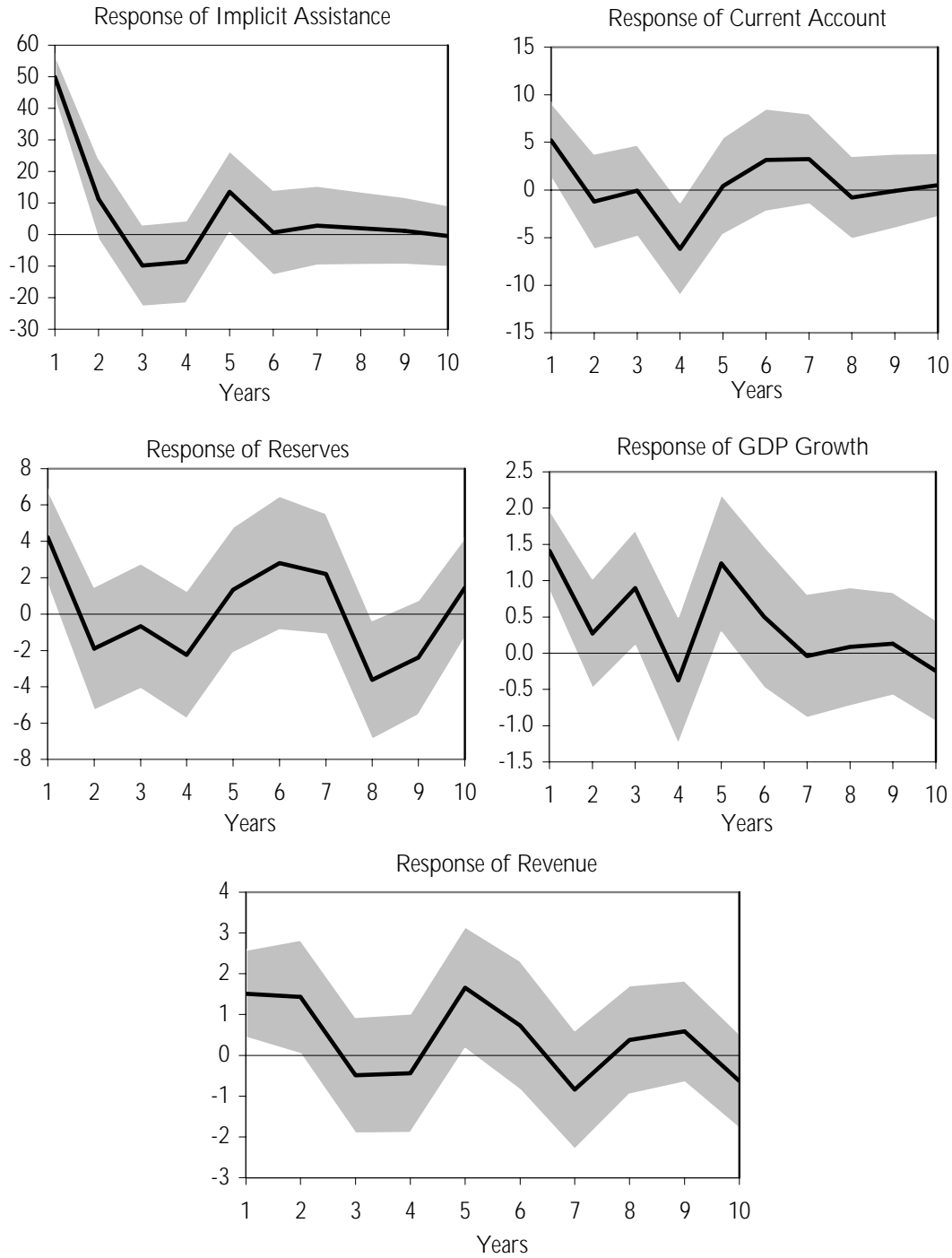
Guyana

The estimated impact of a shock to sugar trade preferences (and thereby implicit assistance) on Guyana is sizable (Figure 4.20). Given the importance of the sugar industry in Guyana and the significance of implicit assistance (averaging around 10 percent of GDP between 1975 and 2005) a positive, one standard deviation shock, equivalent to 6.2 percent of GDP, would increase real GDP growth by a couple of percentage points, peak in year three after the shock and slowly diminish over time. The trade balance would experience sizeable fluctuations around its mean, while the revenue to GDP ratio would exhibit an even more pronounced cycle.

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[31]Cointegration tests reveal that the no co-integration null hypothesis cannot be rejected (at the 5 percent level of significance); consequently, a VAR in first differences appears appropriate. In addition, robustness tests involving different ordering of variables did not lead to significantly different results.

[32]The impulse response functions focus on the dynamic effects of shocks to implicit assistance. All simulations are performed considering a one standard deviation transitory shock to implicit assistance (*IAID*) and its impact on macroeconomic variables in the decade following the shock.

Figure 4.19. Windward Islands: Impulse Response Functions
*(Response to Cholesky One-Standard Deviation Innovation
in Implicit Assistance)*

Source: Authors' calculations.
Note: The shaded region represents ±2 standard errors.

Figure 4.20. Guyana: Impulse Response Functions
*(Response to Cholesky One-Standard Deviation Innovation
in Implicit Assistance)*

Response of Implicit Assistance

Response of Current Account

Response of GDP Growth

Response of Revenue
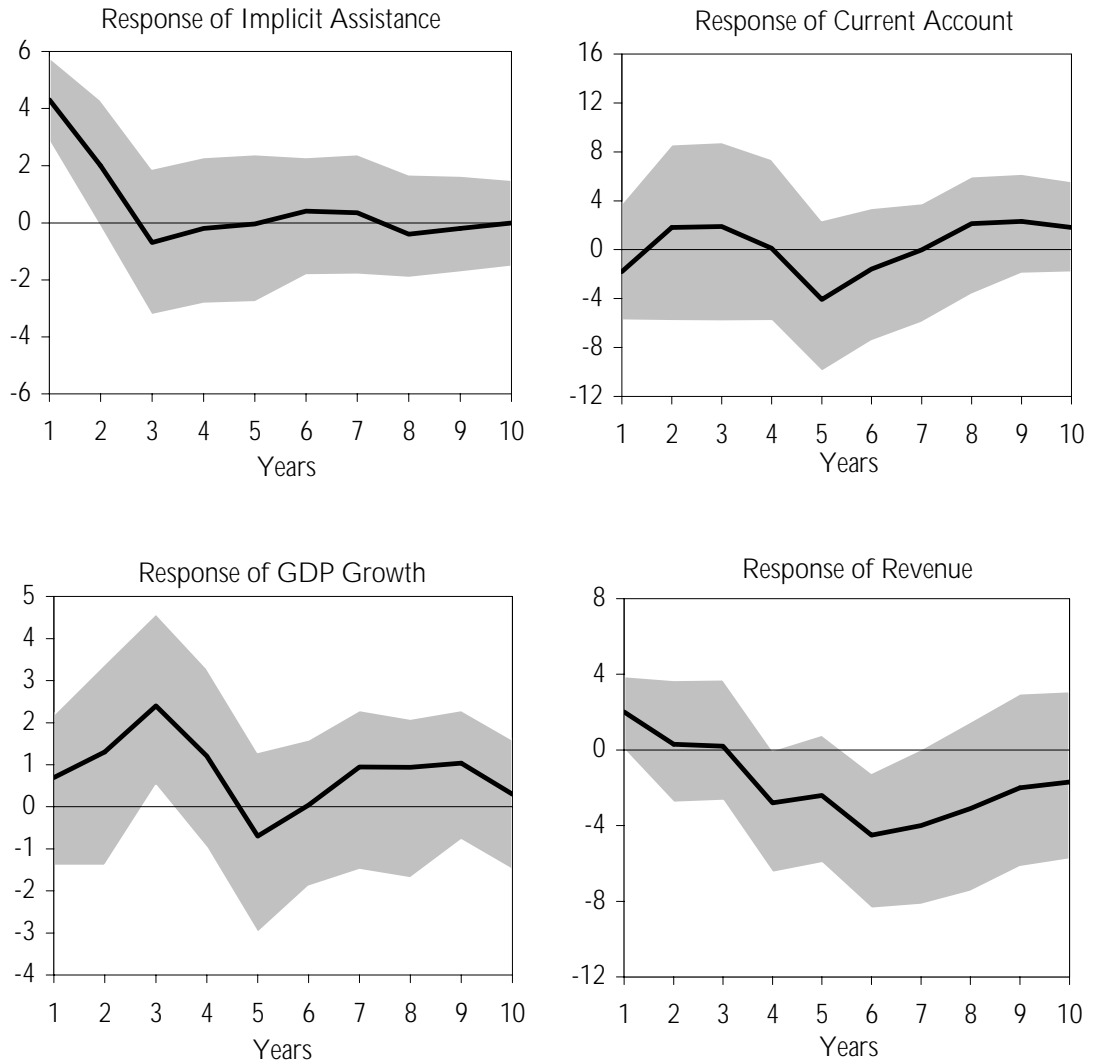
Source: Authors' calculations.
Note: The shaded region represents ±2 standard errors.

These results are obtained from a VAR analysis applied to Guyana, where preference erosion is modeled as a one standard deviation shock to the implicit aid transfer that is delivered through preferential sugar prices. The four variables in the VAR regression are: implicit aid to Guyana from trade preferences, expressed in percent of GDP (as calculated in Section E); the external current account deficit (in percent of GDP); real growth rate (in percent); and government revenues (in percent of GDP).

G. Policy Implications

The economic and social implications of erosion of EU trade preferences for banana and sugar are significant for some Caribbean countries. Issues related to preference erosion have been addressed in the Fund's work on Caribbean-member countries (Box 4.1). While the macroeconomic consequences of the large terms of trade shock engendered by preference erosion have largely already taken place, further development and enhancement of strategies to address the social effects is needed.

In response to preference erosion—which is unlikely to be reversed—countries need to adopt viable adaptation strategies for their banana and sugar sectors. These industries carry great importance and political weight in policy deliberations, because of their role as major employers (particularly in rural areas), and providers of noncommercial services. Adaptation strategies will need to reflect the particular economic and social circumstances of affected countries. Some countries should enhance their efforts to raise the efficiency and competitiveness of their agricultural sectors, through investment in public infrastructure (including rural roads and ports), sector-specific capital (such as drainage and irrigation systems) and human capital (through training and skill development). For other preference-dependent countries with agricultural industries that exhibit high costs and low productivity, feasible policy options include encouraging diversification away from agriculture to more productive sectors of the economy. Such a shift in sectoral resources will be facilitated by improvements in the investment climate to lower the cost of capital, and greater skills in the workforce. Improvements in social safety nets for displaced farmers and agricultural workers are prominent components of national adaptation strategies—targeted safety nets could include time-bound measures such as income transfers, retraining, and noncontributory pensions (Appendix 4.2).

H. Concluding Remarks

European Union trade preferences for banana exports have afforded Caribbean countries considerable—albeit declining—implicit transfers. Implicit

Box 4.1. Erosion of Caribbean Trade Preferences in the Work of the IMF

The erosion of Caribbean trade preferences has been addressed in the IMF's work on surveillance, programs and technical assistance (TA) for Caribbean-member countries, as well as in its research and outreach activities.[1] Key points that have been made include:

- Preference erosion adds an additional layer of vulnerability to Caribbean economies which not only suffer from high exposure to natural disasters, but are insufficiently diversified, and already confront high levels of debt and debt servicing. Some recent Article IV IMF staff reports have quantified the expected macroeconomic impact of the EU erosion of trade preferences, and estimated the export price below which exports of banana or sugar would cease to be viable. Many Article IV staff reports also noted as an additional vulnerability the large discrepancy between the planned allocation and disbursement of donor funds designed to facilitate the transition away from sugar and banana.

- Adapting a comprehensive strategy in response to the challenge of trade preference erosion is important. Staff have recommended that the authorities use the time prior to the removal of preferences to: enhance international competitiveness; smooth the economic transition by enhancing social safety nets for displaced farmers and agricultural workers; encourage economic diversification; and accelerate structural reforms, in order to raise long-term growth, achieve fiscal and debt sustainability and reduce the external vulnerability of the economy.

- The economic rationale for public control over the agriculture sector remains weak. As such, even in the cases where privatization/closure of the sector is not politically feasible, the challenge of trade preference erosion makes an even more compelling case for restructuring toward a more streamlined and efficient industry, with increased private sector participation and greater provision of government supporting services (e.g., human resource development, rural infrastructure and better research and development).

Fund technical assistance on issues related to trade preference erosion has served as an important input to Article IV consultation and program work with Caribbean countries. In recent times, Fund TA has largely involved assistance with the design of tax policy and tax and customs administration, particularly assistance designed to tackle the issue of fiscal dependence on trade taxes. Fund TA (delivered jointly with the Caribbean Technical Assistance Center (CARTAC)) has also focused on the introduction of value-added taxes in the region. Finally, future Fund TA in the form of a Poverty and Social Impact Analysis (PSIA) will examine the social and poverty consequences of banana preference erosion in the PRGF-eligible Windward Islands of Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines.

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[1]Research and analytical work specifically related to the erosion of Caribbean banana and sugar preferences includes IMF (2002); El-Masry (2005); Sahay, Robinson, and Cashin (2006); Mlachila, Samuel, and Njoroge (2006); Atoyan (2006); and Mlachila and Cashin (2007).

IMF staff have regularly participated in conferences and seminars related to the erosion of Caribbean trade preferences, including St. Kitts and Nevis Sugar Conference (Basseterre, 2004); Trinidad and Tobago—Caribbean Technical Workshop on adaptation following EU Sugar Reform (Port of Spain, 2005); and Workshop on Macroeconomic Implications of EU Preference Erosion (Washington DC, 2006).

assistance to the Windward Islands peaked at about 15 percent of GDP in the early 1990s, yet with the decline in banana production this assistance declined to about 3 percent of GDP by 2005. Transfers of implicit assistance to Belize and Suriname have averaged less than 5 percent of GDP over the past three decades. In tandem with dramatic declines in official development assistance, over the last 10 to 15 years many Caribbean banana-exporting countries have experienced the loss of annual external assistance flows equivalent to about 8 to 10 percent of GDP.

Income transfers under the EU Sugar Protocol have remained extremely important in Guyana and sizable in Belize. In Guyana estimates of the annual income transfers average nearly 10 percent of GDP. In Belize they comprise about 2 percent of GDP and about 4½ percent of exports. At the same time, the income transfers have declined significantly in Barbados, St. Kitts and Nevis, and Jamaica, reflecting increased nonsugar exports and a downsizing of the sugar industry. They have not been significant in macroeconomic terms in Trinidad and Tobago, although they have served as an important source of income for certain groups of the rural population.

The erosion of EU trade preferences for *bananas* has had, and will continue to have, an adverse effect on the banana-exporting economies of the Caribbean. Using partial equilibrium analysis, this paper finds a significant adverse effect from preference erosion on the trade balance, economic growth, and the overall fiscal balance. The most severe impact is in St. Vincent and the Grenadines and St. Lucia where the erosion of trade preferences is estimated to lower output over the medium term (vis-à-vis a no preference erosion scenario) by about 1½ to 2 percent from 2005 levels. In addition, the results from a vector autoregressive model also suggest that shocks to implicit assistance (derived from trade preferences) have had a significant impact on economic growth in the Windward Islands.

The decline in *sugar* trade preferences is expected to have the most significant impact in Guyana, with smaller impacts expected in the other five Caribbean sugar-exporting countries. In Guyana the decline in sugar prices is estimated to engender by 2010 a cumulative decline of up to 6½ percent of 2005 GDP. The second-largest impact is on Belize, where the income decline by 2010 from loss of sugar preferences is estimated at around 1½ percent of 2005 GDP. The impact on the other sugar-producing countries is smaller, reflecting the small role of the sugar industry in these economies, with export earnings estimated to decline by less than ⅓ of 1 percent of 2005 GDP (Trinidad and Tobago, Barbados, and Jamaica).

The full effect of preference erosion is yet to be felt by preference-dependent Caribbean countries. Although much of the macroeconomic impact of banana preference erosion has already taken place, most preference-dependent economies continue to grapple with the ensuing social effects. In particular,

incomes and employment prospects for poor rural households, which have limited alternative employment opportunities, have been adversely affected. This suggests the importance of well-targeted social safety nets and transition measures, such as income transfers, retraining programs, and noncontributory pensions. The decline in sugar preferences will be completed over the next several years, and the full macroeconomic effects will only become evident over this time. Countries that envisage closing their sugar industries face similar challenges to those of banana-exporting countries. Those countries that plan to continue production and expand their sugar industries face the challenge of implementing deep reforms and major investment to ensure the industries remain viable in the face of much lower export prices.

Preference-dependent countries should continue in their efforts to raise the efficiency of their agricultural sectors and facilitate the shift of resources into other sectors of their economies. While significant productivity gains in agriculture are unlikely for the Caribbean (with possible exception of Suriname and Guyana), there is scope to orient production toward "fair trade" markets and diversify into nontraditional agriculture.[33] In the longer run, many preference-dependent Caribbean economies will need to transition away from agriculture and toward the provision of tourism and financial services, a shift that requires continuing efforts to improve the investment climate, lower business costs and enhance labor force skills (see Sahay, Robinson, and Cashin, 2006).

Appendix 4.I. Data Sources and Issues

Banana prices

Computations of implicit assistance (IAID) to banana producers are based on price differences between protected market prices (United Kingdom/European Union) and free market international prices—the preference margin from exporting to protected European markets.

Unit wholesale prices for the United Kingdom market

These are proxied by:

- *For the period 1975–96:* The unit price for banana exports received by the Windward Islands in the United Kingdom. This is the c.i.f. price at the

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[33]Diversification into nonbanana and nonsugar agriculture is made more difficult in the Caribbean owing to their vulnerability to natural disasters; topographical impediments; small domestic markets; and high transportation and business costs.

port after offloading and loading on a truck, that is including the port-handling charges. Prices are available until 1999.

- *For the period 1997–2005:* World Bank unit prices for EU banana imports (originally sourced from Sopisco News, Food and Agriculture Organization and the World Bank's own estimates). Specifically, these are the prices of Central and South American bananas—major brands (mainly Dole and Del Monte)—free on truck (f.o.t.) Hamburg, and include discharge costs. Prices also include European Community import taxes. The first year such prices are available is 1997.

As a result, some discontinuity is expected in the series in 1997, owing to (i) differences in discharge costs between Hamburg and London; and (ii) possible differences in rents captured from bananas between Caribbean ACP (Africa, Caribbean, and Pacific) countries and from Latin American banana exporters such as Ecuador, Honduras, and Costa Rica.

International unit prices

These are proxied by:

- IMF data on banana exports, f.o.b., for the Windward Islands. It is assumed that all banana exports are destined for the United Kingdom (and later the EU) market. Data on export values and volume are taken from the ECCB and WIBDECO, and are available for 1970–2005.

- The unit price data of "dollar" bananas is proxied by the U.S. import price of bananas from Central and South America, f.o.t., and includes upload charges to truck or rail. This data is available from the IMF's World Economic Outlook database.

Banana volumes

To calculate the value of implicit assistance (in terms of additional export revenues received by ACP banana-exporting countries), the preference margin for each year is multiplied by the annual volume of exports (in tons) for each country. Data on export volumes for the Windward Islands (Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines) are taken from the Eastern Caribbean Central Bank, and for Belize and Suriname, they are from the Food and Agriculture Organization (FAO).

Sugar prices and volumes

Computations of implicit assistance (IAID) to sugar producers are based on price differences between protected market prices (EU) and world (free mar-

ket) international prices—the preference margin from exporting to protected European markets.

European Union unit prices

These are proxied by:

- The unit price data of protected European market sugar is the EU negotiated import price for raw unpacked sugar exported from ACP countries, c.i.f. European ports. This data is available from the IMF's World Economic Outlook database.

International unit prices

These are proxied by:

- The unit price data of world (free market) sugar is proxied by the Coffee, Sugar and Cocoa Exchange (CSCE) contract No. 11 (price of nearest futures position), New York City Board of Trade. This data is available from the IMF's World Economic Outlook database.

- For comparability and so as not to overestimate the implicit assistance, f.o.b. prices were used. Caribbean f.o.b. prices were derived by removing from the sugar price in export markets (EU and free market) the cost of shipping (estimated by GUYSUCO, the Guyana Sugar Company), based on Sugar Protocal and SPS quota actual shipments.

- To calculate the value of implicit assistance (in terms of additional export revenues received by ACP sugar-exporting countries), the preference margin for each year is multiplied by the annual volume of exports (in tons) for each country. Data on export volumes for the Barbados, Belize, Guyana, Jamaica, St. Kitts and Nevis, and Trinidad and Tobago are taken from the FAO.

Macroeconomic data

All macroeconomic data (used in the VAR analyses) on gross domestic product (GDP), current account (CUR), international reserves (RES), and central government revenues, excluding grants (REV) are from IMF International Financial Statistics and World Economic Outlook databases, complemented by data from the country authorities. For most variables, data for 2005 is based on Fund staff estimates.

For the Windward Islands: to obtain real domestic variables, all nominal variables are deflated by the national consumer price index (CPI), which is taken from the Eastern Caribbean Central Bank. An exception is nominal GDP, which is deflated by the GDP deflator (base 1990=100) and is taken

from the Eastern Caribbean Central Bank. Data on international variables expressed in U.S. dollars such as international prices and exports are deflated by the U.S. CPI. For Guyana: the GDP deflator is used, and is taken from IMF, International Financial Statistics.

Appendix 4.2. Country Adaptation Strategies

Belize

Belize is the only Caribbean country to be significantly affected by trade preference erosion for both sugar and bananas. In the case of sugar, preferences are being eroded by a phased reduction of the guaranteed price in the EU market. For bananas, the European Union has switched from quotas to a tariff-only system that will afford significantly less protection. Overall, the new EU trade regime is expected to result in a 36 percent price reduction for Belize's sugar exports (to be gradually phased in until 2009) and a price reduction of more than 14 percent for banana exports (starting in 2006).

The banana sector adaptation strategy focuses on sustainable development in the traditional banana-growing areas of Belize by improving industry efficiency and competitiveness through the following projects: (i) upgrading of drainage and irrigation systems and a rehabilitation of farms using tissue culture technology to increase yields; (ii) pavement of highways in the banana belt and enhancement of storage facilities at the Big Creek Port to improve the quality of the banana exports; (iii) enhanced disease management and monitoring to protect farm production from Black Sigatoka disease; (iv) development of an appropriate and comprehensive marketing strategy leading to the establishment of a direct marketing presence for Belize in the European market; (v) development and implementation of a Rural Development Program for all banana industry workers and nearby communities to enhance workers' ability to attain greater marketability of their skills and self-reliance; (vi) enhanced environmental monitoring program to increase yields; and (vii) increasing the value added through better utilization of "reject" bananas.

Similarly, the sugar adaptation strategy includes actions to raise the industry's value added and improve operations on the field, at the factory level, and in export operations. Specific actions include (i) increased cane supply through effective deregulation of the cane production system; (ii) improved cane quality through reduced cut-to-mill time, improved harvesting methods and field-to-factory transportation systems, and the implementation of core sampling; (iii) organization of farmers to allow for effective financial and technical resources pooling; (iv) introduction of a new cane payment system encouraging farmers to produce high quality cane; (v) increased capacity to produce packaged direct consumption sugar; (vi) reduction of overall unit costs of produc-

tion through improved field and factory costs and technical efficiencies and economies of scale; (vi) exploration of options to change the current costly and inefficient mode of transporting sugar from the factory to the ship, including opportunities that may exist in connection with developments at the Belize City Port; (vii) construction and operation of a cogeneration facility at the Tower Hill sugar plant to supply power and sell some to the national grid as of mid-2008; and (viii) pursuit of plans for alcohol/ethanol production to add value to molasses, which are currently mostly exported. In addition to these measures, Belize has requested an increase of its market allocation from 42,000 tons to 100,000 tons to secure additional access to the EU market.

The Belize Sugar Adaptation Strategy is a welcome addition to ongoing efforts to improve living standards in the sugar belt in Northern Belize. It strengthens efforts to enhance competitiveness in the sugar sector and address broader adaptation needs. The government remains committed to the European Union's eight year assistance strategy (2006–13), which will provide €3 million in funding. The financing agreement for the EU Banana Support Programme forms an integral part of the competitiveness strategy for the banana industry. It supports ongoing efforts to improve efficiency and productivity in the industry, as well as improving living standards in banana-growing areas. Since its inception, Belize has been allocated over € 21 million through the program.

Guyana

The sugar sector plays a central role in Guyana's economy. It is the largest net earner of foreign exchange, accounting for 23 percent of total exports and 18 percent of GDP in 2006. It is also one of largest employers, with employment of about 7 percent of the total labor force. The sector also contributes significantly to government finances, although its contribution in recent years has declined owing to a shortfall in production as a result of adverse weather conditions. It is comprised of a single state-owned enterprise, the Guyana Sugar Corporation (GUYSUCO).

GUYSUCO developed a comprehensive restructuring plan in the early 2000s to significantly increase productivity. The plan—which was developed with the help of the World Bank—was intended to address the high cost of the sector, in part, in anticipation of changes in EU trade preferences. The main focus was on increasing production in the lower cost areas by improving field-level productivity, to reduce average cost in the industry from about 24 U.S. cents per pound to 15 U.S. cents per pound by 2010. At its center was the construction of a modern large-scale factory at Skeldon with annual capacity of 110,000–130,000 tons of sugar. After long delays associated with government efforts to obtain concessional financing, re-tendering and modification of the original project, the construction of the factory began in 2005 and the factory is expected to be completed in early 2008. The total cost of

the project is US$167 million (22 percent of 2006 GDP). GUYSUCO is also implementing an Agricultural Improvement Program with assistance from the Caribbean Development Bank to boost field-level productivity though better agricultural practices and increased mechanization. The program aims at increasing per-hectare cane yields by 30 percent and at the same time raise the sugar content of the plants by 10 percent.

The government presented its National Action Plan for the Sugar Industry in 2006, as a basis for EU support of countries' adjustments strategies to the decline in sugar preference prices. The plan was prepared in a consultative process with a broad range of stakeholders, and is based on GUYSUCO's long-term business plan, building on its ongoing reform and restructuring efforts, while significantly augmenting the value added in the industry. As part of the plan, GUYSUCO intends to rehabilitate and expand some factories to accommodate an expected 60 percent increase in production by 2010. Nevertheless, repeated flooding has already delayed the achievement of these targets. Over the next few years, a priority project is the construction of a packaging plant at Enmore to supply the Caribbean market. Other long-term projects include the construction of an ethanol production plant, a deep water berth; and two additional cogeneration facilities. The government is studying several proposals from international private investors to develop some of these projects.

The proposed strategy has the potential to maintain the financial viability of Guyana's sugar industry in the face of the EU sugar market reform, but is subject to serious risks. These include vulnerability to adverse weather conditions, which, as noted above, has already delayed the attainment of the high production targets as well as the reduction in per-unit cost. The strategy's dependence on preferential trade agreements is another potential source of vulnerability. GUYSUCO's expansion into the CARICOM market relies heavily on the applicability of the 40 percent Common External Tariff (CET). The announcement in early 2007 by Trinidad and Tobago of plans to close its sugar industry could make it difficult for GUYSUCO to invoke the CET.[34] Finally, delays in the delivery of the EU support and other financing could affect key projects to be carried out during 2007–10.[35]

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[34]The CET for refined sugar protects CARICOM sugar producers if they can supply at least 135,000 tons to the CARICOM market. GUYSUCO planned to build a 120,000 ton refinery under the assumption that Trinidad and Tobago would provide the remaining tonnage.

[35]See also Evans and others (2006), who identify the amount of transitional assistance needed under the EU sugar framework for 2007–13 to enable four Caribbean countries (Guyana, Jamaica, St. Kitts and Nevis, and Trinidad and Tobago) to successfully manage the adjustment process. They find that, in comparison with planned EU allocations, the Sugar Action Plans in the former two countries would be "under-funded" while the latter two countries would be considerably "over-funded."

Guyana's adaptation strategy will go a long way to improve the long-term competitiveness of the sugar industry. The strategy appropriately focuses on improving the productivity of the state-owned sugar company and creating value added in the industry. However, critical investments and restructuring need to be implemented in a timely manner if the industry is to remain financially viable by 2010, when the new EU regime will come into force. The European Union's commitment to provide budget support to fund part of the strategy is a positive development but care will be needed to ensure that these finite resources are used to achieve lasting improvements in the sector. While the strategy envisages important reductions in production costs, efforts will be required to further reduce labor costs and enhance industry competitiveness in the face of further liberalization of protected markets. Finally, the recent promotion of greater private sector participation in the restructuring process is welcome but fiscal risks arising from private public partnerships will need to be contained to safeguard the authorities' medium-term objective of achieving fiscal sustainability.

St. Kitts and Nevis

In July 2005, the sugar industry—the historical mainstay of the economy—closed after more than 300 years. The industry had incurred substantial losses—on the order of 3–4 percent of GDP annually in the previous several years—even before the announced further cut in preferential access to the EU market. The sugar industry had occupied about 9,300 acres of land (about a quarter of the land surface of St. Kitts) and employed about 1,400 workers (9 percent of the labor force). The closure has required the government to takeover the debt of the sugar company (about 29 percent of GDP).

Considerable long-term economic benefits are anticipated, but there will be significant transitional costs. Key benefits are likely to stem from the release of land and labor resources to more productive uses, thereby raising growth potential, as well as halting the incurrence of quasi-fiscal losses that were aggravating an already difficult debt situation. Transitional costs include:

- The severance package for the 1,406 sugar workers was generous and cost about EC$27.4 million (2.3 percent of 2005 GDP). Rather than abiding by the 1986 Protection of Employment Act, which limits severance payments to a maximum of 52 weeks' pay, eligible workers received severance payments up to 104 weeks' pay, as under the Severance Agreement of 1961.

- The government is servicing the debt of the St. Kitts Sugar Manufacturing Company (SSMC), increasing the central government interest bill by 1½ of GDP a year. The debt is in the form of a 30-year bond at 5.2 percent interest rate and principal repayments are scheduled at US$57

million every five years. The debt is secured by approximately 4,700 acres of land.

- Transfers to former sugar workers are set to increase over the medium term. Under the severance agreement, the sugar workers will receive medical care under the National Health Programme, and the SSMC pensioners will be transferred to the Social Security Scheme with the guarantee that their pensions will not be reduced. In addition, land has been allocated to workers who wanted to become farmers, and a housing scheme is to be implemented for workers with long tenure (20 years or more) who do not own homes and have income levels below the poverty line.

The near-term impact on growth and foreign exchange earnings is estimated to be modest. Sugar export proceeds had declined to an average of 2½ percent of GDP a year during 2000–04, with a limited contribution to value added in the economy.

Transition costs may be offset by two factors:

- The booming economy and initial low level of unemployment has enabled quick absorption of most workers into the labor force. A survey conducted by the Sugar Transition office in May–June 2006 found that only 317 former workers were unemployed.

- The European Union has pledged grant support to African Caribbean Pacific (ACP) sugar producers affected by the erosion of trade preferences. The support for 2006 is in the form of project assistance of €2.8 million. For the period 2007–10, the support will be in the form of general budget support of €42.3 million, with policy conditions to be finalized.

The authorities have developed a comprehensive strategy for dealing with the transition from sugar. The strategy covers a broad range of economic, social and environmental measures that aim to diversify and improve the competitiveness of the economy. It includes developing high-end facilities for tourism, strengthening land development agencies, enhancing linkages between the agriculture and tourism sectors, and empowering vulnerable groups. The European Union has reviewed and approved the strategy.

The adaptation strategy has laid the foundation for improving competitiveness and enhancing growth. The strategy rightly identifies tourism as the main driver of the economy. While the public sector could play a key role in providing essential infrastructure, the private sector should take the lead in developing the tourism sector. Moreover, given the very high public debt level, public investment should be based on rigorous cost-benefit analysis and financing availability. Strengthening land development agencies is wel-

come, but consideration should be given to transferring lands to the private sector for more productive uses. Finally, efforts to empower vulnerable groups need to be well targeted and balanced against the fiscal costs**.**

Windward Islands

The Windward Islands' adaptation strategies for the banana sector focus on diversification, assistance to banana farmers for expansion, and niche-production.

- *Diversifying away from banana production.* Governments in the Windward Islands have established agricultural diversification programs to stimulate the modernization and competitiveness of nonbanana crops—such as root crops in St. Vincent and the Grenadines or passion fruit and hot peppers in Dominica. Policy actions implemented by the authorities include (i) the procurement of equipment, implements and appropriate technology; (ii) providing irrigation infrastructure; (iii) facilitating farmers' access to credit; and (iii) setting up of value-added facilities such as the refurbished arrowroot factory in St. Vincent and the Grenadines. The European Union has pledged to support these efforts, but so far the level of disbursements has been very low.

- *Helping the banana industry to increase its production.* Because of its socioeconomic importance, some governments in the region—particularly that of St. Vincent and the Grenadines—intend to help the banana industry modernize and increase its production. Policies undertaken with this aim include (i) subsidizing key inputs (particularly fertilizers); (ii) paying off the debt of banana producers' associations; (ii) exempting farmers' incomes from tax; (iii) the establishment of WIBDECO (Windward Islands Banana Development and Exporting Company) as a marketing agent and partial owner of the shipping service; and (iv) making a bonus payment to farmers who sell bananas to WIBDECO.

- *Moving production to "fair-trade" bananas.* The authorities' medium-term plans for the banana industry entail producing high-quality bananas for export to Europe that qualify under "fair trade" or "organic" labels and thereby satisfy a niche market that will garner higher prices. Banana production in the Windward Islands has largely switched from conventional exports to fair-trade exports. It is estimated that this movement has granted a price-premium to banana producers of around 30 percent over nonfair trade prices.

These adaptation strategies have offered some relief to banana producers but are unlikely to prove a sustained source of growth in the medium term. The movement to fair-trade bananas has boosted production in the short-run, but as more efficient Central and South American producers have increasingly qualified as fair-trade producers the premium currently enjoyed by Windward

Islands has been eroded. Efforts to diversify agricultural production away from bananas have suffered from a very low disbursement of EU support, while subsidies to key inputs have been more than offset by a sharp increase in the price of fertilizers.

Beyond these initiatives, social safety nets in the Windward Islands have been enhanced. Targeted social safety nets and transition measures have been implemented, particularly in poor rural communities where incomes have declined significantly and unemployment risen.

- *Income transfers to former producers.* Poor rural households, which have limited alternative employment opportunities, have received direct income transfers. In St. Vincent and the Grenadines about 5,000 farmers have received a monthly cash stipend of EC$125 for those over 65 years of age.

- *Noncontributory pensions and housing schemes.* Complementary measures to direct incomes transfers such as noncontributory health care and pension benefits, are also being considered in St. Vincent and the Grenadines and St. Lucia. The experience of the sugar industry of St. Kitts and Nevis offers and example of this. Under their severance package sugar workers will receive medical care under the National Health Program, and their pension will be assumed by the Social Security Scheme with the guarantee that their pensions will not be reduced. In addition, a housing scheme is to be implemented for workers with long tenure who do not own homes and have income levels below the poverty line.

Social safety nets, however, could be furthered strengthened through greater consolidation, more transparency, and better data. Governments in the region currently implement a large number of social assistance programs that are largely overlapping and administratively cumbersome, and are consequently expensive and inefficient in targeting the needs of the most vulnerable groups. Furthermore, poverty and household surveys in the Windwards are typically outdated—the exception being St. Lucia—making more difficult the identification and construction of a well-targeted system with clear and transparent criteria.

References

Alexandraki, K., and H.P. Lankes, 2004, "The Impact of Preference Erosion on Middle-Income Developing Countries," IMF Working Paper 04/169 (Washington: International Monetary Fund).

Amiti, M., and J. Romalis, 2006, "Will the Doha Round Lead to Preference Erosion?" IMF Working Paper 06/10 (Washington: International Monetary Fund).

Atoyan, R., 2006, "The Impact of EU Trade Preference Erosion on Belize," *Belize: Selected Issues*, IMF Country Report No. 06/370, pp. 5–18 (Washington: International Monetary Fund).

Baldwin, R.E., and T. Murray, 1977, "MFN Tariff Reductions and Developing Country Trade Benefits Under the GSP," *Economic Journal*, Vol. 87, pp. 30–46.

Borrell, B., 1999, "Bananas: Straightening Out Bent Ideas on Trade as Aid," Centre for International Economics (Canberra: Centre for International Economics).

————, and M. Bauer, 2004, "EU Banana Drama: Not Over Yet: New Distortions from a High Tariff-Only Policy" (Canberra and Sydney: Centre for International Economics) March.

Clegg, P., 2003, *The Caribbean Banana Trade* (London: Palgrave Macmillan).

Commonwealth Secretariat, 2004, "Preference-Dependent Economies and Multilateral Liberalization: Impacts and Options" (London: Commonwealth Secretariat).

Deaton, A., and R. Miller, 1995, "International Commodity Prices, Macroeconomic Performance, and Politics in Sub-Saharan Africa," *Princeton Studies in International Finance*, No. 79 (Princeton, New Jersey: Princeton University).

Dickson, A. K., 2003. "The EU Banana Regime: History and Interests, commissioned by Banana Link for EUROBAN, May 2003. Available on the Internet: http://www.bananalink.org.uk/documents/ EU_Regime_History_by_Anna_Dickson_commissioned_by_Banana _Link+EUROBAN.PDF

El-Masry, G., 2005, "The Rice and Banana Sectors," *Suriname: Selected Issues*, IMF Country Report No. 05/142 (Washington: International Monetary Fund), pp. 45–51.

Evans, M., and others, 2006, "Assessment of Costings of Sugar Action Plans," report prepared by Oxford Policy Management (Oxford).

Food and Agriculture Organization (FAO), 2004, "Bananas: Is There a Tariff-Only Equivalent to the EU Tariff Rate Quota Regime? Insights from Economic Analysis," FAO Trade Policy Technical Notes No. 3 (Rome: Food and Agriculture Organization).

Guyomard, H., Le Mouël, C. Levert, F. and J. Lombana, 2004, "Will the Banana Trade War Ever End?" paper presented for FAO Informal Expert Consultation on Banana Trade Policies, Rome, October 28–29.

International Monetary Fund, 2002, "The Restructuring of the Banana Industry in St. Lucia and the Windward Islands," in *St. Lucia: Selected Issues and Statistical Appendix*, IMF Country Report No. 02/14, pp. 6–23.

LMC International, and Oxford Policy Management, 2003, "Addressing the Impact of Preference Erosion in Sugar on Developing Countries," Report Prepared for Department for International Development, London.

Mlachila, M., W. Samuel, and P. Njoroge, 2006, " Integration and Growth in the Eastern Caribbean" in *The Caribbean: From Vulnerability to Sustained Growth*, ed. by R. Sahay, D.O. Robinson, and P. Cashin (Washington: International Monetary Fund), pp. 307–48.

Mlachila M., and P. Cashin, 2007, "The Macroeconomic Impact of Trade Preference Erosion on the Windward Islands," in *Eastern Caribbean Currency Union: Selected Issues*, IMF Country Report No. 07/97, pp. 18–48 (Washington: International Monetary Fund).

———, 2008, "The Macroeconomic Impact of Trade Preference Erosion on the Windward Islands," forthcoming IMF Working Paper (Washington: International Monetary Fund).

Myers, G., 2004, *Banana Wars: the Price of Free Trade—A Caribbean Perspective* (London: Zed Books).

National Economic Research Associates (NERA) and Oxford Policy Management, 2004, "Addressing the Impact of Preference Erosion in Bananas on Caribbean Countries," Report Prepared for Department for International Development, London.

Sahay, R., D.O. Robinson, and P. Cashin, 2006, *The Caribbean: From Vulnerability to Sustained Growth* (Washington: International Monetary Fund).

Sanchez, J., 2004, "Obtaining the Tariff Equivalent to the Current Banana Regime in the European Union (25), According to the Attachment to Annex 5 of the WTO Agreement on Agriculture" (unpublished; Madrid: World Trade Organization).

Sandiford, W., 2000, *On the Brink of Decline: Bananas in the Windward Islands* (St. George's, Grenada: Cedon Books).

Stoeckel, A., and B. Borrell, 2001, "Preferential Trade and Developing Countries: Bad Aid, Bad Trade," Rural Industries Research and Development Corporation, Publication No. 01/116 (Canberra: Australian Government Publishing Service).

Subramanian, A., 2003, "Financing of Losses from Preference Erosion," Paper Prepared for the World Trade Organization, WT/TF/COH/14, February.

Vanzetti, D., Fernandez de Cordoba, S., and V. Chau, 2004, "Banana Split: How EU Policies Divide Global Producers," paper presented for FAO Informal Expert Consultation on Banana Trade Policies, Rome, pp. 28–29, October.

Williams, O., and R. Darius, 1998, "Bananas, the WTO and Adjustment Initiatives in the Eastern Caribbean Central Bank Area" (unpublished; Basseterre, St. Kitts and Nevis: Eastern Caribbean Central Bank).

Williams, O., W. Sandiford, and A. Phipps, 1999, "Banana Price Shocks and Adjustment Within a Unified Currency Area," *Applied Economics,* Vol. 31, pp. 1455–66.

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