

CENTRAL BANK OF BARBADOS



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Publisher's Note

The Economic Review is published three times a year in June, September and December, by the Central Bank of Barbados. It is prepared by the Bank's Research Department and contains articles of research undertaken at the Bank. In addition, we welcome contributions of a non-technical and empirical nature on economic and policy issues in the Caribbean. Book reviews and surveys are also welcome. All submitted papers are reviewed by the Editorial Committee* and external referees.

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Economic Review

(To the end of September 2007)

Section 1

Review of Economy

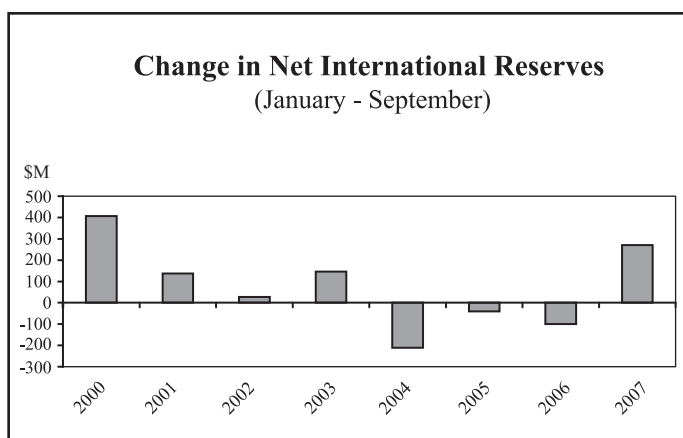
The Barbados economy grew by approximately 4.2% during the first nine months of 2007, compared to an increase of 3.7% in the corresponding period of 2006 and almost 2 percentage points above the average growth rate for the corresponding periods since the recession of 2001. In keeping with the trend of the last three years, this year's outcome was driven by broad-based expansions in non-traded activity, especially in wholesale and retail trade, construction, transport, storage and telecommunications and business and other services. Additionally, moderate increases in the traded sectors led to an improvement in the external current account position, evidenced by the robust outturn in travel credits, which offset reduced earnings from domestic exports. This development, together with a strong performance on the capital and financial account, resulted on the largest increase in the net international reserves (NIR) of the monetary authorities over the nine-month period since 2000. Consequently, the level of liquidity in the banking system expanded and government was able to finance its deficit domestically.

The output of the non-traded sectors rose by 4.9% during the first three quarters of 2007, on par with the rate of expansion for the corresponding period of 2006. Activity in the traded sectors benefited from the strong upturn in the tourism industry, which advanced by 2.3%, in comparison to a 0.2% increase one year earlier. The improvement in tourism can be attributed to Cricket World Cup (CWC), which fuelled expansions in both long-stay and cruise passenger arrivals, especially in the second quarter.

The average unemployment rate for the first nine months fell moderately from 9.8% to 7.1%, reflecting the continued growth in real economic activity. As at September 2007 the twelve-month moving average rate of inflation was 4.4%, compared to 7.6% for the corresponding period of 2006, partly owing to a slowdown in the growth of international oil prices during the review period.

The NIR increased by \$270.4 million during the review period, in contrast to a loss of \$99.3 million in the comparable period of 2006. Consequently, by the end of September 2007, the available liquid reserves totalled

\$1,592.0 million, representing approximately 18.4 weeks of reserve cover for good and services, compared to 15.5 weeks at the end of September 2006.



Higher capital inflows resulted in increased liquidity in the banking system. The ratio of excess liquidity to domestic deposits rose from 9.6% at the end of September 2006 to 10.1% at the end of the corresponding period in 2007.

During the first nine months of 2007, Government recorded an estimated fiscal deficit of \$153.8 million, almost doubling the figure for the comparable period of 2006, mainly on account of slower growth in tax revenue and a faster increase in current expenditure. At the same time, capital expenditure fell marginally as some government-funded projects neared completion. The deficit was financed principally from domestic sources, facilitated by the higher levels of liquidity in the banking system.

Production, Prices and Employment

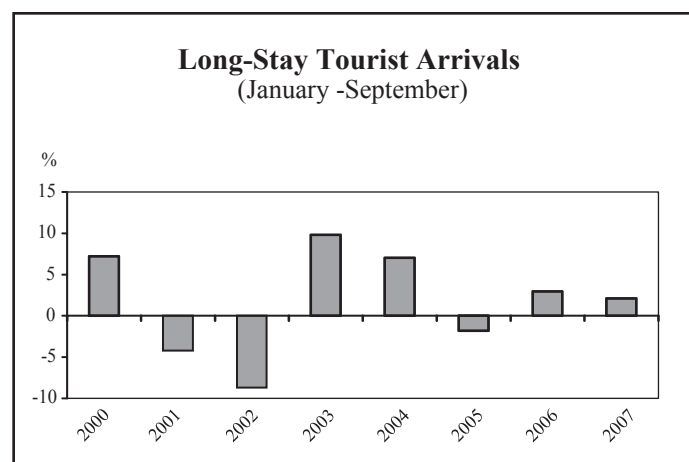
Tourism

During the first three quarters of 2007, real tourism output rose by 2.7%, up from an increase of 1.9% for the corresponding period in 2006 and a turnaround from the 3.1% decline in the comparable period of 2005.

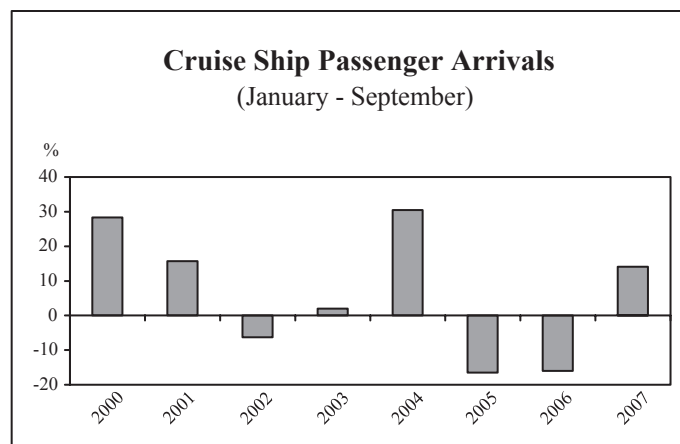
The moderately higher expansion in tourism activity may be attributed in large part to the influx of visitors for the CWC matches during the second quarter.

Over the January to September period, long-stay tourists grew by 2.1%, on top of the 4.1% growth for the comparable period of 2006. During the first quarter long-stay arrivals declined by 6.8%, but rebounded in the second and third quarters to register increases of 13.6% and 0.7%, respectively. During the review period, tourists from the traditional markets of the United Kingdom (UK), Canada and the United States (US) expanded by 6.9%, 5.1% and 1.7% respectively, despite being faced with higher costs for air travel. Of particular note was the 14.5% rise in the number of UK long-stay passengers in the second quarter, spurred by the CWC 2007. In addition, visitor arrivals from the rest of the world almost doubled when compared to the corresponding period of 2006 which was also linked to CWC.

In contrast, visitors from Germany and the CARICOM countries decreased by 28.3% and 17.6%, respectively, during the nine month period. Higher airline fares appeared to have adversely affected travel from the CARICOM region, as arrivals from Trinidad and Tobago and other countries in CARICOM both contracted by 11.4% and 20.1%, respectively, after registering consistent growth for the previous five years.



The number of cruise ship passengers grew by 14.1% during the first nine months of the year, partially reversing the decline of 11.5% recorded in the same period of the preceding year. This outturn reflected a 9.6% increase in cruise ship calls. The moderation of oil prices also contributed to the rise in the number of ship calls in the first quarter of 2007.



Manufacturing

Manufacturing output remained stagnant during the review period. This lacklustre performance was primarily the result of sharp reductions in the production of electronic components (-18.1%), garments (-9.9%) and non-metallic mineral goods (-3.3%), which outweighed the relatively strong output of beverages and tobacco (13.0%), evidenced by the 61.5% spike in rum exports.

Agriculture and Fishing

Sugar production was estimated at 33,900 tonnes during the nine-month period under review, approximately 0.6% or 300 tonnes higher than production for the first three quarters of 2006. Non-sugar agricultural output is estimated to have also expanded by around 4.9%, surpassing the marginal performance in the corresponding period in 2006. Furthermore, milk production is estimated to have risen by 8.0%, the first nine-month increase since 2001. The production of chicken rose by 6.2%, a reversal from the

1.4% decline registered in 2006, whereas the production of other meats grew marginally by 0.8%, following an expansion of 9.5% in the January to September period of the previous year. In addition, fish catches expanded by 22.4%, in contrast to an average decrease of 5.4% in the first nine months of the last two years.

International Business and Financial Services

Four hundred and seventy new licences were issued in the first three quarters of 2007, compared to four hundred and five licences granted in the corresponding period of 2006. This was the highest number of new licences on record issued in the January to September period. Three hundred and seventy-one new licences were granted to international business companies, one hundred and thirty-seven more than the number recorded for the similar period of 2006. Additionally, 126 licences for societies with restricted liability were approved, 54 more than the amount issued during the corresponding period of 2006. Three offshore banks were given permission to commence operations, while six exempt insurance companies and one exempt insurance management company were licensed to operate during the period under review.

Non-Traded Sectors

The robust performance of the non-traded sectors continued to fuel economic growth during the first nine months of 2007. The main sources of the expansion in non-traded activity were wholesale and retail trade, business and other services, construction as well as transport, storage and telecommunications. The hive of business activity associated with the preparation for and subsequent staging of the CWC matches contributed to growth in these sectors, with spill over effects into the third quarter of 2007.

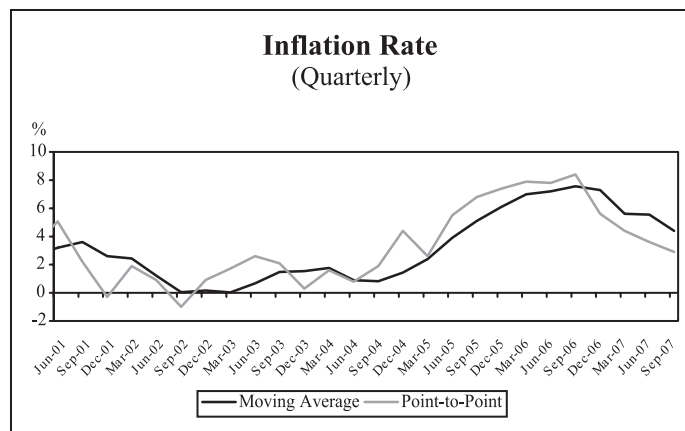
The construction sector expanded by 5.1% as work continued on both residential and commercial developments. Real value-added in the wholesale and

retail industry was up by an estimated 5.8%, slightly higher than the growth rate recorded in 2006, partly owing to the continued expansion in tourism and, to some extent, construction activity. Similarly, real output in the transport, storage and communication sector rose by 5.9%, after an upturn of 4.8% in the comparable period of 2006. In the mining and quarrying sector, output continued to contract, falling by 7.7%, primarily as a result of lower levels of oil production during the year.

The electricity, gas and water sector grew by 5.5%, or 1.9 percent points below the growth realised in the first nine months of 2006. Data for the first six months indicated that the production of natural gas declined by 15.8%, in contrast to an increase of 10.7% in the corresponding period of 2006. Over the first two quarters of 2007, total consumption of electricity climbed by 4.7%, compared to an increase of 1.6% in the equivalent period one year earlier. Commercial and residential usage expanded by 5.0% and 4.2%, respectively, while the electricity consumption for general services surged by 10.5%, caused by additional street lighting in the review period. The depletion of existing onshore oil wells underpinned the 16.7% reduction in oil production. This outcome constrained mining and quarrying output, resulting in an estimated 0.2% increase in the January-to-September 2007 period, compared to a 2.5% expansion in the comparable period of 2006.

Prices and Employment

At the end of October 2007, the 12-month moving average rate of inflation was 4.2%, down from the 7.6% rate recorded at the end of October 2006. The point-to-point rate fell from 8.4% at the end of October 2006 to 4.6% at the end of October 2007. The contraction in the inflation rate largely reflected a slowdown in the growth rate of all categories except for alcoholic beverages and tobacco (from 3.3% to 4.3%) and fuel and light (from -1.5% to 9.9%). The growth rate of prices for food remained unchanged compared to the corresponding period a year earlier.

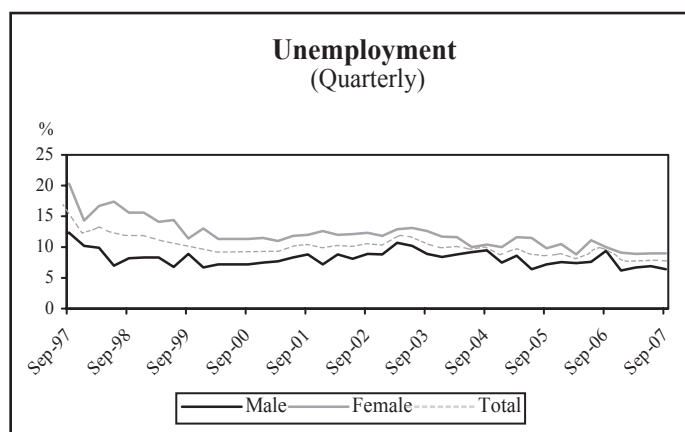


For the first nine months of 2007, the average unemployment rate was 7.1%, compared to a rate of 9.8% for the corresponding period of 2006. The proportion of unemployed males declined to 5.4% from the 9.4% a year earlier, while the percentage of unemployed females fell to 8.9%, following the 10.3% recorded for the similar period in 2006.

Average Number of Persons Employed
January to September
(‘000s)

	2003	2004	2005	2006	2007 ^p
Males	67.4	68.0	69.0	67.9	70.6
Females	62.0	65.6	65.7	63.8	63.8
Total	129.4	133.6	134.7	131.7	134.4

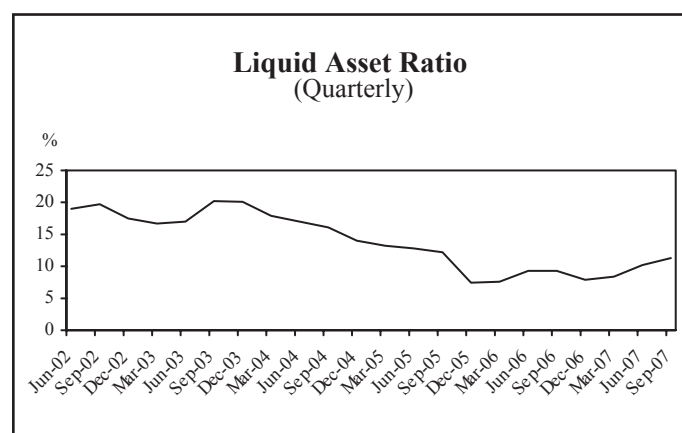
Source: Barbados Statistical Service



Financial Sector

Liquidity and Interest Rates

During the January to September period, robust growth in domestic deposits outpaced the expansion of new commercial bank lending to the non-financial private sector. Consequently, liquidity in the banking system improved, with the liquid asset ratio increasing from 7.9% at the end of December 2006 to 11.3% at the end of the review period, the highest on record since the 12.7% ratio recorded at the end of October 2005.

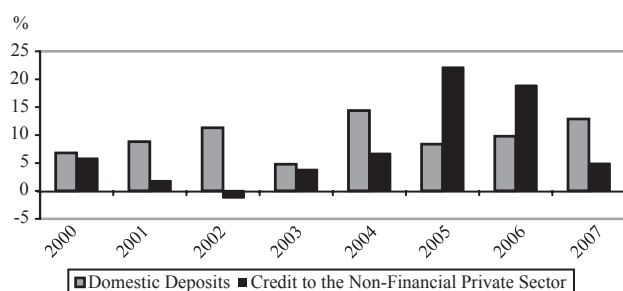


Between January and September 2007, the excess cash reserves of commercial banks advanced by \$326.5 million to \$365.2 million. Consequently, the excess cash to deposit ratio rose from 0.5% at the end of December 2006 to 5.2% at the end of September, 2007. The declining average discount rate on 3-month Treasury bills (from 6.57% to 5.16%) and 6-month Treasury bills (from 6.16% to 3.48%) mirrored the higher levels of liquidity in the banking system. At the end of September, the weighted average interest rate on deposits was 5.2%, representing an increase of nine basis points from the rate at the end of the previous year, while the weighted average rates on total loans and selected loans both fell, by eleven and sixteen basis points to 10.76% and 9.62%, respectively, as a result of intense competition for loans within the banking system.

Credit

Credit to the non-financial private sector had risen by 4.9% or \$211.0 million, at the end of September, compared to growth of 8.1% or \$306.9 million in the corresponding period of 2006. Borrowing by the personal sector increased by 8.8% or \$190.7 million, compared to an expansion of 13.3% or \$241.0 million during the first three quarters of 2006. Credit to the government, professionals and entertainment rose by \$8.3 million, \$53.0 million and \$12.8 million, respectively. Loans to the distribution sector increased by \$1.1 million, whereas credit to construction advanced by \$7.4 million.

Changes in Commercial Banks' Credit to the Non-Financial Private Sector and Domestic Deposits
(January - September)

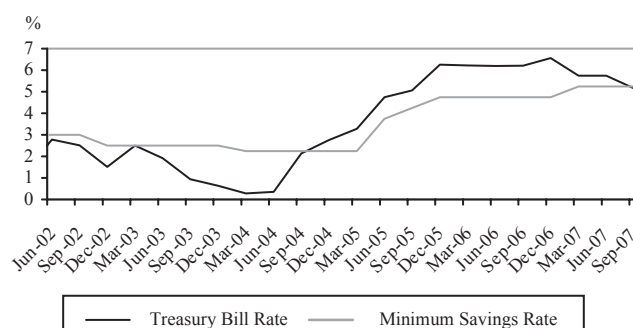


Deposits

During the review period, domestic deposits at commercial banks grew by 13.8% or \$865.9 million, the highest third-quarter increase since 2004. Deposits of private individuals, which represent the bulk of bank deposits, expanded by \$375.5 million, followed by the deposits of financial institutions, which went up by \$201.9 million. Holdings of business firms and statutory bodies

improved by \$83.7 million and \$50.0 million, respectively, and the deposits of central government increased by \$5.1 million.

Treasury Bill and Minimum Savings Rate
(Quarterly)



Government Securities

At the end of September 2007, the total value of Treasury bills outstanding was \$612.2 million, approximately \$123.5 million more than the figure at the end of December 2006. Treasury bills held by commercial banks were \$94.9 million higher during the review period while those held by other investors increased by \$28.6 million. At the end of the period, the nominal value of Barbados Government Savings Bonds was \$95.6 million, approximately \$13.3 million below the total one year ago. The total value of outstanding debentures expanded by \$202.6 million to \$2.6 billion, with the National Insurance Service and insurance companies holding approximately \$85.7 million and \$29.9 million, respectively. Other investors held \$407.4 million in debentures, \$67.7 million more than the amount acquired at the end of last year.

Summary Accounts of the Banking System
(\$Million)

	2005				2006				2007 ^P		
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep
Net International Reserves	1,780.8	1,659.2	1,442.4	1,611.1	1,730.2	1,610.6	1,613.1	1,691.2	1,944.7	2,037.2	2,005.6
Monetary Authorities	1,227.9	1,214.1	1,149.6	1,239.1	1,282.5	1,167.4	1,136.4	1,194.1	1,330.0	1,456.4	1,464.6
Commercial Banks	522.9	445.2	292.9	371.9	447.7	443.2	476.8	497.1	611.7	580.8	541.0
Net Domestic Assets	3,121.3	3,370.3	3,656.2	3,584.0	3,527.1	3,801.2	3,984.0	4,085.9	3,983.3	4,200.2	4,350.4
Credit to Public Sector	508.4	528.8	625.0	380.4	164.5	331.0	387.6	337.1	161.2	274.1	388.0
Central Government (net)	734.1	784.4	902.6	650.5	392.6	603.4	631.8	433.1	391.2	508.9	683.8
Rest of Public Sector	-226.0	-255.6	-277.8	-270.1	-228.1	-272.4	-244.2	-95.9	-230.0	-234.8	-295.8
Credit to Rest of Financial System	260.5	298.4	301.8	312.9	344.1	261.9	339.7	343.2	454.3	359.5	379.8
Liabilities to Other Financial Institutions	453.3	475.4	417.2	515.0	551.3	558.7	565.4	597.4	700.7	693.3	763.8
Credit to Non-Financial Private Sector	3,185.8	3,395.3	3,513.8	3,791.8	3,890.5	4,015.3	4,098.7	4,292.9	4,311.4	4,416.1	4,503.9
Liabilities to the Non-Financial Private Sector	4,902.7	5,029.5	5,098.5	5,195.0	5,257.3	5,411.9	5,597.2	5,777.1	5,928.0	6,237.4	6,356.0
Currency in Circulation	392.0	403.0	418.9	448.6	436.8	431.8	433.1	465.0	458.3	470.1	458.2
Demand Deposits	1,548.0	1,576.5	1,604.3	1,563.3	1,530.9	1,515.6	1,672.2	1,794.7	1,780.1	1,861.7	1,847.0
Time Deposits	343.8	352.4	405.1	491.1	556.0	625.3	584.6	552.7	672.7	784.3	812.3
Savings Deposits	2,618.5	2,697.6	2,670.2	2,692.1	2,733.5	2,839.2	2,907.2	2,964.7	3,016.9	3,121.3	3,238.5
MEMO:											
Domestic Deposits	5,638.8	5,763.0	5,832.4	6,019.4	6,112.9	6,350.8	6,494.3	6,586.7	6,953.5	7,239.9	7,471.5
Liquid Foreign Assets	1,233.5	1,218.9	1,157.1	1,254.1	1,293.1	1,286.5	1,280.0	1,307.3	1,452.6	1,578.1	1,592.0
Loans & Advances	3,429.7	3,630.2	3,788.9	4,081.8	4,240.5	4,382.3	4,469.5	4,713.7	4,871.0	4,857.5	4,978.7

Source: The Central Bank of Barbados
P: Provisional

Public Sector

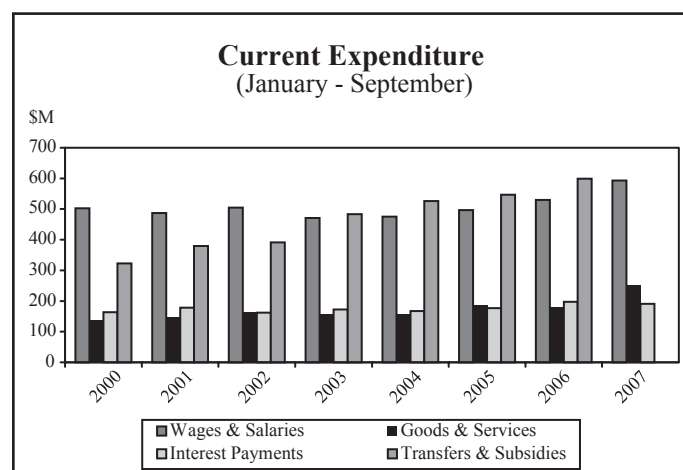
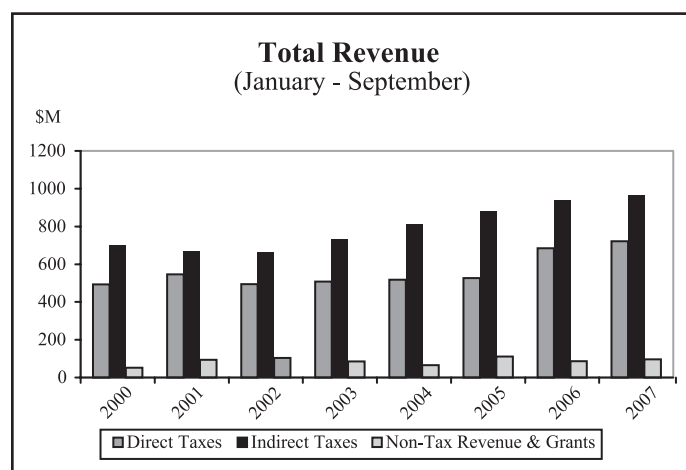
Revenue

Preliminary estimates indicate that during the first nine months of 2007 total revenue grew by 1.3% to \$1,735.5 million, compared to growth of 12.6% in the first three quarters of 2006. Total tax revenues declined marginally in contrast to a sharp upturn of 15.3% in the corresponding period one year earlier. Direct taxes increased by 3.3%, approximately nine times less the rate of expansion registered in the corresponding period of 2006. Personal tax receipts decreased by 0.6%, while corporate tax receipts rose by 13.6% due to a widening of the tax base. Conversely, property taxes fell by 25.8%, following an upturn of 40.6% in the comparable period of 2006. Indirect tax receipts decreased by 2.8% over the review period, significantly below the growth rate recorded in the previous year. With the improved economic performance, VAT receipts were up by 2.8%, on top of an expansion of 12.1% in the January to September period of 2006, when tax payments received at the end of 2005 were registered in the first quarter of 2006. Import duties fell by 6.6% during the first nine months of the year, compared to the decline of 9.3% reported in the relevant period of 2006, when retained imports decreased due to the monetary and fiscal measures implemented throughout 2005 and 2006. Similarly, revenue from excise taxes contracted by 18.3%,

following an upturn of 11.0% in the comparable period one-year prior.

Expenditure

Preliminary estimates indicate that total expenditure grew by approximately 8.1% to \$1,940.0 million for the first three quarters of the year, on par with the rate of increase for the similar period of 2006. Current expenditure rose by 10.3%, propelled mainly by greater outlays on wages and salaries, goods and services and transfers and subsidies. Payments for wages and salaries were up by approximately 11.9%, primarily as a result of the 7.5% expansion in public workers wages and salaries that were due in 2006 but paid in April of 2007. Spending on goods and services went up by 38.9%, after a moderate contraction of 3.2% in the same period of 2006, owing to the reclassification of some items previously recorded under capital expenditure. Supplementary payments to the University of the West Indies and the Transport Board, along with payments in favour of Harrison's Redevelopment Project and CWC 2007, led to a 4.7% rise in transfers and subsidies. In contrast to the increasing current expenditure, capital expenditure fell by 4.7% in the first nine months of 2007, following an expansion of 16.3% in the corresponding period of 2006 when preparations were taking place for the hosting of CWC 2007.



Financing

Government's fiscal deficit was financed primarily through domestic sources. Private non-banks and the commercial banks were the primary sources of domestic financing, providing \$112.8 million and \$99.6 million, respectively. Borrowing from the National Insurance Scheme amounted

to \$24.0 million, while Central Bank's net lending to Government fell by \$173.0 million, when compared to the corresponding period of 2006. Net foreign outflows were approximately \$36.2 million, reflecting the difference between amortisation payments totalling \$78.8 million and project fund inflows of \$42.6 million during the review period.

Government Financing

(January – September)

(\$Million)

	2003	2004	2005 ^P	2006 ^P	2007 ^P
Domestic Financing	7.0	115.7	203.1	123.7	210.1
Central Bank	9.4	48.4	19.9	217.4	44.4
Commercial Banks	(5.8)	105.4	90.6	(145.4)	99.6
National Insurance Scheme	45.7	(3.5)	157.6	40.0	24.0
Private Non-Bank	28.4	111.1	140.7	86.6	112.8
Divestment	0.0	0.0	0.0	31.4	0.0
Other Public Sector	0.0	(0.0)	0.0	0.0	0.0
Other	(70.7)	(145.7)	(205.8)	(106.3)	(70.8)
Foreign Financing (net)	165.6	(16.3)	(62.2)	(41.3)	(36.2)
Capital Markets	0.0	0.0	0.0	0.0	0.0
Project Funds	43.9	56.2	9.7	34.2	42.6
Policy Loans	0.0	0.0	0.0	0.0	0.0
Amortisation	(67.3)	(72.4)	(71.9)	(75.5)	(78.8)
Divestment	189	0.0	0.0	0.0	0.0
Total Financing	172.6	99.4	140.8	82.4	173.8

Sources: The Central Bank of Barbados and Accountant General

P: Provisional

Government Operations

(January – September)

(\$Million)

	2003	2004	2005	2006	2007 ^P
Total Current Revenue	1,327.3	1,395.8	1,520.7	1,712.2	1,786.2
Tax Revenue	1,242.2	1,330.5	1,409.4	1,625.6	1,689.7
<i>Direct Taxes</i>	507.7	518.4	526.6	684.5	722.0
Personal	242.2	240.1	206.5	234.0	234.2
Corporate	178.0	180.9	233.2	329.7	363.3
Levies	4.7	0.0	0.0	0.0	0.0
Property	46.8	56.8	50.7	71.3	69.6
Other	36.0	40.6	36.3	49.5	55.0
<i>Indirect Taxes</i>	734.5	812.0	882.8	941.1	967.7
Consumption	0.0	0.0	0.0	0.0	0.0
Stamp	11.0	13.6	14.6	18.3	22.0
VAT	403.4	452.0	484.1	542.7	552.6
Excises	97.3	112.9	131.4	145.8	131.2
Import Duties	123.9	143.9	151.8	136.9	155.7
Hotel & Restaurant	0.2	0.0	0.0	0.0	0.0
Other	98.8	89.7	100.9	97.3	106.1
Non Tax Revenue & Grants	85.1	65.4	111.3	86.6	96.5
Current Expenditure	1,283.8	1,327.3	1,405.6	1,507.0	1,661.9
Wages & Salaries	470.8	475.6	496.4	530.0	593.0
Goods & Services	157.6	157.9	186.1	180.2	250.4
Interest Payments	172.2	167.5	176.5	197.6	191.2
External	67.2	70.8	65.1	68.1	56.0
Domestic	105.0	96.7	111.5	129.5	135.2
Transfers & Subsidies	483.2	526.3	546.6	599.2	627.3
Current A/C Balance	43.5	68.5	115.1	205.2	124.3
Capital Expenditure	215.5	166.2	185.7	216.0	205.8
Net Lending	0.6	1.7	70.2	72.6	72.3
Total Expenditure & Net Lending	1,499.9	1,495.2	1,661.5	1,795.6	1,940.0
Overall Balance	(172.6)	(99.4)	(140.8)	(83.4)	(153.8)

Source: The Central Bank of Barbados

P: Provisional

Foreign Trade and Payments

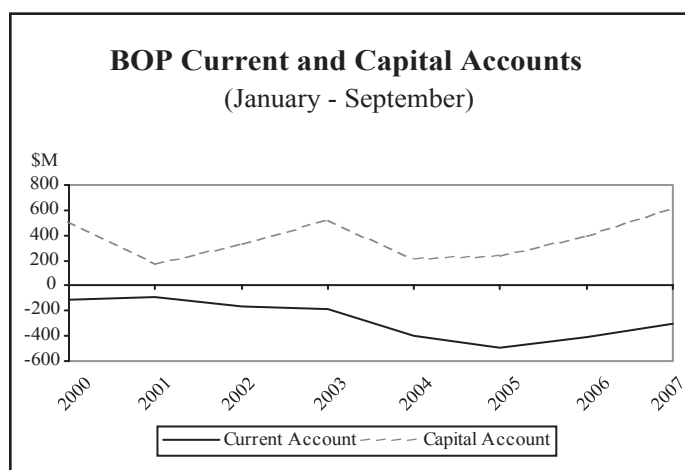
Current Account

The external current account deficit for the January to September period of 2007 was estimated at \$299.1 million, about \$104.9 million less than the deficit for the comparable period of 2006. This was the lowest deficit since the \$359.2 million recorded in 2004. Robust growth in travel credits (10.0% or \$149.7 million) outweighed reduced earnings from domestic exports and higher retained imports. **Retained imports expanded by 6.4%** or \$131.8 million, a reversal from the 3.3% decline in the nine-month period of 2006. Consumer goods imports rose by 7.8%, in contrast to a decrease of 11.9% in the first three quarters of 2006. Significant increases were shown in the food and beverages (8.7%), other manufacturing goods (9.1%), motor vehicles (11.0%) and pharmaceuticals (13.7%) subcategories. Imports of intermediate goods also expanded, by 11.2%, due to strong expansions in fuel (22.8%), other manufactures (8.9%) as well as iron and steel (19.1%). In contrast, imports of capital goods contracted by 3.7%, following a rise of 12.0% in the similar period of 2006.

Domestic exports contracted by \$2.8 million, or 0.7%, during the first three quarters of 2007, in contrast to an increase of \$55.8 million, or 17.4%, during the comparable period of 2006. Robust growth in exports of food and beverages (34.6% or \$25.4 million) was insufficient to reverse the combined effects of a sharp reduction in electronic components (48.7% or \$15.3 million) and other manufactures (12.3% or \$14.0 million). This strong outturn in exports of food and beverages was led by a \$19.4 million expansion in the sale of rum. In addition, exports of chemicals grew by \$2.6 million, while other machinery and transport equipment exports fell by \$2.7 million during the review period.

Capital and Financial Account

The substantial surplus of \$623.7 million registered on the capital and financial account for the first nine months of 2007 was \$231.3 million more than that recorded for the same period in 2006. There were net long-term public capital inflows to the public sector amounting to \$74.4 million, in contrast to net capital outflows of \$39.4 million in the corresponding period of 2006. The expansion in public sector capital inflows mainly reflects proceeds from bonds issued on behalf of the Barbados Investment and Development Corporation and Barbados Agricultural Management Company Limited in the first and second quarters, respectively. Net long-term private capital inflows registered for the first nine months of 2007 were \$339.5 million, compared to \$207.7 million reported during the comparable period of the previous year. These inflows were earmarked principally for tourism-related projects, the purchase of real estate and loan proceeds for the construction of the prison. In addition, short-term inflows were \$68.5 million, largely reflecting inflows of loan proceeds for the airport project and pre-shipment financing for the sugar harvest. Other capital flows amounted to \$141.3 million and consisted mainly deposits of non-residents and other foreign liabilities



Balance of Payments

(January - September)

(\$Million)

	2001	2002	2003	2004	2005	2006	2007 ^P
Current Account Balance	(94.8)	(164.2)	(188.2)	(395.2)	(498.1)	(404.0)	(299.1)
Merchandise Trade	(998.1)	(992.1)	(1,156.7)	(1,351.3)	(1,570.2)	(1,405.2)	(1,532.0)
Total Exports (BOP Basis)	404.4	361.8	382.7	425.7	523.4	659.2	612.7
Domestic Exports	274.8	254.9	256.8	273.5	321.3	377.1	374.3
Sugar	44.0	37.7	41.0	44.9	44.4	39.2	37.3
Elec. Comp.	30.3	21.7	20.3	22.0	21.5	31.4	6.1
Chemicals	33.1	31.3	30.2	30.4	41.2	44.3	46.9
Food/Bev	68.7	68.8	62.0	70.3	85.7	73.4	98.8
All Other	98.6	95.4	103.3	106.0	128.5	188.8	175.2
Total Imports (BOP Basis)	1,419.2	1,371.1	1,559.9	1,793.0	2,071.9	2,075.3	2,496.3
Retained Imports	1,463.9	1,430.6	1,623.9	1,858.2	2,120.0	2,049.7	2,181.5
Consumer Goods	613.9	590.1	639.8	727.3	851.1	749.7	808.5
Capital Goods	303.7	308.9	355.8	418.4	426.6	477.9	460.2
Intermediate Goods	541.3	526.5	622.9	705.2	834.7	811.7	902.9
Miscellaneous Goods	5.0	5.1	5.4	7.3	7.6	10.5	9.9
Services (Net)	893.2	849.7	995.4	1,019.0	1,174.6	1,247.5	1,459.0
Travel Credits	1,099.9	1,022.5	1,177.9	1,205.3	1,371.7	1,501.1	1,650.8
Other	(139.2)	153.0	170.8	222.7	228.1	211.6	260.3
Investment Income (net)	(134.0)	(144.1)	(158.7)	(188.6)	(252.2)	(350.9)	(374.8)
Transfers (net)	339.4	122.4	131.7	125.7	149.7	104.6	148.7
Capital and Financial Account	174.3	328.8	519.7	221.1	233.4	392.4	623.7
Long Term	183.9	108.3	397.2	(39.1)	(10.2)	168.3	413.9
Public Sector	(7.2)	(26.4)	176.7	(72.4)	(22.2)	(39.4)	74.4
Private Sector	191.1	134.7	220.5	33.3	12	207.7	339.5
Other	(13.0)	113.7	(3.8)	5.2	347	27.4	141.3
Short Term	3.5	106.8	126.3	255.1	208.9	196.8	68.5
Errors & Omissions	54.3	127.9	10.4	(32.0)	(39.5)	16.7	(10.2)
Balance for Official Financing	133.8	36.8	341.9	(206.1)	(304.2)	5.1	314.5
Official Financing (net)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IMF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Financial Institutions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reserve movements (CBB basis)							
(-Increase/+Decrease)	(133.8)	(36.8)	(341.9)	206.1	304.2	(5.1)	(314.5)
Change in NIR (IMF basis)							
(-Increase/+Decrease)	(137.8)	27.5	(146.7)	210.7	41	99.7	(270.5)

Source: Central Bank of Barbados

P: Provisional

Regional Economic Developments

Overview

Most regional economies performed moderately during the first six months of 2007. Preliminary data suggest that economic activity was driven primarily by expansions in the tourism and construction sectors. However, tourism output contracted in The Bahamas, while Trinidad and Tobago's economic growth continued to be led by the energy sector, despite registering lower crude oil production in the first quarter of the year. Regional agricultural production rose in the first six months of 2007, while retail price inflation in most regional territories resurged owing to higher prices for fuel and food items. The Trinidad and Tobago exchange rate remained virtually unchanged during the review period, but appreciations in the Jamaican and Guyanese US-dollar exchange rates were recorded.

Tourism

The performance of the regional tourism industry was mixed, as growth was reported for cruise passenger arrivals, while the number of long-stay arrivals decreased. During the first six months of the year long-stay passengers to Jamaica declined by 1.2%, whereas the number of visitors via cruise ships fell by 18.8%. Long-stay and cruise visitors to The Bahamas fell by 8.8% and 13.8%, respectively, a complete reversal from the 6.9% growth in long-stay and 13.8% rise in cruise passengers recorded during the corresponding period of 2006. Cruise ship passenger arrivals to the OECS region rose by 11.0%, marginally above the 10.5% increase in the corresponding period of 2006. Strong growth in arrivals was recorded in Grenada, St. Lucia, and St. Vincent and the Grenadines, partly on account of visits by larger ships. Stay-over visitors, on the other hand, declined by 2.3%, in contrast to a 3.5% increase registered in the first six months of 2006, attributed mainly to a fall off in arrivals from the United States (down 4.2%). Tourists from the rest of the Caribbean also contracted, as airfares increased and airlift capacity was reduced following the merger of two regional airlines in early 2007. In contrast, visitor arrivals from

the UK climbed by 10.0%, as a result of CWC 2007 and the appreciation of the pound sterling against the Eastern Caribbean dollar. During the first five months of 2007, Belize experienced growth in both long stay tourists and cruise passengers of 0.4% of 8.8%, respectively.

Agriculture

During the first three quarters of 2007, regional agricultural output improved, after poor performances in the comparable periods of the previous two years. In Jamaica, favourable weather conditions and increased productivity, stemming from the rehabilitative farming programmes implemented since Hurricane Ivan, boosted agricultural production. Production of crops for domestic consumption expanded by 2.2%, while export crops grew by 26.2%, primarily attributed to increases in the production of sugar cane, cocoa and coffee. In the January to June period of 2007, agricultural output in Guyana rose by 6.1%, owing to sustained recovery in the sugar and rice industries and an absence of the flooding, which had restricted output in the previous year. Agricultural activity in the OECS rebounded, due to a strong performance in the banana industry. Banana production expanded sharply by 17.4%, well above the growth in the first half of 2006, facilitated by favourable weather, coupled with higher prices for bananas sold under the Fair Trade Label. The output of vegetables and root crops also increased, partly reflecting the impact of diversification and recovery programmes, as well as a rise in demand.

Construction and Mining and Quarrying

The construction sector in Jamaica rebounded during the January to June period of 2007, evidenced by an expansion of activity in the telecommunications and transport industries, as well as major road works under the Road Improvement Projects. The expansion was, however, moderated by a slowdown in residential construction and shortages of cement earlier in the year. Construction activity in The Bahamas expanded at a slower pace during the first six months of 2007, as reflected in a contraction in mortgage lending for new construction and maintenance projects. In the OECS construction value added rose during the first

half of 2007, but at a slower rate than in the corresponding period of 2006. The public sector component activity was lower following the completion of CWC-related projects, as evidenced by the 4.6% decline in capital outlays in the period under review, when compared with the first half of 2006. Private sector projects, however, remained strong, propelled by ongoing work of a tourism-related nature.

During the first eight months of 2007, mining and quarrying activity in Jamaica contracted as output remained below the sector's long-run trend growth of 2.3%. Crude bauxite and alumina production declined by 25.4% and 28.2%, respectively, relative to the same period of 2006. In Trinidad and Tobago, crude production for export slowed by approximately 23.6% to eleven million barrels for the first half of 2007, mainly due to technical problems that occurred at one of the major oil companies. However, natural gas production expanded by 4.7% during the same period, helping to bolster revenues in the energy sector. Mining output in Guyana rose by 10.1% during the first half of the year, reflecting the partial realisation of substantial investment and restructuring undertaken in the bauxite industry and higher gold prices on the world market.

Prices and Interest Rates

In the first nine months of 2007, inflation in Trinidad and Tobago was estimated at around 7.3%, down from the 8.3% recorded at the end of December 2006, mainly because of lower food prices. The steady reduction in inflation since 2006 represents the effect of tight monetary conditions and reduced fiscal injections. In Jamaica, the consumer price index rose by 3.6% in the January-to-June 2007 period, which exceeded the average third-quarter increase of 2.9% of the last five years. The annualised inflation rate in Jamaica at September 30, 2007 was estimated at 10.0%, as that country recorded slight increases in the prices of food and drink, housing, fuels and health care. Retail price inflation in The Bahamas crept up to 2.6% during the first six months of 2007, compared to 1.4% in the corresponding period of 2006, driven by higher oil and other commodity prices. In Belize, the year-on-year inflation rate was 0.4% at the end of August 2007,

on account of higher prices for basic food items, personal care, recreation, education and culture and household goods and maintenance. In the first half of 2007, the CPI rose in all the OECS member countries, again reflecting higher oil and other commodity prices. Increases in the CPI ranged from 0.3% in Anguilla to 4.3% in St. Vincent and the Grenadines. Average inflation in Guyana went up by 12.2% during the first six month of 2007. There were price increases in all categories of the consumer price index (CPI), which resulted mainly from the rising oil prices and, to a lesser extent, the implementation of a Value Added Tax (VAT).

During the first six months of 2007, the weighted average interest rate on deposits fell by 3 basis points to 3.63% in The Bahamas. The weighted average loan rate firmed by 47 basis points to 10.82%, reflecting the impact of tight liquidity conditions in the earlier part of the year. In Jamaica, the overall weighted average lending rate was 17.23% at the end of June 2007, a decrease from 17.59% at the end of 2006, and continuing the downward trend over the previous two years in private sector lending rates. The overall weighted average deposit rate at the end of September 2007 was 4.88%, down from 5.36% at the end of September 2006. In addition, the Treasury bill rate declined from 11.60% at the end of December 2006 to 11.44% at the end of June 2007. The Central Bank of Trinidad and Tobago maintained its repo rate at 8.0% at the end of the September 2007. The rate on ordinary savings deposits in Trinidad and Tobago was 1.77%, up 37 basis points from that recorded at the end of December 2006, while the prime lending rate rose from 11.00% at the end of June 2006 to 11.75% at the end of September 2007. The average discount rate on 91-day treasury bills increased to 7.0% at September 30, 2007 from 6.74% at December 31, 2006. The savings and prime lending rates in Guyana remained unchanged at 3.2% and 14.5%, respectively, during the January-to-June period, while the Treasury bill rate fell by 22 basis points to 3.94%. By the end of June 2007, the weighted average interest rate on commercial bank deposits in the OECS dropped by 0.2 percentage points to 3.28%, while the weighted average interest rate on loans declined to 9.81% at June 30, 2007 from 9.94% at December 31, 2006.

Financial Sector

Between January and June 2007 lending to the private sector in The Bahamas, slowed, reflecting an ease in domestic demand. During the same period, loans and advances to the private sector in Guyana expanded by 8.3%, in an effort to satisfy rising demand for residential and commercial property. Domestic deposits rose by 6.6%, as remittances accounted for a sizeable amount of the deposits in the commercial banks. Loans and advances to the private sector in Jamaica, grew by 6.5% during the first six months of 2007, owing primarily to an expansion of credit to the construction, tourism, distribution and transport, storage and communications sectors. At September 2007, bank credit in Trinidad & Tobago increased by 21%, on a year-on-year basis with consumer credit, rising sharply (28%). Private sector credit in the OECS, grew by 8.9%, during the first six months of 2007, mirroring expansions in credit to businesses and households associated, to some extent, with CWC preparations. Private sector demand deposits and time deposits went up by 9.1% and 10.0%, respectively, during the first half of 2007.

Exchange Rates

During the January-to-September 2007 period, the Guyana dollar remained relatively unchanged at G\$199.50 per US\$1.00, while the Trinidad and Tobago dollar depreciated slightly to TT\$6.31 per US\$1.00 from TT\$6.27 per US\$1.00 at December 31, 2006. The Jamaica dollar depreciated by 4.63% to J\$70.41, compared to the 2.20% depreciation recorded for the equivalent period of 2006.

Government Operations

The fiscal deficit in Jamaica was J\$20.2 billion for the first nine months of 2007. Total revenue rose by 13.7%, whereas expenditure grew by 20.1% during the review period. The overall fiscal deficit in The Bahamas widened by B\$15.7 million to B\$104.4 million during the first five months of the year, as an expansion of 12.2% in revenues was surpassed by growth of 12.6% in expenditure. Tax revenues were buoyed by increases in stamp tax and real property tax receipts. Current and capital expenditure grew by 10.5% and 31.2%, respectively. As at June 30, 2007,

the Central Government of Belize had generated an overall deficit of Bz\$37.0 million. Current revenue and current expenditure both rose by Bz\$71.8 million and Bz\$61.8 million, respectively. Guyana's fiscal surplus widened by G\$4,306 million to G\$6,621 million in the first two quarters of 2007 because of significant revenue growth. Total revenue increased by G\$39,816 million on account of accumulated receipts from the newly implemented VAT and excise taxes. Current expenditure rose by G\$26,876 million, propelled by greater outlays on wages and salaries, primarily a result of a 5.0% increase in public sector wages. In contrast, capital spending grew by G\$3,621 million, as government renewed its commitment to the continued rehabilitation and expansion of infrastructure on social projects under its Public Sector Investment Programme(PSIP). The consolidated fiscal operations in the OECS, resulted in a large fiscal deficit of EC\$218.9 million in the first half of 2007. All the member countries except for Anguilla and Dominica, registered deficits. Current revenue expanded by EC\$41.4 million, occasioned by increases in taxes on domestic goods and services and taxes on income and profits. Current expenditure rose by 4.6%, driven by higher outlays on transfers and subsidies and interest payments. However, capital spending fell by 3.3%, attributed mainly to the completion of CWC-related projects.

Foreign Sector Developments

For the first six months of 2007, the external current account deficit in The Bahamas remained relatively unchanged (at B\$291.7 million) from the corresponding yo2006 period. This resulted from a reduction in oil imports and higher local expenses from offshore companies outweighed the weakening net travel receipts. The surplus on the capital and financial account deteriorated by approximately B\$36.8 million to \$98.0 million, mainly on account of a decline in net private sector inflows. The external current account deficit in Jamaica, was estimated at US\$672.2 million for the January-to-June period of 2007, which was US\$184.6 million higher than the deficit for the comparable period of 2006. Despite a decline of US\$60.0 million in fuel imports, the value of overall imports

expanded, reflecting higher spending on machinery and transport equipment and manufactured goods. The growth in expenditure on imports was partly offset by increased earnings from exports of mineral fuels and scrap metal. On the capital and financial account, strong net private and official investment inflows were insufficient to finance the deficits on the current account. Consequently, the net international reserves fell by US\$78.7 million during the period ending June 2007. The current account deficit in Guyana worsened by US\$9.9 million to US\$106.4 million at June 30, 2007, as higher flows of remittances were unable to offset a growing trade imbalance. The surplus recorded on the capital and financial account was US\$9.9 million lower than that in the corresponding period of 2006, on account of larger net short-term private capital outflows.

International Economic Developments

Overview

The global economy continued to expand during the first nine months of 2007. The downturn in the US sub-prime mortgage market had limited impact on emerging and developing countries, which experienced robust expansions in their economies. Some emerging markets and developing countries experienced intensified inflationary pressures, reflecting strong growth and increased demand for certain commodities. Among the advanced economies, growth was moderate and inflation was contained. Financial markets became more volatile and prior expectations of tighter monetary policy by major central banks were reversed. The US dollar continued to weaken during the review period, especially against commodity-based currencies like the Canadian dollar, the Brazilian real and the Australian dollar. The Euro and the pound sterling appreciated, while there was little movement against by the Japanese yen and Chinese Yuan.

Economic Indicators: Industrial Economies

Countries	Real Output (% Growth)		Unemployment (% Rate)		Inflation (% Rate)	
	JAN-SEP 2006	JAN-SEP 2007 ^P	JAN-SEP 2006	JAN-SEP 2007 ^P	SEP* 2006	SEP* 2007 ^P
Canada	3.1	2.5	6.4	5.9	0.7	2.5
Euro Zone	2.6	2.8	7.9	7.5	1.7	2.1
France	2.0	1.2 ^P	8.0	8.6 ^P	n.a.	1.6 ^P
Germany	2.7	2.4 ^P	8.1	8.1	n.a.	2.2
Italy	1.3	2.0	n.a.	n.a.	n.a.	1.7
Japan	2.4	2.1	4.1	3.9	0.2	1.1
United Kingdom	2.7	3.2	5.4	5.4	2.4	1.7
United States	3.0	2.1	4.7	4.6	2.1	2.8

Source: Various Central Banks and National Statistical Offices, IMF Estimates

P : Provisional

Sep*: Point-to-Point

Industrial Countries

During the quarter ended September 2007, economic activity in the United States expanded by 2.8%, following a moderate increase of 1.7% in the first half. The growth of real GDP for the most part reflected good performances in the majority of sectors in the economy, partly offset by a decline in residential fixed investments. Following a sharp downturn in the housing market, coupled with a significant fall in retail spending (except for automobiles), the Federal Open Market Committee reduced the federal funds rate from 5.25% to 4.75% at the end of September 2007. The consumer price index increased by 2.8% at the end of September 2007, compared to 2.1% in the similar period of 2006, while the average unemployment rate for the year to September 2007 was 4.6%, down 0.1 of a percentage point relative to the figure in September 2006.

The Canadian economy grew by approximately 2.4% during the review period. The demand for exports remained the key driver of economic growth, sustained by high commodity prices. Growth in overall export volumes, particularly to the US, however, remained weak. Consumer prices at the end of September 2007 were up by 2.5%, occasioned by mortgage interest costs,

homeowners replacement costs and gasoline prices. During the first nine months of 2007, the unemployment rate dipped to 5.9%, the first time since November 1974 that the rate had fallen below 6.0%. Employment climbed by 1.7% during the review period compared with growth of 1.3% in the corresponding period of 2006.

Economic growth in the Euro area was 2.8% during the first three quarters of 2007, virtually on par with output in the comparable period a year earlier. This performance was attributed to robust domestic demand and investments as well as the combination of higher interest rates and a stronger euro. The appreciation of the euro against the US dollar was supported by expectations of further monetary tightening on the part of the European Central Bank, in contrast to an anticipated easing in the United States. During the nine month period, the average unemployment rate was 7.5%, or 0.4 of a percentage point below the rate registered for the equivalent period of 2006, while consumer price inflation was 2.1% in September 2007, up from 1.7% a year earlier.

The United Kingdom (UK) economy expanded by 3.3% during the first nine months of 2007, amid strong domestic demand for goods and services, especially in the hotel and restaurant sub-sectors. The Bank of England, increased its Bank Rate by 0.25 of a percentage point to 5.75% to combat a possible resurgence of inflation. At the end of August, the annual inflation rate was estimated at 1.8%, compared to a year earlier, influenced by reductions in the cost of financial services, energy and clothing.

The Japanese economy grew by an estimated 2.1% during the first three quarters of 2007 down from 2.4% in 2006. The effects of falling prices contributed to the modest performance of the Japanese economy, as consumer prices went up by only 1.1% between September 2006 and September 2007. Nonetheless, Japan's industrial production rebounded in September, ending the worst manufacturing slump in almost two years. The average unemployment rate for the review period was estimated at 3.9% and the discount rate remained unchanged at 0.50%.

Emerging Markets

During 2007, the global economy continued to expand, with growth being strong and broad-based. Emerging markets were at the centre of this upturn, and, as a result, global growth became more balanced. The exports of emerging economies continued to rise and their effect on commodity prices intensified, with emerging Asia accounting for two-thirds of the increase in world energy demand since 2002. Growth in many emerging market countries was exceptionally strong in the first three quarters of 2007, amid a period of precariousness in the United States. China, India and Russia alone accounted for one-half of global growth over the period. Their economies continued to gain further momentum during the review period, while commodity-producing emerging economies such as Brazil, Chile and those in the Middle East continued to thrive, as commodity prices remained strong.

China's economy grew by 11.5% in the third quarter of 2007, adding pressure for faster currency appreciation and higher borrowing costs to curb inflation. For the first time China has contributed more to global GDP growth (measured at market exchange rates) than the US. Investment accounted for 42 percent of GDP expansion in the first nine months, versus the 37 percent share for domestic consumption. At the end of September 2007, inflation had cooled to 6.0% from an almost 11-year high of 6.5% in the previous month after food-price gains slowed. To curb inflation, the People's Bank of China raised the benchmark deposit and lending rates of financial institutions from 3.6% to 3.9%, and from 7.0% to 7.3%, respectively.

The Korean economy rose by an estimated 5.2% at the end of the third quarter of 2007. Employment continued to increase at a steady pace and inflationary pressures remained subdued. The Bank of Korea kept its overnight call rate unchanged at 4.5%, joining its counterparts in Europe, the U.K., Australia and Japan in keeping borrowing costs on hold as the U.S. subprime-mortgage problems clouded the outlook for global growth

at a time when South Korea's rising currency threatened export earnings. At the end of September 2007, inflation had been estimated at 2.3% and the unemployment rate was 3.0%.

The Indian economy expanded by 9.3% in the first half of 2007 and, in contrast to the rest of Asia was led by domestic demand. The economy continued to be driven by services and industry, grew at annual rates of 10.0% and 9.0%, respectively. Growth was also been supported by higher levels of savings and investment in the economy. At the end of September 2007, the inflation rate was 5.7% compared to 5.4% in the comparable period of 2006. The main lending rate remained steady at 7.8% at the end of April 2007.

The Latin American region registered its fourth successive year of economic expansion, averaging a steady 5.0%. Largely as a result of robust domestic demand and low levels of political disturbances, growth was accompanied by current-account surpluses, underpinned by higher prices for commodity exports and, in most countries, low-single-digits inflation is in low single digits. Economic activity in Latin America

Brazil's economic growth remained strong during the review period, buoyed by favourable interest rate differentials, healthy foreign direct investment inflows and booming exports. Industrial output grew by 6.8% in July, relative to the same month of the previous year. For the first seven months of 2007 the inflation rate was 2.3%, compared to 1.7% in the corresponding period of the preceding year, while the unemployment rate was 9.5%, down 0.2 percentage points

The Chilean economy grew at a faster pace, albeit with higher inflation of 5.8% at the end of September

2007. Consequently, the interbank rate was raised by 0.75 percentage points to 5.75% at the end of the third quarter to help reduce inflation. The fiscal surplus was estimated to be in excess of 8.1% of GDP, Chile's highest surplus in at least 20 years.

Preliminary data indicated that the Mexican economy expanded by 2.8% during the second quarter of 2007, after growing by 2.6% the first quarter. Growth at the end of the third quarter was expected to be lower in light of the sharper-than-expected slowdown in the US economy. Argentina's gross domestic product rose 8.7% percent year-over-year in the second quarter of 2007, as surging consumer spending continued to fuel a rebound from the 2002 financial crisis.

Commodity Prices

During the first three quarters of 2007, the overall commodity price index rose by 18.1%, driven by broad-based growth, mainly in petroleum and food prices. After increasing by 8.0% in the first quarter, the price of food continued to expand, growing by 14.2% by the end of September 2007. The price of wheat and soybeans advanced by 32.9% and 37.4%, respectively, during the January to September period and were the major determinants of the food price increase. The average price of petroleum surged, from US \$ 59.00 at the end of December 31, 2006 to US \$ 73.50 at the end of the review period. In line with strong demand by industrial countries for copper, zinc and nickel, the metal price index grew by 8.3%. In addition, the price of gold appreciated by 16.8%, as energy costs and a weakening dollar boosted the appeal of the precious metal as a hedge against inflation.

Commodity Prices

Commodities	Sep-06 ^R	Dec-06 ^P	Sep-07 ^P	% Change on September 06	% Change on December 06
Total (Index of Market Prices)	251.7	231.5	273.4	8.6	18.1
Non-Fuel (Index of Market Prices)	142.4	150.3	160.9	13.0	7.1
Food (Index of Market Prices)	108.0	110.9	126.7	17.3	14.2
Sugar (US ¢ / lb)	31.3	32.0	33.0	5.4	3.1
Bananas (US \$ / metric ton)	544.9	604.0	699.0	28.3	15.7
Rice (US \$ / metric ton)	312.9	307.0	331.0	5.8	7.8
Wheat (US \$ / metric ton)	196.0	207.0	275.0	40.3	32.9
Soybeans (US \$ / metric ton)	199.3	235.0	323.0	62.1	37.4
Metals (Index of Market Prices)	230.3	243.1	263.2	14.3	8.3
Aluminium (US \$ / metric ton)	2,484.4	2,728.0	2,549.0	2.6	-6.6
Iron Ore (US ¢ / metric ton unit)	77.0	77.0	85.0	10.4	10.4
Copper (US \$ / metric ton)	7622.6	7,069.0	7,717.0	1.2	9.2
Silver (US ¢ / troy ounce)	1144.0	1290.5	1,376.5	20.3	6.7
Gold (US \$ / troy ounce)	598.3	636.7	743.6	6.4	16.8
Petroleum (US \$ / barrel)	62.0	59.0	73.5	18.5	24.6

Source: IMF Commodity Prices

P: Provisional

R: Revised

**Regional Stock Exchanges*****Barbados Stock Exchange***

The Barbados Stock Exchange recorded an overall improvement in its performance during the third quarter of 2007, compared with the previous two quarters. This outturn was reflected in the Composite Index, which moved from 949.14 to 982.00, representing an increase of 3.5%. Market capitalisation on the Composite Index rose by 3.4%, moving from \$17.4 billion at the beginning of the period to \$17.9 billion at quarter-end. In addition, the Local Index expanded from 3,646.30 to 3,829.13 at end-September, representing a 5.0% increase. This movement was led by thirteen local companies, which advanced, while five declined, four remained firm and four did not trade during the quarter.

Barbados Shipping & Trading Co. Limited recorded the largest share price increase for the review period, with growth of approximately 63%. Barbados Farms Limited and BICO Limited followed with share price increases of 10.5% and 8.3%, respectively, for the quarter. Conversely, ANSA McAl (Barbados) Limited suffered the largest decline in share price of 9.9%, followed by the West Indies Rum Distilleries Limited, with a 5.6% decrease.

The volume leader in the regular market was Barbados Shipping & Trading Co. Limited, with 5.6 million shares traded, accounting for 45% of the total shares traded and making its stock the most liquid security for the period. The increase in share price and trading activity was partly due to the intense take-over battle for the company. As both volume and price leader, Barbados Shipping & Trading Co. Limited was also the value leader for the quarter, with the total value of its shares traded recorded at \$48.7 million.

Barbados Stock Exchange Volume Leaders

(July – September 2007)

Institution	Volume Traded (Millions)
Barbados Shipping & Trading Co. Limited	5.568
Goddard Enterprises Limited	1.851
Banks Holdings Limited	1.543
Sagicor Financial Corporation	1.134
Insurance Corporation of Barbados Limited	1.063

Source: Barbados Stock Exchange

The Cross-Listed index moved from 2,000.74 to 2,029.04, registering an increase of 1.41% over the review period. The marginal expansion came about as a 4.3% rise in RBTT Bank shares was offset by declines in the share prices of Neal and Massey Holdings Limited (by 3.5%) and One Caribbean Media Limited (by 1.7%). Market capitalisation for cross-listed companies went up from \$7.5 billion to \$7.6 billion.

Mutual Fund Performance

Local mutual funds reported their best quarterly showing of the year in the third quarter. The overall improvement in the performance of these funds was due to the steady increase in the price of local shares and the payment of dividends during the period.

Growth was recorded in eight instances, while there was no change in three mutual funds. This represented an improvement over the previous quarter's outcome, when three mutual funds declined. BNB Capital Growth Fund experienced the largest quarterly increase of 7.7%; this was a vast advancement from the second quarter outturn of a 0.9% decline. Following closely behind was Roybar Investment Corporation, which registered an expansion of 6.7%, up from a rise of 2.1% in the previous quarter.

Mutual Fund Performance By Net Asset Value

Mutual Funds	Sep. 30 '07 (BDS \$)	June 30 '07 (BDS \$)
Roybar Investment Corp.	4.13	3.87
Fortress Caribbean Growth Fund	4.75	4.49
Fortress High Interest Fund - ACC	1.3914	1.3642
Fortress High Interest Fund - DIST	1.0340	1.0130
BNB Income Fund	1.22	1.22
BNB Capital Growth Fund	1.26	1.17
BNB Property Fund	1.71	1.71
CLICO Balanced Fund Inc.	1.20	1.16
Sagicor Global Balanced Fund	2.16	2.10
Sagicor Select Growth Fund	1.15	1.11
Sagicor Preferred Income Fund	1.03	1.03

Source: Barbados Stock Exchange

Jamaica Stock Exchange (JSE)

During the quarter under review, there was a significant increase in trading volume on the JSE, with the number of shares traded amounting to 884.7 million units, valued at approximately JAM \$5,000.2 billion. Mayberry Investments Ltd was the volume leader for this quarter, accounting for 51.7% of market activity, followed by Cable & Wireless Jamaica Ltd with 16.8% and the Gleaner Company with 9.7%.

The JSE Index recorded an overall increase for the quarter, moving from 90,069.93 at the end of June to 97,885.05, up 8.6% as at end-September. Over the review period, 29 companies advanced, nine declined and four remained unchanged. Among the major companies advancing was Salada Foods, which had the best performance, with a 109.4% expansion in its share price, reversing the previous quarter's decrease. Mobay Ice Company registered a 73.6% increase and Ciboney Group a 66.7% rise. Supreme Ventures moved from being the best advancing company in the second quarter to become the major loser in the third quarter, with a 32.4% contraction.

Trinidad and Tobago Stock Exchange (TTSE)

During the third quarter, the TTSE Index experienced a turnaround, as it reported an increase of 1.9%, moving from 918.79 points to close at 936.57 points. Fourteen companies advanced, 14 declined and two traded firm.

Barbados Shipping & Trading Co. Limited headed the list with 66.8%. Guardian Holdings Limited followed with 27.6% and L J Willams Limited with 10.8%. National Flour Mills Limited was the major declining company, falling by 42.9%.

National Flour Mills Limited was the volume leader with 5,916,176 shares traded (15.9% of the market), followed by Barbados Shipping & Trading Co. Limited with 5,157,392 shares traded (13.9% of the market).

International Interest Rates

United States

Despite the housing slump and credit crunch associated with the collapse of the subprime mortgage market, reports indicate that the US economy posted strong growth in the third quarter. Nevertheless, the Federal Reserve (Fed) unexpectedly cut its key Fed Funds interest rate by 50 basis points in September, the first such cut in over four years, pushing the rate down to 4.75%. The action was taken largely to protect the economy against further negative fall-out from the subprime crisis.



**Top-Ten Regional Performers
By Share Price Appreciation (%)
Third Quarter 2007**

BARBADOS	(%)	JAMAICA	(%)	TRINIDAD	(%)
Barbados Shipping & Trading Co. Limited	63.34	Salada Foods	109.38	Barbados Shipping & Trading Co. Limited	66.76
Barbados Farms	10.50	Mobay Ice Company	73.57	Guardian Holdings Limited	27.62
C&W BARBADOS	9.01	Ciboney Group	66.67	L.J. Williams Limited	10.83
Bico	8.33	FirstCaribbean International Bank Jamaica	62.92	Flavorite Foods Limited	9.89
West India Biscuit Co.	4.88	Mayberry Investments Limited	49.79	Trinidad Cement Limited	6.76
RBTT Fin. Holdings Ltd	4.27	Carreras Group	27.21	Neal & Massy Holdings Limited	5.73
Insurance Corporation of Barbados	4.17	Pegasus Hotel	21.83	Sagicor Financial Corporation	5.56
Almond Resorts Inc.	3.90	Gleaner Company	18.92	RBTT Financial Holdings Limited	5.46
Goddard Enterprises Ltd.	2.99	Pulse Investments	15.00	Dehring Bunting & Holding Limited	4.76
Banks Holdings	2.75	Caribbean Cement	14.94	Agostini's Limited	3.84

Euro Zone

With inflation in the 13-nations euro zone remaining within the European Central Bank's (ECB) guidelines at just under 2%, the ECB was able to keep its benchmark rate steady at 4% during the third quarter. This neutral stance came as a result of concerns about market volatility given the possibility that the expanding sub-prime crisis in the U.S. could have knock-on effects in Europe.

United Kingdom

The Monetary Policy Committee (MPC) of the Bank of England (BoE) had hiked interest rates on five occasions between August 2006 and July 2007, each time by a quarter-point, to tackle high inflation. Toward the end of the third quarter of 2007, however, the MPC decided to keep British borrowing costs on hold at 5.75%, the highest level for six and a half years, as the BoE's tightening phase was

tempered by concerns about the impact of the global credit squeeze on the domestic economy and indications that the previous rate hikes had succeeded in reining in inflation.

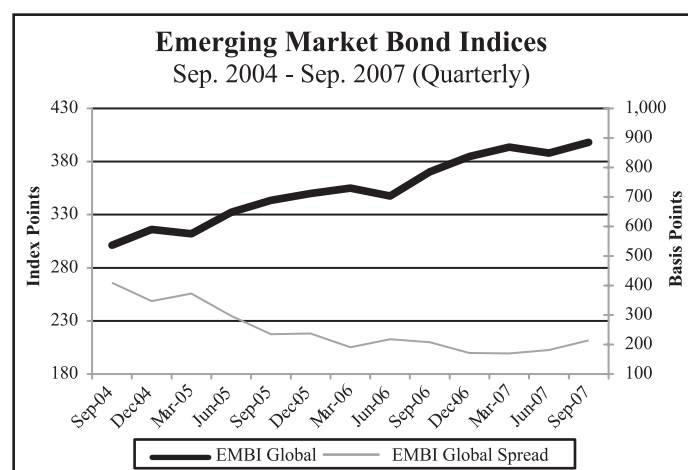
Canada

In contrast to the other major central banks, the Bank of Canada (BoC) tightened its monetary policy stance during the third quarter. It raised its key overnight interest rate by a quarter point to 4.5% - the first rate hike since May 2006, signaling its intention to bring inflation back down to its 2% target over the medium-term.

Emerging Markets

Bond Markets

In light of the uncertainty amongst global investors surrounding the U.S sub-prime mortgage securities, emerging bond spreads widened moderately for the third quarter of 2007, while the global emerging bond index increased by only 10 basis points during the period. Consequently, Asian bond sales plummeted by about 75% for the review period, which was the biggest loss registered in six years, as the US liquidity and credit crunch took effect. Companies in Asia, excluding Japan, sold approximately \$4.4 billion in bonds denominated in US dollars, Euros and Yen during the third quarter of 2007, compared to a record \$17.7 billion in the same period of 2006. Similarly, Latin American bond sales slowed somewhat when compared to the corresponding period a year earlier.



Equity Markets

During the review quarter, emerging Asian equities were among the best performers in this segment of the market, continuing to show robust growth despite speculation that some stocks were linked to the debt crisis in the U.S market.

Emerging Market Equity Indices (Quarterly)

Country/Region	Index	Jun-07	Sept-07	% Ch
Argentina	Merval	1644.85	1587.55	-3.5
Brazil	Bovespa	54392.06	60465.06	11.2
Chile	IPSA	3470.18	3249.00	-6.4
Mexico	IPC	31151.05	30296.19	-2.7
Venezuela	Caracas	39698.12	37282.79	-6.1
Latin America		3754.18	4139.64	10.3
China	Shanghai	3820.703	5552.301	45.3
Hong Kong	Hang Seng	21772.73	27142.47	24.7
India	Mumbai	14650.51	17291.1	18.0
Indonesia	Jakarta	2139.28	2359.206	10.3
Malaysia	Kuala Lumpur	1354.38	1336.30	-1.3
Philippines	PSE	3660.86	3572.90	-2.4
Singapore	Straits Times	3548.20	3706.23	4.5
South Korea	Seoul	1743.60	1946.48	11.6
Thailand	SET	776.79	845.50	8.8
Taiwan	Weighted	8883.21	9476.52	6.7
Asia		435.61	513.35	17.8

Source: Bloomberg Service

Emerging Market Currencies (Quarterly)

Country/Region	Currency	Jun-07	Sept-07	% Ch
Argentina	Peso	3.09	3.15	1.9
Brazil	Real	1.93	1.83	-5.2
Chile	Peso	527.55	510.47	-3.2
Mexico	Peso	10.81	10.94	1.2
Venezuela	Bolivar	2147.30	2147.30	0.0
China	Yuan	7.61	7.51	-1.3
Hong Kong	Dollar	7.82	7.77	-0.6
India	Rupee	40.70	39.77	-2.3
Indonesia	Rupiah	9025	9105	0.9
Malaysia	Ringitt	3.45	3.41	-1.2
Philippines	Peso	46.19	44.95	-2.7
Singapore	Dollar	1.53	1.48	-3.3
South Korea	Won	923.60	915.25	-0.9
Thailand	Baht	31.70	31.88	0.6
Taiwan	Dollar	32.85	32.67	-0.5

Source: Bloomberg Service

China's Shanghai index and Hong Kong's Hang Seng index rose by 45.3% and 24.7%, respectively. While Latin American stock markets significantly underperformed their Asian counterparts, the Brazilian Bovespa was able to register double-digit growth during the quarter.

In Brazil the leading stocks on the Bovespa index were Aracruz Celulose and Cia. de Bebidas das Americas, which increased by 2.4%, and 2.7%, respectively, over the review quarter. On the other hand, the IPSA index in Chile declined by 6.4%, as a 3.1% rise in the share prices of Compania Cervecerias Unidas (a beer brewer), was insufficient to offset a fall in stocks such as the Masisa on the American market. Similarly, the Mexican IPC decreased by 2.7% for the third quarter, with the stock of Cydsa (producers of plastic piping, cellophane and sweaters) falling by 4.2%.

Global initial public offering (IPO) activity was driven by the emerging markets of Brazil, Russia, India and China, which together raised about US\$27 billion in a record 118 IPOs, including seven of the 10 largest IPOs in the third quarter. Companies in China and Hong Kong

raised an estimated US\$14 billion through IPOs in the third quarter of 2007, more than twice the US\$6 billion raised in the corresponding period of 2006. China alone completed a record 77 IPOs for the quarter, compared to 31 IPOs in the same period a year earlier.

Currency Market

Emerging market currencies were relatively volatile during the third quarter of the year, as they were affected by the growing credit crisis and associated investor risk aversion. The Brazilian real and Chilean peso declined by 5.4% and 3.2%, respectively. In contrast, the Mexican peso and the Argentine peso rose by 1.2% and 1.9%, respectively, over the review period. Meanwhile, China's yuan, India's rupee and Hong Kong's dollar all depreciated during the quarter, as these economies faced increasing inflationary pressures. The robust capital inflows in India also served to place enormous pressure on the rupee, which declined by 2.3% in the third quarter of the year, while the Singapore and Taiwan dollars, along with the South Korea won, decreased by 3.3%, 0.5% and 0.9%, respectively.



Recent Developments in the CARIFORUM-EU Trade Negotiations: Special Focus on the Implications for the Regional Sugar Industry

Over three years ago, in keeping with the objectives of promoting economic development and integration into the global economy, the Caribbean Forum (CARIFORUM)¹ and other African, Caribbean and Pacific (ACP) countries launched Economic Partnership Agreement (EPA) negotiations with the European Union (EU). The decision to launch negotiations was driven by the need to replace the current trade arrangements Cotonou under the Agreement², which are non-reciprocal and therefore require a waiver from the World Trade Organisation (WTO). Presently, deliberations are still ongoing, begging the question as to whether an agreement can be reached before the December 31st 2007 deadline, which is also when the waiver is set to expire. This article therefore looks at recent developments in the CARIFORUM-EU negotiations and the challenges CARIFORUM countries face if a decision is not made by the end of the year, with a special focus on the implications for the regional sugar industry.

Recent Developments in the Negotiations

According to Caribbean Regional Negotiating Machinery (CRNM) reports³, offers have been presented on services and non-services investment and there has been some progress on trade-related issues (TRIs). There has also been progress on market access issues such as Sanitary and Phyto-Sanitary (SPS) measures, Technical Barriers to Trade (TBT), trade defence measures and trade facilitation.

Much has therefore been accomplished in the negotiations to date; yet the discussions have been controversial in the lead-up to the final phase of deliberations, and there are still some challenges that must be resolved. Market access remains among the most critical issues to be discussed, particularly with regard to tariff liberalisation and rules of origin, as well as improved access for Caribbean bananas and a better sugar agreement to replace the Cotonou sugar protocol⁴.

The sugar protocol, in which the EU grants ACP sugar exporters a guaranteed price, was designed to protect the livelihood of sugar producers on both sides by ensuring that they receive a fair income, and has played a vital role in the economic development of ACP countries. Under this protocol, ACP countries enjoyed an arrangement where their sugar exports were priced at just under 30 U.S cents per pound on the EU market, compared to less than 9 U.S cents per pound on the world market⁵. Fautrel and Makhan noted that in some cases, sugar exports which received preferential access to the EU markets at guaranteed high prices, accounted for over one quarter of national Gross Domestic Product (GDP), and no less than 85 percent of total agricultural exports in the respective ACP countries⁶.

Already modifications have been made to this protocol that are disadvantageous to ACP sugar exporters. The agreement was challenged in 2003 by Australia, Brazil and Thailand and as a result changes were proposed which entailed drastic cuts in the preferential price paid to ACP producers. When the proposal was tabled in 2004, Caribbean sugar producers were faced with a loss of income of about US\$180 million and were expecting an annual loss of US\$90 million thereafter.

¹ The countries that comprise the CARIFORUM region are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago.

² The 2000 Cotonou Agreement is the latest in a series of agreements, beginning with the 1957 Treaty of Rome, which provide a legal framework for ACP-EU relations.

³ See www.crnmm.org

⁴ The Sugar Protocol was established on February 28, 1975, as a stand-alone sub-agreement (Protocol 3 to Annex IV) within ACP-EU cooperation arrangements, which at the time took the form of the Lomé Convention and have since evolved into the present-day Cotonou Agreement. More information can be found in the Trade Update of the December 2004 Economic Review, Central Bank of Barbados.

⁵ "A Review of CARIFORUM-EU Regional Economic Partnership agreement Negotiations to Date", Trade Update June 2006 Economic Review, Central Bank of Barbados.

⁶ Fautrel, V. and D. Makhan, "EU-ACP sugar trade and the EPAs: taking the sweet with the sour", http://www.acp-eu-trade.org/library/files/TNI_EN_6-6.pdf. Pgs 3-5, October 2007.

Then, in April 2007, the EU endorsed a plan to abrogate the protocol effective October 1, 2009, when the EU's EPA market access offer for sugar would take effect. Under this offer, ACP countries would be granted duty- and quota-free access to EU markets for all products upon entry into force of an EPA, with transitional arrangements for sugar and rice. Full market access for sugar would be phased in over time in three stages and the intention is to gradually remove

price and volume guarantees (**Box 1**). Arising from the new offer, it is estimated that ACP countries would incur income losses amounting to €468 million over the 2006 to 2010 period. However, this estimate does not include the losses incurred by the less competitive ACP protocol countries, such as the CARIFORUM states, that are either on the verge of abandoning or have totally abandoned sugar production due to the price cuts⁷.

Box 1: EU market access offer on sugar – as set out on April 04th 2007

Phase one: Jan 1, 2008 – Sept 30, 2009

- Continuation of the protocol until September 30th 2009 with guaranteed prices.
- Substantial improvement of Least Developed Countries (LDCs) market access for 2008/09 through additional quantities to those foreseen under the “Everything but Arms” initiative.
- Initial market access for non-ACPs not party to the protocol.
- Additional market access for non-ACPs party to the protocol.

Phase two: Oct 1, 2009 – Sept 30, 2015

- Free access for ACP sugar subject to an automatic volume safeguard clause. This safeguard would only be applied to non-LDC ACPs, allowing a substantial increase in exports.
- Until September 2012, importers of ACP sugar would be required to pay above a certain price level. After 2012, a price-information scheme based on the current system would offer market transparency.
- A limited number of processed agricultural products with high sugar content would be subject to a surveillance mechanism in order to prevent evasion of the sugar-import regime.

Phase three: from Oct 1, 2015

- ACP sugar would be duty-and quota free subject to a special safeguard clause for sugar. This safeguard clause could be based on the regular EPA safeguard but adjusted to take account of the sensitivity of sugar.

Source: Fautrel, V. and D. Makhan, “EU-ACP sugar trade and the EPAs: taking the sweet with the sour”, October 2007.

Indeed, St. Kitts and Nevis ceased the production of sugar, with Trinidad and Tobago planning to follow suit, while other Caribbean producers have sought to rationalise

production in anticipation of lower prices (**Table 1**), which would effectively render them uncompetitive relative to lower-cost non-ACP producers. Alternatively, some have sought to increase value-added through the development of sugar refining and through the packaging and marketing of branded Caribbean sugar. For example, Barbados has embarked on a new project that entails abandoning the exportation of raw sugars. Instead, the intention is to sell higher-quality branded sugar such as ‘Plantation

⁷ Note that 20 ACP countries signed the original sugar protocol, but only 18 now have quotas. Both St. Kitts and Nevis and Trinidad and Tobago have resigned.

Reserve' to the European market. It is hoped that these new developments would place the regional industry in a stronger position if the EU were to make further price cuts.

Table 1: Changes in price for ACP raw sugar

Year	Price per tonne	% change (cumulative)
Previous regime	€523.7	0
2006/07	€496.8	-5.1%
2007/08	€496.8	-5.1%
2008/09	€434.1	-17.1%
2009/10	€335.0	-36.0%

Source: Agritrade, April 2007⁸

It should be noted, however, that this regime would only be put in place if CARIFORUM accepts the EU offer and, indeed, if an EPA materialises.

Risks and Challenges

In the absence of an EPA, the default or fall-back option for ACP countries would be the EU Generalised System of Preferences (GSP), with differential consequences for individual ACP states. All previously tariff-free CARIFORUM exports to Europe would now face a tariff, including the Caribbean's largest exports. The African states, most of which are classified as LDCs, would still stand to benefit from non-reciprocal preferential access to the European market under the special 'Everything but Arms' arrangement covered by the GSP regime.

In contrast, the CARIFORUM states, with the exception of Haiti, have few alternatives. One option that could be considered by the region is that of a proposed GSP+ arrangement. Under this arrangement 7,200 products covered by the Standard GSP, from small and vulnerable

countries like those of the Caribbean, are granted duty-free access. However, this arrangement may provide better benefits than those offered under the Standard GSP to a few Caribbean exports but not to the majority.

For most ACP countries the EU is the main trading partner, accounting for €28.4 billion of their exports and €26.5 billion of their imports in 2004.⁸ The bulk of the export sales to the EU by the CARIFORUM countries were made under the preferential access vehicle of the protocol. Without an EPA or a viable alternative the abrogation of the sugar protocol would mean that ACP sugar-exporting countries, especially those from the Caribbean, would face major competition from cheaper non-ACP sugar exporters, like Cuba, Brazil and the African states of Mozambique, Malawi, Zimbabwe, Mauritius and Sudan on the world market. Therefore, meeting the deadline for the completion of the EPA is critical to the CARIFORUM states.⁹

Conclusion

Market access for goods remains the most challenging aspect for the finalisation of the discussions. In particular, proposals on safeguarding the sugar industry in the CARIFORUM region remain unacceptable to the EU. The EU's Trade Commissioner Peter Mandelson has stated that the countries that are able to complete the full EPA by the stipulated deadlines will benefit from the full development potential of the agreement. However the CARIFORUM countries view the EU Commissioner's offer as "insufficient" to safeguard all tangible and intangible benefits of the sugar protocol, which extends beyond preferential treatment on EU markets. Nevertheless, while several risks and challenges remain, establishing an EPA in accordance with the negotiating schedule is still of critical importance. The prospects for achieving this goal will be solely determined by the political will of both parties involved to achieve an EPA of mutual interest.

⁸ Fautrel, V. and D. Makhan, "EU-ACP sugar trade and the EPAs: taking the sweet with the sour", http://www.acp-eu-trade.org/library/files/TNI_EN_6-6.pdf

⁹ "Meeting the EPA Deadline: What's at Stake for the Caribbean". RNM Update 0706, April 2007. www.crnw.org



A Review of Leading Composite Indicator Indexes: Making a Case for Their Use in Caribbean Economies

Gladys Cotrie, Roland Craigwell and Alain Maurin*

Abstract

In this article, three issues relating to leading composite indicator indexes (LCIIs) are discussed: their importance, methods of estimation and uses by institutions worldwide. This discussion is utilised to provide lessons that could be learnt for the application of these indexes to the countries of the Caribbean. The principal message of this material is that in this geographical area, LCIIs would be important

tools for economic decision makers to employ to forecast the future state of the economy. This option should be pursued vigorously by putting the necessary resources into developing the high frequency real sector data that is required for a successful application of the LCII methodology.

Keywords: Business cycles; Leading composite indicators

Introduction

All countries in the world, in one period or another, have been affected by social disruptions caused by economic crises. The social difficulties that occurred in Asia and Latin America, after their respective economic and financial crises in 1997 and 2001, are a recent illustration. One important lesson learnt from this long history of crises is that decision makers must develop short-term economic indicators to help them to adequately model and forecast the changing pattern of economic activity. These indicators could aid in the circumvention of these crises, especially if they are diagnosed early, through timely appropriate policy action, bringing the economy back to the desired path. An understanding of the manner in which economic growth evolves could also aid in forecasting tax revenue and the level of unemployment, among other variables. For their part, firms must rely on short-term analysis and forecasts in order to manage their business optimally. And, households will alter their saving and

consumption strategies by taking into account the economic climate and the evolution of the labour market.

Developing these economic indicators is not an easy task, as sectoral movements in economic activity are not uniform and vary in different directions. That is, certain sectors are affected quickly (slowly) by growth changes, have large (small) impacts and lead (lag or coincide) the business cycle. Nevertheless, countries in the industrialised world have established agencies to develop indicators and methodologies suitable to model and forecast short-term economic movements. The National Bureau of Economic Research (NBER) in the United States of America (US) and the European Commission along with the Organisation for Economic Cooperation and Development (OECD) in Europe are examples of such institutions. Indeed, research efforts on these indicators at the European Commission and the OECD have been so prolific that one can now speak of a business cycle for Europe as a whole (see, for example, European Commission, 2006; OECD, 2006).

Several methods ranging from the relatively simple univariate time series procedures to the more complex large-scale macroeconomic models are available to conduct economic analysis of short-term forecasting (for a survey, see Fagan and Fell, 1991). However, the approach of leading composite indicator indexes (LCIIs), which is based on a weighted aggregate of various component series, each one defining a particular area of the economy, have been the most successful. They provide more accurate forecasts by combining qualitative methods (mainly from consumer and business surveys) with quantitative methods such as simple linear regression models or the more sophisticated vector auto- regressions and state space models (see

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Lahiri and Moore, 1991; Dua, 2004; Nilsson and Brunet, 2006). In addition, LCIIIs do not only rely on theoretical relationships for their specification, but may depend on an empirical ratio that exists among the data series (see Espasa and Albacete, 2004).

In spite of the importance of studying short-term economic changes, the LCIIIs is not the norm in most developing countries. In the small open economies of the Caribbean, the main focus of this paper, except for the recent rudimentary studies by Cotrie (2005) and Cotrie, Craigwell and Maurin (2006) on Barbados and the private company, Caribbean Money Market Brokers (CMMB), on Trinidad and Tobago cited in Williams (2006) and the Caribbean Investor (2006), respectively, this practice is non-existent. Given that in small developing countries like the Caribbean, it is normal for periods of economic fluctuations to be more frequent and pronounced than in the developed economies (see Craigwell and Maurin, 2007), there is a dire need to implement indicators that can help to model and forecast the changing pattern of economic activity in these territories. This paper examines the current literature on LCIIIs with a view of ascertaining their applicability to the small islands in the Caribbean. The discussion is structured in four parts. First, the importance of LCIIIs is presented, followed by a brief review of the main strands of methods for calculating LCIIIs and then, a presentation of the main LCIIIs used in the world is made. Finally, the requirements for the employment of LCIIIs to Caribbean economies are outlined.

2. The Importance of LCIIIs

In the social and economic history of each nation in the world, one can identify periods in which social catastrophes were caused by economic crises. These episodes of economic-led unrest have meant that devices for modelling and forecasting economic movements in the short run have become paramount to decision-makers of all types. Theoretical and empirical contributions of this short-term economic analysis have been accumulating since the beginning of the 1960s, and today, it enjoys the status of being a complete discipline on its own and constitutes an essential know-how of the statistician-economist's toolkit.

Its objectives and its field of investigation are threefold: diagnosis of the present economic situation, statistical study of the economic fluctuations, and the modelling and forecasting of the economy at the sectoral or aggregate level.

One aspect of the economic analysis of short-term forecasting that has become quite successful in the last few years is the development and use of LCIIIs. These indexes result from the aggregation of various component series, each one giving a different view of a particular area of the economy. Thus, from a practical point of view, LCIIIs are defined as combinations of various economic indicators that include sectoral macroeconomic production data, information relating to stocks and orders, people opinions about economic activity, monetary and financial statistics, employment figures, foreign trade data, among others. Naturally, the art of the combination employed lies in the choice of the components on the one hand and, the proportioning of their influence signalled by their weighted value on the other.

The sectoral movements of economic activity are not uniform since the impact on the dynamics of growth of certain sectors can be large or small, and swift or delayed. To anticipate the evolution of the level of economic activity, it is therefore important to identify the variables that are precursory to the changes in gross domestic product (GDP), the measure that is often used to monitor a business cycle, which comprises alternating periods of economic upturns and declines. For example, it is generally accepted that the industrial branches of the economy lead the cycle since they are often the suppliers of the other branches. In the same way, several indicators are pro-cyclic, for instance, permits for the construction of new buildings, the production of cement, etc.

Once the indicators have been selected and the estimates of the values of the LCIIIs obtained by means of a suitable descriptive or econometric technique, one is then in the operational phase of its use, that is, reflecting the economic evolution on the one hand and forecasting the turning points between the phases of expansion and slowdown in economic activity on the other.

2.1 How Can LCIIIs be Used?

Taking into consideration the elements already described, it is clear that LCIIIs would be very useful for the private and public sectors of the Caribbean. The examples given below illustrate this.

2.1.1 Regulating Economic Activity

Firstly, LCIIIs can contribute to the formulation of economic policies that allow governments and central banks to allocate financial resources and regulate economic activity optimally. That these indicators are useful is exemplified by the fact the OECD has calculated LCIIIs for 29 of its 30 member countries and various sub-groupings (OECD, 2006). LCIIIs can be used to forecast the level of growth that governments in the Caribbean require to compute projections of tax revenues or for that matter, any other critical macroeconomic variable. Another possible application is at the sectoral level. In the Caribbean, there is obviously broad consensus surrounding the key role played by the tourism industry. For the majority of Caribbean states, it occupies an important place in the total value of exports of services. Given the recent exogenous shocks (natural disasters, acts of terrorism and war) to tourism and their potential direct and indirect repercussions on the economies of these small countries, LCIIIs seem to be a useful and powerful tool for tourism planners to adopt to reduce the deleterious consequences of these shocks.

2.1.2 Usefulness to the Private Actors

Alongside the decision makers of Government, LCIIIs are also important to the very varied private agents like research services in the commercial banks, financial markets, potential investors, etc. As with Governments, economic actors in the private sector value the information from LCIIIs - which signals in advance the dates and periods of changes in the business cycles - since it could cause them to lose or gain billions of dollars as a result of the direct and indirect ramifications of the variations of the growth in GDP. Delieu (2003) offers an excellent description of the issue at a business level by emphasising that planning and especially budgeting – which is where a

macroeconomic scenario is developed, based on forecasts of sales, price and production to generate a credible and consistent cash flow for the firm – provides the link that allows for the integration of the forecasting and management functions. Concrete illustrations that LCIIIs are important to private economic agents are seen in the many newspapers (The Times Magazine in the US and the Echoes in France, for instance) that **publish information** on LCIIIs for the business and financial world.

Below are two examples to underline why private economic agents in the Caribbean should devote some time to forecasting the economic situation in the economy. Before engaging or investing in new equipment, companies need to know the general direction of the demand for their products. In the Caribbean where domestic markets are relatively narrow and where companies are usually vulnerable to external markets, forecasting the general direction of economic activity becomes essential. Likewise, before placing their savings or going into debt to acquire housing or buy durable goods, households need to know whether prices and interest rates are too high or too low and if they will decrease or increase. These price expectations are partly dependent on the future state of the economy.

3. Methods of Developing Indicators

Since the pioneering works of Burns and Mitchell (1946) at the NBER in the US, a number of other methods for constructing economic indicators have been developed. These methods can be grouped under three headings: (i) the traditional descriptive NBER approach; (ii) the econometric method, which can be classified into single or multivariate analysis, and (iii) the modern qualitative approach. All are founded in the abstract concept of the “economy in steady-state or equilibrium” which is an unobservable variable and they propose estimating this variable using a range of available economic indicators.

3.1 The Traditional NBER Approach

This is a non-parametric approach where the indicators corresponding to the desired estimator of the unobserved variable are constructed based on the

weighted average of a number of specific economic indicators. Mathematically

$$X = \sum_{k=1}^n w_k I_k$$

where X represents the desired indicator, I_k is the k^{th} selected coincident or leading series, and w_k is the weight associated with I_k . The choice of the I_k components depends on simple observational facts such as economic significance, statistical adequacy, timing at revivals and recessions, conformity to historical business cycles, smoothness and timeliness. These criteria are given different arbitrary weights and then multiplied and aggregated with the characteristics to give an overall, largely subjective, score that lies between 0 and 100. The best scores within the several groups of series that describe the different facets of the economy are chosen. This method is used worldwide by organisations engaged in business cycle analysis, of which the best known is the NBER. Other institutions such as the Organisation of Economic Cooperation for Development (OECD) also employ a modified version of this method. It should be noted that experiments in Canada and the US used unweighted components, which perform just as good as the weighted components (OECD, 2006).

One concrete example is from the Conference Board's monthly publication of the Survey of Current Business (see Cudeville and Gregoir, 2000), which uses as leading indicators average weekly hours in the manufacturing sector, average weekly initial claims for unemployment insurance, manufacturers' new orders for consumer goods, materials, and nondefense capital goods, vendor performance, building permits for new private units, stock prices, money supply, interest rate spreads and the index of consumer expectations.

3.2 Econometric Models

The main weakness of the NBER approach is the pragmatic nature in which the retained variables and procedures to combine them into indexes are chosen. This pragmatism touches on the root of their reliability and usefulness as composite indexes. To address this criticism,

it is necessary to develop a formal statistical framework that gives a more complete account of the descriptive NBER approach. The need for this statistical underpinning is the basis for developing the econometric approach of computing composite indicators, which can be neatly classified into two categories : multivariate and single equation analyses.

3.2.1 Multivariate Econometric Analysis

There are many types of multivariate data methods but the most popular one used to construct composite indicators in economies is dynamic factor analysis. It provides a parsimonious representation of a set of observations by expressing the variables in question as linear functions of latent variables, called common factors. According to the theory of dynamic factor analysis (see, for example, Nardo, Saisana, Saltelli and Tarantola, 2005) each variable has a component attributable to a single unobserved (latent) variable (the state of the economy) plus an idiosyncratic component that is assumed to be uncorrelated with the other idiosyncratic components as well as the unobserved common "state of the economy" at all leads and lags. In a case like this, the coincident indicator appears to be the natural common factor. Stock and Watson (1989, 1991) seized on this observation and developed such a model using US data.

The Stock and Watson Method

On the basis of the principle that a business cycle results from the combination of the movements of several macroeconomic variables, Stock and Watson (1989, 1991) proposed a model that is based on the decomposition of several series into a common component and an idiosyncratic component. By noting that Y_t is the vector of n initial series, in logarithms, ΔC_t , their common unobservable component, representative of the current state of the economy and, u_t , the vector of the idiosyncratic components, the specification of Stock and Watson is written as

$$\begin{cases} \Delta Y_t = \beta + \Theta(L)\Delta C_t + u_t \\ D(L)u_t = \varepsilon_t \\ \Psi(L)\Delta C_t = \delta + \eta_t \end{cases}$$

This specification has its mathematical underpinnings in the set of tools and concepts associated with state-space modelling, which assumes that models are structured around space equations (for example, the first equation in (1)) and equations pertaining to transition between states (for instance, the other two equations in (1)). Moreover, Stock and Watson (1989,1991) make a number of fairly strong assumptions: (i) there is no autocorrelation between the error terms ε_t and η_t ; (ii) ΔC_t and the errors $u_{1t}, \dots, u_{nt}$ are not serially correlated among themselves; (iii) ΔC_t is the only component common to all the series and represents the only source of dynamism in the system, and (iv) the series $Y_{it}, i = 1, \dots, n$ may be integrated but they are not co-integrated.

It should be clear that the assumption that the co-movements of the multiple time series arise from the single source ΔC_t is the thrust of the dynamic factor model mentioned above. This connection is made even more precise by positing that $u_{1t}, \dots, u_{nt}$ and ΔC_t are mutually uncorrelated at all leads and lags, which in the state space framework above is achieved by making $D(L)$ diagonal and the $n+1$ disturbances $(\varepsilon_{1t}, \dots, \varepsilon_{nt}, \eta_t)$ mutually and serially uncorrelated. In addition, ΔC_t only enters contemporaneously in at least one of the variables in the first equation of (1).

Since their approach is based on state-space models, Stock and Watson (1989, 1991) used the maximum likelihood of the Kalman filter to estimate the unobserved variable C_t . Essentially, it is obtained utilising the estimated value of ΔC_t conditional on the information available at time t and denoted $\Delta C_{t|t}$, which represents a linear combination of the present and past values of the different components of the vector:

$$\Delta C_{t|t} = W(L)\Delta Y_t \quad (2)$$

where $W(L)$ is the vector of weights.

To calculate the LCII two stages are required. In the first, a set of leading variables that predict the coincident indicator is needed. The synthetic LCII is the estimate of the future growth of the unobserved factor over the next 6 months (two quarters), computed using the chosen set of leading indicators. The index is in fact simply the expected difference between the value of the coincident indicator in 6 months and its current value $(C_{t+6|t} - C_{t|t})$. Thus, the

Stock and Watson estimator is not a prediction of the level of economic activity as in the original NBER method but rather a forecast of the growth in C_t over six months. The two are, however, closely linked, since the LCII is defined by $(C_{t+6|t} - C_{t|t})$, the coincident indicator is given by $C_{t|t}$ and the sum of the two indicates the predicted level of future economic activity $C_{t+6|t}$ which is the forecast of the (log) level of the coincident indicator two quarters ahead.

The second stage of the LCII calculation uses information from the estimation of the following vector autoregressive (VAR) model:

$$\begin{aligned} \Delta C_t &= \mu_c + \lambda_{cc}(L)\Delta C_{t-1} + \lambda_{cy}(L)Y_{t-1} + V_{ct} \\ Y_t &= \mu_y + \lambda_x(L)\Delta C_{t-1} + \lambda_y(L)Y_{t-1} + V_{yt} \end{aligned} \quad (3)$$

where Y_t is a vector of stationary leading indicators, V_{ct} and V_{yt} are non-serially correlated error terms, and $\lambda_{cc}(L), \lambda_{cy}(L), \lambda_{yc}(L)$ and $\lambda_{yy}(L)$ are lag polynomials whose orders are determined empirically using statistical criteria such as that of Akaike. Solving the equations of the VAR and using the calculated value of the coincident indicator C_t in the first stage, one can determine the value of the LCII, Y_t .

3.2.2 Single Equation Econometric Models

This approach is a simplification of the Stock and Watson method and seems valuable when the sample size is small (see Grassman and Keereman, 2001; Charpin, 2002; Mongardini and Saadi-Sedik, 2003; Heyer and Péléréux, 2004). The difference between the two is in how the weights are determined. The single equation econometric model, instead of employing the state space methodology, derives its weights by choosing a reference series that is closely related to GDP, and then regresses this series on the set of chosen coincident indicators. This regression can take various forms. For example, Mongardini and Saadi-Sedik (2003) estimate the following simple regression with a moving average of order one for Jordan

$$\begin{aligned} \Delta IPI_t &= \alpha + \beta \Delta LCI_t + u_t \\ u_t &= \varepsilon_t + \theta \varepsilon_{t-1} \end{aligned}$$

where ΔIPI is the growth rate of the reference series (usually seasonally adjusted industrial production index), ΔLCI_t is a vector of the seasonally adjusted coincident indicators expressed in growth rates, u_t is an error term with a moving average component of order one. In the case of France, Heyer and Péléréux (2004) used an equation of the growth rate of GDP on survey data of industry.

Recently, Simone (2001) has proposed to use Autoregressive Distributed Lag (ARDL) model for constructing composite indicators. A small ARDL model of real GDP was estimated for the purpose. The basic steps may be described as follows: an indicator that is individually co-integrated with real GDP is used as a starting point. Other indicators are added to the regression one at a time. Once an indicator is added, the expanded vector is also checked for co-integration. The unrestricted models are tested to see if the contemporaneous indicators could be eliminated. If the contemporaneous indicators can be eliminated, this implies that only past information for an indicator can be used to forecast real GDP. The unrestricted model that has this property is considered to be a candidate to construct a leading indicator. The several models selected using this process are ranked according to the fit as well as out-of-sample forecast performance. It should be noted that for these estimates (weights) to be valid all of these single equations should satisfy the standard diagnostic checks of least square regressions.

For the weights of the LCII a similar procedure used to calculate those of the coincident indicator is employed, that is, determine the leading indicators and then estimate the statistical relationship. Mongardini and Saadi-Sedik (2003) employed

$$\Delta IPI_{t+2} = \alpha + \beta \Delta LLI_t + u_t$$

$$u_t = \varepsilon_t + \theta \varepsilon_{t-1}$$

as their function, where ΔIPI_{t+2} is the growth rate of the seasonally adjusted IPI two quarters ahead, $\beta \Delta LLI_t$ is a vector of seasonally adjusted leading indicators and u_t is an error term with a moving average component of order one. In contrast, Heyer and Péléréux (2004) used the following equation for France:

$$\ddot{Y}_t = \alpha_0 + \alpha_1 Ind_t + \alpha_2 Bat_{t-2} + \alpha_3 Serv_{t-2} + \alpha_4 PP_{t-4} + \alpha_5 TCR_{t-2} + \alpha_6 ETR_{t-3} + \varepsilon_t$$

where $\ddot{Y}_t$ is the growth rate of GDP; Ind_t , Bat_t and $Serv_t$ represent the economic survey data for industry, construction and services, respectively; PP_t , TCR_t and ETR_t are real oil prices in euros, the real rate of change in the dollar/euro exchange rate and the spread between short and long-term interest rates.

3.3 The Qualitative Approach

This approach is based solely on business tendency surveys - also called business opinion or business climate surveys - and seeks the opinions of economic agents (companies and individuals) about the current economic situation of businesses and plans and expectations for the near future. These opinions are collected, weighted accordingly and aggregated into an index along similar lines to the two methodologies discussed above. These tools have many advantages which can be categorised into three levels. One, their results can be known quickly, that is, within a few days after the end of the reference period. For industrialised countries and some developing economies, the update of the accounts for quarter T is usually made about the middle of the last month of the T+1 quarter. However, with business tendency surveys, investigations of each month in this T+1 quarter can be carried out easily. Two, the information collected is very reliable. Using a qualitative indicator index for the Euro zone, Baron and Baron (2002, pp. 102) underlined this reliability by stating that “synthesising the opinions of the industrialists on the past and future tendencies of production, the level of the order books (domestic and foreign) and the level of stocks of finished products, these investigations show few revisions and are strongly correlated with the growth of industrial production”. Finally, these qualitative indexes are very versatile. For instance, they include indicators known as climate indicators that are designed specifically to evaluate the state of the economy and indicators called reversal indicators used to forecast the points of reversals. In addition, they can give advanced estimates of the

macroeconomic indicators like GDP and the index of the industrial production.

The originality of the qualitative approach stems from the use of very simple qualitative data from businesses and consumers, which are then fitted with mathematical operations and statistics. Simplicity arises from the commonplace character of the investigation: a small number of questions and for each one of these questions, a limited choice of possible answers. To illustrate this advantage, Ladiray and Mazzi (2002, pp.2) use the practice of Canada Statistics: “the investigation into the prospects of the business world realised each quarter by Canada Statistics comprises only 6 questions: possible obstacles with the production, stocks of finished products, received orders, the volume of the order books, production planned for the next months and prospects for labour. For the majority of these questions, the interviewee has to make a choice from 3 answers: increases, stable or falls. Once the investigation is finished at period T, it is possible to establish synthetic variables corresponding to the balance of opinions, calculated by computing the differences between the percentage of the “favorable” answers and the “nonfavorable” answers to the questions concerned. The composite indicator that is built therefore consists of a synthesis of often contradictory information.

These balance of opinions from the business tendency surveys have been weighted utilising several elementary methods that are similar to the traditional and econometric approaches discussed above. A priori coefficients weighting as adopted jointly by Swiss Association for the Provisioning and the Purchase and the Swiss Credit or on an arithmetic mean like that employed by the National Bank of Belgium can be used (information available at their respective websites). The index is then developed by the aggregation of y_{it} at the date t, $t=1, \dots, T$ as follows

$$\sum_{i=1}^I \theta_i y_{it}$$

with y_{it} being the balance of opinion of the question i for the date t, θ_i is the weight of question i and I is the number of questions.

A more elaborate approach is employed by the Bank of France based on the analysis of principal components (ACP) on $Y = (y_{it})$; $1 \leq i \leq I$; $1 \leq t \leq T$. The composite indicator is built by combining the significant factors resulting from the ACP and the growth rate of GDP.

The above approaches, though simple, are limited by the arbitrary choice of the weighting coefficients or the difficulty in choosing the number of large significant factors.

A more consistent rigorous scientific alternative that has been suggested involves using dynamic factor analysis along the lines of Stock and Watson (1989, 191) by treating the qualitative data $\{y_{it}; 1 \leq i \leq I; 1 \leq t \leq T\}$ as a decomposition between common factors and idiosyncratic components:

$$\begin{cases} y_{it} = \lambda_{i1}F_{1t} + \dots + \lambda_{ij}F_{jt} + u_{it}; & i = 1, \dots, I; t = 1, \dots, T \\ E(u_{it}) = 0, & E(F_{jt}u_{it}) = 0, & E(F_t F_t') = Id \\ E(u_t u_t') = \text{Diag}(\sigma_1^2, \dots, \sigma_I^2) = \Sigma \end{cases}$$

with the following notations: - j is the number of common factors; F_{jt} is the value of the common factor j to the date t; u_{it} is the value of the specific component i to the date t;

$$Y_t = (y_{1t} \dots y_{It})', F_t = (F_{1t} \dots F_{Jt})', u_t = (u_{1t} \dots u_{It})'$$

Introducing the matrix $\Lambda = (\lambda_{ij})$, $1 \leq i \leq I$; $1 \leq j \leq J$ the model can be written simply as $y_t = \Lambda F_t + u_t$. The estimate of the parameters of these models can be undertaken by combining the method of the maximum likelihood with the techniques of multivariate statistics (see Doz and Lenglart, 1999). In practice, these procedures are done in two stages, the first determines the number of common factors using an ACP and the second applies the method of the maximum likelihood for the estimate of the parameters λ_{ij} and the matrix Σ .

The reliability of signals provided by LCIIIs, whether descriptive, econometric based or qualitative, is a key element for their regular use by economists and analysts. The OECD (1998) carried out different simulations to assess the predictive ability of the LCIIIs and the robustness of the signals of turning points and found that for the Mexican 1994 crisis LCIIIs gave early

and repeated signals of the subsequent recession with a 6-month lead. The OECD also undertook other simulations for the majority of its member countries, to compare LCII, as they are first published. The results indicated that the monthly revisions of the LCII were fairly small and there were no trace of bias. In addition, The Conference Board found that the LCII signaled each of the seven US business cycle peaks of the period since 1960 well in advance and each of the seven troughs with very short lead times (see Zarnowitz, 2006a, b).

The above findings suggest that LCII are quite reliable and could be adopted and adapted by Caribbean countries using a set of variables suitable to their reality; one would expect that the proportions of the component series from the foreign trade domain would be much higher than the share across the developed economies. In addition, as is discussed in Section 5 below, the set of variables, especially the real indicators derived from consumer and business surveys may be limited because of their unavailability on a monthly or quarterly basis. Cotrie (2005) applied the econometric approach of Stock and Watson (1989, 1991) to Barbados utilising an equation that contained the retail price index, net foreign assets of commercial banks, long stay visitors along with money supply, and found that these indicators accurately reflect the reference cycle of the Barbadian economy. In a follow up paper, Cotrie, Craigwell and Maurin (2006) found, using more sophisticated techniques to determine the indicators, that the relevant indicators are the retail price index, export of goods and services, treasury bill rate, transport and communications and the US leading indicator index. On the other hand, Trinidad and Tobago used the qualitative approach (see Caribbean Investor, 2006) where the diffusion index distilled consists of three main contributors: (i) the stock market index; (ii) production of cement; and (iii) production of methanol. It is clear that each Caribbean country may have to adopt a different specification and methodology although it is possible that they may be some common variables reflecting the small and open nature of these countries.

4. The Main Leading Indicators Used in the World

For this section Table 1 is utilised. It is a survey of LCII employed in various countries in the world. LCII have

become so popular in recent times that it is quite possible that some countries may have been missed. However, these authors believe that it is comprehensive enough to reveal the pertinent issues that distinguished the construction of LCII in developed countries from those in developing countries.

4.1 The Variables

From one country to another, one finds significant differences with regard to the list of variables that are used to develop LCII (see Table 1). However, the number of series entering the index may be classified into four categories, as described by Charpin and Pérélaux (2000): variables which reflect the opinions of the managers of companies and other economic agents about the current business climate and of its upcoming evolutions (production, order books, financial situation, etc.); variables which indicate the activity in the real sphere of the economy (the index of industrial production, administrative statistics like the registrations of vehicles, etc.) the monetary and financial variables which can predict the evolution of GDP (interest rates, credit to private agents, etc.) and variables of the external environment which are able to exert an influence on the domestic economy (the exchange rate, foreign industrial production, price indices of imported materials, etc.).

There exists an important distinction between these variables in that the majority of them measures economic activity, either physically or monetarily, and therefore have frequent, periodic observations, whereas others are unobservable since they are mathematically defined based on linear combinations of observed variables. These unobservable variables are the synthetic variables that generally result from multivariate analysis like principal components or factor analysis, and are usually based on surveys of economic agents as discussed in the qualitative approach above.

4.2 The Institutions

A wide variety of official and unofficial organisations around the world publish economic analyses based on composite indicators. The official sources are generally associated with economic and finance ministries, while the unofficial sources encompass diverse organisations, from university and private research centres to international institutions.

Table 1 shows clearly the disparities among countries in the area of economic forecasting, with three points in particular being highlighted: (i) a small number of international institutions publish forecasts for a large proportion of countries, (ii) the number of methods utilised is limited and; (iii) there are important differences among countries in respect of the number of variables employed and the range of coverage of the LCIIIs.

In presenting this survey of the use of LCIIIs in the literature, it is important to undertake the following analyses: examine the composition of LCIIIs for a single institution, noting the differences and similarities between institutions by country, and comparing the composition of LCIIIs in industrialised versus developing countries.

4.2.1 LCIIIs of the Conference Board

Founded in 1916, The Conference Board is the principal private organisation engaged in economic analysis and forecasting in the United States. It has become a world leader in the marketing of economic expertise and forecasts, in the conduct of studies related to economic issues and in the provision of advisory services to decision makers in government. It is within this context that The Conference Board produces and publishes LCIIIs for nine countries.

Table 1 reveals that between 5 and 10 variables are used to construct these LCIIIs or, more precisely, an average of 9 variables for industrialised countries and 5 for developing countries like Mexico. An examination of the composition of these LCIIIs shows that the variables utilised for the United States, France, Germany and the United Kingdom are, for the most part, the same. On the other hand, for Asian countries such as Japan, Korea or even Australia, different variables are employed and these are fewer in number, probably reflecting the relative difficulty of obtaining consistent high frequency qualitative data on a regular basis. Nevertheless, the two groups have some variables in common, such as share prices and new orders from the industrial sectors.

4.2.2 The LCIIIs of the OECD

Since 1981, the OECD has published LCIIIs. They were developed to indicate, in advance, the turning points

in economic activity of its member countries. In general, the index of industrial production (IPI), which covers all industrial sectors, is used as an approximation of GDP since it was observed that the turning points of the IPI coincided with those of the economy as a whole for the majority of the OECD countries. The LCIIIs are derived from a vast collection of key economic indicators (159 in total, 5 to 10 per country), selected because they give an indication of future economic activity. Some of the variables often employed are: stocks of finished products (manufacturing), stock market movements, the monetary aggregate M1 and new residences.

4.2.3 The LCIIIs of the NBER

The NBER indicators of the US economy cover various types of economic information and consist of about a dozen variables, expressed in monthly changes. They include series related to: (i) labour outcomes like the average duration of the weekly work in industry, the demand for unemployment benefits and new orders for consumer goods in the industrial sectors; (ii) the demand for commodities of companies such as orders for capital goods in the industrial sectors, delivery periods and new construction permits; (iii) outturns in the financial sector like variation of the money supply, interest rates and prices, and (iv) the expectations of the agents such as the waiting time of the consumers for products.

In short, it is clear that at the international level, while institutions engaged in economic analysis may apply different methods to produce their LCIIIs, the same variables are generally used from one institution to another. In effect, variables such as stock market movements, new construction permits and new industry orders are frequently chosen for their tendency to anticipate fluctuations in economic activity. Moreover, there are notable differences in the variables selected depending on the level of industrialisation (or development) of the country in question. Thus, Malaysia, Philippines, Mexico and Jordan, for example, have LCIIIs composed of six variables on average, which are different from those used for the industrialised countries.

5. Is the Caribbean Ready for LCIIIs?

Unlike the United States of America and Europe there is a general lack of LCIIIs for developing economies like those in the Caribbean. In fact, LCIIIs for developing

countries appeared for the very first time after 2000, following the financial crisis in South East Asia in 1997 and in South America at the turn of the 21st century, especially the Argentina crisis of 2001-2002. Authors like Burkart and Coudert (2002) and even more recently Marongiu (2005) have proposed the use of LCIIIs to prevent the onset of financial crises. In the same spirit, countries like Malaysia and the Philippines have agreed to put in place systems for the generation of LCIIIs similar to those of the OECD countries (Zhang and Zhuang, 2002). To this day, among the 15 CARICOM member states, LCIIIs exist only for Barbados (Cotrie, 2005; Cotrie, Craigwell and Maurin, 2006) and Trinidad and Tobago, which has been constructed by the Caribbean Money Market Brokers, a private financial company (see Williams, 2006; Caribbean Investor, 2006).

To some extent this almost total absence of LCIIIs in the Caribbean basin reflects the need for a significant amount of high frequency (monthly or quarterly) data to undertake this type of analysis. A perusal of the publications of the various statistical agencies in the Caribbean suggests that government, monetary, prices and foreign trade data are available at this high frequency for a significant period of time (about thirty years). In fact it is mainly this type of data that has been used by Jordan and Howard (2005) to predict economic recessions in the Caribbean.

It would appear that a major difficulty is with real sector data although certain production series (industrial production) are available at a high frequency, albeit for a short span in the least developed of the Caribbean countries. National Accounts information is only available on an annual basis and is reported usually with a significant lag. Consequently, some Central Banks have used various interpolating methods to increase the frequency of this data (see Lewis, 1997; Serju, 2004; Cayemite, Craigwell and Maurin, 2007). Indeed, it is this generated data that Cotrie(2005) and Cotrie, Craigwell and Maurin (2006) employed to develop LCIIIs for Barbados.

Also lacking is survey information relating to consumers and business persons expectation of the future path of the economy. Thus to undertake LCI analyses, similar to those in the industrialised world, resources (financial and human) would be needed in the Caribbean

to estimate more macroeconomic data at high frequencies, especially those required for national accounting such as consumer and business confidence surveys. As Williams (2006, pp.1) points out, “while good official statistics are a valuable public resource in any national context, their role in guiding the formulation of public policy gives them an even greater importance in developing countries, where the impact of public policy decisions tends to be amplified in the presence of large economic and social imbalances. Good statistical systems, therefore, tend to provide a relatively higher social return in countries such as those of the Caribbean.” However, until this is possible more of the above mentioned statistical work on generating high frequency data from low frequency data should be encouraged as it provides a viable and practical alternative to developing data from first principles using surveys.

Besides data considerations, the clear neglect of developing LCIIIs in the Caribbean may also reflect the following issues that are common to quantitative modelling in the Caribbean in general and aptly described in Maurin and Watson (2002): (i) scepticism of the policy makers vis-à-vis the validity of quantitative economic models, probably a direct result of the fact that most policymakers in the Caribbean are trained with and has gotten accustomed to using the descriptive and deductive mode of reasoning; (ii) ignorance about the potential and the conditions for the best employment of such models, often because knowledge may require the utilisation of some relatively technical textbooks and attendance at various expertise conferences and seminars; (iii) these models are too expensive to maintain, and ; (iv) personnel on the ground do not have the required competence. Caribbean policymakers must outweigh this sceptism and caution with the dire need to forecast the future state of the economy because of the possible consequential social difficulties, as well as to give support to government agencies negotiating with International Lending Agencies (ILAs) like the World Bank and the International Monetary Fund (IMF). Relying on the analyses and forecasts of these ILAs inevitably means that Caribbean economies will be subject to their draconian policy remedies which some have argued have caused more bad than good.

Conclusion

The development of leading indicators is a relatively old and established practice in the majority of the industrialised countries. From the 1950s, economic decision makers were confronted with the need to make a qualitative assessment of the real situation in the economy: is it at the edge of a recession or is it located on a path of sustained high growth? From a purely practical point of view, it is of crucial importance for decision makers to have the right answers to these types of questions since the direct and indirect repercussions of the variations of the growth in GDP could amount to several billions of dollars. LCII are largely used in the industrialised countries to compute these answers by signalling in advance the dates and periods of changes in the business cycles. Even if it is impossible to utilise LCII to calculate with precision the influences of the many economic variables, they contribute nevertheless to the elaboration of the estimates of the future growth of the real economy.

In this article, three issues relating to LCII were discussed: their importance, methods of estimation and uses in the real world. Throughout this discussion, emphasis was placed on the lessons that could be learnt for the countries of the Caribbean. The principal message of this material is that in this geographical area, the LCII would be important tools for economic decision makers to use to forecast the future state of the economy as well as to lend credence to government institutions negotiating with International Lending Agencies like the World Bank and the IMF. This option should be pursued vigorously by putting the necessary resources into developing the high frequency real sector data that is required for a successful application of the LCII methodology. In the meanwhile efforts like Cotrie, Craigwell and Maurin (2006) who used generated high frequency real sector data with the Stock and Watson (1989,1991) approach, and Howard and Jordan (2005) who utilised the more traditional methods with the high frequency banking, government and trade data, should be encouraged.

Table 1: LCIs in Various Countries in the World

<i>Regions</i>	<i>Organisations</i>	<i>Methods</i>	<i>No. of Variables</i>	<i>Variables Used</i>	<i>Sectors of the Economy</i>	<i>Length of Series</i>	<i>References</i>
North America							
United States	NBER	Method of weighted averages	11	- Length of weekly work in industry - Demand for unemployment benefits - Orders to industry - Delivery times - New construction permits - Stock market movements - Variation in the money supply - Interest rates - Prices of raw materials - Consumer expectations	- The Labour market - Business Demand - Financial sector - Expectations of economic agents	Since 1948	http://www.nber.org/databases/macroeconomy/contents/chapter16.html
	OECD	Modified method of the NBER	4	- The stock of finished products (manufacturing) - Stock market movements - The monetary aggregate M1 - Accommodation in progress	- Financial sector - Expectations of economic agents	Since 1955	http://www.oecd.org/dataoecd/46/25/1895867.pdf
United States	The Conference Board	Method of weighted averages	10	- Average length of work of manufactures - Average weekly unemployment benefit - New orders in the manufacturing sector: consumer goods and materials - Performance of suppliers: Index of delivery times - New orders of manufactures: capital goods - New construction permits - Stock prices - Money supply M2 - Interest rates - Index of consumer expectations	- Labour market - Business Orders - Expectations of economic agents - Financial sector	Since 1959	http://www.conference-board.org/economics/bel/

Canada	Ministry of Finance of Canada	Stock and Watson Method	5	- Total employment - Delivery times of manufactured goods - Real retail sales - Total construction permits - Coincident indicator of the United States calculated by The Conference Board	- Consumer Sectors - Monetary and Financial Sectors - Foreign markets - Public Sector - Labour Market	1966:02 to 2001:06	Gaudreault, Lamy and Liu (2003)
	OECD	Modified Method of the NBER	7	- Production, stocks and orders - Construction sales and trade - Labour force - Prices, costs and profits - Monetary and financial aggregates - Foreign trade - Business surveys	- Business Sector - Consumer Sector - Labour market - Monetary and Financial Sectors	Since 1955	http://www.oecd.org/dataoecd/46/25/1895867.pdf
Europe							
France	The Conference Board	Weighted Average Method	10	- The consumption of manufactured goods - The inverse bond yield - The inverse of the new demand for unemployment compensation and the stock index - Stock market fluctuations - New industry orders - Deviation in the rate of output - The deflationary ratio between value-added and the cost of labour in the Manufacturing Sector - Construction permits (residential) - The index of Consumer Confidence (balance of opinions)	- Business sectors - Monetary and Financial sectors - Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
	OECD	Modified Method of the NBER	7	- Production, stocks and orders - Construction sales and trade - Labour force - Prices, costs and profits - Monetary and financial aggregates - Foreign trade - Business surveys	- Business sectors - Labour market - Monetary sector	Since 1955	http://www.oecd.org/dataoecd/46/25/1895867.pdf

France	OFCE	Qualitative Approach	5	– Business climate in Construction – Business Climate in Services – Real Price of Petrol in euros – Dollar/euro exchange rate – Spread between short-term and long-term rates	– Business sectors – Monetary and Financial Sectors	1996-2005	http://www.ofce.sciences-po.fr/pdf/revue/10-88.pdf
Germany	The Conference Board	Weighted Average Method	8	– New orders in investment goods – Difference between the yields of 10 year and 3 month bonds – Stocks variations – Business products – Stock prices – New order of residential demand – Rate of growth of the consumer and services price index – Index of Consumer Confidence	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
United Kingdom	The Conference Board	Weighted Average Method	8	– Volume of the order books – Volume of planned production – Index of Confidence of households – Fixed interest price index – Share price index – New industry orders – Productivity of the wholesale economy – Operating surplus of commercial companies	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
Euro Zone	OFCE	Qualitative Approach	8	– Quarterly GDP – Research and Development – Retail trade – Construction – Registration of tourism vehicles – The euro/dollar real exchange rate – The difference between the real short-term interest rate in the Euro Zone and the trend in the rate of growth – The index of American Industrial Production	– Economic Surveys – Monetary and Financial Sectors	1989-1999	http://www.ofce.sciences-po.fr/pdf/revue/10-88.pdf

Asia/ Pacific							
Australia	The Conference Board	Weighted Average Method	8	– Medium term yield of Government bonds – Difference between the 10 year and 90 day yields – Stock market movements – Money supply M3 – Rural goods exports – Stock sales – Profits – Approved Construction projects	– Business sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
Korea	The Conference Board	Weighted Average Method	6	– Share prices – Approvals for credit – Index of delivery times for inventory – Exports – Government bond yields – Requests for private construction	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
Japan	The Conference Board	Weighted Average Method	9	– Business Profits – Housing in progress – Business Bankruptcies – Index of overtime work hours – Share prices – Rate of growth of production over 6 months – Money supply – Bond yields – New construction projects	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
Malaysia	OECD	Modified Method of the NBER	8	– Real Money Supply, M1 – KLSE Share Price Index, Industrial – Real Total Trades between the Eight Major Partners – Growth rate of the CPI for Services – Growth Rate of the Industrial Material Price Index – Ratio of Price to Unit Labour Cost for Manufacturing – Approved Housing Permits – New Registered Companies,	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1955	

Caribbean/ South America							
Mexico	The Conference Board	Weighted Average Method	5	– Industrial production – Stock prices changes – Import Cost of petroleum products from US refiners – Inventory – Real exchange rate	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	Since 1959	http://www.conference-board.org/economics/bci/
Africa				–			
Jordan	Central Bank of Jordan	Modified Stock and Watson Method	5	– The net growth rate of funds in the private sector – The spread between the Jordan 3-month interest rate and the American treasury bill rate – The net rate of growth of the usable reserves of the Central Bank of Jordan – The growth rate of domestic exports – The rate of growth of the Amman Stock Exchange	– Business Sector – Monetary and Financial Sectors – Expectations of economic agents	1996- 2002	Mongardini and Saadi-Sedik (2003)

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Stability and Economic Growth: The Role of the Central Bank (Banco de Mexico, 2006) by Lisa Drakes*

In November 2005, the Bank of Mexico (BOM) hosted a conference to commemorate its eightieth anniversary. Academics and policymakers from around the world were in attendance and shared their findings and experiences on how central banks can assist in ensuring stability and economic growth. The book entitled **Stability and Economic Growth: The Role of the Central Bank** is a compilation of the papers presented at that conference.

The text discusses matters related to the design and implementation of monetary policy. In particular, it focuses on the importance of central bank independence (CBI), inflation targeting (IT) and the monitoring of asset prices in the conduct of monetary policy and in the pursuit of stable economic growth. Academics, policymakers, as well as students who are interested in understanding the intricacies of modern-day monetary policy, will find this a very useful resource.

In addition to two keynote addresses, the book comprises eighteen papers, which are divided among five sections. Section 1 discusses how CBI can be beneficial to the conduct of monetary policy and to the prevention of macroeconomic volatility. Section 2 is centered on the role monetary policy plays in promoting growth and macroeconomic stability. However, the importance of various types of institutions in achieving this end is also recognised. The third section highlights the different views on issues surrounding the design and execution of monetary policy within an IT framework. Lessons from four different country experiences are provided. Section 4 analyses the monetary policy complications that often stem from swings in asset prices and suggests some appropriate policy responses. The final section focuses on the experiences of monetary policymakers in Brazil, Argentina and Mexico.

Keynote Address #1 – Stability and Economic Growth: The Role of the Central Bank

In the first keynote address, Alan Greenspan advocates the development of a flexible economy. In his opinion, this has made the United States' (U.S.'s) economy more stable and, consequently, has increased economic growth and raised the standard of living. He argues that competition fosters such flexibility, as it creates self-correcting mechanisms within an economy that enable it to respond to shocks, resulting in greater stability in the process. Greenspan's view, therefore, is that market forces should take the leading role in ensuring stability, which implies that governments and central banks should lessen their intervention in the economy.

Section 1 – Performance of Independent Central Banks: Achievement of Objectives and their Contribution to Macroeconomic Stability

The paper, *Central Bank Independence – What Role Does it Play in Shaping Mexico's Economy*, written by Malcolm Knight, gives a positive evaluation of the stability of Mexico's monetary system. Mexico recovered from the crisis of the early 1990s and has been able to keep inflation down to 3%, while maintaining economic growth. Knight is of the view that this stability is the result of the independence the Bank of Mexico gained in 1994, which insulated it from political forces and allowed the undertaking of a successful IT regime that brought inflation to an all-time low by 2005.

In his presentation on *Central Bank Independence and Policy Results: Theory and Evidence*, Alex Cukierman states the theoretical case in support of CBI. An inflation bias can result from monetary expansion that is driven by an "employment motive". When policymakers have discretion they use inflationary surprises to increase employment to a rate that is most often above its natural level. However, economic agents expect such action and are able to correctly predict inflation. The result is that the policymakers' decisions have no effect on employment, but the inflation they induced is still present. Thus discretionary

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monetary policy has elements of dynamic inconsistency. To partially eliminate this bias, the responsibility for monetary policymaking can be allocated solely to an autonomous central bank, which is likely to be more conservative than the public or politicians.

The “employment motive” tends to exist in many developed countries that have easy access to capital markets and, therefore, little difficulty in financing a deficit. On the other hand, for developing countries with underdeveloped capital markets, deficit financing usually falls on the central bank and this “revenue motive” for monetary expansion often has an inflation bias. One solution is to have rules and regulations on lending by the central bank.

Cukierman also notes that the empirical literature shows that CBI is inversely related to inflation in both developed and developing countries. In developed countries, CBI was found not to be associated with economic growth, while mixed results on the nature of the relationship between growth and CBI were obtained for developing countries.

Axel Weber’s contribution was entitled *The Role of Institutions in Monetary Policy Making: Optimal Design for Conflicting Policy Areas and the Need for Public Support*. Factors other than monetary policy, such as fiscal policy and the wage bargaining process, influence price stability. Therefore, even an independent central bank may be unable to achieve monetary stability. Using examples of Europe, Weber notes that the success of an autonomous central bank in attaining price stability also depends on support from the public, particularly when there is conflict with another policy area. When conflict occurs between monetary and fiscal policies within a single economy, Weber suggests that the best approach is for monetary policy to focus on maintaining a low level of inflation, while fiscal policy should concentrate on smoothing the intertemporal tax burden. In addition, Weber examines the case of the European Economic and Monetary Union and concludes that when conflicts occur within a union, fiscal policy should focus on reducing the effects of asymmetric events, while monetary policy should be used in response to symmetric shocks.

Victor Corbo, in discussing *Monetary Policy and Central Bank Independence in Chile*, describes the legal

framework underlying the Central Bank of Chile (CBC) independence since 1989. The CBC has successfully implemented monetary policy, within an IT regime, that has brought the economy to full recovery from recession and financial crisis of the early 1980s. The writer cites the 1998-1999 period as a turning point in the CBC’s policy. Inflation was low and the advantages of a flexible exchange rate regime were acknowledged. Major policy reform involved the adoption of a generally clean float, the removal of capital controls, and the introduction of full-fledged IT. According to Corbo, over the last two decades, the policies adopted by the CBC have made the Chilean economy progressively more stable.

Section 2 – Monetary Policy and Economic Growth: The International Experience

Robert Barro examines whether low and stable inflation promotes economic growth in his paper *Monetary Policy, Inflation, and Economic Activity*. He notes that there is evidence to support this hypothesis. However, a cross-country study shows that the impact low inflation has on growth is minimal. For a decrease in the inflation rate of ten percentage points, real per capita gross domestic product (GDP) rises by just 0.2% per year. Still, as Barro points out, countries with high inflation tend not to experience any increases in GDP. Thus, he concludes that although monetary policy aimed at lowering inflation helps to promote growth, other factors such as low levels of corruption and effective educational and health systems are crucial for economic expansion.

The Role of Central Banks in Fostering Economic Growth by Ronald McKinnon describes how this role has evolved. In the era of the gold standard, when the main goal of monetary policy was to sustain a fixed exchange rate, central banks indirectly promoted growth. After the collapse of the gold standard in the 1930s and up until the 1980s, countries developed their monetary policy independently of the international monetary system, enforced by the belief in the Phillips curve. Monetary authorities, concerned with the consequent contraction in employment, refrained from taking measures to combat

rising inflation. The result was low productivity and the feared increase in unemployment, which prompted the questioning of the validity of the Phillips curve. It was suggested that if workers anticipate that the central bank's policy will lead to inflation, they would bargain for higher wages, causing higher unemployment than if inflation was low and stable. Therefore, the achievement of low and stable inflation became the mandate of central banks. Today, it is believed that this is best obtained through an independent central bank.

McKinnon also makes mention of the role of the central bank in the 1950s and 1960s when import substitution, the objective of which was to further growth and development, was strongly advocated. The central bank, following directives from government, facilitated lending to newly developing industries at rates below the market rate. According to McKinnon, this led to financial repression.

Otmar Issing, in *The Role of Fiscal and Monetary Policies in the Stabilization of the Economic Cycle*, presents the case of the European Central Bank (ECB) in order to illustrate how monetary policy can bring about stabilisation. The Maastricht Treaty gives sole responsibility of monetary policymaking to the ECB, the main mandate of which is to ensure price stability. Stable expectations of inflation help to reduce macroeconomic volatility and add to economic welfare. In terms of the role of fiscal policy in maintaining stability, Issing argues that such policy should be countercyclical, which can be achieved through automatic fiscal stabilisers or by discretion. Studies of European economies have shown that when policy makers are allowed to exercise their discretion, fiscal policy tends to be pro-cyclical and offsets the responses of automatic stabilisers, thereby intensifying instability. However, as Issing points out, discretionary fiscal policy still has a role to play, particularly when structural modifications of government finances are required and when severe shocks occur.

Monetary Policy and Economic Performance: The Experience of New Zealand by Alan Bollard and Chris Hunt asserts that New Zealand, in terms of key macroeconomic variables, has outperformed the majority

of other Organisation for Economic Co-operation and Development (OECD) countries. However, with these achievements have come threats to inflation. Therefore, the Reserve Bank of New Zealand adopted an IT regime, which is flexible in the sense that the Bank can choose how it will obtain price stability. However, it has been mandated to select the channel that least compromises short-run growth and the stability of the exchange rate and interest rates. Additionally, Bollard and Hunt suggest that increasing globalisation has led to the dependency of monetary policy on the actions of other countries. Despite this, the authors conclude that monetary policy, as a result of its countercyclical nature, has been successful with stabilisation of New Zealand's economy leading to higher growth rates since the beginning of the 1990s.

Section 3 – Design and Lessons from the Implementation of Monetary Policy Under Inflation Targeting: Four Perspectives

As noted by Lars Svensson in the article entitled *The Instrument-Rate Projection Under Inflation Targeting: The Norwegian Example*, there has recently been some debate on the instrument-rate assumption used for projection in an IT regime. What assumption should be made about the instrument-rate and whether this assumption should be made public have been some of the main concerns. According to Svensson, since the assumption of a constant instrument-rate is unrealistic and in conflict with market expectations, it can pose numerous problems. He, therefore, recommends other alternatives such as what the market expects future instrument rates to be. The Norges Bank has adopted a flexible IT regime, and has been described by Svensson as making monetary policy history by publishing a comprehensive overview of its decision-making process. Svensson advocates such transparency and public communication, as this will influence expectations and promote the effectiveness of monetary policy.

Jacob Frenkel's paper, *Inflation Targeting, Disinflation and Exchange Rate Policy: The Israeli Experience*, shows that after inflation reached 450%

per year in the 1980s, the exchange rate was used as a nominal anchor to bring inflation down to 18% in 1991. However, the fixed exchange rate combined with inflation that was still much higher than many countries led to a loss in international competitiveness. To reduce inflation to a level consistent with the rest of the world, Israeli authorities opted for an IT regime. In its search to regain its competitiveness, Israel also adopted a slope exchange rate band, where the slope took into account the difference in inflation between Israel and the rest of the world that would prevail under the targeted inflation rate. Frenkel identifies some lessons from the Israeli experience which include: the inflation target should not be set as a specific percentage, a range is preferable, and instead of setting the target for each year, a multi-year approach should be taken.

John Taylor wrote on the topic, *Lessons Learned from the Implementation of Inflation Targeting*. According to the author, the main lesson is that high and variable inflation inhibits macroeconomic stability. Another finding is that among central banks with price stability as their main objective, there is not much distinction between the response of policy instruments when one compares the banks with an IT regime and those without. In addition, there is no consensus on whether, and if so, how, monetary authorities use policy rules. It is the author's belief that while policymakers do not explicitly follow policy rules, they do use the recommendations they suggest to crosscheck their decisions.

One other important lesson learnt through the execution of IT is the three principles embedded in policy rules. The goal of price stability is one such principle; another is that interest rates should be allowed to respond to changes in the real economy. The third principle is the "greater than one" principle, which says that when there is an expansion in the rate of inflation, interest rates should be immediately raised by more than this increase. Taylor attributes the success of several central banks to these three principles

Two other lessons, discussed by the writer, relate to the exchange rate. Under an IT regime, central banks usually respond to changes in the exchange rate;

for instance, when faced with an appreciation, central banks normally decrease interest rates. Finally, it has been observed that IT has reduced the pass-through of the exchange rate to inflation.

David Dodge's contribution to the conference was *Inflation Targeting in Canada: Design, Lessons and Challenges*. The Bank of Canada's targeted inflation rate is 2%, which lies within the target range of 1 to 3%. This range accounts for the lags associated with the conduct of monetary policy and for some inevitable degree of price volatility. In its efforts to maintain price stability, the Bank pays attention to inflation that is above and below the target. Under its IT regime, it uses the consumer price index as its target. Since this is the most well known index, it makes it easier for the Central Bank to communicate with the public and to be held more accountable. Efforts are also made to make the IT regime as transparent as possible.

The Bank of Canada has learnt that IT stems volatility in inflation, and that such a regime results in greater credibility of the Bank and more stable expectations of inflation. Moreover, price stability has led to macroeconomic stability. Some matters the Bank of Canada were addressing at the time of the author's writing include whether the 2% target was the correct one, whether the price level, instead of the inflation rate, should be targeted, and what should be the Bank's response to shocks like large asset price movements.

Keynote Address #2 – Monetary Policy in a Changing International Environment: The Role of Global Capital Flows

In his keynote address, Martin Feldstein discusses how greater global capital flows, which result from increased international financial integration, are likely to affect monetary policy in the U.S. If the economy were closed, in response to excess demand the Federal Reserve would adopt a more restrictive policy by increasing the federal funds rate. However, in an open environment with higher international capital flows, the federal funds rate would have to be raised by more than would be required if capital markets were less integrated.

Section 4 – Asset Prices and the Implementation of Monetary Policy

In *Asset Price Levels and Volatility: Causes and Implications*, Robert Ferguson Jr. notes that the great decline in the extent of macroeconomic volatility in the U.S., termed the Great Moderation, has been accompanied by a rise in equity prices. This indicates the possibility of a relationship between these two variables. Empirical evidence suggests that the nature of this link depends on the way in which risk, as well as savings preferences of investors was modeled. However, the general consensus is that the Great Moderation has not led to a decrease in the volatility of asset prices. Ferguson also cites the increase in liquidity in financial markets as a possible cause of some of the volatility in asset prices witnessed in the U.S. In Ferguson's view, the main lesson for policymakers is that preparation is key. Thus, there is the need to ensure that inflation is low and stable. Well-anchored expectations of inflation give policymakers greater flexibility in terms of how they can respond to unforeseen circumstances. In addition, risk management by the private sector must be encouraged to guard against instability of the financial system.

Monetary Policy, Financial Stability and Asset Prices, by Jaime Caruana, explores the relationships between these three concepts. Monetary stability should foster a more stable financial system. However, Caruana gives cases where financial instability has arisen in the presence of a stable macroeconomic environment. Therefore, he recommends more prudent risk management even for a country with monetary stability. The author also advises that risk management should be forward-looking, since, although risks start to develop when the economy is expanding, they usually materialised during economic downturns. To combat the risks that changes in asset prices pose to financial stability, Caruana mentions some characteristics that the regulatory framework should possess, such as the presence of risk-sensitive shock absorbers. In addition, as asset prices can influence macroeconomic stability, Caruana encourages policymakers to monitor these prices. However, using the example of Spain's recent

boom in the housing sector, he notes that responding appropriately to asset price swings can be difficult when operating within the framework of a common monetary policy.

Stephen Cecchetti raises four key points in his paper entitled *Asset Price Bubbles and Inflation Targeting*. First, exchange rate, equity and property bubbles can undermine the profitability of financial institutions and distort the decision-making process of fiscal policy, investment, and consumption. Cecchetti also posits that when prices move way beyond traditional levels this is a good indication that a bubble is about to occur. The third issue is that reducing interest rates may not be the appropriate way to respond to a bubble. Finally, to account for bubbles in IT regimes, central banks need to revise the time period over which they expect to reach their target. However, whether a central bank operates under an IT regime or not, Cecchetti recommends the integration of bubbles into its policy, given the significant impact they can have on the stability of any economy.

Section 5 – Last Panel

Guillermo Ortiz's paper, *Inflation Reduction: Transforming the Mexican Economy*, identifies the domestic factors that account for the decline of inflation in Mexico, to a level close to its 3% target. These are an IT regime, the adoption of a flexible exchange rate and fiscal consolidation. The external causes of this disinflation incorporate greater competition, larger labour supplies and the consequent fall in labour costs, and increases in productivity that improvements in technology bring. Some aspects of the transformation the Mexican economy has undergone, as a result of the disinflation process, include inflation that has become less persistent and a decline in the pass-through effect exchange rates have on inflation and its expectations. Other benefits embody lower interest rates, modernisation and deepening of the financial system and a reduction in the financial cost of government debt. Despite a stable economic environment, Ortiz argues that a number of factors, particularly the fall in international competitiveness, will prohibit the continual growth of the economy.

In *Monetary Policy and Crisis Management: The Argentinean Experience*, Martin Redrado describes the policy actions taken by the central bank in response to the financial crisis of 2001-2002. During the crisis, in order to curb a bank run, strict temporary capital controls were imposed and foreign currency was sold to avoid more overshooting of the exchange rate. The period after the crisis saw the almost total removal of the capital controls. In addition, the Central Bank of Argentina, in its efforts to ensure monetary stability, made several modifications to the policies and procedures that governed its operations. The implementation of a plan for foreign reserve accumulation was one such change. Moreover, peso-denominated securities were issued in order to curb the growing dollarisation. Recovery from the crisis would not have been possible without a micro-approach to the financial sector that focused on prudent risk management by the sector's participants.

The book ends with a paper that considers the very topical issue of globalisation. *The Implementation of Monetary Policy in a Globalization Process: The Recent Brazilian Experience*, by Alexandre Tombini, discusses some of the issues related to monetary policy that arise as a result of globalisation. One illustration of the challenges the integration of economies poses is the greater risk aversion derived from the events of September 11th, 2001, which, in part, led to the shock the Brazilian economy experienced in 2002. As a result, it became more difficult to follow the IT regime and in 2002, inflation went up to 12.5%. The response by the central bank was to revise the target path for inflation. Tombini is of the opinion that a more reasonable target of 8.5% in 2003, rather than 4%, was crucial in combating the inflation. Globalisation has also had some positive influence on the Brazilian economy, as reflected in the disinflation periods of 2004 and 2005.

However, Tombini claims that well-designed monetary and macroeconomic policy also contributed to the fall of inflation in Brazil during these periods.

Conclusion

Stability and Economic Growth: The Role of the Central Bank presents the various experiences of monetary policymakers from a number of countries in their attempts to achieve greater stability and economic expansion. Some common sentiments include the need for transparency and communication in the conduct of monetary policy, in order to encourage public support and promote accountability and policy effectiveness. In addition, there is the consensus among the authors that CBI enhances the ability of the monetary authority to pursue successful policy.

Although it made no specific reference to economies as small as those in the Caribbean, the region's policymakers can still draw numerous lessons from this publication. For instance, in an era of escalating prices in several Caribbean countries, the discussions on IT should prove very useful. In light of the formation of the CARICOM Single Market and Economy, suggestions for the conduct of monetary policy within a union are made. Attention is also given to the influence exchange rate policy can have on stability. Moreover, mention is made of the policy implications of greater cross-country capital flows that will result from further liberalisation and increasing globalisation. Perhaps the most important lesson for the Caribbean, and for countries in general, is that stability and growth cannot be achieved through monetary policy alone. Fiscal, wage and exchange rate policies as well as a sound financial system, among other things, contribute to a nation's economic success.



The New Economic Geography: Effects and Policy Implications (Federal Reserve Bank of Kansas City, 2006) by Mahalia Jackman*

Over the last few decades, advancements in communications and information technologies have significantly reduced the time and costs of international interactions. As a result, economic distances have shrunk, international trade has increased and there has been a shift in the location of economic activity. Essentially, a new economic geography has evolved.

Even though the emergence of this new economic geography has stimulated a large body of research, two key questions still remain. First, what are the recent factors driving the change? Second, what are the challenges that arise when dealing with changing economic distances and increased integration? The publication “The New Economic Geography: Effects and Policy Implications” attempts to address these two fundamental questions.

The book is based on the proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City and consists of a series of articles and discussions by several distinguished central bankers, academic economists and financial market experts. The symposium was organised under three main sub-themes:

1. why changes in economic geography occur and the consequences for the product, labour and financial markets;
2. strategies to enhance openness and growth in developing countries and
3. the implications that greater openness can have on monetary policy.

In his opening address, Bernanke explains that economic integration is an old process, dating back some two thousand years. Today, the changes that we observe are being driven by the same basic force: technological improvements. However, the current episode of integration differs in three ways:

1. the scale and pace of today’s integration is unprecedented;

2. international capital markets have become substantially more mature and
3. the production processes are becoming geographically fragmented to a remarkable degree.

Changes in Economic Geography and Their Consequences

The opening paper ‘Shifts in Economic Geography and their Causes’ by Venables explains how geographical economics may provide an additional explanation as to why and how economic activity tends to be spatially concentrated. The author stresses the need for a general theory of location of economic activity. Mainstream economic theory is aspatial and predicts that increases in trade should lead to convergence of incomes. It, therefore, cannot account for the observed persisting divergence in incomes. The “new economic geography” has magnified these deficiencies: the more productive countries are able to attract more economic activity, which, in turn widens these income disparities. In closing, Venables suggests that as globalisation causes dispersion of activity, economic development will be in sequence, not in parallel.

In contrast, Grossman and Rossi-Hanberg assess how increased integration has altered the type of international trade. More specifically, how globalisation has led to the evolution of trade in tasks which they refer to as ‘offshoring’. In their paper “The Rise of Offshoring: It’s Not Wine for Cloth Anymore”, the authors focus on the consequences of increased offshoring on production, prices, employment and wages. The impact of offshoring on wages is decomposed into three parts: a productivity effect, a relative-price effect and a labour supply effect. They show that the productivity impact may dominate the others. Contrary to the common notion that off-shoring reduces wages, improved possibilities for off-shoring may raise the wages of domestic workers.

Grossman and Rossi-Hansberg also find evidence that the combined labour supply effect and productivity effect of offshoring, represented by a residual, has a positive influence on low skilled wages in the United States. However, in discussing the paper by Grossman and Rossi-Hansberg,

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Taylor re-emphasises the need to modernise international trade theory to include trade in services but criticises the use of a residual to represent the effects of offshoring, given the many alternative explanations. Other participants were also concerned with the long run impacts of offshoring such as changes in skill distribution.

In the paper “Patterns of International Capital Flows and their Implications for Economic Development” Prasad, Rajan and Subramanian address new dimensions of the Lucas paradox. In direct conflict with traditional economic theory, the authors show that the recent direction of overall capital flows has been from poorer countries to richer countries. They then empirically test the knowledge-based economic theory that countries, which attract more foreign capital, should grow faster. Prasad, Rajan and Subramanian examine the correlation between foreign capital inflows and economic growth. With the exception of foreign direct investment, their results suggest that there is no significant relationship between financial integration and growth. In addition, the authors report a positive correlation between current account deficits and long-run growth in non-industrialised countries. They believe that the underdevelopment of the financial sector in poor countries, and the need to avoid currency overvaluation caused by rapid inflows, may have limited their ability to absorb foreign capital and hence, may be responsible for strengthening the link between the current account and growth.

In her commentary, Collins focused on the linkages between current account balances and growth. She believes that in the simple framework, the positive relationship found by Prasad, Rajan and Subramanian is not that surprising. Elaborating on other explanations of the “new stylised fact”, Collins questions whether these findings are a result of ne new geography or a “slowly dissipating pattern that became more pronounced as the volume of international capital flows exploded” (p.166). Collins also points out that the results recorded may have been influenced by the significant difficulties in measuring key variables such as financial integration. Additionally, the empirical evidence of Prasad, Rajan and Subramanian is suggestive at best since correlation does not imply causation, a point repeated

by other participants in the general discussion.

Fischer discusses how the rise of Asia, particularly India and China, has reshaped the world economy and provides an analysis of the economic and political implications of the growth of Asia. In his luncheon address, he highlights that Asia’s impact on the international economic system relies solely on how important Shanghai and Mumbai will become as financial centres. Reflecting on the major wars and instability which followed the rise of Japan, Germany and the Soviet Union, Fischer states that the political consequences of two more great powers, and the relative decline of others, is disturbing.

Strategies for Openness and Growth

Discussing the case of India, Srinivasan outlines the country’s experience since the reforms and its future challenges. Until the systematic reforms in the 1990s, the State played a dominant role in the Indian economy, exercising controls on prices, foreign exchange earnings and investment projects. The Government also isolated agricultural producers from domestic and international competition. In 1991, the Indian economy slumped into macroeconomic and balance of payments crisis. Consequently, the State reformed the economy by reducing capital controls and trade barriers. Srinivasan contends that regardless of the crisis, the main reasons for India undertaking the reforms were:

1. the collapse of the Soviet Union and its planned economy, on which Indian planning was modelled, and
2. the rapid growth of China, its only relevant economic rival.

Since then, India has experienced rapid growth, but according to Srinivasan, the country still faces a challenge in sustaining growth. Many other institutional reforms are needed. The restrictions on labour laws and costly banking procedures have limited growth in the manufacturing sector, and despite India’s comparative advantage in agriculture, expansion is hindered by infrastructural bottlenecks and institutional rigidities on land use. Unless these problems are addressed, Srinivasan laments that potential growth may be compromised.

Discussant Svejnar summarises the experience of Central and Eastern Europe while making the transition to market economies. Initially, all transition economies experienced a large decline in economic activities. However, there were disparities in the patterns of gross domestic product evolution between western transition countries and those in the east. But, what accounts for this difference? Svejnar suggests that economic geography may give part of the explanation. He argues that the physical proximity to Western Europe provided an important advantage for western transition economies in terms of trade.

Svejnar also investigated the differences in the countries' strategies for transition. He divided the reforms undertaken into two categories:

1. type I reforms which focus on macro-stabilisation, price liberalisation and dismantling of the institutions of the communist system, and
2. type II reforms which involve the development and enforcement of laws conducive to the functioning of the market economy.

He found that countries which placed emphasis on type II reforms early on performed better in the 1990s.

In conclusion, Svejnar suggested six important elements for successful strategy in the future:

1. preserving macroeconomic stability;
2. retaining competitiveness and creating "good" jobs;
3. maintaining and increasing FDI flows;
4. improving the level and effectiveness of human capital;
5. containing the discontent of the population with respect to the transition reforms and
6. maintaining liberal democracy and protecting human rights

Finally, Collier reviews how Africa's distinctive physical and human geography has shaped its economic opportunities. The major features of Africa's physical geography are its abundant but unevenly distributed resources and its many diverse countries. Collier divides African countries into three categories: resource-rich, resource-scarce and landlocked and finally, resource-

scarce and coastal. Consequently, growth strategies of each category of countries need to be differentiated. Small populations and ethnic diversity are the distinctive characteristics of African human geography. Each, according to Collier, creates problems. A corollary of small countries is that reforms and maintenance of internal security are more difficult. In cases of ethnic diversity, democracy is key for economic performance and public provision should be kept small and decentralised.

In his concluding remarks, Collier notes that the issues generated from Africa's human geography may be problems of the past as the region has democratised over the past decade, and has reduced the size of government and decentralised spending. He added that despite recent developments, the interactions of physical and human geography have created two intractable problems: how to manage resources in the context of ethnic diversity and how to compete with Asia given Asia's head start?

The Implications of Globalisation on Monetary Policy

In the paper "Impact of Globalisation on Monetary Policy", Rogoff discusses the core issues in the recent monetary policy and globalisation debate: the impact globalisation has on inflation, continuing asset price volatility despite reductions in output volatility and the implications of greater integration on monetary policy.

Addressing the "China is exporting deflation" theory, Rogoff argues that such a paradigm is 'hopelessly naïve'. He contends that general price levels depend only on the policy carried out by Central Banks. Alternatively, globalisation may help support lower inflation in the long run by steepening the output-inflation trade-off central banks face. Rogoff stresses that one of the major challenges confronted by the monetary authorities during the globalisation period is persisting asset volatility. He stipulates that part of the volatility in asset prices may be transitory, as investors may still be engaged in a learning process on the economy's risk level. His explanation for the remaining long-run volatility is that as long-term interest rates and risk premia fall, the prices of long-lived assets rise. Prices simultaneously become more sensitive to changes in the expected risks, thereby, offsetting the effects of reductions in macroeconomic stability.

In his concluding remarks, the author notes that central banks should be less worried about asset price volatility. Rather, they should focus on ensuring that frameworks and institutions can maintain general price levels and macroeconomic stability in the event that the globalisation process is compromised.

Discussant Bean generally agrees with Rogoff's paper. However, he is less convinced that globalisation results in a steepened short-run output inflation trade-off. As mentioned by Bean, the evidence from open economies suggests that "increased specialisation resulting from globalisation reduces the response of inflation to the domestic gap and makes it more sensitive to the world output gap, leading to a flatter trade-off" (p.398). Bean also disagrees with the view that volatility has troubled policy makers. Instead he believes that their main challenge was recognising whether asset prices were justified by changed fundamentals.

The book concludes with Feldstein, Fraga and Mohan providing an overview of the papers and issues discussed at the symposium. Feldstein addresses the issue of global economic imbalances and notes as the US trade deficit declines, central banks will be either forced to ease monetary policy to maintain demand and employment or tighten policy in order to reduce demand, and hence, inflation. In contrast, Fraga focuses on Latin America and presents four reasons for the recent lack of growth in Latin

America: macro-instability, low savings and investment, the poor quality of education and finally, governance. Looking to the future, Mohan sees the growing Asian population accelerating the global labour force and adding to the further shrinking of the world.

Conclusion

The publication highlights the many challenges that countries face as a result of increased integration and rapid changes in the global economic geography. Hence, "The New Economic Geography: Effects and Policy Implications" is a 'must read' for policy makers and researchers alike. A major critique of the book, however, is its disregard of the implications of fiscal policy. It is highly unreasonable to assume that fiscal measures adopted by countries would remain unaffected in light of the changes in the global economy.

Despite this neglect, the book should be a reference of Caribbean economies. With the renewed focus on furthering integration within the region, the book may provide policy makers with useful insight into the potential impact integration can have on economic activity. For instance, greater integration may result in shifts in the location of factors of production, which in turn can lead to greater economic disparities between Caribbean countries: some countries may experience rapid growth while others may be left behind.



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