

Mauritius

Challenges of Sustained Growth



Emilio Sacerdoti, Gamal El-Masry,
Padamja Khandelwal, and Yudong Yao



International
Monetary
Fund

Mauritius

Challenges of Sustained Growth

Emilio Sacerdoti, Gamal El-Masry, Padamja Khandelwal, and
Yudong Yao

International Monetary Fund
Washington, DC

©2005 International Monetary Fund

Production: IMF Multimedia Services Division
Cover Design: Massoud Etemadi
Typesetting: Alicia Etchebarne-Bourdin
Cover Photos: Chris Hellier/CORBIS (left) and
Bernardo Bucci/CORBIS (right)

Cataloging-in-Publication Data

Mauritius : challenges of sustained growth / Emilio Sacerdoti . . . [et al.] — Washington,
D.C. : International Monetary Fund, [2005]

p. cm.

ISBN 1-58906-416-X

Includes bibliographical references.

1. Mauritius—Economic conditions. 2. Mauritius—Economic conditions—Statistics.
3. Mauritius—Economic policy. 4. Labor market—Mauritius. 5. Financial institutions—Mauritius.
6. Monetary policy—Mauritius. I. Sacerdoti, Emilio.

HC597.5.M38 2005

Disclaimer: The views expressed in this work are those of the authors and do not necessarily represent those of the IMF or IMF policy. The IMF has not edited this publication. Some documents cited in this work may be not available publicly.

Price: \$25.00

Please send orders to:
International Monetary Fund, Publication Services
700 19th Street, NW, Washington, DC 20431, U.S.A.
Telephone: (202) 623-7430 Telefax: (202) 623-7201
Internet: <http://www.imf.org>

Contents

Preface		vii
Chapter 1. Overview		1
Chapter 2. Outstanding Growth Performance		3
Mauritius’s Initial Conditions		3
Outstanding Accomplishments		5
Accounting for an Economic Miracle		11
Chapter 3. Sectoral Diversification and Openness		15
Main Trends in Diversification		15
Balance of Payments Developments: The Strengthening of the External Position		16
The Sugar Sector		20
The Export-Processing Zone (EPZ)		25
The Tourism Sector		34
The Financial Services Sector		36
Sea Port and Freeport		37
Information Technology: The New Growth Sector		37
Chapter 4. The Role of Institutions		40
Quality of Mauritius’s Institutions		41
Rule of Law		43
Adaptability to External Shocks		43
Proper Uses of Sugar “Transfer” and Good Management of the EPZ		44
Quality of Institutions and Mauritius’s Growth: Some Econometric Evidence		45
Chapter 5. Labor Market and Educational System		50
Labor Market Institutions: “One Country, Two Systems”		51
Educational System		55
Reforms Under Way		56
Conclusion		57

Chapter 6.	Fiscal Developments	<u>59</u>
	Phase 1: Fiscal Imbalances	<u>60</u>
	Phase 2: Fiscal Consolidation and Trade Tax Reform	<u>60</u>
	Phase 3: Reemergence of Fiscal Imbalances Despite VAT Introduction	<u>61</u>
	Challenges Ahead	<u>63</u>
Chapter 7.	Financial System and Institutions	<u>71</u>
	The Early Years	<u>71</u>
	Maturing of the Financial System	<u>73</u>
	The Financial System at Present	<u>75</u>
Chapter 8.	The Evolution of Monetary and Exchange Rate Policy	<u>81</u>
	The Early Years—A Controlled System	<u>81</u>
	Initial Steps Toward Liberalization	<u>86</u>
	Liberalization	<u>88</u>
	Inflation as a Monetary Policy Objective in Mauritius: Challenges in Recent Conduct of Monetary and Exchange Rate Policy	<u>90</u>
Chapter 9.	Medium-Term Challenges and Concluding Remarks	<u>96</u>
	The Factors Behind Sustained Growth	<u>96</u>
	The Challenges for Policy	<u>97</u>
References		<u>100</u>
Boxes		
	3.1. Openness Strategy	<u>17</u>
	3.2. Mauritius: The Future of the EPZ	<u>32</u>
	3.3. Mauritius: ICT Sector Outlook and Its Impact on Medium-Term Growth	<u>38</u>
	5.1. Mauritius: Unemployment and the Labor Market	<u>52</u>
	7.1. Future Risk and Challenges to the Mauritian Financial System	<u>78</u>
	7.2. Further Development of the Bond Market	<u>80</u>
	8.1. Money Demand in Mauritius	<u>85</u>
	8.2. Econometric Analysis of Bank of Mauritius Monetary Policy Rule	<u>95</u>

Tables

2.1. Inheritance: Mauritius Versus the Rest of the World	4
2.2. Key Economic Indicators, 1980/81–2003/04	10
2.3. Sources of Growth in the World by Region, 1960–2000	12
3.1. Principal Growth Industries by Period	15
3.2. Balance of Payments, 1979/80–2002/03	19
3.3. Implicit Transfer from European Sugar Consumers, 1975–2000	23
3.4. Welfare Benefits of the Sugar Protocol (SP), 1975–92	24
3.5. Estimates of Effective Protection, 1980 and 1990	27
3.6. Import Tax and Offsetting Export Subsidies	30
3.7. Total Factor Productivity (TFP) in the EPZ Sector	30
3.8. Key Tourism Indicators, 1980–2002	35
3.9. Tourism Statistics in Comparison with Maldives and Seychelles, 1985–2002	35
4.1. Mauritius and Other Countries with Respect to Indices of Institutions	42
4.2. Institutional Variables: Mauritius and Other Regions	42
4.3. Cross-Country Growth Regression as in Sachs and Warner (1997)	46
4.4. Breakdown of Mauritian Growth	47
4.5. Cross-Country Regressions of Change in Growth (Rodrick, 1999b)	48
6.1. Summary of Government Finances, 1980/81–2003/04	59
6.2. Tax Revenue, 1997/98–2003/04	62
6.3. Value-Added Tax Efficiency Ratios	63
6.4. Public Debt Sustainability Framework, 2003/04–2007/08	64
6.5. Maturity Composition of Government Debt, 1998/99–2002/03	67
6.6. Savings and Investment, 2000/01–2003/04	69
6.7. Holders of Domestic Debt, 2002	70
7.1. Financial System Structure, June 2002	76
8.1. Inflation Target and Outcome, 1997/98–2003/04	91

Figures

2.1. GDP Developments, Composition, and Growth Accounting	8
3.1. International Sugar Prices, 1970–2000	22
3.2. Wages in the EPZ and Non-EPZ Sectors, 1983–2000	28
5.1. Real GDP Growth, Employment Growth, and Unemployment Rate, 1982–2002	51
5.2. Average Compensation and Labor Productivity, 1982–2002	53
6.1. Central Government Debt, 1995–2003	66
6.2. Bank Rate and Inflation, January 1998–June 2003	68
7.1. Income Velocity of Money, 1967–2003	73

8.1. Mauritius Monetary Policy—Bank Rate and Inflation, 1967–2003	82
8.2. Credit to Private Sector, 1967–2003	83
8.3. Balance of Payments, 1967–2003	84
8.4. Real and Nominal Effective Exchange Rate Indices, January 1979–June 2004	87
8.5. Net Foreign Assets of Bank of Mauritius, 1967–2004	88
8.6. Principal Interest Rates, January 2000–February 2004	93
8.7. Yield Curve for Treasury Securities	94

The following conventions have been used throughout the paper:

- . . . to indicate that data are not available or not applicable;
- to indicate that the figure is zero or negligible;
- between years or months (for example, 2002–03 or January–June) to indicate the years or months covered, including the beginning and ending years or months;
- / between years or months (for example, 2002/93) to indicate a fiscal or financial year.

Preface

Some of the material presented in this Special Issues Paper was previously published in the selected issues papers prepared as background for discussions in the IMF Executive Board. The paper also draws on material presented in a very comprehensive study by Arvind Subramanian and Devesh Roy, 2001, “Who Can Explain the Mauritian Miracle: Meade, Romer, Sachs or Rodrik?” IMF Working Paper 01/116.

The authors wish to express their gratitude to Arvind Subramanian, who has been a driving force behind this work through his insightful analysis of the roots of the Mauritian economic miracle.

The authors are grateful to the Mauritian authorities for the open discussion of the issues covered in the paper, and for their assistance in providing data and other source material, and to the Executive Director for Mauritius, Mr. Damian Ondo Mañe.

The authors wish to thank Bakar Ould-Abdallah for his extremely effective and valuable research assistance, and Michael Nowak, Calvin McDonald, and Catherine Pattillo for their insightful comments. Finally, the authors wish to acknowledge the very valuable contributions of Ramatu Kabia, who provided assistance in preparing the document, and of Marina Primorac of the External Relations Department, who coordinated the production of the publication.

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

This page intentionally left blank

Overview

The purpose of this paper is to present the remarkable achievements of the economy of Mauritius since independence, and to highlight the factors that have made this performance possible. The record is impressive. Mauritius has achieved one of the highest per capita gross domestic products (GDPs) in Africa: about US\$4,600 in 2003, up from about US\$320 in the early 1970s. The economy, which at independence in 1967 was dependent entirely on the sugar crop, has been able to diversify rapidly, first into textiles, then into tourism, and more recently into information and communication services. In the process, the large pool of unemployed labor has been absorbed, and a remarkable macroeconomic stability has been maintained over the last 20 years. The country is well positioned to benefit from the increasing demand for information processing.

This paper examines several factors that have contributed to this remarkable growth: the successful pursuit of macroeconomic stability, despite the presence of adverse exogenous shocks; a successful strategy of trade openness, although somewhat heterodox; the development of a solid institutional framework that has promoted growth, including respect for the rule of law, political stability, an efficient administration, and a favorable regulatory framework. The paper also highlights the rapid development of a well-developed financial system that has contributed to supporting economic diversification and growth.

Despite this successful performance, important challenges remain. The government budgetary deficit is contributing to a rise in the total public sector debt, which could become worrisome if the deficit is not scaled down on a steady basis; despite a good overall educational system, there is a need to facilitate access for all students to secondary schools and to enhance the quality of education, including vocational training, in order to better prepare them for the labor force; the textile and the sugar sector must confront the erosion of trade preference and must therefore restructure in order to survive.

While these challenges are very serious, the cohesion of the social fabric, the quality of the institutions, the level of the human capital, and the quality of the physical infrastructure suggest that the country should be able to continue to find ways to adapt its economic structure so as to ensure sustainable growth.

Outstanding Growth Performance

Mauritius's Initial Conditions

Mauritius is a small island economy in a remote section of the Indian Ocean. The island was visited by Malays, Arabs, and Portuguese in the sixteenth century. The first colonial settlement in Mauritius, however, was made by the Dutch, who proclaimed it a Dutch colony in 1638 but then left in 1710. The French ruled the island until 1810, when they lost it to the British during the Anglo-French war. After the abolition of slavery in 1833, indentured laborers were brought from India to work in the sugarcane fields. As a result, Hindu Indians now form the majority of the population, followed by Creoles (of mixed, predominantly African, origin), Muslim Indians, Chinese, and Europeans. Mauritius has been independent since 1968 and became a republic in 1992.

With few natural resources, small domestic markets, and a vulnerability to external shocks, Mauritius exhibited a series of characteristics very typical of the rest of Africa: a monocrop economy; exposure to terms-of-trade shocks; a rapid growth of population; and ethnic tensions among its population exacerbated by high income and wealth inequality. In 1968, Mauritius was by all measures a poor country with per capita income of only US\$350.

Mauritius did not start out with favorable initial conditions at independence when compared with other countries. Table 2.1, from Subramanian and Roy (2001), shows how Mauritius scored on these indicators both in absolute terms and in comparison with three other groups of countries. These indicators are selected from Sachs and Warner (1997) and are supplemented with a few other factors. One variable on which Mauritius fared well was human capital: for example, life expectancy at birth (60.4 years) in the early 1970s was substantially higher than in other countries. On other factors, the country was worse off. For instance, with regard to geography, although Mauritius is not landlocked, it does have a fully tropical climate (score of 1 on the tropics variable). And in terms of distance from world markets, Mauritius fared the worst, being more remote from

Table 2.1. Inheritance: Mauritius Versus Rest of World¹

	Mauritius	Africa	Fast-Growing Economies	All Other Developing Economies
Inheritance				
Catch-up ²	8.72	7.29	7.90	7.85
Life expectancy in years (circa 1970) (human capital)	60.40	41.60	57.10	51.90
Ethnolinguistic fractionalization ³	0.58	0.64	0.42	0.32
Population growth ⁴	0.97	-0.09	0.82	0.33
Share of primary exports in total exports	0.29	0.18	0.09	0.12
Geography				
Fraction of area in tropical climate	1.00	0.89	0.69	0.59
Landlocked ⁵	0.00	0.33	0.00	0.11
Remoteness from Economic center of the world (kms) ⁶	11,249	9,183	9,464	8,633

Sources: Subramanian and Roy (2001), and Sachs and Warner (1997).

¹The fast-growing countries include Thailand, Malaysia, Indonesia, China, Hong Kong SAR, and Singapore.

²Log of real GDP per economically active population in 1965.

³Probability that two randomly selected people from a country will not belong to the same ethnic or linguistic group.

⁴Growth of working age population minus growth of total population between 1965 and 1990.

⁵1 if it is landlocked, 0 if it is not. For a group it depicts the fraction of countries landlocked.

⁶Remoteness of a country is its average distance to trading partners, weighted by their share in the world GDP.

the world's economic center of gravity than the average African country and the average developing country.

Given these unfavorable initial conditions, it is not surprising that the Nobel laureate James Meade in the early 1960s considered Mauritius doomed to economic and social failure. Meade wrote in a report to the Mauritius Legislative Council seven years before independence:

It is going to be a great achievement if Mauritius can find productive employment for its population without a serious reduction in the existing standard of living. Heavy population pressure must inevitably reduce real income per head below what it might otherwise be. That surely is bad enough in a community that is full of political conflict. But if in addition, in the absence of other remedies, it must lead either to unemployment (exacerbating the scramble for jobs between Indians and Creoles) or to even greater inequalities (stoking up still more the envy felt by the Indian and Creole underdog for the Franco-Mauritian top dog), the outlook for peaceful development is poor.¹

Meade's gloomy prophecy of doom for Mauritius was based on his views that the country started with very unfavorable conditions, foremost the population explosion that had led to a decline in per capita income during the 1950s. He was pessimistic about the possibility of expanding the traditional agricultural sector and about the prospects for manufacturing. He noted that there was very limited expertise in running industries outside the sugar factories, there was scarcity of capital and raw materials, and the domestic market was very small. Meade was also concerned that Mauritian society's sharp division on ethnic, economic, and political criteria was likely to constitute a major impediment to the cohesive management of the country. However, history has proven Meade mistaken, and Mauritius has achieved an extraordinarily rapid and sustained growth during the past three decades.

Outstanding Accomplishments

Over the past three decades, Mauritius has made impressive gains in the macroeconomic and social areas.

Growth

Real output growth over the past two decades has averaged just below 6 percent per year, leading to an impressive rise in per capita income. Between 1973 and 2003, real GDP in Mauritius has grown on average by 5 percent per year, compared with 2.4 percent for all African countries. In per capita terms the

¹Quoted in Subramanian and Roy (2001).

corresponding numbers are 3.8 percent and about 0.7 percent. This means that the income of the average Mauritian has increased three times over a 30-year period, while that of the average African increased by 32 percent. Per capita income grew in current U.S. dollar terms from about US\$320 in the early 1970s to about US\$4,600 in 2003.

Macroeconomic Stability and Diversification

High growth rates have been delivered along with macroeconomic stability. Between 1973 and 2000, consumer price inflation averaged 8 percent per year, compared with over 25 percent in Africa. Although inflation has been subject to episodic spikes, its variability has also been well below that for Africa as a whole. For example, the standard deviation of inflation in Mauritius (2.4 percent) has been half of that in Africa.

The country was able to emerge quickly from the period of macroeconomic instability of 1978–81. This instability was brought about by the reversal of the sugar price boom, which had been accompanied by lax fiscal and monetary policies, and the concomitant increase of fuel prices, which were not addressed with adequate policy tightening. Thus, the budget deficit reached about 13 percent of GDP during 1976/77 (July to June) and 1977/78; this deficit was financed by rapid expansion of bank credit to government, resulting in money growth in excess of 20 percent in 1978, which fueled inflation to about 15 percent in 1979–81. The authorities responded to these developments with a series of IMF-supported adjustment programs starting in late 1979, and managed to reestablish fiscal discipline, mainly through reduction of expenditure, so as to curtail sharply the government's borrowing requirement. With money growth declining, inflation fell from above 10 percent in 1982 to 6 percent in 1983, and remained in the middle single digits thereafter, except for a spike above 10 percent in 1989–90. To restore external competitiveness, the Mauritian rupee (MUR) was devalued in October 1979 and in September 1981 by a cumulative 36 percent in nominal terms. In addition, in the mid-1980s all quantitative restrictions on imported goods were lifted.

In view of the country's heavy dependence on the sugar industry, and the latter's limited capacity to absorb the growing labor force, the authorities began to encourage diversification in the late 1970s. They used fiscal and administrative incentives and concessions to foster the establishment and expansion of an export-oriented manufacturing sector through the creation of an export-processing zone (EPZ) and to boost tourism. The expansion of the financial sector was also promoted. The fiscal adjustment provided room for expanding credit to the rapidly rising private business sector. During the 1980s the authorities gradually liberalized interest rates, fostered greater competition in the banking sector, and phased out the sectoral allocation of credit. In the late 1980s they enacted legislation to establish a stock exchange and established the framework for an offshore financial sector.

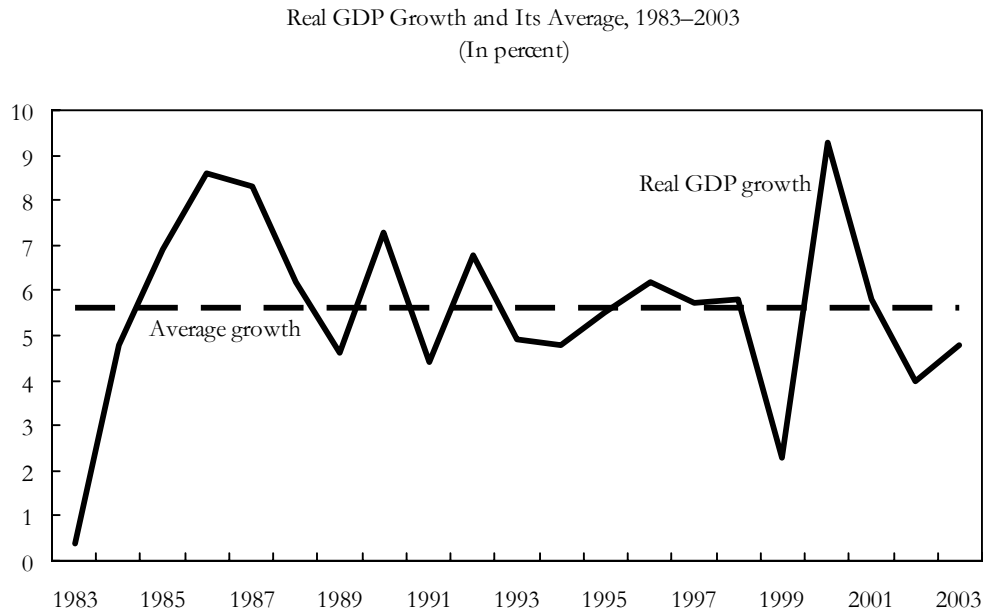
The authorities' prudent management of their economy and their outward-oriented policies placed the economy on a sustained growth path. Between 1980/81 and 1990/91 total output rose at an average annual rate of 6.3 percent, with the EPZ and tourism making impressive gains (see Figure 2.1, first and third panel, and Table 2.2). The mainly textile-based EPZ grew at an average annual rate of 15.2 percent, and tourism recorded annual growth rates of about 10 percent, with a very strong performance in the second half of the 1980s. Sugar output during this period remained broadly unchanged. As a result, the shares of GDP of the EPZ and tourism rose respectively from 4.2 percent and 1.6 percent in 1979/80 to 11.4 percent and 2.5 percent in 1989/90. Over the same period, the share of GDP of the sugar industry declined from 18.1 percent to 8 percent.

The strong expansion of the Mauritian economy sharply increased employment opportunities, and the unemployed workers laid off during the late 1970s were reabsorbed. Between 1979/80 and 1989/90 the number of people employed in establishments with 10 or more employees rose by more than 40 percent, and the unemployment rate declined from more than 20 percent to less than 3 percent.

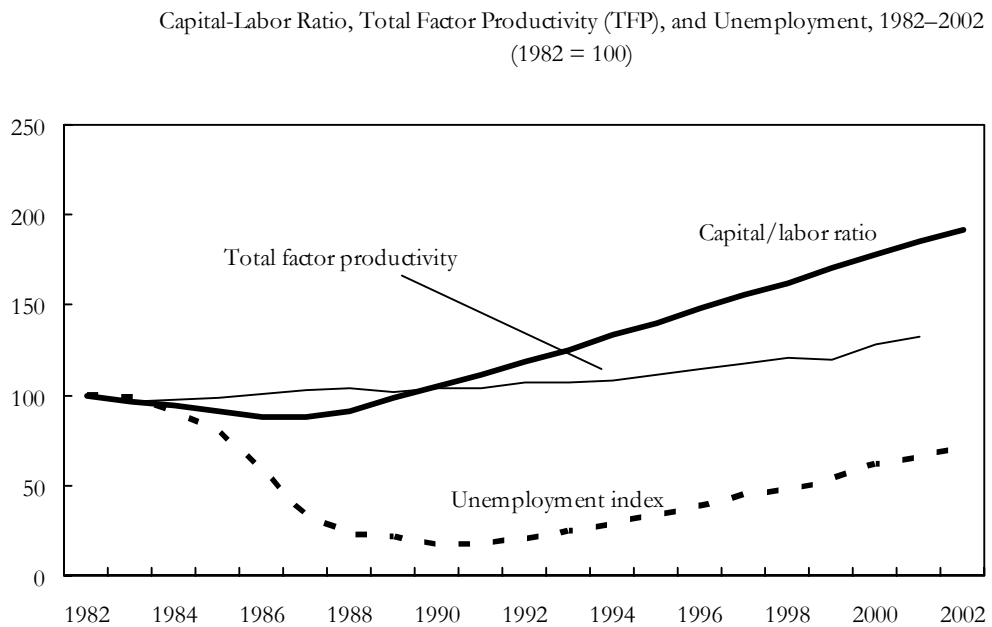
The successful diversification of the economy contributed to a sharp turnaround of the external current account. The large current account deficits of the late 1970s and early 1980s were eliminated in the second half of the 1980s. Sustained by the preferential agreements with the United States and the European Community for sugar and manufactured goods, exports of goods and services in U.S. dollar terms trebled from 1979/80 to 1989/90, and rose further by 70 percent in the period 1990–2002. In the late 1980s, gross exports of the EPZ surpassed sugar exports, while during that decade tourism receipts more than quadrupled.

Real GDP growth continued at a sustained pace in the 1990s (5.4 percent per year on average) and during 2001–03 (4.8 percent per year). Growth was sustained by continued expansion of exports of goods and services (4.3 percent per year in U.S. dollar terms) and by a high investment ratio that averaged 27.3 percent between 1990 and 2000. The growth of EPZ exports (mainly apparel and textiles) remained rapid up to the middle 1990s, but slowed down in the last half of the decade (the overall rise of EPZ exports was 30 percent in U.S. dollar terms during the whole decade); thereafter, up to 2000, production stagnated because labor costs had risen to levels that spurred a migration of Mauritian production to neighboring countries such as Madagascar. During 2001–03 production and employment in the EPZ declined, as discussed in Chapter 3, because the prospect of the termination of the Multi-Fiber Arrangement in 2005 reduced the relative attractiveness of Mauritius for foreign investors. Tourism receipts continued to rise sharply during the 1990s, doubling in U.S. dollar terms, and also in the 2000–03 period; since the early 1990s, other exports of goods and services have increased their contribution to total export

Figure 2.1. GDP Developments, Composition, and Growth Accounting



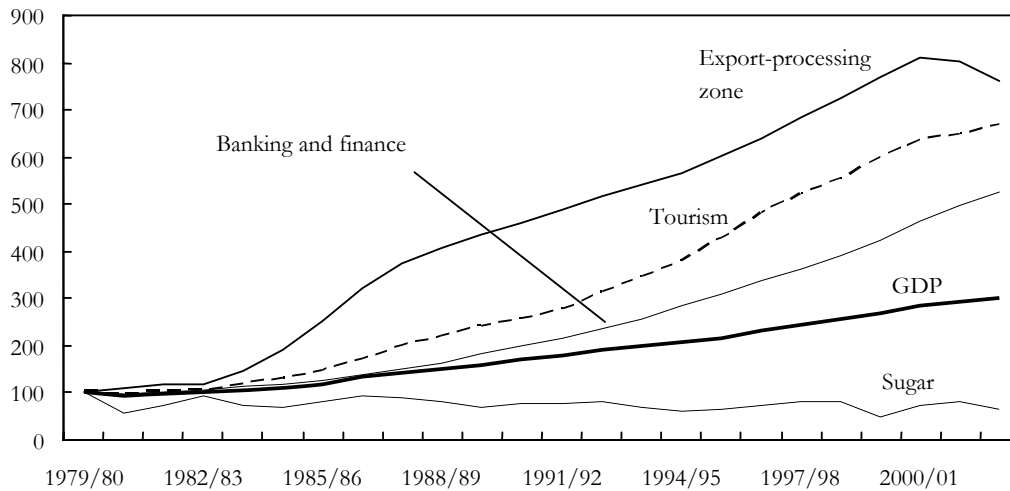
Sources: Central Statistics Office and IMF staff estimates.



Sources: Central Statistics Office and IMF staff estimates.

Figure 2.1 (concluded)

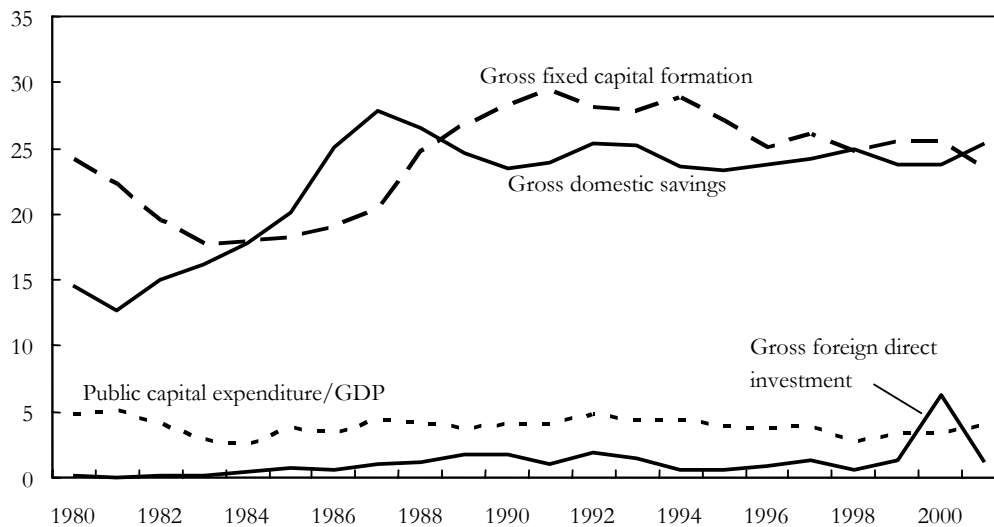
GDP at Constant 1992 Prices, 1979/80–2002/03¹
(Index, 1979/80=100)



Sources: Mauritian authorities and IMF staff estimates.

¹Fiscal years run from July to June.

Domestic Saving, Domestic Investment,
Foreign Direct Investment, and Public Capital Expenditure, 1980–2001
(In percent of GDP)



Sources: Mauritian authorities and IMF estimates.

Table 2.2. Key Economic Indicators, 1980/81–2003/04 ¹

	1980/81– 1984/85	1985/86– 1989/90	1990/91– 1994/95	1995/96– 1999/00	2000/01– 2003/04
	(Average annual growth rate) ²				
Real GDP growth	1.9	7.8	5.2	5.3	4.5
By sector: Export-processing zone	13.8	18.0	5.4	6.3	-1.4
Tourism	5.6	13.0	9.4	9.6	3.6
Banking and other finance	3.7	8.7	9.3	8.4	7.3
Sugar	-6.6	-0.1	-2.9	-4.6	8.7
	(In percent of GDP) ³				
Gross national savings	15.2	27.5	27.2	25.3	26.5
Gross domestic savings	16.6	25.8	24.4	23.4	25.2
Gross domestic investment	21.1	28.3	29.6	26.5	23.0
External current account	-5.8	-0.8	-2.5	-1.3	3.5

Sources: Mauritian authorities and IMF staff estimates.

¹ Fiscal year from July to June.

² Geometrical period average.

³ Arithmetical period average.

receipts, reflecting the diversification of the economy. As a result, the current account equilibrium achieved in the early 1990s was maintained through the decade. In 2002–03 it turned into a significant surplus, resulting in large accumulation of external reserves, which reached almost seven months of imports at end-2003.

Rapid growth was supported by reforms to adapt macroeconomic policies and the financial system to the increased complexity of the economy. Prudential regulations for the banking system were strengthened in the early 1990s. Credit ceilings were abolished in 1993, and the central bank moved to program reserve money growth, with treasury bill auctions and open market operations becoming the key instruments of monetary control. In the external sector, Mauritius accepted the obligations under Article VIII of the IMF's Articles of Agreement in 1993, which prohibits restrictions on the making of payments and transfers for current international transactions, except with IMF approval; in 1994 all remaining controls on capital transactions were lifted. At the same time, in 1993 the exchange rate peg system was abandoned, and an interbank foreign exchange market established, in which the exchange rate of the rupee was determined. Since 1997 the central bank has announced inflation targets, which have become

the key objective of monetary policy; the central bank interventions in the foreign exchange market have gradually been curtailed, and since end-2001 the Mauritian rupee has appreciated in nominal and real effective terms, after having been broadly stable in real effective terms through the 1990s.

Social Indicators and Poverty Reduction

Improvements in human development indicators have been equally impressive. Life expectancy at birth increased from 61 years in 1965 to 71 in 1999; primary enrollment increased from 94 percent to 106 percent between the early 1970s and the late 1990s, compared with 78 percent and 75 percent, respectively, in Africa. Income inequality has also seen impressive improvements: the Gini coefficient declined from 0.5 in 1962 to 0.42 in 1975 and to 0.37 during 1986–87.

Mauritius does not have an official and uniform definition of poverty, so that time trends in poverty reduction are difficult to construct. But it is certainly possible to state that poverty in Mauritius has declined dramatically. In 1968, most of the population lived on less than US\$1 a day. Today, virtually no Mauritian does. The overwhelming majority of the population has access to safe and clean drinking water and electricity.

As the data above demonstrate, Mauritius's social and economic success during the past quarter century has been remarkable both in and of itself as well as in comparison to the rest of Africa and even the fast-growing East Asian economies. Mauritius has also succeeded in fostering a stable and democratic political system and high-quality institutions, which have drawn strength from the country's ethnic diversity and succeeded in maintaining social harmony.

Accounting for an Economic Miracle

A growth accounting framework analysis for Mauritius highlights that there have been substantial changes in the factors explaining growth between the 1980s and the 1990s, while average annual GDP growth has remained very similar (Table 2.3). The growth accounting presented in Table 2.3 has followed the methodology of Bosworth and Collins (2003), as explained in the footnote of the table. In the first decade, GDP growth is mainly accounted for by sustained growth of the employed labor force, with the labor force increasing on average by 5 percent per year. In the second period, while the growth of labor declined sharply, both that of physical capital and total factor productivity (TFP) rose substantially. Output per worker rose faster than in East Asia (excluding China) and South Asia, two regions with remarkable growth, owing to a very sharp rise of both capital inputs and TFP, with the latter being much higher than in East Asia (excluding China) and South Asia. The increase in physical capital in the

Table 2.3. Sources of Growth in the World by Region, 1960–2000 ¹

	Output	Output per worker	Contribution (to Output per Worker) of:		
			Physical capital	Education	Factor productivity
Mauritius					
1983–90	5.9	0.9	0.2	0.1	0.5
1991–2001	5.6	4.3	1.9	0.2	2.2
World (84)					
1980–90	3.5	1.8	0.8	0.3	0.8
1990–2000	3.3	1.9	0.9	0.3	0.8
Sub-Saharan Africa (19)					
1980–90	1.7	-1.1	-0.1	0.4	-1.4
1990–2000	2.3	-0.2	-0.1	0.4	-0.5
China (1)					
1980–90	9.2	6.8	2.1	0.4	4.2
1990–2000	10.1	8.8	3.2	0.3	5.1
East Asia, excluding China (7)					
1980–90	7.2	4.4	2.4	0.6	1.3
1990–2000	5.7	3.4	2.3	0.5	0.5
Industrial countries (22)					
1980–90	2.9	1.8	0.7	0.2	0.9
1990–2000	2.5	1.5	0.8	0.2	0.5
Latin America (22)					
1980–90	1.1	-1.8	0.0	0.5	-2.3
1990–2000	3.3	0.9	0.2	0.3	0.4
Middle East (9)					
1980–90	4.0	1.1	0.6	0.5	0.1
1990–2000	3.6	0.8	0.3	0.5	0.0
South Asia (4)					
1980–90	5.8	3.7	1.0	0.4	2.2
1990–2000	5.3	2.8	1.2	0.4	1.2

Sources: Bosworth and Collins (2003) for all country groups; staff calculations using Bosworth and Collins

methodology for Mauritius. Note: the calculation is based on a constant return production function,

$Y=AK(LH)^{(1-\alpha)}$, where α , the capital share, is assumed equal to 0.5 for the entire sample, L is a measure

of the labor force and H is a measure of educational attainment used to adjust the workforce for quality labor.

The results are reported in a form that decomposes the growth of output per worker (Y/L) into the contribution

of capital per worker (K/L), increases in education per worker (H), and the contribution of improvements

in TFP (A). The contribution of educational attainment, H is obtained by relating human capital, H

to average years of schooling γ : $H=(1.07)^\gamma$. K is measured in national currencies.

¹ Numbers in parentheses denote the number of countries included.

1990s has also been remarkable, higher than in South Asia, and only slightly lower than in East Asia (excluding China). China had, on the other hand, a much faster growth of output per worker, owing to higher growth of capital per worker and of TFP.²

The contribution of education in Mauritius has been significant in the second decade, but less so than in Asia and in other regions. This may be owing to the relatively high initial level of educational attainment.

It should be noted that there is considerable debate in the literature on the role of education in growth. The approach of Bosworth and Collins (2003), used in Table 2.3, is to adjust the workforce for improvements in educational attainment by multiplying the quantity of workers by an index of average educational attainment, and imputing a return, obtained from microeconomic studies, in this case a 7 percent return, to an additional year of schooling.³ Education could, however, also have an impact on growth as an independent factor that can augment labor, physical capital, and TFP. Regressions by the same authors using as independent variables educational attainment (as a proxy for human capital), physical capital per worker, and also the initial level of the educational attainment, detect a higher coefficient on the rate of change of human capital.⁴

A unique feature of the Mauritius economy is that capital accumulation is primarily financed by domestic savings. Indeed, domestic savings grew steadily from about 15 percent of GDP in the early 1980s to about 25 percent of GDP

²It should be noted that the decomposition of output per worker Y/L in Table 2.3, which focuses on the capital-labor ratio, $Y/L = \alpha (K/L) + (1-\alpha) H + A$, where K/L capital per worker, and is the TFP, may overstate the role of capital, as investment is endogenous and may respond positively to increases in TFP. Thus, a number of researchers propose an alternative formulation that limits capital's contribution to increases in the capital-labor ratio, or $Y/L = \alpha / (1-\alpha) (K/Y) + H + A / (1-\alpha)$. This second formulation limits the contribution of capital to an increase in the capital-output ratio, and expands the role of TFP and human capital; it has been used by Hall and Jones (1999). Bosworth and Collins (2003) argue that it is somewhat extreme to assume that capital stock will adjust to all deviations in the rate of growth induced by changes in TFP, as investment decisions are the result of a large number of other factors.

³Bosworth and Collins's (2003) basic equation uses a simple average of the Cohen-Soto (2001) and Barro-Lee (2000) estimates of years of schooling, and adjusts the labor force for educational attainment. Since the average number of years of schooling changes very slowly, the effect on output growth is hard to detect. Under the assumption that social and private returns are equal, the average annual contribution to output growth is only 0.3 percent per year, with a very small standard deviation among the sample of 84 countries (only 0.2 percent).

⁴They also introduce a variable measuring educational quality, but note that while this variable is statistically significant, it reduces the role of educational attainment. They note that the measure of educational quality is highly correlated with a measure of the quality of institutions, and may be a proxy for a more general concept. When other variables that are known to be correlated with growth are introduced, such as initial income and life expectancy, changes in terms of trade, geographical distance from the equator, and quality of government institutions, the educational variables become insignificant. This indicates that while improvements in educational attainment contribute to raising workers' productivity, their estimates are not very robust to specification changes.

by the end of the decade, and has remained at that high level ever since. At the same time, investment has been strong, ranging between 25 and 29 percent of GDP throughout the 1990s (Figure 2.1, last panel). Except for a spike in 2000, when France Telecom bought a 60 percent share of Mauritius Telecom for about US\$265 million, foreign direct investment (FDI) has remained rather modest at less than 3 percent of GDP.

Sectoral Diversification and Openness

Main Trends in Diversification

Table 3.1 sketches a brief synopsis of the history of industrial transformation in Mauritius, indicating which were the principal growth industries in each period. In the 1970s, the sugar sector, which includes both cane cultivation and sugar milling, accounted for over 26 percent of GDP and formed the largest sector of the economy. The export-processing zone (EPZ), which is dominated by the clothing and textiles industry, took off in the 1980s. The manufacturing share of GDP climbed rapidly from 4.5 percent in 1982 to 11.6 percent in 1986, equivalent to the percentage contribution to GDP made by sugar cultivation. The sugar sector's contribution to GDP declined, and by the beginning of the 1990s value added in the EPZ was higher than in the agricultural sector. Rapid growth in tourism and financial services during the 1990s further

Table 3.1. Principal Growth Industries by Period

	Leading Sector	Key Sectors
1970s	Sugar	Sugar
1980s	EPZ (textiles)	Sugar, EPZ (textiles)
1990–2002	Tourism and financial services	Sugar, EPZ, tourism, and financial services
2003–present	Financial services, emerging information technology (IT) and freeport	Sugar, EPZ, tourism, financial services and IT

transformed the structure of the economy, and turned Mauritius into a four-pillar economy.

Arguably the Mauritian growth experience is fundamentally one of structural transformation and diversification, with a sequence of leading sectors, each of which experienced an initial period of explosive growth followed by slower growth. Industrial transformation coupled with the diversification effort has contributed to both enhancing long-term growth and significantly reducing cyclical fluctuations in real output. While this process has led to some structural unemployment, which will be discussed in Chapter 5, industrial transformation and diversification have overall been greatly successful, enabling the country to overcome diminishing returns of scale in capital accumulation at the sectoral level and therefore to maintain a sustained growth rate over an extensive period of time. The process of diversification has also been helped by a careful management of the process of opening up the economy (Box 3.1).

Balance of Payments Developments: The Strengthening of the External Position

The successful diversification of the economy allowed Mauritius to strengthen its external position (Table 3.2). The external current account deficit (excluding the acquisition of aircraft and ships), which averaged about 7¾ percent of GDP during the early 1980s, swung into an average surplus of 1¾ percent of GDP in the second half of the 1980s. This dramatic improvement reflected the authorities' successful adjustment effort in the first half of the decade (see below). The current account (excluding imports of aircraft and ships) shifted to a modest deficit in the early 1990s (averaging 1.1 percent of GDP), owing to a deterioration in the trade balance, with the increase in imports outpacing that of exports, as domestic demand for investment and consumer goods grew in line with strong economic expansion. However, in the following decade, the current account improved markedly on account of two independent developments. First, the EPZ became increasingly efficient, reducing its reliance on imports and increasing its domestic value added. The import content of EPZ exports thus declined steadily from about 75 percent in the late 1980s to a little over 50 percent by the turn of the century. Second, the tourism sector (see "travel" in Table 3.2), which had started to pick up in the late 1980s, continued its phenomenal expansion and almost doubled its net contribution to the current account from about 4½ percent of GDP in the late 1980s to about 8¾ percent of GDP by the early 2000s.⁵

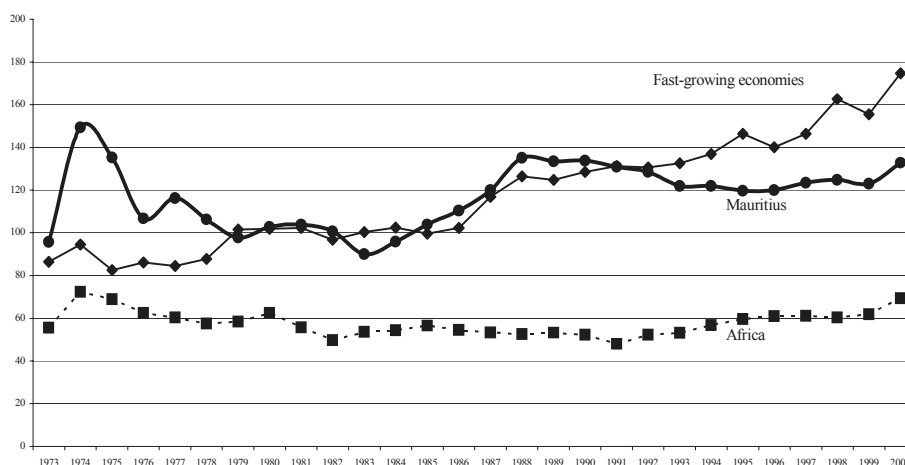
⁵In absolute terms the increase was even more dramatic: from an average US\$73.4 million in the late 1980s to more than US\$400 million in the early 2000s.

Box 3.1. Openness Strategy

At one level, the Mauritian growth experience can be advanced as a showpiece for openness that is beneficial for economic growth. The figure below illustrates this. Since the mid-1980s, the volume of imports and exports of goods grew quite rapidly, at a rate of 8.7 percent and 5.4 percent per year, respectively; the openness ratio (the ratio of trade of goods to GDP) increased from about 70 percent to 100 percent over this period, compared with an openness ratio for Africa that stagnated at about 45 percent. Particularly strong was the growth in manufacturing exports, originating predominantly from the export-processing zone (EPZ).¹

Mauritius, Sub-Saharan Africa, and the Fast-Growing Economies: Openness Ratio, 1973–2000

(Exports plus imports of goods and services as a percent of GDP)



Source: IMF (2003c).

Mauritius was one of the countries that Sachs and Warner (1997) classified as being open or following liberal trade policies. But this classification of Mauritius as an open economy appears inappropriate. During the 1970s and 1980s, Mauritius maintained a highly protective trade regime: the average rate of protection was high and dispersed. In 1980, the average effective protection exceeded 100 percent. This declined by the end of the 1980s, but, still remained very high (65 percent).

A decline in the rate of trade protection took place only in the 1990s; by 1998, the IMF index gave Mauritius a rating of 7, still among the highest in the world and in Africa (Subramanian and others, 2000). A more recent study by Hinkle and Herrou-Aragon (2001) provides a comprehensive comparison of the stance of trade policy in Mauritius and in the other African countries, showing that on almost every indicator, Mauritius's trade regime was more restrictive than that of the average African economy.

¹However, Mauritius has been considerably less open than the fast-growing countries of East Asia, whose openness ratio increased from 85 percent to 180 percent between 1973 and 2000.

Box 3.1 (concluded)

Another less known aspect of the international trading regime is relevant in analyzing Mauritian trade policies; under the World Trade Organization (WTO), developing countries have generally been exempted from undertaking obligations to rein in protectionist trade policies. This favorable treatment of developing countries was, until the Uruguay Round, extended to export subsidies. The Mauritian regime for encouraging export-oriented manufacturing, particularly the favorable tax treatment of firms in the EPZ sector, could not have flourished had the prohibition of export subsidies by developed countries also been applied to developing countries. The international regime was therefore indulgent toward Mauritius in this respect as well.²

Mauritius had a highly restrictive trade regime. It is easy to forget that a restrictive trade regime can translate into an export tax and hence a tax on all trade. According to Rodrik (1999a), Mauritius effectively segmented the export- and import-competing sectors. Through a policy of heterodox opening, Mauritius ensured that the returns to the export sector were high, specifically in the EPZ, effectively spilling over to, and adversely affecting, this sector. This combination ensured that the returns to the export sector remained high—indeed, high enough to prevent domestic resources from being diverted to its inefficient import-substituting sector.

²Interestingly, the WTO rules do not treat differential labor regulations between the export and other sectors as a subsidy.

The capital and financial accounts were generally supportive of developments affecting the current account. In the early 1980s, Mauritius resorted to significant financial assistance, including assistance from the IMF and the World Bank, in support of its economic reform efforts. These external borrowings also helped finance the large current account deficit. However, by the late 1980s, the acute current account imbalance was overcome, and in the period thereafter, the capital account stabilized at an average surplus of US\$20–40 million per year.

Table 3.2. Balance of Payments, 1979/80–2002/03¹
(In millions of U.S. dollars unless otherwise indicated)

	1979/80– 1983/84	1984/85– 1988/89	1989/90– 1993/94	1994/95– 1998/99	1999/00– 2002/03
Current account	-87.8	4.6	-63.4	-77.4	117.4
Goods	-73.3	-44.6	-218.4	-354.4	-307.0
Exports, f.o.b.	374.2	741.3	1,256.9	1,630.1	1,649.5
Sugar	224.0	275.1	338.3	373.5	263.4
Export-processing zone (EPZ)	117.2	414.9	797.7	1,092.5	1,140.5
Other	33.0	51.2	121.0	164.1	245.6
Imports, f.o.b.	-447.5	-785.8	-1,475.3	-1,984.5	-1,956.5
Of which: petroleum	-87.4	-65.4	-104.9	-127.6	-196.3
EPZ	-80.3	-311.0	-491.0	-650.9	-586.3
(in percent of EPZ exports)	-68.5	-74.9	-61.6	-59.6	-51.4
Aircraft and ships	0.0	-30.1	-32.5	-85.5	-25.9
Services (net)	-0.8	32.9	67.2	190.9	357.0
Of which: travel	25.5	73.4	154.2	298.1	402.4
Income	-37.8	-43.7	-4.1	-23.3	-8.1
Current transfers	24.1	60.0	91.9	109.3	75.4
Capital and Financial Account	75.1	22.0	21.9	39.9	42.0
Capital account	0.0	-0.2	-1.3	-0.7	-1.2
Financial account	70.8	22.1	23.3	40.7	43.2
Direct investment	1.4	14.5	7.5	24.2	78.8
Portfolio investment	0.0	0.0	-1.0	39.1	-50.8
Assets	0.0	0.0	-1.0	-3.2	-9.4
Liabilities	0.0	0.0	0.0	42.3	-41.4
Other investment	73.8	7.6	16.8	-22.7	15.2
Assets	-1.4	-18.0	-19.8	-67.5	30.0
Liabilities	75.1	25.6	36.6	44.8	-14.8
Long-term	75.1	26.7	32.6	24.2	-48.1
Disbursements	68.1	99.0	87.6	127.6	109.1
Amortization	-30.4	-53.2	-66.2	-92.5	-144.4
Other long-term	...	35.1	28.2	-10.8	-12.8
Short-term	0.0	-1.1	4.0	20.6	33.3
Net errors and omissions	10.3	70.8	122.6	71.6	54.6
Overall balance	-2.4	97.4	81.1	34.2	214.0
Reserve assets of the Bank of Mauritius (BOM) (–, increase)	2.4	-97.4	-81.1	-34.2	-214.0
Memorandum items:					
Current account balance, excluding aircraft and ships	-87.8	34.8	-30.9	8.1	143.3
Current account (in percent of GDP)	-7.7	0.2	-2.3	-1.9	2.5
Excluding aircraft and ships	-7.7	1.7	-1.1	0.1	3.0
Overall balance (in percent of GDP)	-0.2	5.5	3.3	0.8	4.6
End-of-year official reserves (BOM) ²	19.7	435.2	722.3	625.4	1,438.5
(In months of future imports, c.i.f.) ^{2,3}	0.5	4.3	5.2	3.5	6.9
Nominal GDP	1,116.1	1,591.2	2,898.3	4,167.7	4,597.4

Sources: Mauritius authorities and IMF staff estimates.

¹ Period averages; unless otherwise indicated. Fiscal year from July to June.

² End of period.

³ Excluding the future imports of aircraft and ships.

Three developments are worth noting:

- First, direct investment in Mauritius remained moderate through the early 1990s, but experienced a significant increase thereafter, on account of two large foreign direct investments. The first was the purchase in 1997/98 of a minority stake in the State Bank of Mauritius by the South African NedBank for about US\$42 million; the second was a much larger acquisition in 2000/01 of a 40 percent stake in Mauritius Telecom by France Telecom for about US\$265 million.⁶
- Second, in 1995/96, Mauritius succeeded in floating a bond for US\$150 million on the international capital markets (see “portfolio investment” in Table 3.2). This five-year floating rate note (FRN) was repaid in two installments of US\$33 million in 1998/99 and US\$117 million in 2000/01.
- Third, the purchase of aircraft and ships, which are disproportionately expensive items in relation to the size of the Mauritian economy, has been largely financed through elaborate long-term borrowing arrangements by the respective importers (such as Air Mauritius). These borrowings are reflected in long-term disbursements that have continued at high levels throughout the 1980s and 1990s.

The strong improvement in the current account, combined with a stable capital account, allowed Mauritius to maintain a healthy balance of payments surplus over the past 20 years. This resulted in a significant accumulation of foreign reserves by the Bank of Mauritius, from less than US\$20 million (or 0.5 months of prospective imports) at end-June 1984 to US\$1.4 billion (or almost seven months of prospective imports) at end-June 2003.

The Sugar Sector

Since 1953, Mauritius has been guaranteed a certain volume of exports of sugar to the United Kingdom and later to the countries of the European Economic Community (EEC, which became in 1992 the European Union). A sugar agreement, known as the Sugar Protocol (SP), was signed with the EEC in 1975. This agreement evolved from the previous arrangement with the United Kingdom under the Commonwealth Sugar Agreement (CSA), which ended when

⁶Also in 2000/01, the South African sugar giant Illovo sold its interest in a sugar estate in Mauritius and repatriated to South Africa the net proceeds of about US\$61 million.

the United Kingdom entered the EEC. All Commonwealth sugar producers were encouraged by the United Kingdom to enter into the SP with the EEC, which would ensure them access to the European market at a guaranteed price equivalent to the domestic price within the European market, on terms similar to what these countries had enjoyed previously in the U.K. market. Because the international sugar price surged in 1974, many sugar-producing countries were not interested in seeking a large allocation of the total access to the European market, which had been fixed at 1.2–1.4 million metric tons, compared with the 1.77 million metric tons under the CSA. Mauritius instead, not trusting that the sugar prices would remain at this high level, requested and obtained an increase in its quota from 386,000 metric tons under the CSA to 480,000 metric tons. Thus Mauritius obtained the largest quota, about 40 percent of the total for 16 nations of the African-Caribbean-Pacific group (ACP) countries.

In July 1995, the European Union (EU) Council of Ministers ratified the Special Preferential Sugar Agreement (SPSA) that was signed a month earlier between the representatives of the EU and 16 ACP states, including Mauritius. The SPSA provided for the import into the EU, during a six-year period ending in mid-2001, of additional quantities of raw cane sugar from the 16 ACP states to meet the cane refiners' deficit,⁷ as determined by the EU Commission in its annual assessment. The preferential price accorded under the SPSA was set at 85 percent of the prevailing guaranteed price under the SP. Mauritius's share under the SPSA in the first delivery year 1995/96 was about 85,000 tons.

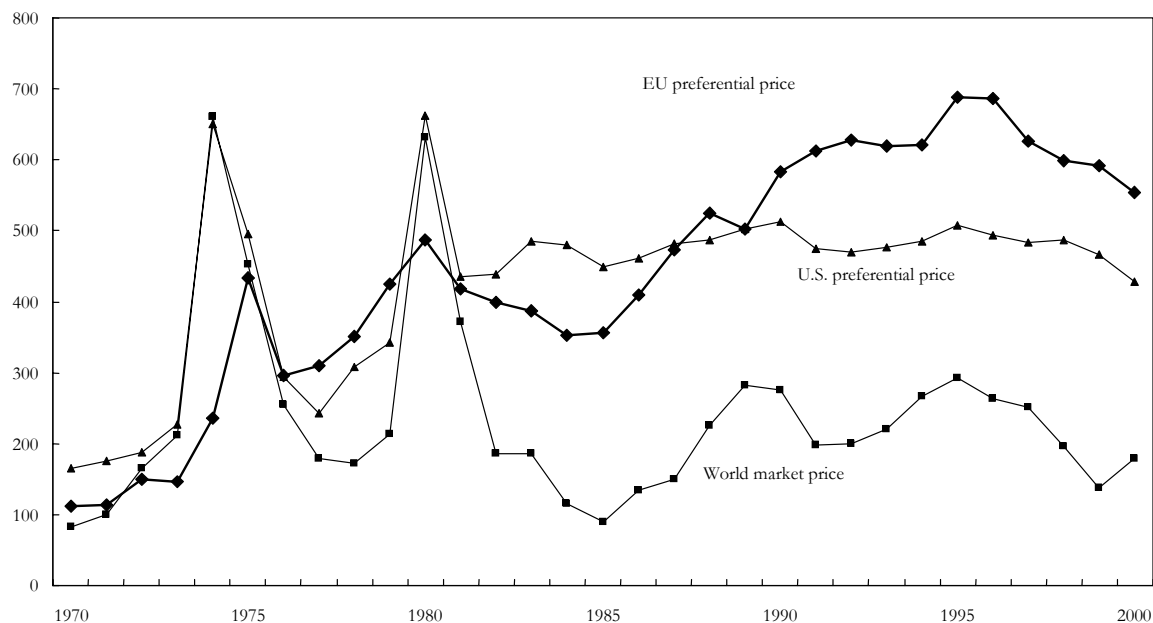
Starting in 1976, and with the sole exception of 1980, when international sugar prices experienced a temporary spike, the European preferential price under the SP has been consistently above the international market price for sugar. Indeed, with the passage of time, this spread has grown larger and larger (Figure 3.1).

Table 3.3 shows Mauritius's sugar exports to the EEC/EU during 1975–2000 under both the SP and SPSA. It is estimated that during 1975–2000, as a direct result of the SP (and to a lesser extent the SPSA), the cumulative benefit to Mauritius from quasi transfers from European consumers (calculated as the difference between the preferential prices under the SP and SPSA, respectively, and the world market price) amounted to about US\$3.5 billion, or an average of about 6.1 percent of Mauritius's GDP on an annual basis, reaching in some years

⁷Maximum supplies were defined for the four cane-refining states in the EU, namely the United Kingdom, France, Portugal, and Finland.

Figure 3.1. International Sugar Prices, 1970–2000

(In US dollars per metric ton)



Source: IMF, *International Financial Statistics*.

a peak close to 13 percent of GDP. Effectively, this preferential arrangement in the sugar sector increased the return to the export sector and acted like a subsidy to domestic production of sugar. However, unlike a domestic subsidy, subsidies received through the preferential access are a transfer from consumers in the importing country to producers (and taxpayers) in Mauritius.

Over the course of the last quarter century, these non-debt-creating quasi transfers have in effect provided Mauritius with a pool of foreign exchange and the private sector with additional savings with which to finance the country’s diversification into textile manufacturing and tourism. As a result, the country’s current account deficit has remained moderate, thus limiting the need for large external borrowing. In a study on the welfare benefits of the SP for the

Table 3.3. Implicit Transfer from European Sugar Consumers, 1975–2000

Year	Price			Price Subsidy	Exports to the EU Under		Calculated Transfers			
	EU (SP)	World	Difference	(In percent of world price)	SP	SPSA	Under SP	Under SPSA ²	Total	Total
	(In U.S. dollars per metric ton)				(In metric tons)	(In millions of U.S. dollars)			(In percent of GDP)	
1975	433.9	453.2	-19.3	-4.3	394,214		-7.6		-7.6	-1.3
1976	295.2	254.8	40.4	15.8	498,228		20.1		20.1	3.3
1977	308.9	178.8	130.1	72.8	535,600		69.7		69.7	8.5
1978	350.8	172.3	178.5	103.6	445,940		79.6		79.6	7.8
1979	425.3	212.9	212.5	99.8	471,486		100.2		100.2	8.3
1980	486.9	632.0	-145.2	-23.0	603,286		-87.6		-87.6	-7.7
1981	417.3	372.4	44.9	12.0	432,247		19.4		19.4	1.7
1982	399.5	185.3	214.1	115.6	540,121		115.7		115.7	10.7
1983	387.2	186.6	200.6	107.5	552,018		110.7		110.7	10.2
1984	353.5	114.7	238.8	208.2	501,453		119.7		119.7	11.5
1985	355.4	89.4	266.0	297.7	515,406		137.1		137.1	12.7
1986	410.1	133.4	276.7	207.4	488,265		135.1		135.1	9.2
1987	472.6	149.0	323.7	217.3	519,883		168.3		168.3	8.9
1988	525.0	224.7	300.3	133.6	493,284		148.1		148.1	6.9
1989	501.6	282.3	219.3	77.7	539,467		118.3		118.3	5.4
1990	583.2	275.8	307.4	111.4	501,282		154.1		154.1	5.8
1991	612.1	197.9	414.2	209.3	523,009		216.6		216.6	7.7
1992	627.8	199.9	427.8	214.0	529,112		226.4		226.4	7.1
1993	619.5	220.9	398.6	180.4	503,428		200.7		200.7	6.3
1994	621.7	266.9	354.7	132.9	489,035		173.5		173.5	4.9
1995	688.1	292.7	395.4	135.1	501,510	13,500	198.3	3.9	202.2	5.1
1996	686.8	263.6	423.2	160.6	511,500	45,200	216.5	14.5	231.0	5.4
1997	625.7	251.4	374.3	148.9	511,800	65,900	191.6	18.5	210.1	5.1
1998	598.1	196.6	401.5	204.2	524,800	80,700	210.7	25.2	235.9	5.6
1999	591.7	138.1	453.6	328.4	368,800	0	167.3	0.0	167.3	3.9
2000	554.8	178.1	376.7	211.5	540,000	14,000	203.4	4.1	207.5	4.5
Total for 1975–2000									3,472.0	
Average 1975–2000				141.5					133.5	6.1

Sources: Central Statistical Office; and IMF, *International Financial Statistics*.

¹ Sugar Protocol (SP); Special Preferential Sugar Agreement (SPSA); European Union (EU).

² Calculated at 85 percent of the EU price under the Sugar Protocol.

participating ACP countries covering the period 1975–92, Herrmann and Weiss (1995) calculated the direct transfer benefits (in both absolute and relative terms) as well as the benefits of stabilizing the ACP sugar export earnings, which would have otherwise been exposed to very volatile international “free” market prices (Table 3.4). They found that on all three measures, Mauritius drew the highest benefits when compared with the other ACP countries, reflecting the large quota allocation that it had secured and the large percentage SP-related exports represented in Mauritius’s total exports of sugar. The strongest reduction in earning volatility was achieved by Mauritius (71 percent), because its exports to

Table 3.4. Welfare Benefits of the Sugar Protocol (SP), 1975–92¹

Country	Total Transfers (In millions of ECUs)	Average Annual Transfers Per Capita (In ECUs)	Effect on Reducing Instability of Sugar Export Earnings (In percent)
Barbados	136	31.47	-58.90
Belize	110	38.56	-45.38
Congo, Democratic Republic of	26	0.78	-27.83
Côte d'Ivoire	21	0.13	-21.78
Fiji	451	37.75	-39.89
Guayana	419	30.26	-20.51
India ²	28	0.02	-3.85
Jamaica	330	8.24	-69.53
Kenya	2	0.02	-5.29
Madagascar	28	0.16	-26.97
Malawi	64	0.52	-21.22
Mauritius	1,348	75.62	-70.55
St. Christopher and Nevis	42	51.36	-64.44
Suriname	1	0.45	27.44
Swaziland	309	24.17	-42.44
Tanzania	28	0.07	-39.35
Trinidad and Tobago	123	6.10	-66.99
Uganda	1	0.28	...
Zimbabwe	73	0.75	-8.99
All countries	3,539 ³	16.14 ⁴	-33.69 ⁴

Source: Herrmann and Weiss (1995).

¹ Only actual years of sugar deliveries under the SP were used, namely for Côte d'Ivoire (1983–91); Kenya (1977 and 1979–84); Suriname (1976–80); Uganda (1976–77); and Zimbabwe (1981–91).

² Although India is not party to the SP, it has a preferential sugar trade agreement with the European Union that is similar to the SP.

³Total.

⁴Unweighted average.

the EU under guaranteed prices as a percentage of its total sugar exports were by far the largest among the ACP group. Moreover, Mauritius's sugar crop insurance scheme has substantially mitigated the adverse impact of weather-related shortfalls on production and consequently on foreign exchange earnings and domestic incomes.

Despite the substantial benefits reaped until now, it has to be noted that, over the medium term, the Mauritian sugar industry faces significant challenges, as the preferential market access that Mauritius currently enjoys will almost certainly eventually come to an end. First, the sugar protocol was included in the new ACP/EU agreements that were signed in Cotonou in 2000, requiring the phaseout of unilateral preferences by end-2007, and the EU is currently reviewing its sugar scheme. Second, Australia, Thailand, and Brazil are challenging the EU's support of their sugar producers at the World Trade Centre (WTO). While this challenge is not directly aimed at the preferential access of ACP countries (including Mauritius), a successful challenge, by reducing the domestic producer price in Europe, will also reduce the price paid to ACP sugar exporters to Europe. Thus, a very likely outcome will involve some significant gradual reduction in prices over the next few years.

The Mauritian government has been preparing for the loss of preferences through the implementation of the Sugar Sector Strategic Plan. The sugar industry has reduced significantly its average production costs from about US\$0.20 per pound in 2000 to US\$0.14 per pound in the 2003/04 crop year. Though this is still above world market prices of about US\$0.08 per pound, the government is confident that further reductions in production costs to US\$0.10–0.12 per pound by 2008 are achievable. The principal reforms being pursued include the consolidation of milling operations and the shedding of excess labor, primarily through a voluntary retirement scheme (VRS). The VRS was recently completed, resulting in a reduction of about 7,900 employees (from an initial 20,000–22,000 employees), and has achieved a significant reduction in salary costs of about 30 percent, although an assessment of its impact on total production costs will have to wait until the sugar strategy is reviewed in late 2004. The government and the industry are also focusing on the development of additional uses for sugar, such as rum and ethanol, to boost the overall return for the sector despite projected declining sugar prices.

The Export-Processing Zone (EPZ)

Determinants of the Successes in the 1980s and 1990s

By any conventional measure, the EPZ experiment in Mauritius has been a resounding success. It has helped literally transform the Mauritian economy. Since 1982, output in the EPZ sector has grown by about 10–11 percent per year on average, employment has grown by 24 percent, and exports have grown by

about 11 percent. The EPZ sector, from a base of zero in 1971, accounted in 2001 for 26 percent of GDP, 36 percent of employment, 19 percent of capital stock, and 66 percent of exports. The success of the EPZ raises a number of questions, because EPZs have not in general been successful in Africa and in other developing countries. Why instead was it so successful in Mauritius? Was the openness strategy of Mauritius bolder and better designed than in other countries? Or has it been accompanied by key ingredients that were absent in other countries?

As we shall examine below, Mauritius's economy through the 1970s and the 1980s was not very open and exhibited a relatively high rate of protection, with a rate of effective protection that declined through the 1980s and the 1990s but was still at 65 percent by 1990, down from 127 percent in 1980 (Table 3.5). This, in principle, was very detrimental to the establishment of a competitive manufacturing export sector. The institutional mechanism for achieving the segregation of the exporting sector from the import-competing sector was the creation of the EPZ, which was characterized by the following specific elements (see Subramanian and Roy, 2001):⁸

- First, duty-free access were provided to all imported inputs. This avoided an anti-export bias and ensured that the export sector's competitiveness on world markets was not weakened by import duties, which would have increased the cost of inputs used in export production.
- Second, a number of tax incentives were provided to firms operating in the EPZ, which had the effect of *subsidizing* exports.⁹
- Third, the labor market for the export sector was separated from the rest of the economy (and in particular the import-competing sector), with different labor market conditions prevailing at least until the late 1980s. Employers were granted greater freedom in discharging workers in the EPZ sector, and terms for overtime work were more flexible. Moreover, since the EPZ sector employed a large number of female workers (about 70 percent of total employment in the sector in 1990), for whom minimum wages were set at a lower level, these labor market measures acted as an implicit subsidy for exports, by keeping costs in the export

⁸The EPZ is not a geographically delimited zone, but rather a group of companies that operate across Mauritius under certain privileges and manufacture products predominantly for export.

⁹The main incentives included a 10-year tax holiday on retained earnings; a partial tax holiday for periods beyond that; free repatriation of capital and profits; and preferential interest rates for firms in the EPZ. Duty drawbacks and equivalent schemes do not entail export subsidization, as they merely offset the bias from restrictive import policies.

**Table 3.5. Estimates of Effective Protection,
1980 and 1990**

(In percent)

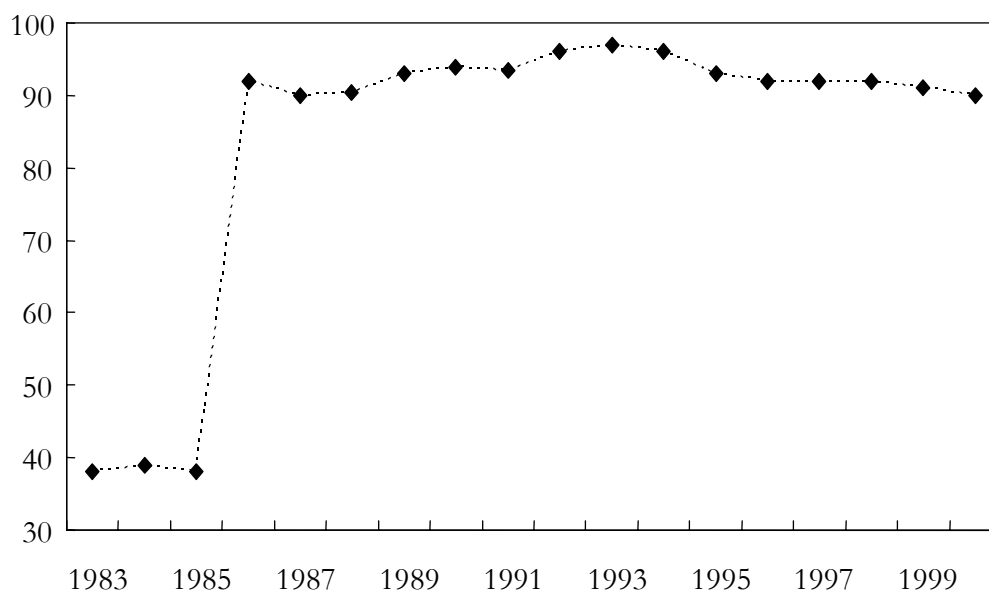
	1980	1990
Beverages and tobacco	123	182
Textile yarns and fabric	77	11
Apparel	99	4
Leather products	269	8
Footwear	158	88
Wood products	191	38
Furniture	130	241
Paper products	131	57
Printing/publishing	75	7
Chemical products	38	21
Rubber products	125	44
Plastic products	89	59
Nonmetallic products	77	48
Iron/steel	154	73
Fabricated metal products	156	48
Machinery	62	3
Electrical machinery	179	181
Transport equipment	23	4
Optical goods	266	9
Average	127	65
Memorandum item:		
Share of imports under licenses	57	—

Source: Milner and McKay (1996), quoted in Subramanian and Roy (2001).

sector lower than in the import-competing sector.¹⁰ Figure 3.2 illustrates the wage differential between the EPZ and the rest of the economy in the 1980s and 1990s. EPZ wages were about 36–40 percent lower in the 1980s, with the differential narrowing to about 10 percent in the 1990s.

¹⁰For example, in 1984, 79 percent of total employment in the EPZs was female, compared with 31 percent in the rest of the economy.

Figure 3.2. Wages in the EPZ and Non-EPZ Sectors, 1983-2000
(EPZ wages as a percent of non-EPZ manufacturing wages)



Source: Central Statistical Office of Mauritius.

These factors were underlined by Rodrik (1999a) as the main explanation for the EPZ success; however, they are incomplete in an empirical sense. Even allowing for favorable tax breaks, it seems that heterodox opening and intervention (in the form of subsidies to the export sector) did not offset completely the anti-export bias of the restrictive import regime. For example, Table 3.5 indicates that effective protection for the import-competing sector averaged about 127 percent in the 1980s and about 65 percent in the 1990s. At the same time, Figure 3.2 indicates that the de facto subsidization through the labor market was closer to 25–30 percent, even less if EPZ wages are compared with those in the import-competing sector. The impact of the corporate tax incentives on exports could not have been large, because most non-EPZ manufacturing firms also benefited from the similar tax concessions. There is an important additional contributing element, and that is the preferential access to the export markets enjoyed by Mauritius, which has played a key role in the development and profitability of the EPZ. Foreign investment in the clothing sector, which originated largely in Hong Kong SAR, was motivated in part by the need to circumvent the quotas on textiles and clothing that were constraining clothing exports from Hong Kong SAR. The international regime in place—known as the Multi-Fiber Arrangement (MFA)—was an attempt by the United States and the EU to limit imports into their own markets.

These limits were achieved by awarding country-specific quotas to the different textile- and apparel-exporting countries. One of the effects of these quotas was to redistribute production between exporting countries—away from the low-cost and toward the higher-cost sources of production. Thus, high-cost-producing countries gained an advantage relative to low-cost producers, resulting in higher production than would otherwise have taken place.

Subramanian and Roy (2001) estimate that the quota rents for Mauritius in the apparel segment under the MFA were equivalent to about 3 percent of GDP in 1996–99 and corresponded to an export subsidy of about 28 percent (Table 3.6).¹¹ The substantial rents accruing to exports ensured that resources were not diverted away despite the attractiveness of the protected import-competing sector. From a macroeconomic perspective, moreover, these rents played a crucial role in sustaining high levels of investment and explain the fact that during the growth boom in Mauritius, domestic rather than foreign savings have financed domestic investment. While it may have been true that the initial wave of investments that triggered the growth in EPZ output was largely foreign, the Mauritian EPZ sector, unlike that in many countries, had a substantial local presence, as it had provided a flourishing and promising growth opportunity for the surpluses of the sugar industry. For example, in 1984, only 12 percent of the total employment in the EPZ was accounted for by wholly foreign-owned operations, compared with 72 percent, 42 percent, and 64 percent in Korea, the Philippines, and Malaysia, respectively. It is estimated that about 50 percent of the total equity of firms in the EPZ are owned by Mauritian nationals.

Preferential access has contributed substantially to offsetting the bias of import policies (Table 3.6). The de facto subsidization of exports in the two export sectors—sugar and apparel in the EPZ—amounted to about 50 percent. When this is added to the export subsidization through domestic policies, the total amounts to about 90 percent, very close to the tax resulting from import restrictiveness.

It could be feared that an EPZ that started under the spur of financial incentives could not be sustained and developed successfully. A growth accounting analysis, carried out by Subramanian and Roy (2001) and presented below in Table 3.7, indicates instead that the economic dynamics of the EPZ has been impressive.

¹¹The quota rents are actually an upper bound under the assumption of perfectly elastic export supply.

Table 3.6. Import Tax and Offsetting Export Subsidies ¹

(In percent)

Period	Import Protection ²	Export Subsidy						<i>Total</i>	
		From Domestic Policy		From Preferential Access					
		Case A	Case B	Sugar	Apparel	Total	<i>Case A</i>	<i>Case B</i>	
1980s	127	32	39	108	15	52	84	91	
1990s	65	7	20	98	28	47	54	66	

Source: Subramanian and Roy (2001).

¹ Subsidy from domestic policy refers to the difference between the EPZ wage and the wage in the non-EPZ manufacturing sector (Case A) and the wage in the economy (Case B).

² To capture the resource allocation effects, protection is measured in effective rather than nominal terms.

Table 3.7. Total Factor Productivity (TFP) in the EPZ Sector

(In percent)

Period	Output Growth	Contribution from Growth in:			
		Capital formation	Labor	TFP	Labor Share
1982–99	10.2	9.5	5.4	3.5	0.69
1982–90	19	24.1	17.5	-0.8	0.67
1991–99	5.7	0.7	0	5.4	0.71

Source: Subramanian and Roy (2001).

For the period 1983–99, productivity growth in the EPZ has averaged about 3.5 percent compared with 1.4 percent in the economy as a whole. For the 1990s, EPZ productivity growth was spectacular, averaging 5.4 percent a year, a level not matched even in the fast-growing countries of East Asia. As wage costs have risen in Mauritius, firms have economized on their use of inputs and improved their efficiency in order to sustain growth.

Recent Challenges

In the most recent years, the EPZ has encountered new challenges and its growth has stopped, although the enactment of the U.S. African Growth and

Opportunity Act (AGOA) in 2000 provided new opportunities for expanding exports to the United States under favorable conditions (Box 3.2). With wage levels in Mauritius's EPZ considerably higher than in other apparel-exporting countries, the textile sector can remain competitive only if it becomes increasingly capital intensive, highly skilled, and targeted at high-end-product markets. Thus, the Mauritian companies have since the late 1990s opened factories in neighboring countries such as Madagascar to benefit from the lower wage levels there, while focusing their Mauritian plants on higher-value-added products. At the same time, the expiration in January 2005 of the WTO Agreement on Textile and Clothing, which entered into effect in early 1995 and provided for the phasing out over a 10-year period of textile quotas introduced by industrial countries under the 1974 Multi-Fiber Arrangement (see Box 3.2), is putting substantial pressures on Mauritius's textile industry, leading a number of foreign firms to close or to plan to close their Mauritian operations. Thus it is estimated that employment in the EPZ, which had reached more than 91,000 in 1999, had fallen to about 78,000 by end-2003. Further decline of employment is expected in the period ahead.

The authorities have promoted the restructuring of the EPZ textile firms in order to avoid a major crisis in the sector. To that end, they established in July 2003 the Textile Emergency Support Team (TEST) initiative, under which diagnostic studies of textile firms are conducted by the National Productivity and Competitiveness Council (NPCC), to examine their cost structure and identify areas of improvement. In addition, a corporate debt restructuring committee (CDRC) has been established under the chairmanship of the Managing Director of the Bank of Mauritius to facilitate the restructuring of the debt of viable firms.

The AGOA requirements are also encouraging changes in the structure of the Mauritian textile industry. For Mauritius, as a middle-income country, duty-free access of apparel to the U.S. market is subject to a rule-of-origin requirement, namely that Mauritian companies use inputs (yarn/fabric) from the United States or other sub-Saharan African countries. This has slowed down the expansion of Mauritian exports to the United States compared with those of other African countries that had started at a lower level of exports (Box 3.2). Mauritian textile companies are presently endeavoring to set up spinning mills that would enhance the vertical integration process within the textile industry and are also investing in establishing quality spinning mills in cotton-producing African countries.

Box 3.2. Mauritius: The Future of the EPZ

Mauritius's export-processing zone (EPZ), for 20 years the country's driving force in terms of economic growth and employment, is increasingly facing challenging times. The EPZ is dominated by textile manufacturing, which has hitherto benefited from unrestricted access to the European Union (EU) market, while its large competitors, particularly in South and East Asia, faced restrictions in the form of quotas, including those under the Multi-Fiber Arrangement (MFA) of 1974.

Removal of quotas

Under the Uruguay Round Agreement on Textiles and Clothing (ATC), which came into effect on January 1, 1995, member countries agreed to progressively phase out quotas over a 10-year period ending December 31, 2004. The slow progress in eliminating the number of quotas by the EU and the United States during the first nine years of the ATC implies that a major shock wave will reverberate through the international textile industry when the remaining quota restrictions on imports from such large textile producers as India and China are lifted in early 2005.¹ Once the quota restrictions are lifted, the more competitive suppliers are expected to quickly gain market share, particularly at the expense of less-efficient producers in low- and middle-income countries.²

On its part, Mauritius's EPZ sector has already started to feel the impact of the changes in international trade arrangements regarding textiles. The EPZ sector, after having grown at an average annual rate of 19 percent during much of the 1980s and at about 6 percent during the 1990s, experienced a marked decline in its employment numbers after the turn of the century, and its share in Mauritius's GDP has also fallen steadily. Indeed, in 2002 the EPZ sector has contracted by about 10 percent in terms of value added, and its loss of employment has accelerated (see figure below).

The African Growth and Opportunity Act (AGOA)

Mauritius had pinned high hopes on AGOA to provide a needed boost to its textiles exports. Under AGOA sub-Saharan African countries, including Mauritius, would obtain *quota-free* access for their exports of apparel to the United States through 2008.³ Moreover, sub-Saharan African countries would be able to export apparel to the United States *duty-free* until 2008, subject to a rule-of-origin requirement, namely that they use inputs sourced from either the United States or other sub-Saharan countries. AGOA provided a waiver for the rule-of-origin requirement for

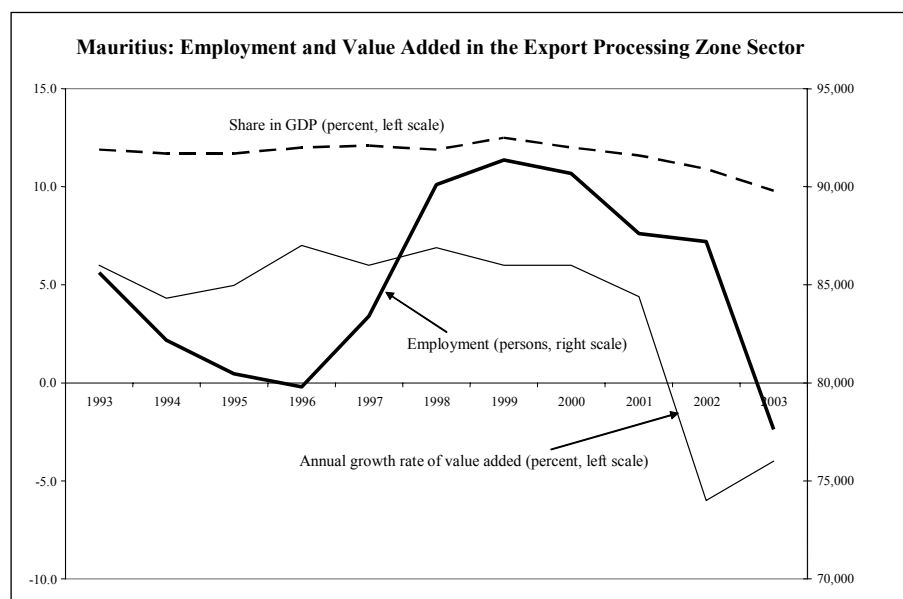
Sources: IMF and World Bank (2002); Rumbaugh and Blancher (2004); and Craig and Ryberg (2004).

¹In the case of China, which was not party to the Uruguay Round when the ACT was concluded, this effect is likely to be extended over a number of years beyond 2005 because of a special safeguard mechanism that was included in China's World Trade Organization (WTO) accession protocol, signed on December 11, 2002.

²An example of China's market penetration power can be seen in the country's footwear exports, which are not subject to quota restrictions. In just one decade, China's global market share of footwear exports increased fourfold, from 7 percent in 1990 to 28 percent in 2000.

³However, with the ATC's removal of all textile quotas on January 1, 2005, Africa's quota advantage over other countries would in effect end on that date.

Box 3.2 (continued)



the least-developed countries through end-2004, allowing them to use third-country yarn and other inputs for their apparel exports to the United States, while still benefiting from quota-free and duty-free access to that market. This waiver, however, does not apply to Mauritius, which is considered a middle-income country.

Handicapped by the rule-of-origin constraint, Mauritius did not succeed in substantially boosting its exports under AGOA, that is, after its enactment in 2000. In terms of value, Mauritius had been in first place among sub-Saharan textile exporters in 2001, but by January 2004, it had dropped to third place after Lesotho and Madagascar. In terms of volume, Mauritius dropped from third place in 2001 to sixth place by end-2003 (see the table). Its export

U.S. Textile Imports Under AGOA
(In millions of square meter equivalents, except where indicated otherwise)

	2001	2003	Growth 2001-03 (in percent)
Sub-Saharan Africa	213.593	397.142	85.9
Kenya	18.521	52.228	182.0
Lesotho	50.900	103.865	104.1
Madagascar	37.479	45.639	21.8
Mauritius	41.072	45.124	9.9
South Africa	47.602	70.251	47.6
Swaziland	11.433	49.164	330.0
Others	6.586	30.871	368.7

Source: Craig and Ryberg (2004).

Box 3.2 (concluded)

growth to the United States between 2001 and 2003 of just under 10 percent was the lowest among the 24 sub-Saharan countries with approved visa systems under AGOA. One factor that has slowed down export growth for Mauritius was the U.S. authorities' postponement until mid-2002 of a decision granting preferential access under AGOA to garments that are "knitted to shape."

Looking forward, the future of Mauritius's EPZ sector will hinge on its ability to dramatically improve its efficiency and productivity; to vertically integrate, including through investing in low-labor-cost countries in the region; and to carve out a high-end niche market that it will be able to defend against low-cost competitors.

The Tourism Sector

The tourism sector is one of Mauritius's four so-called pillars.¹² While most of the discussion of Mauritius's "economic miracle" has focused on the EPZ and the impressive expansion of the textiles sector, the performance of the tourism sector has enjoyed less attention, although it can be described as truly remarkable. The tourism sector has been a reliable growth engine for the country's economy, eclipsed only by the EPZ sector during the early 1980s (see Chapter 2). But while the EPZ showed signs of contraction at the turn of the century, tourism continued to grow at a steady pace.

As Table 3.8 illustrates, tourist arrivals increased ninefold between 1975 and 2002. During the same period, gross tourist receipts grew almost 30-fold, from US\$22 million to US\$612 million. This phenomenal increase in foreign currency receipts is attributable to Mauritius's success in attracting tourists at the high end of the market. This is reflected in a tripling of average earnings per tourist during the 1975–2002 period, from US\$300 to about US\$900.

¹²The others are sugar, textile manufacturing in the export-processing zone (EPZ), and financial services. The authorities are currently investing in infrastructure for a "fifth pillar:" a communications and information technology sector on the island.

Table 3.8. Key Tourism Indicators, 1980–2002

	1975	1980	1985	1990	1995	2000	2002
Hotels (numbers)	34	43	55	75	95	95	95
Hotel rooms (numbers)	1,499	2,201	2,630	4,603	5,977	8,657	9,623
Tourist arrivals (numbers)	74,597	115,080	148,860	294,550	422,463	656,453	681,648
Gross tourism receipts							
(in millions of Mauritian rupees)	135	325	845	3,630	7,472	14,234	18,328
(in millions of U.S. dollars)	22	42	55	244	430	542	612
Average earnings per tourist							
(in U.S. dollars)	300	410	369	839	1,017	826	897
Hotels and restaurants' value added							
(in percent of nominal GDP)	1.6	2.0	2.0	3.3	4.1	4.9	5.3
Memorandum item:							
Average exchange rate (MUR/US\$1)	6.027	7.684	15.442	14.863	17.386	26.250	29.962

Sources: Mauritian authorities and IMF staff estimates.

Table 3.9. Tourism Statistics in Comparison with Maldives and Seychelles, 1985–2002

	1985	1990	1995	2000	2002	Change 1985–2000	Change 2000–02 (percent)
Tourist arrivals							
Maldives	115,000	179,627	314,869	467,154	484,700	306.2	3.8
Mauritius	148,310	291,550	422,463	656,453	681,648	342.6	3.8
Seychelles	73,000	103,770	120,716	130,046	132,300	78.1	1.7
Total tourist nights							
Maldives	1,053,000	1,682,000	2,725,000	3,937,000	4,050,990	273.9	2.9
Mauritius	1,735,960	3,564,930	4,434,891	6,412,876	6,750,000	269.4	5.3
Seychelles	626,000	1,048,000	1,146,800	1,352,000	1,336,000	116.0	-1.2

Sources: World Tourism Organization; various annual yearbooks; and IMF staff estimates.

The performance of Mauritius's tourism sector is quite extraordinary when compared to other regional tourist markets, such as Seychelles and Maldives, which are generally viewed as more pristine nature destinations (Table 3.9). Indeed, between 1985 and 2000, the size of Mauritius's tourism sector, measured by the increase in tourist arrivals, grew by about 340 percent as against 306 percent for Maldives and 78 percent for Seychelles. Measured in terms of

tourist nights spent in the country, tourism in Mauritius grew as quickly as in Maldives (about 270 percent), but about 2½ times as quickly as in Seychelles. Another sign of the resilience of Mauritius's tourism sector is its performance in the wake of the September 11, 2001, terrorist attacks in the United States. Unlike most international tourist destinations, including those in the Indian Ocean, Mauritius's tourism sector continued to grow in 2001 and 2002 at a healthy pace.

Mauritius's tourism sector is largely homegrown, with a number of major luxurious hotel chains based in Mauritius and majority-owned by Mauritian entrepreneurs.¹³ This further attests to the willingness and foresight of Mauritius's business community to plow back successfully into the Mauritius economy the significant rents that were earned during the sugar sector's boom years. The authorities have also played their fair share in promoting Mauritius as an exquisite destination, by avoiding (for example, through selective air access policies) mass tourism of lower value added. The authorities have justified the restrictive air access policy by the need to avoid overcrowding the island, to preserve its relatively limited coastline (however attractive to tourists), and to maintain the delicate ethnic and social balance.¹⁴ The result has been the development of a tourism product directed primarily at the high-spending European market.¹⁵

The Financial Services Sector

Mauritius has a well-developed and relatively large domestic financial system and a growing offshore sector with an important component of asset management. Mauritius belongs to a select group of developing countries where domestic bank assets represent approximately 100 percent of GDP and contractual savings exceed 40 percent of GDP. A description of the financial system, its contribution to economic growth, and the key challenges ahead are presented in Chapter 7.

¹³Such as the Beachcomber Group and Sun Resorts.

¹⁴Thus, to date, charter airlines are not allowed to land in Mauritius.

¹⁵In 2000, in a special supplement on Mauritius, the Financial Times wrote: "Some critics quip Mauritius is a three-star destination with five-star hotels (as opposed to nearby Seychelles, a five-star destination with three-star hotels), but the island has done a remarkable job in marketing itself as the luxury holiday of choice for the high-spending European."

Sea Port and Freeport

Quality of key infrastructure is essential to promote export-oriented investments. Slow vessel turnaround time in ports leads to higher ocean shipping costs, longer port-to-port transit time, and low asset utilization. A good road network from factories to ports is also essential. On these counts, the performance of Mauritius is remarkable. The harbor of Port Louis is one of the most efficient in the region, with competitive container handling charges, considerably lower than in Durban, Mombassa, and Dar Es Salaam,¹⁶ high speed of container handling, and short vessel turnaround time. Cargo operations at the airport are also efficiently handled. The port authorities are also investing in developing freeport activities to take advantage of Mauritius's strategic location between Asia and Africa.

Information Technology: The New Growth Sector

The government has given the emerging information and communications technology (ICT) sector its highest priority, and is moving rapidly with an ambitious plan to establish an information technology sector as a fifth pillar that can sustain rapid growth over the medium term. To this end, it is investing heavily in providing the infrastructure for a new technology park and improving the country's education system to strengthen labor skills (Box 3.3).

The ICT sector could emerge as an important engine of growth and employment creation. The challenge for Mauritius is to carve out a niche for itself in the highly competitive global ICT market. As a small economy with limited resources, Mauritius can hardly afford to build competencies in the entire spectrum of ICT immediately. It has to build in phases, starting with its comparative advantages. World names in the ICT business had already expressed interest even before the first completed cyber tower was ready at end-2003. By mid-2004 the occupancy rate of the cyber tower had already exceeded 70 percent. In addition, a number of business-outsourcing processing centers have recently been established, taking advantage of the language skills in English and French of the local population. Given the availability of qualified professionals in the accounting and legal fields, processing centers have good prospects to branch out in the provision of higher-value-added services.

¹⁶Handling charges for 40-foot containers in 2001 were US\$110 in Port Louis, compared with a range of US\$100–180 in Mombasa, US\$100–150 in Dar Es Salaam, US\$300 in Tamatave, and US\$135 in Durban.

Box 3.3. Mauritius: ICT Sector Outlook and Its Impact on Medium-Term Growth

The Mauritian authorities are confident of the successful development of the information and communications technology (ICT) sector and its contribution to medium-term growth for the following reasons.

Competitive advantages

Strong political commitment and social consensus. The vision of the government and the public is to transform Mauritius into a “Cyber Island.”

Knowledge spillover from India. The successful experience of the Indian ICT sector is being transferred to Mauritius. The Indian ICT sector is advising the Mauritians on a development strategy and will also be sub-contracting some of its operations to Mauritius and investing in the domestic sector.

Bilingual nature of the labor force. The ability of the Mauritian labor force to speak both English and French is an important competitive advantage.

Infrastructure improvement. The government is embarking on substantial capital outlays to set up the physical and communication infrastructure. As a springboard, the Ebene Cyber City started operating as of December 2003 with much of its space for private investors already taken up by global ICT firms.

Market niche and industrial development strategy

The government believes it has formulated a realistic development strategy. The initial focus of ICT operations will be at the lower end, such as call-centers and data-processing and disaster recovery centers. Given the country’s strength in financial services, back-office services outsourcing is also promising. In the longer term, improvements in the supply of skilled labor through the ongoing education reforms and knowledge accumulation through “learning by doing” would help the sector to move into more sophisticated ICT product lines.

The fifth pillar of the economy

The government does not view the ICT sector as simply the “fifth” pillar of the economy. Rather, it sees the sector as becoming the foundation of the economy. Thus, although the initial contribution of the ICT sector to growth will come from capital deepening, over time, the expectation is that gains from ICT-related investments will lead to increases in overall productivity in the economy. Parallel reforms are taking place in the telecommunications sector, with the termination of Mauritius Telecom’s monopoly in 2003. A range of incentives for private investment is also in place, including full tax exemptions for start-ups until 2008 and generous depreciation allowances on ICT hardware.

Impact on medium-term growth and employment

As ICT production becomes a larger share of total output, the ICT sector would play a greater role in driving Mauritian medium-term growth. The contribution to overall growth might amount to 10 percent starting in 2004/05. However, the job creation of the ICT sector is expected to be limited.

Box 3.3 (concluded)**Baseline Projection of the ICT Sector**
(In percent, unless otherwise indicated)

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Share of nominal GDP	2.1	2.3	2.6	2.9	3.2	3.5
ICT real growth	10.0	17.0	20.0	16.0	15.0	15.0
Overall GDP growth	3.3	5.5	5.1	4.9	4.6	4.6
Contribution to growth	6.4	7.1	10.2	9.5	10.4	11.4
Total employment	2,000	5,000	8,000	9,000	10,000	11,000

¹Total labor force is estimated at 537,400 in 2002/03.

The Role of Institutions

A critical question in the search for an explanation of Mauritius's successful growth performance is why the Mauritian economy has been able to continuously diversify its production base.

Broadly, the reasons for the success can be summarized in the phrase “good government policies.” Indeed, the government has played a leading role in the diversification process. The strategy involved an active role for the government in promoting industry, by means such as tax and other incentives and reforms of the regulatory environment. However, the ability of the government to promote a successful diversification strategy and to pursue appropriate macroeconomic policies, especially in the difficult circumstances of deteriorating terms of trade in the early 1980s, may have to be explained further. A logical explanation would lie in the quality and good functioning of public institutions.

There is in fact now widespread agreement among economists studying economic growth, an agreement supported by strong econometric evidence, that institutional quality plays a crucial role in explaining economic performance, and that there are close interactions between sound policies and good institutions, that are likely to be mutually reinforcing.¹⁷ In general, countries with strong growth performance are those where investors feel secure about their property rights, the rule of law prevails, private incentives are aligned with social objectives, monetary and fiscal policies are grounded in solid macroeconomic institutions, idiosyncratic risks are appropriately mediated through social insurance, and citizens have recourse to civil liberties and political representation. Sound policies are more likely to be pursued where they are supported by strong institutions, while a weak institutional setup may make it difficult to sustain good policies over time.

¹⁷See in particular Hall and Jones (1999); Acemoglu, Johnson, and Robinson (2001); Rodrik, Subramanian, and Trebbi (2002); and Easterly and Levine (2003).

An extensive analysis of the association between institutional quality and economic performance has been presented in the IMF's *World Economic Outlook* (IMF, 2003c); econometric analysis carried out in that document shows that institutions have a strong and significant impact on economic growth and on per capita GDP. This may also be due to the role of institutions in ensuring the sustainability of good economic policies, because good economic policies and the quality of institutions appear to be closely correlated. To distinguish between the roles of these two sets of variables, econometric analysis in the April 2003 *World Economic Outlook* seeks to explain variations in GDP per capita and in growth by including both institutional quality variables and economic policy variables. The results indicate that institutions play a dominant role in explaining cross-country differences in GDP per capita and GDP growth, but that macroeconomic policies also play a statistically significant role.¹⁸ The findings are consistent with those reported in Easterly and Levine (2003), and Rodrik, Subramanian, and Trebbi (2002).

Quality of Mauritius's Institutions

The high quality of Mauritian institutions suggests that they may be important in explaining the country's macroeconomic performance. Mauritius ranks sharply above the average African country with respect to all indices of institutional quality, political as well as economic (Tables 4.1 and 4.2) and also above the fast-growing Asian economies on most indices. Table 4.2 presents indeed some remarkable findings. The indices for voice and accountability, political instability, government effectiveness, regulatory burden, and rule of law are sharply more favorable in Mauritius, not only in comparison to all other

¹⁸The empirical work in the *World Economic Outlook* (IMF, 2003c) uses a sample of 94 countries, of which 25 are classified as advanced economies and 69 as developing. Three sets of dependent variables are used to assess volatility: real income per capita GDP in 1995, the average annual growth rate of GDP per capita over the period 1960–98, and the standard deviation of these growth rates. The regressions are estimated using two-stage least squares, to take into account that institutions and policies are likely to be endogenous; in fact, while institutions influence growth, higher income also increases the demand for participation, accountability, and transparency, and also provides the public resources needed for better institutions. The quality of policies is also likely to improve with higher incomes. The aggregate governance and the policy variables are therefore estimated in a first stage using a set of instruments correlated with the endogenous regressors. Geographical variables are used as instruments for the institutional index, as in many similar studies. The aggregate governance index is the average of the six indicators presented in Table 4.2. The policy measures are inflation, exchange rate overvaluation, trade openness, government size, financial development, and capital account openness. Initial levels of income and schooling are included to take into account possible convergence effects.

Table 4.1. Mauritius and Other Countries with Respect to Indices of Institutions

Institutional Quality Index	Mauritius ¹	Africa	Fast Growing Countries	Other Developing Countries
ICRGE ²	7.23	4.54	6.86	4.29
Expropriation ³	8.06	5.75	8.54	6.47
Democracy ⁴	0.75	0.25	0.47	0.51
Participation index ⁴	0.8	0.3	0.49	0.44

¹ For the International Country Risk Guide (ICRGE) and the protection against risk of expropriation Mauritius has fitted values.

² ICRGE index is a measure of institutional quality that contains aspects of government that affect indices, property rights or the ability to carry out business. It is published by a private firm that provides consulting services to international investors.

³ For the ICRGE index and the index of protection against the risk of expropriation, the scale is between 0 and 10, with higher values indicating better institutional quality.

⁴ The participation index measures the extent of competitiveness of political participation. This index is taken from the Polity III dataset of Jaggers and Gurr (1995), who define it as the “extent to which non-elites are able to access institutional structures for political expression.” The participation index is rescaled to range from 0 to 1 in Rodrik (1999b). The democracy index also ranges from 0 to 1.

Table 4.2. Institutional Variables: Mauritius and Other Regions¹

	EC-90	V&A [1]	PI [2]	GE [3]	RB [4]	RL [5]	G&C [6]	Average [1]–[6]
World	3.65	-0.22	-0.28	-0.34	-0.16	-0.31	-0.36	-0.29
Sub-Saharan Africa	2.51	-0.37	-0.62	-0.47	-0.34	-0.54	-0.45	-0.44
Emerging Asian economies ²	3.67	0.08	0.42	0.75	0.61	0.78	0.53	0.53
Mauritius	7.00	1.01	1.14	0.17	0.22	1.28	0.34	0.69

Source: Kaufmann, Kraay, and Zoido-Lobaton (1999).

¹ EC-90=constraint on executive branch in 1990; V&A=voice and accountability; PI=political instability; GE=government effectiveness; RB=regulatory burden; RL=rule of law; G&C=graft and corruption. The higher the score, the better the respective institutions.

² China, Hong Kong SAR, Indonesia, Malaysia, Korea, Singapore, Taiwan Province of China, and Thailand.

African countries, but also in comparison to fast-growing emerging Asian economies. This confirms that the political and legal institutions in Mauritius are at a significantly better level than those in the comparator countries. Indeed, Mauritius has a stable system of government with a tradition of smooth transition of power, a well-functioning parliamentary democracy, a respected and independent judiciary, relatively well-performing public institutions (including an efficient customs and port administration, particularly crucial in a small open economy), and a professional civil service.

Rule of Law

The Mauritian legal and judicial system is sound and effective. The legal system of Mauritius is well established, and is based upon a combination of French and common law provisions and principles that have been successfully blended to accommodate the situation, history, traditions, and communities of Mauritius.

In contrast to many parts of the world, the courts are perceived as doing a creditable job, and public confidence in the rule of law is high. The court system consists of the Supreme Court, which is presently composed of a Chief Justice, a Senior Puisne Judge, and seven other judges (soon to be increased by four more); the Intermediate Court; the District Court; and the Industrial Court. Bankruptcy issues are dealt with by the Master and Registrar who has the status of a Judge in Bankruptcy. In commercial matters, the judges are generally regarded as competent. Superior courts are generally well equipped with technology and libraries, and all proceedings are taped. An area of possible improvement is a reduction in delays in the hearing of cases, to ensure that the business community retains respect for the courts as the primary dispute resolution mechanism.

Adaptability to External Shocks

Both Gulhati and Nallari (1990) and Rodrik (1999b) have argued that Mauritius's successful performance in tackling its macroeconomic imbalances in the early 1980s owes much to strong domestic institutions. Macroeconomic adjustment was in fact carried out by a series of governments of different political persuasions, indicating an ability to achieve a broad national consensus on the need for adjustment. Furthermore, participatory politics and a good flow of information ensured that early warning indicators were in place and that emerging economic problems could be addressed at an early stage. Rodrik (1999b) also noted that robust domestic institutions and the culture of participatory politics allowed Mauritius to tackle without undue disruptions the distributional issues inherent in the adjustment policies needed to solve macroeconomic imbalances because the political culture facilitated finding satisfactory compromises that would achieve the needed adjustment with an equitable burden sharing among different groups. Indeed, there is a substantial body of empirical analysis indicating that policies conducive to growth, including growth in the areas of trade openness and human capital formation, are less likely to be formulated and carried out in a sustained fashion where the institutional setting is weak.¹⁹

¹⁹See, for example, Easterly (2002) and Banjeree and Iyer (2002).

Proper Uses of Sugar “Transfer” and Good Management of the EPZ

The skillful use of the sugar rents and the successful management of the EPZ are a particular example of the positive effect of strong institutions in Mauritius. As mentioned in the previous chapter, Mauritius has managed to use efficiently the sugar sector rent. While other countries have taxed their traditional cash crop, often out of existence (or have greatly damaged its potential for prospering), Mauritian society early on reached a social compact based on preservation of the strong and profitable position of the sugar sector in the society, thus facilitating the channeling of these profits into other areas. The skillful use of the possibilities offered by the preferential agreement with the EEC preserved the sector and its potential to produce profits and foreign exchange earnings, and boosted the savings capacity of the economy. The establishment of an efficient crop insurance system against weather-related losses in income has also contributed to preserving the sector and its potential for profits. These were essential to finance the country’s diversification into textile manufacturing, tourism, and other higher value-added services.

The success of the EPZ has also been a testimony to skillful management, made possible by a well-balanced and robust institutional setup. Interestingly, EPZs have not in general been successful in Africa and in other developing countries. A question is, therefore, why instead the EPZ was a strong success in Mauritius.

EPZs have failed in many countries because institutions and governments have not been able to manage the rent seeking and inefficiency that are often associated with the selective interventionism embodied in EPZs.

Apart from Mauritius, EPZ facilities and the attendant incentives were provided in many African countries, such as Zimbabwe, Senegal, Madagascar, and Cameroon. Hinkle and Herrou-Aragon (2001) rated countries like Zimbabwe and Senegal at par with countries without EPZs, because these countries, despite having established EPZs, implemented these arrangements so poorly that they did not achieve any benefits in comparison to African countries without EPZs. The EPZ experience in Cameroon also achieved only very limited success.

This unsatisfactory performance was not limited to the EPZs alone. In fact in analyzing the system of export incentives in 13 African countries, Hinkle and Herrou-Aragon (2001) conclude that no sample country came close to conforming to international best practice for export incentives. This is attributable, in their view, to fiscal constraints and limited administrative capacity, which resulted in leakage of products benefiting from the incentives to the domestic market, thus favoring import-competing rather than export-oriented activities.

The great success of Mauritius is therefore to a large extent attributable to the skill and rigor with which the EPZ regime was established, the complementary existence of efficient facilities for imports and reexports (ports, roads, electricity provision, skilled labor force), and the administrative capacity to ensure that its rules be respected and that no leakages to the domestic market take place. Also, a noteworthy feature of Mauritius's EPZ is that it was able to attract capital originating from the traditional sectors, such as sugar, that could be reinvested in the new sectors. This explains how the firms in the EPZ were largely of Mauritian origins, as mentioned above, while in other African countries EPZs have been constituted mainly by foreign investors.

Quality of Institutions and Mauritius's Growth: Some Econometric Evidence

The previous discussion indicates that strong institutional quality is likely to have played a key role in the good economic performance of Mauritius over the past 30 years. Econometric analysis carried out by Subramanian and Roy (2001) confirms that institutional quality has had a significant impact on Mauritius's economic performance. Their analysis uses the methodology of the cross-country growth studies of Sachs and Warner (1997) and Rodrik (1999b) to assess whether there is something special in Mauritius's growth that needs to be captured by a special dummy.

Table 4.3, which uses a Mauritian dummy in the Sachs-Warner equation, shows that the cross-country growth regression is inadequate to explain Mauritian growth performance, and that the dummy for Mauritius is significant and positive. It is noteworthy that in the second column, when an institutional quality variable is introduced that has been estimated through instrumental variables to eliminate its possible endogeneity bias, the openness variable loses its significance, suggesting that once institutions are controlled for, the openness variable becomes less important.²⁰

²⁰Sachs (2003) contests this result, arguing that the specifications of the basic model may give added power to the institutional variables, and that the interaction of institutions, policies, and geography is very complex. The IMF's *World Economic Outlook* (IMF, 2003c) also explains that the weak role of policies in comparison to institutions in cross-country regressions may be due to the fact that institutions evolve slowly, whereas often policies display large volatility through time.

Table 4.3. Cross-Country Growth Regression as in Sachs and Warner (1997)¹

Dependent Variable for Growth Rate Between 1965 and 1970	OLS	2SLS
Log of initial GDP	-1.44* (-6.45)	-1.79* (-5.73)
Openness x log of GDP	1.18* (-3.5)	-0.27 (-0.57)
Openness (fraction of years open according to Sachs and Warner, 1995)	11.85* (-4.25)	3.21 (-0.79)
Landlocked dummy variable	-0.61* (-2.71)	0.39 (-0.38)
Log life expectancy circa 1970	45.47* (-2.71)	111.14*** (-1.82)
Square of log life expectancy	5.37** (-2.32)	-13.81*** (-1.79)
Central government savings, 1970–90	0.11* (5.17)	0.11** (2.31)
Dummy for tropical climate	-0.82* (-2.92)	0.52 (0.66)
Institutional Quality Index (ICRGE)	0.34* (4.14)	
Expropriation index instrumented		1.41*** (1.72)
Natural resource exports/GDP 1970	-3.82* (-3.97)	-5.64* (-3.94)
Growth in economically active population minus population growth	0.74** (2.16)	-0.46 (-0.38)
Mauritian dummy	1.46** (1.94)	1.89** (1.88)
Constant	-83.26** (-2.46)	-216.43*** (-1.76)
R squared	0.87	0.83
Adjusted R squared	0.85	0.83
Number of observations	85	52

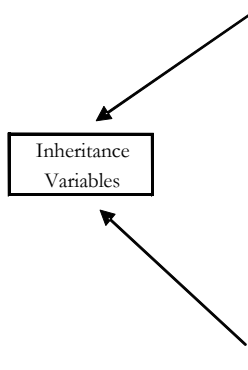
Source: Subramanian and Roy (2001).

Note: Figures in brackets represent *t* ratios; OLS: ordinary least squares; 2SLS: two stages least squares.

¹ * = significant at 99 percent; ** = significant at 95 percent; *** = significant at 90 percent.

Table 4.4. Breakdown of Mauritian Growth¹

Explanatory Variable	Difference between Mauritian Growth and the Baseline Growth of		
	Africa	Fast-growing countries	Other developing countries
Catch-up	-2.33	-1.33	-1.41
Life expectancy	1.51	0.29	0.68
Landlocked	0.19	0.00	0.06
Tropical climate	-0.09	-0.26	-0.34
Natural resource abundance	-0.35	-0.65	-0.55
Ethnolinguistic fractionalization	0.01	-0.03	-0.05
Total inheritance	-1.06	-1.98	-1.61
Openness	-0.20	-1.93	-0.47
Central government savings	-0.43	-0.53	-0.08
Average national savings ratio	-0.001	-0.020	-0.006
Institutional quality	0.75	0.10	0.82



Source: Subramanian and Roy (2001).

¹ Estimates are based on the Sachs and Warner (1997) basic regression.

Using the estimates of the Sachs-Warner model (Sachs and Warner, 1997), Table 4.4 (drawn from the same paper) shows how the explanatory variables contribute to the discrepancy between Mauritius’s growth and the baseline growth of other groups of countries, given the coefficients in the growth equation. While the catch-up variable would lead one to expect lower growth (given the higher starting level of per capita income), and while higher life expectancy helps to explain the growth differential, the strong impact of institutional quality is to be

Table 4.5. Cross-Country Regressions of Change in Growth (Rodrik, 1999b)

East Asia dummy	2.41 [*] (-3.26)	2.11 [*] (-3.06)	
Latin America dummy	-2.16 [*] (-4.56)	-1.77 [*] (-3.7)	
Sub-Saharan Africa dummy	-2.11 [*] (-3.38)	-2.09 [*] (-3.6)	
Growth 1960–75	0.77 [*] (-7.11)	-0.72 [*] (-6.41)	-0.83 [*] (-5.41)
Log GDP/capita 1975	-0.90 [*] (-3.02)	-0.87 [*] (-2.91)	-2.03 [*] (-4.54)
External shocks	-0.03 (-1.05)	-0.07 [*] (-2.84)	-(0.04) (-1.26)
Democracy	1.73 ^{**} (2.18)		
Institutional quality (instrumented for index of protection against risk of expropriation)			1.85 [*] (5.41)
Index of participation		2.02 [*] (2.57)	
Ethnolinguistic fractionalization	-1.65 [*] (-2.38)		
Dummy for Mauritius	3.68 ^{**} (2.19)	4.30 [*] (2.49)	3.91 ^{**} (2.29)
Constant	8.55 [*] (3.94)	7.44 [*] (3.11)	3.95 ^{**} (1.98)
R squared	0.60	0.61	0.54
Adjusted R squared	0.56	0.57	0.49
Number of observations	97.00	97.00	59.00

Source: Subramanian and Roy (2001).

Note: Figures in brackets represent *t* ratios.

*=significant at 99 percent level;

**=significant at 95 percent level;

***=significant at 90 percent level.

noted in explaining the higher growth of Mauritius in relation to both African and other developing countries.

The cross-country regressions in Table 4.5 are based on the Rodrik (1999b) model (the dependent variable is the change in growth between the pre-1975

period and the post-1975 period), and give more weight in the specification to institutional variables; they do not include policy variables such as trade openness and government savings. They again indicate the importance of the Mauritian dummy, which remains quite robust across different specifications of the institutional variable. In all, these regressions confirm that institutional quality is likely to have been a significant factor in explaining Mauritius's economic performance.

Labor Market and Educational System

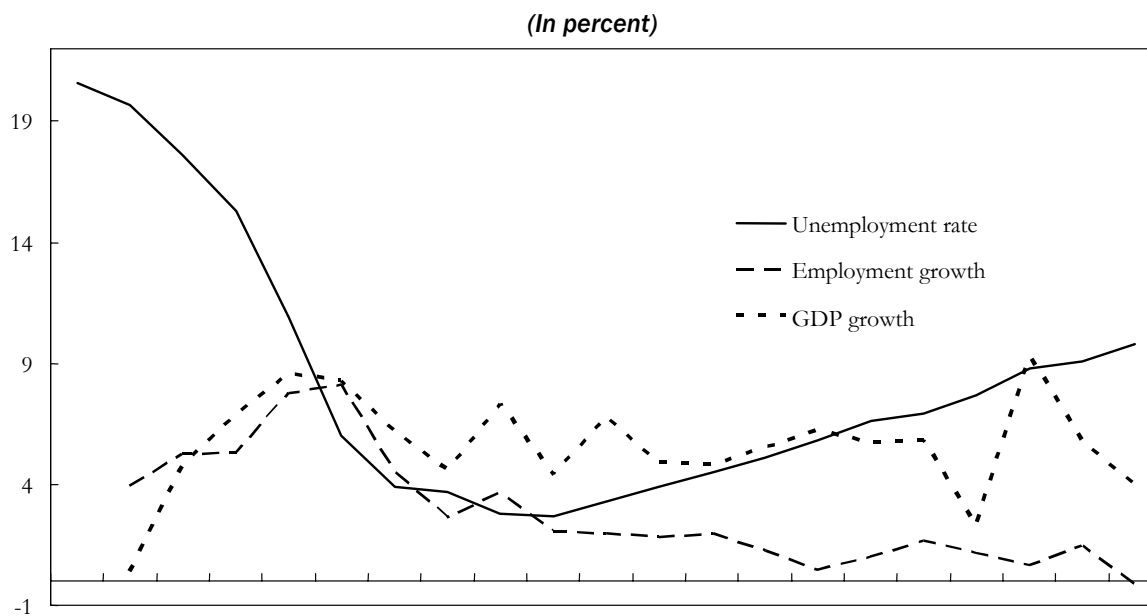
Despite strong economic growth, averaging just below 6 percent per year over the last two decades, a “U”-curve phenomenon of Mauritian unemployment can be observed (Figure 5.1). The unemployment rate plunged from about 21 percent to less than 4 percent from the early 1980s to the early 1990s. Notwithstanding sustained economic growth averaging 5½ percent per year between 1991 and 2002, the declining trend in unemployment was reversed, and the rate steadily increased, reaching approximately 10 percent by end-2002. According to the 2000 census, a majority of the unemployed were young, had never held a job, had failed primary or secondary school education, had no technical or vocational training, and were single and family supported. Despite the rising unemployment rate, two paradoxical facts about the 1990s can be noted: (1) the EPZ was crippled by skilled labor shortages and was compelled to import foreign workers, mainly from China; and (2) the number of unfilled skilled-job vacancies, especially in the financial services sector, increased over the decade.²¹ There is little consensus in Mauritius as to the exact nature and causes of the unemployment problem.²²

The problem of unemployment in Mauritius can be considered to be twofold (Box 5.1). On the demand side, real average compensation has tended to grow

²¹In its 2002 report, the Bank of Mauritius states that “while vacancies advertised have been principally for skilled and management jobs, the vast majority of persons seeking jobs do not have the necessary training, reflecting the mismatch between available labor and skills required.”

²²Mauritian unemployment figures are derived from incomplete data, reflecting, in the main, conditions in “large establishments.” The Mauritian Central Statistics Office is of the view that there is a tendency for people to falsely declare themselves as unemployed. The false responses to questions regarding employment and income might be explained by the respondents’ hopes of receiving some current or potential unemployment benefit. In the case of people engaged in the informal sector, they may not wish to acknowledge their employment and income, because of fear that the questionnaire may be used for tax collection purposes.

Figure 5.1. Real GDP Growth Employment Growth and Unemployment Rate, 1982–2002



1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002

Sources: Central Statistics Office and IMF staff estimates.

faster than labor productivity (Figure 5.2) because of the wage-setting institutions described below, which have had a dampening impact on employment. But on the supply side, there is a serious skills mismatch.

Labor Market Institutions: “One Country, Two Systems”

The Mauritian labor market is tightly regulated and quite rigid. At its core, the present system of wage determination relies on centralized tripartite discussions that are held around April or May and involve the government, trade unions, and representatives of private sector employers. The tripartite system results in an annual minimum wage increase that is mainly determined on the basis of the projected annual inflation rate of the fiscal year ending in June and that applies to all employers, including those not represented in the tripartite discussions, for the following fiscal year starting in July.

Box 5.1. Mauritius: Unemployment and the Labor Market

Against a background of profound structural change and strong growth performance, the unemployment rate in Mauritius has been steadily rising, reaching 9.8 percent in 2002. According to the 2000 census, the majority of the unemployed were young, had never held a job, had failed primary or secondary education, had no technical or vocational training, and were single and family supported. The principal causes of rising unemployment can be found in the characteristics of both the labor supply side and labor demand side of the Mauritian labor market.

Labor market institutions and the educational system

The Mauritian institutional arrangements governing the functioning of the labor market are as follows. (1) A centralized tripartite system involving the government, trade unions, and the private sector, resulting in an annual minimum wage increase based on the projected inflation rate. This system tends to drive up real wages throughout the economy at a faster rate than productivity growth. (2) Quasi-judicial labor review bodies, principally, the National Remuneration Board and the Permanent Arbitration Tribunal for the private sector, and the Pay Research Bureau and the Civil Service Arbitration Tribunal for the public sector. These institutions regulate working time and conditions, and establish minimum wage adjustments that can be above those agreed upon in wage negotiations. Decisions are based on both economic and noneconomic factors. (3) The termination of Contracts of Services Board (TCSB), which settles layoff disputes. The TCSB process is slow, taking typically more than one year to resolve disputes. However, firms in the EPZ are not subject to the jurisdiction of the TCSB.

Demand-side causes of unemployment

The trend of rising unit labor cost has had a dampening impact on job creation and competitiveness and also may have caused some degree of substitution of capital for labor. In addition, the rising minimum wages in the EPZ have constrained domestic labor demand and created labor demand for foreign contract workers, notwithstanding the fact that continuous depreciation of the rupee in recent years has kept unit labor costs in nominal effective exchange rate terms fairly constant. Lengthy and costly layoff procedures appear to hinder firm-level job creation.

Supply-side causes of unemployment

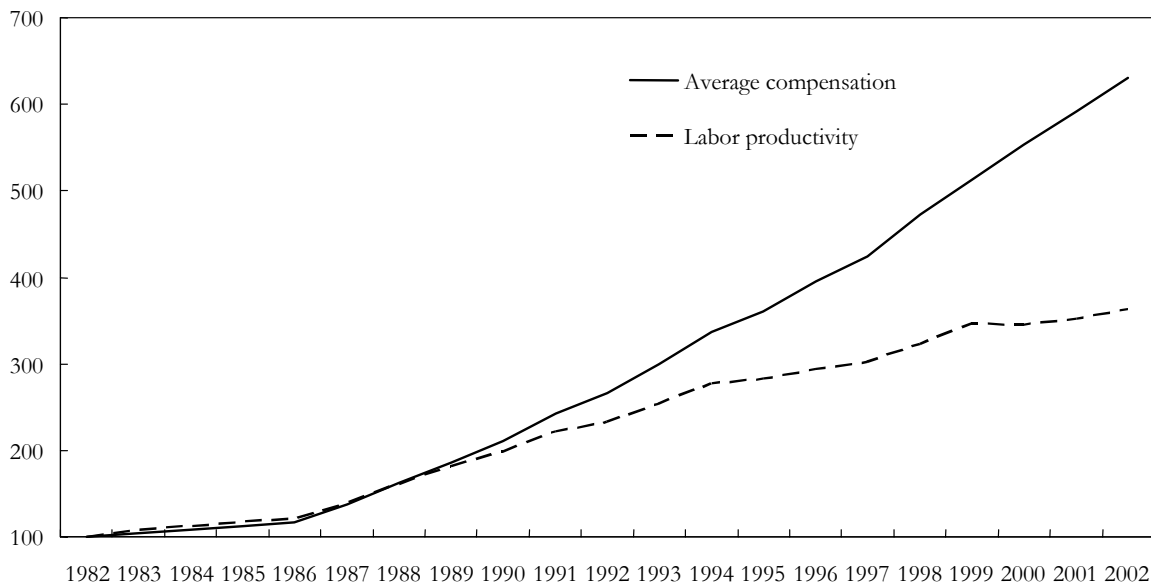
The rapid structural changes during the 1990s have increased demand for skilled workers in the financial services and tourism sectors relative to the low-skilled textile and sugar sectors. However, the Mauritian educational system failed to transform the skills held by the low-skill labor force into the higher skills that were needed by the emerging sectors, resulting in a skill mismatch problem. There is low progression from primary to secondary schools. In particular, of the total number of students enrolled at standard 1 in primary schools, about 35 percent fail to pass the completion of primary education (CPE) examination and drop out of the school system at the age of 11 or 12 years. In addition, 83 percent of those remaining in the system never reach advanced levels in secondary schools, and there is little opportunity for vocational training. At the same time, increasing minimum wages and extensive job protection elsewhere have increased the reservation wages of domestic workers in the EPZ and in other sectors.

Ongoing education reform and future labor market reforms

The Mauritian government has taken bold and comprehensive measures to overhaul the educational system, aiming at increased access, quality, and relevance at all levels, especially for the secondary level. These reforms would alleviate the mismatch on the supply side in the medium term. However, it is equally important to tackle the demand-side shortcomings by improving the present labor market institutions' flexibility.

Figure 5. 2. Average Compensation and Labor Productivity, 1982–2002

(1982 = 100)



Source: Central Statistics Office.

annual minimum wage increase that is mainly determined on the basis of the projected annual inflation rate of the fiscal year ending in June and that applies to all employers, including those not represented in the tripartite discussions, for the following fiscal year starting in July.

Individual employers are, however, free to adjust wages by more than the minimum, and this is often done, especially for the higher pay brackets. The higher percentage increase given to low wages within the tripartite system has nevertheless contributed to a compression of the wage structure and may also have been a source of a drift in the overall wage level.

On top of the tripartite system, a number of institutional bodies specified in the Industrial Relations Act are authorized to address “anomalies” in the wage structure and to settle labor disputes, including those presented by any of the parties. In the private sector, the National Remuneration Board hears such claims and makes recommendations for minimum wages and other conditions of employment by sector and by occupational category. The Pay Research Bureau and the Civil Service Arbitration Tribunal perform similar functions for the public sector. These institutions have only awarded pay increases infrequently, but the awards have been quite large, typically in excess of 10 percent.

There are significant restrictions on the ability of employers to adjust employment levels. Any reduction in the workforce of a private or a parastatal enterprise requires advance notice to the Minister of Labour and Industrial Relations, and many cases end up before the Termination of Contracts of Services Board (TCSB) (see Box 5.1). Until the TCSB reaches a conclusion, layoffs are difficult to carry out and subject to punitive severance allowances. The TCSB process is slow, taking typically more than one year to resolve. It may lead to the layoff being declared unjustified, in which case the employer is required to pay the worker six times the normal allowance or reinstate the worker to his or her former position.

The EPZ stands out by not being subject to many of the rules and regulations that apply to the labor market in the rest of the economy, notably the laws that limit firms' freedom to lay off workers. Also, workers in the EPZ are typically paid on a piecework basis, so that income is more directly tied to productivity than is the case in the rest of the economy. The relatively flexible business environment has meant that the EPZ has been an attractive place to invest. Labor productivity growth has also been strong in the EPZ, and its output growth has been above the economy's average.

While overall employment in the EPZ up to 2002 was broadly stable, there has been a substantial increase in the number of foreign workers, which stands in stark contrast to the rise in unemployment. Hardly present a decade ago, foreign guest workers, almost all of whom are employed in the EPZ, now number some 16,500—about half as many as the increased number of the unemployed over the same period. The foreign workers are predominantly Chinese contract workers in the textile industry. Mostly women, these workers typically come to Mauritius on three-year contracts with a background that includes three years of vocational training and a few years of work experience in the textile industry. A number of factors may explain the surge in the number of foreign workers. First, reportedly, Mauritian workers are increasingly viewing employment in the EPZ sector as unattractive, with little opportunity for advancement and low job security. Consequently, there is little demand for jobs in the EPZ, and firms have difficulties filling vacant positions. Second, the Mauritians who work in the EPZ are seen as less productive than the foreign laborers, who are better educated and more eager to maximize their earnings, for example, by working overtime. Finally, the nature of the fixed-term contracts of foreign workers provides additional flexibility to employers in their efforts to match the workforce to their companies' staffing needs. There is also segmentation between the domestic and foreign labor force in the EPZ, in that legal minimum wages are not applied to foreign contract workers. Therefore, wage increases for domestic EPZ workers do not necessarily lead to increases in the wages of foreign EPZ workers.

However, the tripartite system has adverse consequences for job creation. In particular, the determination of wages by the centralized bargaining system

discourages sector-specific competitive wage setting, resulting in a strong relationship between the wages of the traditional sectors and those of the emerging sectors. While the new sectors create demand for skilled workers and, thus, increase the wages in these sectors, wage increases typically follow in the traditional sectors, leading to a loose relationship between wages and productivity in the traditional sectors. The trend of rising wages in the traditional sectors reduces domestic demand for unskilled workers and tends to increase the unemployment rate of these workers. From the labor supply side, skill premium, expressed by the wage differential between the two sectors, is constrained by this stable relationship, resulting in fewer incentives for the young to invest in education and to supply skilled labor for the new sectors.

Educational System

The educational system plays a key role in supplying skilled labor. Compared with other developing countries, the Mauritian labor force is relatively well educated. The main achievement in Mauritius after independence was universal schooling at the primary level, when other lower-middle-income countries were below 80 percent. Low-income countries (excluding India and China) still averaged only 74 percent in 1992.

Mauritius pushed to open secondary schools to many of its citizens. In addition, Mauritius has been successful in expanding opportunities for overseas higher education for some of its citizens.

However, Mauritius's educational system is lagging behind the economic transformation of the economy. Although Mauritius has a comparatively high level of literacy, it is weak in secondary and postsecondary education, especially in natural sciences, engineering, and vocational subjects. As a result, the output and quality of secondary and postsecondary education and training in Mauritius remain a serious constraint to the development of new high-skilled and high-value-added sectors. Despite an enrollment ratio of almost 100 percent at the primary level, about 35 percent of students fail to pass the Certificate of Primary Education (CPE) examination and drop out of the school system at the age of 11 or 12 years. There are no viable vocational training programs for these youngsters, and they are not allowed to work or become apprentices until age 15, at which time they lack basic education and skills and are thus unsuitable for employment. It is not uncommon for many to succumb at an early age to criminal activities and substance abuse. At the other extreme are students at the so-called star schools, who excel scholastically, often with the help of expensive private lessons. Most of these students complete secondary school, and many obtain university education.

The length and quality of education in Mauritius fall short of that in many countries in East Asia, especially in the areas of science, mathematics, and

computers. The large majority of unemployment is in the categories of semiskilled and unskilled labor. Almost three-fourths of the registered unemployed as of December 2001 have not passed the CPE exam. Consequently, it is almost impossible for many workers, as well as for the unemployed, to acquire high-level skills.

Reforms Under Way

The steady rise in unemployment rates from 1991 until now in Mauritius can be variously attributed to mismatches between labor skills demanded and supplied or between excessive wages and productivity levels, due to the centralized wage-bargaining system. On the demand side, it is clear that reforms in the present institutions governing the labor market can improve its flexibility. For example, the authorities could consider introducing a new national body, representing the three social and economic stakeholders: the government, the employers, and the unions. The body could provide yearly guidelines on general wage increases. However, these guidelines should be nonmandatory at the firm level, in order to allow for flexibility in implementation and for firm-level collective bargaining (see McDonald and Yao, 2003).

On the supply side, education reforms are fundamental. Fortunately, there is a broad national consensus on the importance of reforms aimed at improving the content, quality, efficiency, and equity of access to education and therefore wide support for the government's education reform program. The government realizes that far-reaching education reforms to enhance the skills of the workforce are needed to alleviate the mismatch problem of the labor market and ensure the success of the government's plans to develop a modern information and communications technology (ICT) sector. During the last three years, the Mauritian government has implemented the following educational reforms:

- increase the years of compulsory schooling from nine to eleven years by 2005;
- improve and increase access to primary and secondary schools;
- introduce ICT in primary and secondary schools;
- review the quality and relevance of the curricula; and
- reform the examination system at the primary level.

The government has also invested heavily in school infrastructure. Over the two-year period 2001/02–2002/03, capital expenditure on education reached the

high level of MUR 1.7 billion (1.7 percent of GDP). Government recurrent expenditure on education are estimated at about MUR 4.6 billion for the year 2002/2003, representing 14.8 percent of the government total recurrent expenditure, a ratio similar to that achieved in the previous year.

Capital spending has been used to construct 19 schools and colleges on the island of Mauritius and another three educational establishments on the island of Rodrigues by the end of 2004. Thirty-three additional State Secondary Schools have become operational through new construction, conversion or upgrading, while intake in Form I in public schools has more than doubled to reach 7,700. The introduction of information technology in primary and secondary schools was completed by mid-2003. The abolition of CPE ranking and admission to the secondary level on a regional basis are also facilitating secondary schooling access.

Conclusion

The rapid structural changes during the 1990s have increased demand for skilled workers in the financial services and tourism sectors, relative to the low-skilled textile and sugar sectors. Against this background of profound structural change and strong growth performance, the unemployment rate in Mauritius has been steadily rising. Two main causes for rising unemployment can be identified. First, the highly centralized wage-determination system in Mauritius limits the skill premium, resulting in job destruction in the traditional sector and insufficient job creation in the new technology sector. Second, the Mauritian educational system has been unable to provide to the low-skill labor force the higher skills that are required by the emerging sectors, resulting in a skill mismatch problem.

Both supply-side and demand-side reforms can contribute to higher labor market flexibility, which would reduce the unemployment rate and help maintain the relatively high growth that Mauritius has recorded during the past two decades. On the supply side, the government has taken measures to improve its educational system, as indicated above.

The labor demand is affected by the relatively rigid institutional arrangements regulating the labor market. While these institutions may have played a useful role in the past, all social partners—including workers and employers—are likely to experience welfare losses under the current framework. To preserve some element of the “social contract,” the reforms could seek to introduce a

simplified, two-tier wage-determination system. At the first-tier level, a national body comprising government, employers, and workers could be maintained, but would only establish indicative nonbinding wage guidelines. At the second-tier level, wage-determination would take into account firm- and sector-specific factors, including productivity levels.

Fiscal Developments

Over the past 25 years, Mauritius's public finances have experienced three distinct phases: large fiscal deficits in the early 1980s, followed by a period of fiscal consolidation and discipline during the late 1980s and early 1990s, and finally the reemergence of fiscal imbalances from the second half of the 1990s to date (see Table 6.1).

As described below, the authorities have shown a strong determination to prevent public finances from becoming a cause of macroeconomic instability. The deficits of the early 1980s were quickly reduced, and both the external

Table 6.1. Summary of Government Finances, 1980/81–2003/04¹

(Period averages; in percent of GDP)

	1980/81– 1984/85	1985/86– 1989/90	1990/91– 1994/95	1995/96– 1999/00	2000/01– 2003/04
Total revenue and grants	21.6	22.8	21.3	19.7	19.5
Total revenue	21.1	22.2	21.1	19.5	19.2
Tax revenue	18.7	20.1	18.9	16.9	16.7
Nontax revenue	2.4	2.1	2.2	2.6	2.5
External grants	0.5	0.6	0.2	0.2	0.3
Total expenditure and net lending	30.2	24.9	23.8	24.5	25.3
Current expenditure	24.4	20.0	19.5	20.6	20.9
Capital expenditure and net lending	5.8	4.9	4.3	4.0	4.4
Overall balance after grants	-8.6	-2.1	-2.5	-4.9	-5.8
Primary balance	-2.8	2.2	0.7	-1.4	-1.8

Sources: Mauritian authorities and IMF staff estimates.

¹ Fiscal year from July to June.

debt and the overall government debt were maintained within very prudent bounds. While the rise of the public debt has become a source of concern in recent years, requiring the adoption of corrective actions, the limited size of the external debt is an important element of stability. However, the authorities should not be complacent, and should pursue steadfastly a policy of deficit reduction.

Phase 1: Fiscal Imbalances

The fiscal problems of the early 1980s had their roots in the lax fiscal policies of the mid-1970s, when sugar prices reached record highs and the government embarked on large spending programs. By the turn of the decade, a drop in sugar prices, combined with the steep rise in international petroleum prices and a number of severe cyclones, significantly weakened the Mauritian economy. Public finances deteriorated, too, as tax revenues declined and expenditures rose, including spending on reconstruction and relief efforts. By 1980/81 (July to June), the overall fiscal deficit peaked at about 14 percent of GDP.

With the support of the World Bank and the IMF, the Mauritian authorities responded forcefully to these economic and weather-related shocks by adopting comprehensive macroeconomic adjustment measures. A key element of the authorities' adjustment efforts was the reestablishment of fiscal discipline, which was achieved primarily by reining in expenditures, as revenues increased only marginally. The turnaround was quite impressive. Within five years, total expenditure and net lending as a proportion of GDP dropped from an average of about 30 percent during the first half of the 1980s to about 25 percent in the second half of the decade, while revenues increased modestly by about 1½ percent during the same period. As a result, the overall fiscal deficit shrank from about 8½ percent of GDP during 1980/81–1984/85 to just over 2 percent of GDP in the late 1980s.

Phase 2: Fiscal Consolidation and Trade Tax Reform

The Mauritian economy experienced enviably robust growth during the second half of the 1980s, with average annual output expanding at about 8 percent. Economic growth continued at a vigorous annual rate of about 5 percent in the early 1990s, despite severe cyclones that damaged sugar output and infrastructure in 1993/94. The strong economic performance and the authorities' tight fiscal policies helped to limit the country's fiscal deficit to less than 3 percent of GDP during the 10-year period from the mid-1980s to the early 1990s. During this period, expenditures as a proportion of GDP declined by about 1 percent, led by lower spending on wages, on domestic and external interest, and on capital projects and net lending. While revenues also weakened by about 1 percent of GDP, significant structural changes took place that affected the composition of

taxes. As a proportion of GDP, taxes on property and on domestic goods and services increased by about 1 percent of GDP, while taxes on income and profits remained constant, and those on international trade dropped by about 2½ percent of GDP.

In 1994/95, important trade tax reforms were implemented, which aimed at abolishing export taxes, simplifying the taxation of imports, and reducing excessive trade protection. The tax on sugar exports that amounted to about 0.7 percent of GDP was abolished, and the country's import duty system was rationalized. The three previous types of import taxes—the customs duty, the fiscal duty, and the import levy—were consolidated into one duty, and the number of nonzero duty rates was reduced from 60 to 7.²³ The maximum rate of import duty was reduced from 600 percent to 100 percent, and import duties on about 4,000 items, mainly foodstuffs, raw materials, and capital goods, were lowered. While the above reforms simplified the import tax regime, the tariff reductions, in the absence of compensating increases in domestic taxation, entailed a significant loss of tax revenue, estimated at about 1½ percent of GDP.

Phase 3: Reemergence of Fiscal Imbalances Despite VAT Introduction

The tariff reductions, compounded by the reconstruction costs following the 1993/94 cyclone season, contributed to a sharp deterioration in Mauritius's public finances, with the fiscal deficit widening from about 3½ percent of GDP in 1994/95 to about 7¼ percent of GDP in 1995/96. Faced with this fiscal challenge, the new government that took office in December 1995 committed itself in the medium term to consolidating public finances, while at the same time pushing ahead with tariff reform. The momentum for further tariff reform was provided by Mauritius's participation in a number of regional trade arrangements that called for the removal of taxes on intraregional trade and the harmonization of external tariffs at lower levels.²⁴ As tariff reforms progressed, the need to strengthen the domestic taxation of goods and services to offset the loss of revenue from lower tariffs became more and more evident.

In mid-1997, the IMF supported the authorities' request to assist in the design and introduction of a value-added tax (VAT) system to replace the then existing sales tax of 8 percent and the hotel and restaurant tax of 10 percent. The VAT was introduced on September 7, 1998, which was almost six months ahead of its

²³In 1998, an eighth nonzero rate of 10 percent was introduced.

²⁴Mauritius belongs to the Common Market for Eastern and Southern Africa (COMESA), the Regional Integration Facilitation Forum (RIFF, formerly known as the Cross-Border Initiative), and the Southern African Development Community (SADC).

Table 6.2. Tax Revenue, 1997/98–2003/04¹
(In percent of GDP)

	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04
							Est.
Tax revenue	16.7	16.9	18.1	16.1	15.7	17.4	17.8
Taxes on goods and services	6.4	7.5	8.3	7.6	7.9	9.4	9.6
<i>Of which:</i> value-added tax	...	4.4	5.0	4.7	5.1	6.6	6.8
Taxes on international trade	6.5	5.6	6.2	5.1	4.3	4.4	4.5
Other taxes	3.7	3.7	3.6	3.5	3.5	3.6	3.7

¹ Fiscal year from July to June.

original schedule. While the law implementing the VAT closely maintained its key design features—a comprehensive single-rate tax on goods and services, with very few exemptions—under intense political pressure from the business community and the opposition, revisions were made soon after its enactment that significantly widened the scope of exemptions. In particular, the import and provision of goods and services to the main export sectors, namely the EPZ and the sugar industry, enjoyed preferential treatment. Moreover, the VAT was introduced at the rate of 10 percent, as opposed to the 12 percent that its designers considered necessary to offset revenue loss from past and future import tariff reductions.

Despite these modifications, the performance of the VAT with respect to compliance and revenue generation exceeded its initial expectations. In 1998/99, more than 90 percent of taxpayers filed their returns on time. Revenues from the taxation of goods and services rose from 6.4 percent of GDP in 1997/98 to 8.3 percent of GDP in 1999/2000, the VAT's first full year of implementation (Table 6.2). Also, Mauritius's VAT system is considered highly efficient by international comparison, including comparison to small islands, which by their nature demonstrate high VAT efficiency (see Table 6.3).

However, as the liberalization of import tariffs progressed, revenues from trade taxes continued to decline and reached a low of 4 $\frac{1}{3}$ percent of GDP in 2001/02, down from 6 $\frac{1}{2}$ percent of GDP in 1997/98. Moreover, the new government that took office in September 2000 embarked on an ambitious program of investing in education and new information technologies, which entailed considerable capital outlays for infrastructure. Between 2000/01 and 2002/03, capital spending and net lending almost tripled, from just under 2 percent of GDP to 5 $\frac{2}{3}$ percent of GDP. Faced with mounting deficits, the new government, which had vigorously opposed the introduction of the VAT in its

Table 6.3. Value-Added Tax Efficiency Ratios

	Mauritius ¹	Sub-Saharan Africa	Asia and Pacific	Americas	European Union ²	Small Islands
Efficiency ratio ³	50	27	35	37	38	48
C-efficiency ratio ⁴	80	38	58	57	64	83

Sources: Ebrill and others (2001) and IMF staff estimates.

¹ Data for 1999/2000, when the VAT rate was 10 percent.

² Including Norway and Switzerland.

³ Defined as the ratio of VAT revenues to GDP, divided by the VAT rate.

⁴ Defined as the ratio of VAT revenues to private consumption, divided by the VAT rate.

days in opposition, decided to raise the VAT rate to 12 percent in July 2001 and again to 15 percent in July 2002. The latter rate increase particularly succeeded in reversing the decline in tax revenues, which rose by 2 percentage points of GDP in 2002/03.

Challenges Ahead

Mauritius faces a number of challenges in the fiscal area. First, growing fiscal imbalances over the past decade have increased public debt to a level that threatens to trigger unfavorable debt dynamics. Second, the need for urgent and credible fiscal consolidation will necessitate difficult choices with regard to boosting revenue collection and realizing sustainable expenditure savings. Finally, the structure and maturity profile of domestic debt will need to be improved in order to minimize the market risk associated with the rollover of government debt.

Debt Sustainability

An analysis of Mauritius's total public debt (government and parastatal entities), which reached the equivalent of 73 percent of GDP at the end of the 2003–04 fiscal year, of which 58 percent of GDP is accounted for by central government debt,²⁵ reveals that under plausible assumptions fiscal sustainability can be achieved provided that corrective fiscal policies (see Table 6.4), that would bring the fiscal deficit to below 3 percent of GDP by 2006/07 are implemented

²⁵The public sector debt, other than central government debt, is constituted by borrowing by public sector corporations such as Air Mauritius, the Central Electricity Board, the Central Water Authority, the State Trading Corporation, and other smaller corporations; this borrowing is mainly in the form of bank loans.

Table 6.4. Public Debt Sustainability Framework, 2003/04–2007/08¹
(In percent of GDP)

	2003/04	2004/05	2005/06	2006/07	2007/08
	Projected	Projected	Projected	Projected	Projected
Baseline scenario					
Primary balance	-1.5	-0.7	0.6	1.8	1.2
Public sector debt	72.8	71.5	69.7	67.0	63.9
Public sector debt assuming lower GDP growth ²	72.8	78.0	76.4	73.8	70.7
Public sector debt assuming combined shocks ³	72.8	87.2	84.1	80.2	75.7
Real GDP growth (in percent)	4.4	4.8	3.8	4.0	4.1
Average real interest rate (in percent)	0.5	2.0	2.1	2.7	1.2
No-adjustment scenario					
Primary balance	-1.5	-1.9	-1.7	-1.7	-1.7
Public sector debt	72.8	73.8	74.8	75.7	76.4
Public sector debt assuming lower GDP growth ²	72.8	84.2	85.6	86.9	86.6
Public sector debt assuming combined shocks ³	72.8	93.0	92.9	92.6	112.3
Real GDP growth (in percent)	4.4	4.8	3.8	4.0	4.1
Average real interest rate (in percent)	0.5	3.0	3.0	2.8	2.2

Source: IMF (2003b).

¹ Fiscal year from July to June.

² Assumes GDP growth falls from its historic average by two standard deviations in 2004/05 and 2005/06.

³ The assumed shocks are (1) the real interest rate increases from its historic average by two standard deviations in 2004/05 and 2005/06; and (2) the primary balance falls from its historic average by two standard deviations in 2004/05 and 2005/06.

immediately.²⁶ With such adjustment, the public sector debt would fall from about 73 percent in mid-2004 to close to 64 percent in mid-2008. In addition, the interest charges on government debt, which in 2003/04 absorbed the equivalent of 4 percent of GDP, would gradually decline. However, in the absence of a credible and immediate fiscal adjustment that would be sustained over the medium term, the debt situation could become very worrisome, with the debt-to-GDP ratio increasing further. The debt dynamics would become very vulnerable to shocks, as slower economic growth accompanied by a sudden rise in real interest rates could very quickly result in an unsustainable debt burden,

²⁶See Appendix I in IMF (2003b) with an update in the Staff Report for the 2004 Article IV Consultation. For this exercise, fiscal sustainability was defined as a situation whereby, over the medium term, the debt-to-GDP ratio first stabilizes and thereafter starts to fall. The debt simulations were conducted on the estimated total public debt of Mauritius, which included domestic central government debt as well as government and parastatal external debt.

approaching 100 percent of GDP. In particular, an increase in interest rates could not be ruled out, if confidence in the government's resolve to manage its debt problem were weakened.

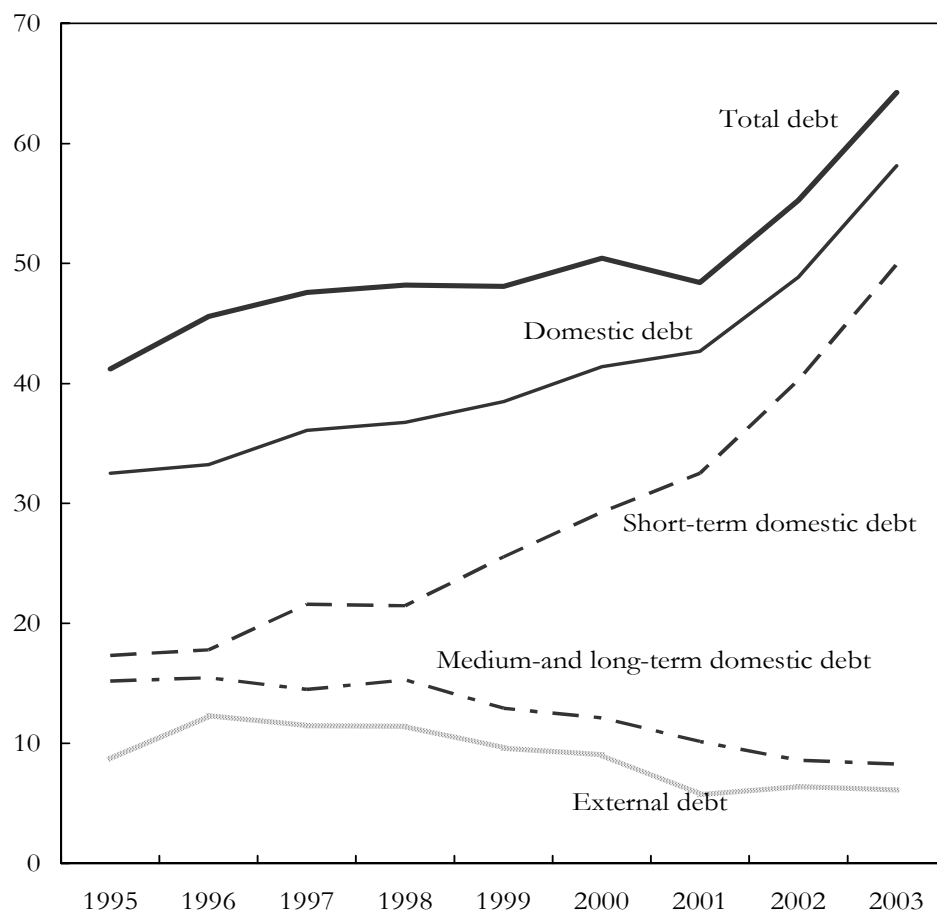
Fiscal Consolidation

Fiscal consolidation will best be achieved through efforts on both the revenue and expenditure sides. *Tax revenue* today is about 2 percent of GDP lower than during the boom years of the late 1980s. Looking ahead, there is room for enhancing tax collections in Mauritius without raising tax rates. In particular, the VAT tax base could be enlarged, exemptions in the area of import duty could be reduced substantially, and taxes on income and profits could be reformed. Based on data for 1999, it has been estimated by an IMF technical assistance staff team that taxes forgone as a result of exemptions on import duties alone amounted to almost 7 percent of GDP and exceeded the import duties that were actually collected. While not all of these exemptions can be removed immediately—diplomatic exemptions, for example, are subject to international conventions—their sheer magnitude provides sufficient room for improvement.

Corporate and personal income tax collections (at about 2½ percent of GDP) are also very low by international standards, especially given Mauritius's level of economic development. The corporate income tax is marred by a narrow base, a varying treatment of investment income, and a range of exemptions and preferential rates. The personal income tax also has a narrow base—the result of a variety of exemptions, allowances, and deductions—with a taxpaying population of less than 60,000 out of a total population of about 1.2 million. About 85 percent of the population who pay personal income tax are salaried employees, while higher-income groups pay little or no taxes, reflecting the generous exemptions, particularly on financial instruments and on fringe benefits, and inadequate enforcement. Corporate and personal income tax collections could be significantly increased if tax incentive schemes were phased out, exemptions and allowances were reduced, and tax administration and enforcement were strengthened. During 2004, tax administration was strengthened through the establishment, by act of parliament, of an independent revenue authority. Among the key priorities of the authority is to increase tax compliance by the self-employed, and to strengthen compliance with the taxation of investment income, which is marred by significant underreporting.

On the *expenditure side*, it would be important to review and prioritize the large capital investment projects that are being undertaken in the areas of education, health, and information technology, to ensure that the pace of their execution does not exert undue pressure on wages and prices. It would also be important to adjust expenditure spending to what can be financed prudently, so as to ensure that an unfavorable debt dynamic does not develop.

Figure 6.1. Central Government Debt, 1995–2003 ¹
(In percent of GDP)



Source: Bank of Mauritius.

¹ End-of-period stock as of June 30.

Debt Management

The rise in the government’s fiscal deficit, particularly since the mid-1990s, has contributed to a steady increase in central government debt, not only nominally, but more importantly as a proportion of GDP (Figure 6.1). While external debt has been gradually decreasing from about 12 percent of GDP in 1996 to about 6 percent in 2003, domestic debt has almost doubled during the same period from 33 percent to 58 percent. Particularly noteworthy is the steep rise in short-term domestic debt, even as medium- and long-term domestic government indebtedness has fallen. At mid-2003 only 14 percent of the government debt

Table 6.5. Maturity Composition of Government Debt, 1998/99–2002/03
(As of end of fiscal year, in millions of Mauritian rupees)

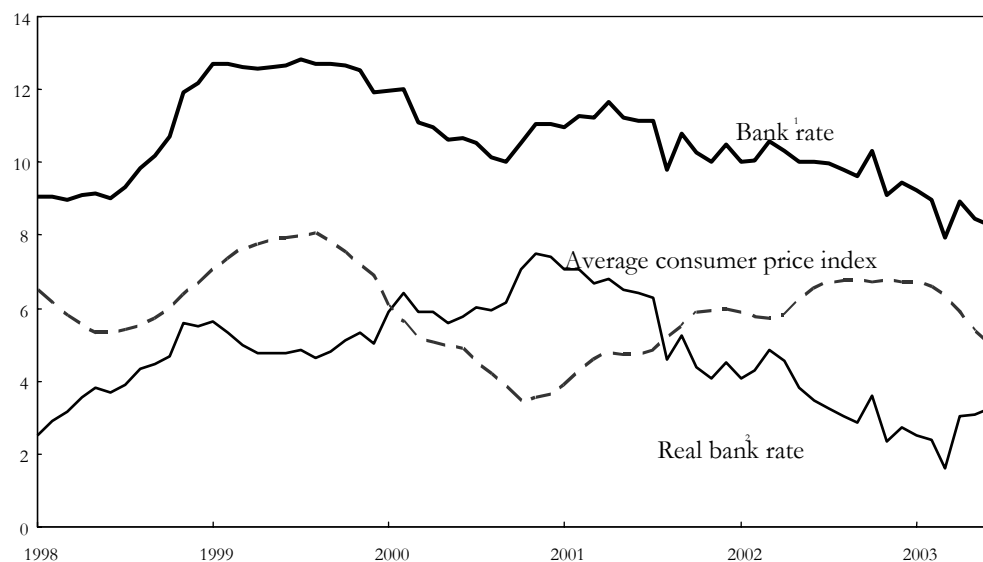
	1998/99	1999/00	2000/01	2001/02	2002/03
Long Term					
Treasury certificates	0.0	0.0	0.0	0.0	0.0
Tap loan stocks	0.0	0.0	0.0	0.0	0.0
Development loan stocks	11,340.0	11,590.0	12,710.0	11,807.8	11,408.0
Anonymous bearer bonds	0.0	0.0	0.0	0.0	0.0
8-year savings bonds	0.0	0.0	0.0	0.0	0.0
4-year independence bonds	296.4	0.0	0.0	0.0	0.0
5-year republic bonds	2,078.5	2,078.5	0.0	0.0	0.0
Treasury bearer bonds	0.0	0.0	0.0	0.0	0.0
5-year GOM bonds	0.0	0.0	0.0	0.0	866.3
Sub-total	13,714.9	13,668.5	12,710.0	11,807.8	11,408.0
In percent of GDP	12.9	12.1	10.2	8.6	7.7
Short Term					
Treasury bills (nominal)	24,097.4	32,188.2	41,034.9	55,607.0	74,662.2
1-month	860.4	0.0	0.0	0.0	0.0
3-month	3,299.0	4,018.0	1,582.9	2,051.3	911.9
6-month	4,484.1	6,875.5	3,414.3	3,887.4	3,521.8
12-month	6,339.0	8,153.8	16,070.0	14,807.2	14,700.0
24-month	9,114.9	13,140.9	19,967.7	34,861.1	55,528.5
Advances from BOM	3,161.5	1,089.4	0.0	0.0	0.0
Tax reserve certificates	0.5	0.4	0.4	0.4	0.4
Sub-total	27,259.4	33,278.0	41,035.3	55,607.4	74,662.6
In percent of GDP	25.7	29.5	32.8	40.5	50.1
Total	40,974.3	46,946.5	53,745.3	67,415.2	86,070.6
In percent of GDP	38.6	41.7	43.0	49.1	57.8

Source: Bank of Mauritius and Ministry of Finance.

Note: BOM=Bank of Mauritius, GOM=Government of Mauritius.

carried a maturity longer than two years, the rest being constituted by treasury bills issued with maturities between 3 and 24 months and by central bank advances (Table 6.5). The significantly larger borrowing requirements that resulted from loose fiscal policies in the run-up to the September 2000 elections and from the new government's spending priorities have contributed to a marked pickup in the growth of domestic indebtedness since 2001/02. Between 2001/02 and 2002/03, interest payments on the public debt increased by almost 40 percent, with interest payments on the total government domestic debt reaching 19.7 percent of total current expenditure in 2002/03.

Figure 6.2. Bank Rate and Inflation, January 1998–June 2003
(In percent)



Source: Bank of Mauritius.

¹The bank rate is the weighted average of 1-, 6-, and 12-month treasury bill rates.

²Discounted by the annual average consumer price inflation rate.

As Figure 6.2 shows, the government's cost of domestic borrowing, as reflected in the bank rate, has remained fairly high over the past five years.²⁷ While in real terms the bank rate has come down from a peak of about 7½ percent at end-2000 to about 3½ percent in mid-2003, the decline has been mainly attributable to a rise in average consumer price inflation, and only marginally to a fall in nominal interest rates, despite significant declines in nominal interest rates during this period in industrial economies.

The level and underlying trend in central government indebtedness is a challenge that needs to be addressed with determination. The rapid rise in domestic debt and the growing reliance on shorter-maturity government securities increase the so-called rollover risk. This is the risk that an unfavorable swing in market sentiment (specifically the private sector's willingness to hold Mauritian government obligations) could lead to a sudden and large increase in the cost of

²⁷The Bank of Mauritius's bank rate is the weighted average of 1-, 6-, and 12-month treasury bill rates. It is used for central bank advances to the government.

Table 6.6. Savings and Investment, 2000/01–2003/04

(In percent of GDP)

	2000/01	2001/02	2002/03	2003/04
Gross national savings	26.6	26.7	25.5	27.0
Gross domestic investment	23.2	21.3	22.9	24.3
External current account balance	3.4	5.4	2.6	2.6

Sources: Mauritian authorities and IMF staff estimates.

borrowing, and even to the inability of the government to raise the needed funds to repay the maturing debt obligations. In 2004/05 the amount of maturing treasury bills is extremely high, equivalent to 16.4 percent of GDP.

This point was highlighted as a source of concern in the recently published Financial System Stability Assessment (FSSA) of Mauritius, which was jointly prepared by the IMF and the World Bank.²⁸ The FSSA recommended that the authorities improve the strategic planning, organization, and operation of public debt to better manage the significant rollover risk. The authorities were advised to seize the fortuitous opportunity of an unfulfilled demand for longer-term government securities, particularly among institutional investors such as pension funds and insurance companies, to extend the maturity structure of domestic debt. While steps in this direction have been taken in 2003–04 with the issuance of four series of Five-Year Government of Mauritius bonds between September 2003 and June 2004, the total amount issued of MUR 2 billion compares with almost MUR 40 billion of maturing treasury bills in that fiscal year. Extending the maturity of the outstanding government debt will therefore require a protracted effort.

Mauritius, unlike a number of other emerging markets, is somewhat fortunate in that it is shielded from the vagaries of international capital markets, thanks to its remarkably robust national savings rate. This could be seen as a mitigating factor in the otherwise difficult debt situation. Over the past three years, gross national savings have averaged about 27 percent of GDP. During the same period, gross domestic investment averaged about 22½ percent of GDP. As a result, Mauritius has run a healthy current account surplus of about 3½ percent of GDP (Table 6.6).

²⁸See the chapter on “Vulnerabilities Facing the Financial System” in IMF (2003a).

Table 6.7. Holders of Domestic Debt, 2002

(In percent of total domestic debt)

Residents	99.5
Bank of Mauritius	1.6
Commercial banks	39.5
Institutional investors	51.3
Others	7.1
Nonresidents	0.5
Total	100.0

Source: IMF (2003b, p. 29).

Consistent with Mauritius's relatively high savings rate, government domestic debt is held primarily by residents, and only about 0.5 percent is held by nonresidents (Table 6.7). However, Mauritius has an open capital account, and nominal interest rates on its government debt have maintained a substantial positive margin over U.S. treasuries. Meanwhile, the exchange rate of the Mauritian rupee vis-à-vis the U.S. dollar has remained fairly stable. In such an environment, it is quite likely that Mauritius would have attracted short-term foreign capital inflows, which would be seeking to benefit from the interest rate differential. These would be rather difficult to identify, especially if they were placed in term deposits at banks, which would in turn invest in domestic government securities.

Financial System and Institutions

Mauritius has one of the more sophisticated financial systems in Africa, a system that is soundly capitalized and profitable. Assets of the banking system represent about 100 percent of GDP. While the financial sector was already relatively well developed at independence, the robust economic performance over the last two decades strongly contributed to its further expansion. At the same time, the solidity and sophistication of the financial system also played a key role in supporting the diversification of the economy. It can be argued therefore that a virtuous cycle was established from early on, in which the financial system and the productive sector strengthened in parallel, with each sector providing support to the other and contributing to its modernization and deepening. A sound regulatory framework and monetary policies geared to macroeconomic stability provided a key contribution to the soundness of the financial system.

The Early Years

At the time of its independence in 1968, the Mauritian economy was rather unique among developing nations in that it lacked a subsistence farming sector, as agriculture was concentrated in sugar production. The monoagricultural nature of its production meant that the monetary and financial system played an important role by providing credit and smoothing seasonal fluctuations. As a result, the financial system was relatively well developed, and the population was well acquainted with credit.

The system comprised a few commercial banks, a public development bank, a post office savings bank, a housing finance corporation, a cooperative bank, some insurance companies and agents, and one private development finance company. The operation of these financial institutions was supplemented through a system of brokers, middlemen, and shopkeepers who engaged in lending operations. Commercial banks were mostly engaged in making short-term loans, while the development bank provided long-term finance. Mortgage loans were available to consumers through the housing finance corporation; the cooperative bank lent money to member cooperatives and to small planters.

Shares were also bought and sold in a small over-the-counter market. There was a differentiated system of interest rates for deposits and loans by maturity and by the various institutions and sectors.

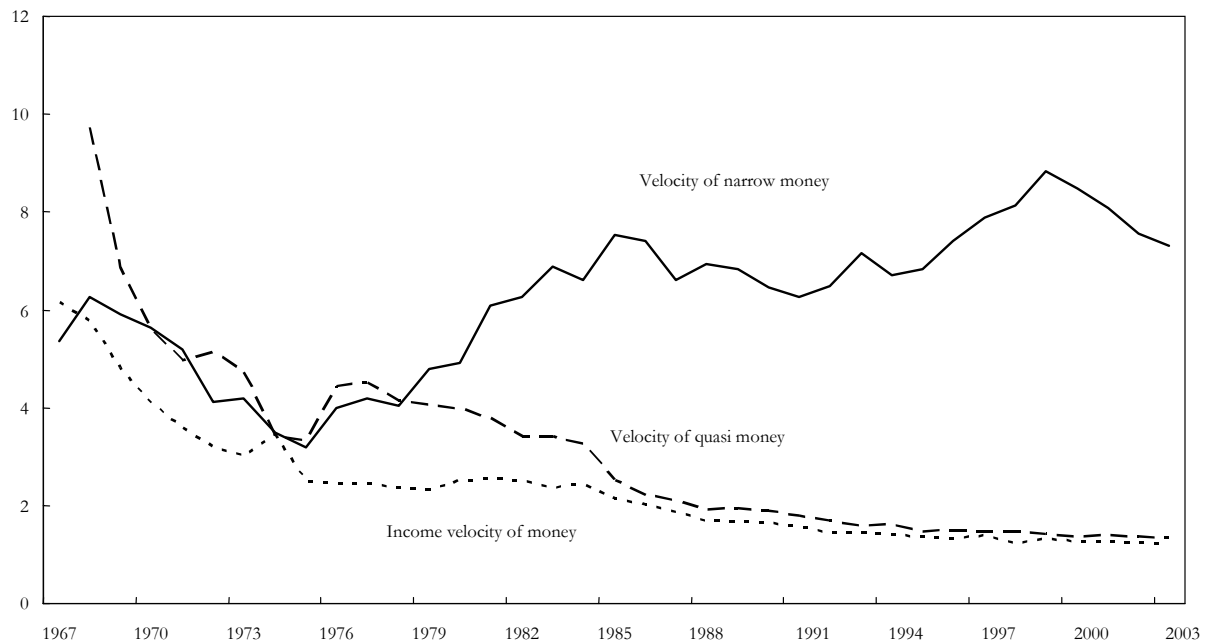
It is noteworthy that the Mauritian population was not only well acquainted with credit, but was also well poised to take advantage of further developments in the financial system. Monetary and exchange rate policies had significant impact throughout the economy in the years to come.

The Bank of Mauritius (BOM) was established as the central bank of Mauritius with the passage of the Bank of Mauritius Act in 1967. This legislation enabled the BOM to act as the lender of last resort to the banking system and banker to the government. The powers of BOM were further enhanced in 1971 with the passage of new legislation that gave it wide powers of supervision over banks and authority to set liquidity ratio requirements and minimum capital requirements for obtaining and maintaining a banking license. The revised Bank of Mauritius Act, which was passed by the National Assembly in September 2004, modernizes the structures of the bank with regard to the conduct of monetary policy, establishing a monetary policy committee and ensuring greater transparency through regular statements on monetary policy. It also defines monetary stability and the promotion of orderly and balanced economic development as the primary objectives of the central bank.

From the very beginning the BOM focused on creating the framework for a modern financial intermediation system that could allocate resources efficiently to fund development needs. Treasury bills were issued by tender on a monthly basis starting in April 1969; in 1972, treasury bills were made available continuously on tap. Long-term government bonds were also issued, although less frequently. In 1970, the BOM contributed to the capital of the public development bank to increase the availability of long-term finance for agriculture and industry. Concessional finance for funding industrial diversification and exports was made available through the rediscounting of commercial bills and direct lending to commercial banks. Given the openness of the economy and its dependence on trade, the BOM started providing forward cover for foreign exchange risk as early as 1968/69; forward foreign exchange contracts were formally introduced in the late 1970s.

Annual reports of the BOM from the early 1970s document a remarkable increase in the banking habits of the population and penetration of the banking system in the economy, as a result of increasing confidence. Over the period 1969–72, the number of savings accounts doubled, while the number of time deposit accounts showed a threefold increase. By 1974, more than eight out of ten households had bank accounts. Time and savings deposits in the banking system expanded well over twelvefold, between 1967 and 1974, leading to a sharp decline in the income velocity of money, which fell from 4.1 in 1970 to 2.5 in 1975 (Figure 7.1).

Figure 7.1. Income Velocity of Money, 1967–2003



Source: IMF, *International Financial Statistics*.

Maturing of the Financial System

As the savings habit grew, there was a need for longer-term investment and financing vehicles. In response, several private pension funds and the National Pension Fund (NPF) emerged in the mid- and late 1970s. Insurance companies grew rapidly, as did some private development finance companies. Activity in the over-the-counter stock market also expanded. BOM annual reports indicate that the market was fairly active in the early 1970s, but dried up toward the second half of the decade, with capital market activity being centered on government bonds.

The early and mid-1980s were a difficult time for the Mauritian financial system.²⁹ Mauritius entered a Stand-By Arrangement with the IMF in 1979, to redress serious domestic and external financial imbalances, and the focus shifted

²⁹The balance of payments crisis in the late 1970s is discussed in more detail in Chapter 8.

to maintaining macroeconomic stability. Development of the financial system slowed down. However, as successive IMF-supported programs came to a close in 1986 and macroeconomic stability was no longer perceived to be under threat, the strengthening of the financial system took on a new impetus with the implementation of several legal and institutional changes. Thus, new banking legislation was adopted in 1988 to replace the banking legislation of 1971. It contained a wide range of improvements to strengthen the supervisory and regulatory regime for banks, and authorized deposit-taking activity by nonbank financial institutions. The legislation also laid out the legal and supervisory regime for offshore banking facilities, thereby creating the framework for an offshore financial center in Mauritius. A formal securities market in Mauritius was created with the establishment of the Stock Exchange of Mauritius in 1989, under the authority of the Stock Exchange Act of 1988.

The offshore financial center was viewed as an opportunity to generate economic growth and received strong support from the political leadership of the country. Offshore banks were restricted to being majority owned by nonresidents and to operations in foreign currency (this allowed foreign currency transactions with residents). Offshore banking took off in Mauritius as assets in the sector grew more than sixfold between 1990 and 1992. The stock market also grew impressively, as it received support in the form of tax incentives for investors (market capitalization expanded almost threefold between 1991 and 1993).

Other changes over the past decade have focused on improvements in regulation, supervision, and infrastructure to create an efficient financial system and increase the confidence of investors.³⁰ Capital adequacy requirements were made more stringent, and international accounting standards were adopted. Guidelines were established relating to disclosure, nonperforming loans and provisioning, related-party lending, credit concentration, liquidity, and corporate governance. A secondary market in treasury bills was created, and modern and efficient payments, securities-trading, and settlements systems were put in place. As a result, a process of considerable financial deepening has taken place in Mauritius over the past several years. This is reflected not only in the declining income velocity of money, but also in the increasing income velocity of narrow money, indicating that the public has become gradually more sophisticated and has shifted its financial holdings toward assets with longer maturities and higher remuneration (Figure 7.1).

³⁰These changes have been spurred by the many crises in the international financial system during the 1990s (for instance, the Asian crisis).

The Financial System at Present

According to the Financial System Stability Assessment (FSSA) report of June 2003 prepared by the IMF and World Bank staff (IMF, 2003b), the financial sector in Mauritius is in good health. The system is well developed, relatively stable, and large, with assets at almost 250 percent of GDP (see Table 7.1). The domestic financial system consists of (1) a large banking system with assets of some US\$4.5 billion, equivalent to about 100 percent of GDP; (2) a sizable insurance and pension sector with assets equivalent to 45 percent of GDP; (3) a number of nonbank financial institutions, including 10 leasing companies, with assets around 12 percent of GDP; and (4) a stock market with a market capitalization of 19 percent of GDP. The offshore financial sector is almost as large as the domestic banking system and is growing rapidly.

The Mauritius banking system consists of the domestic and the offshore banking subsectors. As of end-June 2002, there were 10 domestic and 12 offshore banks (see Table 7.1). The domestic banks are permitted to operate in a normal range of banking activities in domestic as well as foreign currencies. Access to banking services is extremely high with more than one bank account per capita, and access to credit is well developed. By contrast, the informal financial sector is small.

The domestic banking system comprises two large domestically owned banks (which hold 70 percent of the assets of the domestic banking system), three local operations of large international banks, and five small banks. Six of the domestic banks are foreign owned and account for 26 percent of assets in the system. The two large banks have a regional presence, having created subsidiaries that operate in the Indian Ocean region. They also have significant presence, through subsidiaries, in other segments of the financial system.

The system is generally well capitalized, highly profitable, as diversified as the economy allows, and liquid. The average capital adequacy ratio at 13 percent far exceeds the regulatory minimum of 10 percent and the Basel norm of 8 percent. The return on assets has been consistently above 2 percent, and return on equity has been over 20 percent during the past five years, thanks to solid interest margins and low operating expenses. Overall quality of assets is relatively good, with the ratio of nonperforming loans (NPLs) to total advances hovering around 8 percent during the last five years. Provisioning is, however, relatively low, in part because banks historically have achieved significant recoveries from collateral. Finally, the system is rather liquid, with liquid assets covering 63 percent of short-term liabilities. In 2004 the banking act was revised to provide stronger and more flexible regulatory instruments to the central bank, including graduated sanction mechanisms, such as the appointment of a conservator to reorganize banks in difficulties; the new banking act also introduces detailed procedural mechanisms for voluntary or compulsory liquidation.

Table 7.1. Financial System Structure, June 2002

	Number ³	Assets (In millions of MUR)	Percentage of Total Assets	Percentage of GDP
Banks—domestic	10	134,675	94.8	97.6
Private	9	129,267	91	93.7
Domestic	3	97,550	68.7	70.7
Foreign	6	31,717	22.3	23
State-owned	1	5,408	3.8	3.9
Institutional investors ¹	1,031	62,671	30.6	45.4
Insurance companies	24	23,971	11.7	17.4
Pension funds	1,007	38,700	18.9	28
Mutual funds	—	—	—	—
Other nonbank	265	16,233	9.4	11.8
Development Bank of Mauritius ²	1	4,409	2.1	3.2
Post Office Savings Bank	1	1,032	0.7	0.7
Leasing companies ¹	10	4,500	2.2	3.3
Mauritius Housing Company ²	1	6,292	4.4	4.6
Total onshore financial system	1,306	213,579	100	154.8
Banks—offshore	12	129,205	100	93.6
Total offshore financial system	12	129,205	100	93.6
Total financial system	1,318	342,784	—	248.4

Sources: Mauritian authorities and IMF/World Bank staff estimates.

¹ Data are for the year ending December 2001.

² Balance sheet data refer to June 30, 2001.

³ One onshore and two offshore banks commenced operations after June 2002.

The Offshore Financial Sector

Mauritius has developed a substantial offshore financial sector, whose participants are drawn principally by 26 favorable tax treaties, location, relatively low wages, and bilingual skills. The offshore financial sector comprised 12 offshore banks (as of end-June 2002) with assets of some US\$4.3 billion,

equivalent to 94 percent of GDP; 233 offshore funds managing roughly US\$6.3 billion in assets; 15 offshore/captive insurance companies; and some 20,000 global business companies engaged in nonfinancial activities. The offshore industry confers some benefit in terms of global recognition, economic growth, and employment. Simultaneously, the offshore business creates vulnerability to changes in tax treaties, potentially large reputation risks, and an urgent need for adoption of global regulatory standards, possibly at large regulatory costs (see Box 7.1).

There are very limited linkages between the offshore sector and the domestic economy. Offshore businesses may deal only with nonresidents and in foreign exchange, with the exception of offshore banks, which can deal with residents but not in Mauritian rupees. This restriction, together with the generally wholesale nature of the offshore financial business, has implied a relatively small impact of offshore activities on employment and the level of economic activity. For example, offshore banks employed 168 persons in 2002, compared with about 3,500 in domestic banks. The share of the overall financial sector in GDP was 9.2 percent in 2002, and the share of the offshore sector is estimated to be less than 2 percent of GDP. However, the offshore sector is the faster-growing component of the financial sector, with indirect positive effects on telecommunications and on the development of world-class financial, legal, accounting, and audit skills. In particular, there has been a rapid development in asset management services, as employers take advantage of available fund management and auditing skills.

The offshore banks are highly profitable. Their average return on assets has been consistently around 2.5 percent during the past three years, and the return on equity of the sector was almost 30 percent in 2001/02. Offshore banks have focused on foreign markets, especially India and South Africa, and have limited their domestic operations to taking deposits from large depositors and occasionally providing large loans, mainly to public sector borrowers. The offshore banks finance themselves mainly through international interbank borrowing (37 percent of total funds), mostly within their own global financial group, and, increasingly, through deposits from nonbank customers (51 percent of total resources), often coming from the rest of the business sector in Mauritius. Their main uses of funds are placements with banks abroad (48 percent of assets) and credit to nonfinancial institutions (47 percent of assets). About 5 percent of their total credit is to resident borrowers in Mauritius. NPLs have been stable at around half a percent of the total loan portfolio during the past three years.

The Securities Markets

At end-June 2002, Mauritius's securities market had 44 companies listed with a market capitalization of 19 percent of GDP (down from 43 percent at end-1997). The securities market infrastructure that comprises the payments, trading, and

Box 7.1. Future Risk and Challenges to the Mauritian Financial System

According to the Financial System Stability Assessment (FSSA) report released in June 2003, the Mauritian financial system is fairly deep, profitable, well capitalized, and generally sound. However, there are some areas of risk that pose a challenge for the future.

- The domestic banking system is vulnerable to credit risk from external economic shocks and a downturn in economic activity.
- The large and growing amount of short-term public debt poses rollover risk for the financial system.
- Reputation risks arise from potential money-laundering activities in the offshore sector. This is being mitigated through the strengthening of anti-money-laundering legislation in Mauritius.
- The onshore banking system is dominated by two banks, which poses a systemic risk.
- Related-party lending is a potential problem, because banks in Mauritius have significant interests in other businesses, financial and nonfinancial.
- There is a high concentration of credit with a few conglomerate borrowers in key sectors of the economy (sugar and textiles). There is a need for banks to diversify their portfolios internationally or locally through different types of instruments. In this regard, the securities markets are somewhat underdeveloped, and there is a need to provide institutional investors with long-term investment alternatives.
- There is no deposit insurance in Mauritius. However, a number of nonbank financial institutions are partly or wholly owned by the public sector, and this creates a perception of an implicit deposit guarantee. To make matters worse, the level of provisioning is low, creating a large implicit contingent liability for the government.
- While property rights are enforceable and respect for the rule of law is high, financial and commercial legislation needs to be brought in line with modern practice in a number of areas. Procedural weaknesses and inefficiencies in the judicial process also need to be addressed.
- The activities of the offshore financial center in Mauritius are heavily dependent on favorable double taxation avoidance treaties and on favorable tax laws in India and South Africa. Changes in the tax and regulatory regimes in these two countries could materially affect the growth of the sector. Mauritius is guarding against this possibility by (1) enacting and implementing anti-money-laundering legislation, (2) following good practices in avoiding “tax shopping,” and (3) negotiating treaties with other countries, including China.
- The pension system is partly unfunded and is beset by problems of affordability.
- Nonbank deposit-taking institutions are currently not subject to effective regulation and supervision by the BOM or an appropriate supervisory authority.
- Improvements are needed in the areas of corporate disclosure and governance, as well as in the areas of market regulation, supervision, and surveillance, in order to ensure the integrity of transactions on the stock exchange. Measures are also needed to develop more efficient money, treasury bill, and foreign exchange markets, as well as in the areas of a long-term government and corporate debt market.

settlements systems is modern and efficient, and the institutional and legal infrastructures are also of high quality. However, investor participation (average turnover is around 5 percent) in this market is low, and it is thought that improvements in disclosure standards, corporate governance, and regulation and supervision of market participants will contribute to widen the public's participation. There is also some need to modernize financial and commercial legislation. The decline in market capitalization in recent years is a result of not only the trends in world equity markets, but also the uncertainty over sugar and textiles trade. In this regard, the privatization of some state-owned corporations would diversify the range of choices available to investors and deepen the market.

The Insurance and Pension System

Mauritius's insurance and pension fund sectors are also large, with combined assets of over 45 percent of GDP in mid-2002. The domestic insurance industry is well developed with annual premiums at around 4.1 percent of GDP, and the large and medium-sized companies in this sector are efficient and financially strong. State participation in this industry is limited. The number of insurance companies is large (22), and there is a need for consolidation since the smaller companies—which are not systemically important—are faced with high costs and are financially weak.

Mauritius has a large, well-balanced, multipillar pension fund system with assets of around 28 percent of GDP. The first pillar, the Basic Retirement Pension (BRP), is a universal pension and is financed from general taxes. As per the BRP scheme, an amount equivalent to 20 percent of the average wage is paid to all people over 60 years of age. A second pillar is the National Pension Fund, which manages contributions made by employees in both public and private sectors, and has resources of over 17 percent of GDP. Several occupational pension fund schemes also exist, most of which operate as noncontributory schemes and are reasonably well funded by employers. The pension fund sector is generally sound and well managed. However, there are elements that could represent possible weaknesses; these include the increasing cost of the BRP in an aging population, the concentration of pension fund investments in government securities, and the unfunded status of a few public sector occupational schemes.

The Way Forward

In order to move to the next stage in financial sector development, Mauritius needs to further diversify its financial sector. First, while financial institutions are fairly sound and profitable in Mauritius, the dominance of a few large players creates a systemic concentration of risk. Second, efforts should be made to develop further the short-term money, foreign exchange, and treasury bill markets. Third, it would be important to develop the bond market, where few

Box 7.2. Further Development of the Bond Market

The bond market in Mauritius is small; although developments in recent years have been promising, there is room for further expansion of the bond market. A number of corporate debentures with maturity between three and seven years have been issued through the 1990s: 12 were issued before 1998, and 11 during the period 1998–2000. Issues that took place up to mid-1998 benefited from a tax exemption on interest received for both individuals and corporations. This was replaced in 1998 by a tax exemption up to a certain threshold of interest received (MUR 75,000 per year, about US\$2,200, raised in 2004 to MUR 100,000). The elimination of the tax exemption for corporate debentures, while time deposits with maturity longer than three years remained exempt, decreased the attractiveness of these debentures to banks and other institutional investors; by raising the cost of issuance, it led to a progressive withdrawal of potential corporate borrowers from this market, with no issue taking place after August 1, 2000.

Since September 2002 the government of Mauritius has auctioned eight series of five-year government bonds, with the yield to maturity declining from 11.77 percent at the first auction to 7.98 percent at the latest auction in May 2004. Since the 1990s, the government has regularly issued Mauritius Development Loan Stock (MDLS) with maturities between 5 and 10 years. Two such issues were launched in November 2003 and March 2004, with each issue comprising three different series of bonds with maturities of 7, 11, and 15 years, respectively. The market for government bonds and MDLSs is mainly among banks, insurance companies, and pension funds.

A further development of the Mauritius bond market would require that all investment income be subject to a similar tax treatment. The revamping of the corporate bond market would provide many benefits to issuers and investors alike. The issuers could tap savings directly without depending almost exclusively, as at present, on bank credit. The competition in the channel to raise funds would presumably induce banks to lower the lending rates to the companies that can tap the bond market directly. Smaller companies could issue asset-backed securities. Banks could also become initial issuers and could place asset-backed securities, including mortgage-backed securities. This would allow lenders to diversify their credit risk.

The authorities could attempt to improve the liquidity of the secondary bond market, which is now somewhat limited. To that end, they could extend the maturity of money market instruments, in order to link the bond market and the money market. Competition in the secondary government bond market could be fostered by allowing more dealers to participate. It would also be important that the government develop a government bond benchmark and a yield curve; this would facilitate the pricing of corporate bonds, with credit-risk prices as a differential from government bond yield. Experience in other emerging market countries shows that the existence of a government bond benchmark is important in order to achieve a correct pricing of risk.

issues were launched in the mid-1990s, but where both primary issues and trading have stagnated (see Box 7.2). Legislation needs to be strengthened to improve the workings of the stock market, while consolidation is needed in the insurance industry. These and other challenges are outlined in Box 7.1.

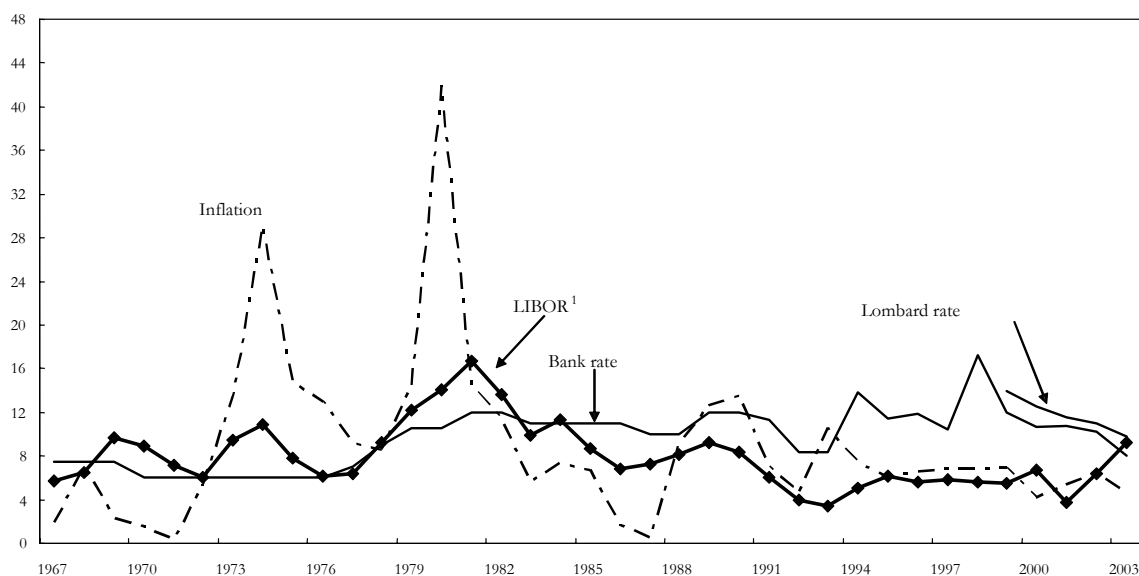
The Evolution of Monetary and Exchange Rate Policy

As in many parts of the world, including developed countries, the modalities of conducting monetary policy in Mauritius evolved from strong reliance on controls to more market-based mechanisms. As in other countries, the 1970s were turbulent years for the conduct of monetary policy, and external price shocks, together with excessively expansionary domestic policies, led to an acceleration of inflation. Macroeconomic stability was regained in the early 1980s through the pursuit of appropriate adjustment policies and was maintained successfully thereafter. Overall, the monetary authorities exhibited a remarkable capacity to correct rapidly for slippages. They were steadfast in promoting the deepening of the financial system and in creating more sophisticated instruments for the conduct of monetary policy. They abandoned direct controls, moving to rely on interventions through the money markets, which gradually matured and became a more efficient channel for the transmission of monetary policy impulses. In all, the sound monetary and exchange rate policies contributed to foster an environment favorable to sustained growth.

The Early Years—A Controlled System

After being established in 1967, the BOM gave prominence to the objectives of diversifying the economy and fostering economic growth and employment through supportive actions. An expansionary policy was followed by keeping interest rates low and providing concessional credit to “priority sectors.” The “bank rate” was the rate at which the BOM lent to banks to signal the stance of monetary policy. Other interest rates in the system were to be determined on the basis of the bank rate. Concessional credit was provided to industrial enterprises, which were being supported to promote growth, diversification, and employment. EPZ companies and manufacturing companies were the targeted beneficiaries. Concessional credit was provided through two channels: rediscounting of commercial bills and direct lending to commercial banks for financing of exports and imports of raw materials. In addition, commercial banks were urged to direct credit toward priority sectors and away from consumption.

Figure 8.1. Mauritius Monetary Policy — Bank Rate and Inflation, 1967–2003
(In percent)



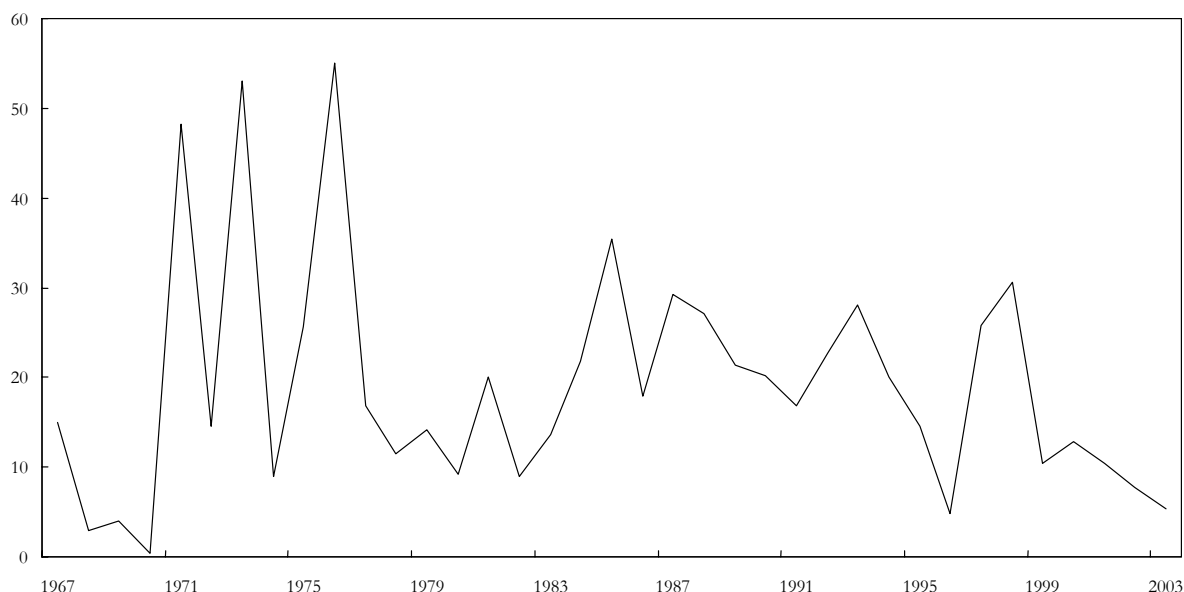
Source: IMF, *International Financial Statistics*.

¹ LIBOR is the London inter-bank offer rate on six-month dollar deposits.

In the early 1970s, high international sugar prices resulted in large balance of payments surpluses that gave rise to a fast rise of liquidity and of the money supply. At this time, the exchange rate of the Mauritian rupee was pegged vis-à-vis the pound sterling. As credit expanded, import demand soared, and inflationary pressures started to build up. A wage-price spiral took hold, as the national wage-bargaining process led to large pay increases to workers to compensate them for increases in the cost of living.

The BOM responded to inflation by introducing in the early 1970s credit ceilings and cash ratio requirements, that were gradually tightened. Credit to the priority sectors was protected and exempted from credit ceilings, and special credit lines were created with the explicit purpose of financing these sectors at below-market rates. Moreover, the level of the official discount rate (the so-called bank rate) was such that real interest rates were negative over most of this period (Figure 8.1), while commercial banks were subject to regulations on the

Figure 8.2. Credit to Private Sector, 1967–2003
(Annual growth, in percent)



Source: IMF, *International Financial Statistics*.

maximum deposit and lending rates.³¹ As a result of these factors, growth of credit to the private sector remained high through the 1970s (Figure 8.2).

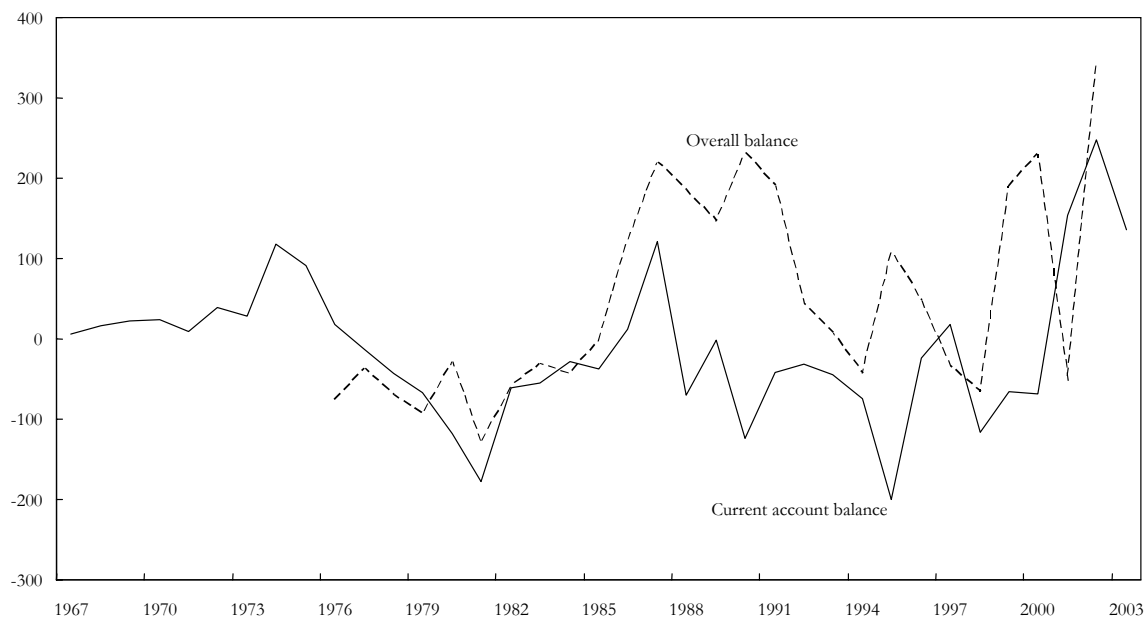
In 1974, as sugar prices rose to record levels and the world suffered its first oil price shock, inflation in Mauritius reached a high mark of 29 percent. World sugar prices collapsed in 1975, and balance of payments surpluses turned into large deficits (Figure 8.3). Pressure mounted on international reserves as the credit expansion continued.³² In order to stem the losses of international reserves, the BOM raised interest rates in 1977 and tightened credit ceilings. A liquidity ratio requirement was also introduced in 1978. However, the second

³¹The bank rate remained fixed between July 1970 and December 1976 at 6 percent.

³²The Mauritian rupee was linked to the pound sterling until 1976, when the rupee was pegged to the SDR in the face of continued depreciation of the British currency.

Figure 8.3. Balance of Payments, 1967–2003

(In millions of U.S. dollars)

Source: IMF, *International Financial Statistics*.

international oil shock in 1979, combined with the absence of adequate fiscal tightening, led to a severe balance of payments crisis. As the need of comprehensive adjustment policies became apparent, in 1979 Mauritius entered into a Stand-By Arrangement with the IMF in support of an economic and financial stabilization program. Under the program, the rupee was depreciated substantially, interest rates were increased, the fiscal deficit was reduced, and the wage policy was tightened to ensure competitiveness.

Despite an increase in interest rates under the stabilization program, the real bank rate stayed negative until 1983 and remained below the London inter-bank borrowed rate (LIBOR); see Figure 8.1. The velocity of quasi money, which had declined in the early 1970s, reflecting an increased willingness to hold time deposits, rose somewhat in the late 1970s; see Figure 7.1. The income velocity of money, which had been declining sharply since the late 1960s, reflecting growing confidence in the banking system, leveled off. It was not until the mid-1980s that the declining trends in income velocity of money and quasi money resumed. A statistical analysis of the demand for money in Mauritius is presented in Box 8.1.

Box 8.1. Money Demand in Mauritius

We examine the hypothesis that there exists a stable long-run relationship among the logarithm of real broad money ($m-p$), the logarithm of real gross domestic output (y), the “own” rate of return of money, and the rate of return on alternative investments. The rate of return proxies that we use are the following: domestic inflation (INF), the average interest rate offered on time deposits with maturities of six months to one year ($DEPO$), the weighted-average yield of treasury bills ($TBILL$), and the annualized three-month London interbank offered rate ($LIBOR$).¹ The yield on treasury bills ($TBILL$) is a proxy for the opportunity cost of money after 1983, given that the government made increasing recourse to this instrument to meet its funding needs. Similarly, the London interbank market became an alternative investment for Mauritian investors after exchange controls were lifted in 1994.

Following the literature, the demand for real money balances is specified as follows (with lower-case symbols indicating logarithms):

$$(m-p)_t = a_0 + a_1 y_t + a_2 INF_t + a_3 DEPO_t + a_4 TBILL_t \bullet D1 + a_5 LIBOR_t \bullet D2 + \varepsilon_t,$$

where ε_t is the error term. We have also included two interactive dummy variables, $D1$ and $D2$, to test for major institutional changes: the dummy variable $D1$ takes a value of 1 after 1983, when Mauritius moved to a managed floating exchange rate system, and 0 otherwise; the dummy variable $D2$ takes a value of 1 after 1994, when exchange controls were removed, and 0 otherwise.

The empirical analysis is based on quarterly data from 1976: Q1 to 2001: Q2. We use cointegration analysis to examine the long-run demand for money (Johansen and Juselius, 1990; Johansen, 1992). Johansen’s (1988 and 1991) maximum likelihood procedure for cointegrated vectors in a vector autoregression (VAR) is used to set up a model with four lags and a constant term.² The results of the Johansen cointegration procedure strongly reject the null hypothesis of no cointegrating vector ($r = 0$); at the same time, they fail to reject the null hypothesis of no more than one cointegrating vector, thereby implying that there is exactly one cointegrating relationship.

The estimated cointegrating relationship may be written as

$$(m-p)_t = 2.2 + 2.11y_t - 0.009INF_t + 0.07DEPO_t - 0.02TBILL_t \bullet D1 - 0.03LIBOR_t \bullet D2 + \varepsilon_t,$$

where ε_t is the error term and the constant is calculated so that the errors sum to zero. This equation has the properties of a money demand function in that real money demand is positively related to output and the own rate of return on money, and negatively related to inflation, the treasury bill rate after 1983, and $LIBOR$ after 1994. The coefficients of all the variables entering the cointegrating equation (except inflation) are significantly different from zero at the 99 percent confidence level; the coefficient of inflation is significantly different from zero at the 90 percent confidence level.

¹For a resident investor, the remuneration on a foreign deposit is the foreign nominal interest rate plus the rate of depreciation of domestic currency. However, according to our results the rate of depreciation of domestic currency is stationary, implying that it can be excluded from the long-run cointegration analysis.

²The number of lags was chosen to ensure that the residuals are serially uncorrelated and nonheteroskedastic.

Box 8.1 (concluded)

The coefficient on y implies an income elasticity of 2.11; this, in turn, suggests that, on average, in Mauritius the increase in real money demand associated with a given increase in real output was twice the size of the increase in real output. This elasticity is an indicator of the rapidity with which financial deepening occurred in Mauritius over the sample period—a result of increasing confidence in the domestic financial system, owing to successful development policies, high growth rates in output, declining inflation, and positive real interest rates maintained over an extended period of time.

The null hypothesis of weak exogeneity can statistically be rejected at the 90 percent confidence level for real money balances, *DEPO* and *LIBOR*, while it fails to be rejected for real output, the treasury bill rate, and inflation. This suggests that if a shock were to cause the system to deviate from its long-run equilibrium, real money and time deposit interest rates would adjust over time to restore long-run equilibrium.

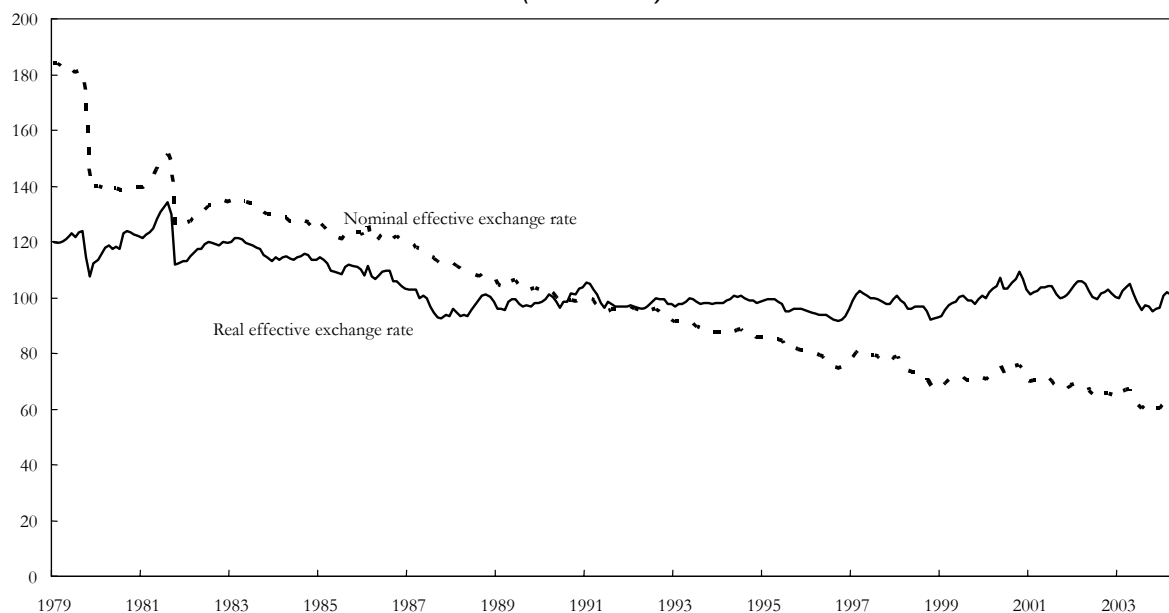
Initial Steps Toward Liberalization

In 1983, as the international economy stabilized and inflation declined, Mauritius moved from a fixed to a managed exchange rate regime. Over the next few years, the BOM exchange rate policy was aimed at protecting competitiveness, and the real effective rate was steadily depreciated until 1987 (Figure 8.4). The real depreciation of the currency contributed to a sharp turnaround in the balance of payments, which swung into surplus in 1986, bringing about an increase in international reserves (Figure 8.5). Successive Stand-By Arrangements with the IMF were in effect until 1986. For the duration of the IMF-supported programs, overall credit ceilings remained the primary instrument of monetary policy and were established annually by the BOM in consultation with the IMF.³³ These were fairly effective in restraining the growth in credit and inflation over the program period.

As the stabilization program came to an end, there was a cautious move toward liberalizing interest rates. In 1987, commercial banks were allowed to determine their own deposit and lending rates. Credit ceilings continued to be the primary instrument of monetary policy, although the bank rate was modified more

³³The bank rate was not used as a primary instrument of monetary policy during the program. For instance, the bank rate stayed fixed between 1983 and 1986 at 11 percent.

**Figure 8.4. Real and Nominal Effective Exchange Rate Indices,
January 1979–June 2004
(1990=100)**

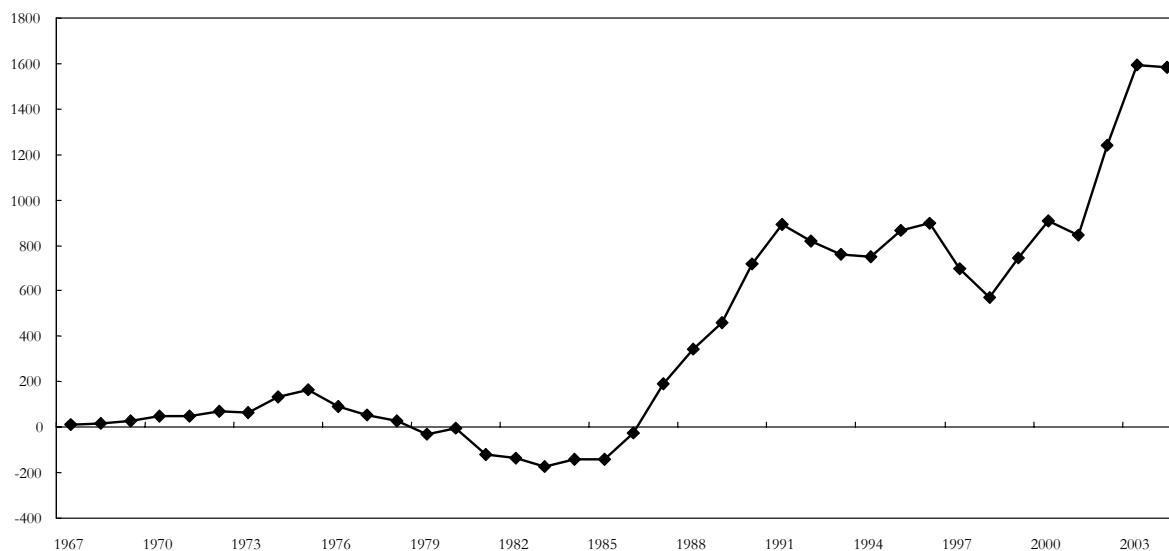


Source: IMF, *Information Notice System*.

frequently and followed changes in international interest rates. There was also a reduction in cash and liquidity ratio requirements and some minor liberalization in exchange controls. Real interest rates were brought to a positive level in the mid- and late 1980s, leading to resumption of the declining trend in the income velocity of money. As the net international reserves situation became comfortable, the BOM started targeting a stable real effective exchange rate, interrupting the previous policy of depreciation of the currency in real terms. Credit ceilings were eased in the late 1980s.

From the mid-1980s to mid-1990s, the fiscal deficit (after grants) was small, at less than 1 percent of GDP on average. As a result, the BOM's credit to the government remained modest and did not hamper the conduct of monetary policy. With the balance of payments in surplus and credit ceilings eased, while the real exchange rate was pegged, Mauritius was subject again to inflationary pressures in 1989 and 1990. In contrast to the early 1970s, the BOM acted promptly and decisively in this instance, by raising interest rates and tightening credit ceilings.

Figure 8.5. Net Foreign Assets of Bank of Mauritius, 1967–2004
(In millions of U.S. dollars)¹



Source: IMF, *International Financial Statistics*.

¹End year data, but for 2004 end-October data.

Liberalization

After the inflationary episode in the late 1980s, the BOM hastened its move to an indirect, market-based system of monetary policy implementation. Weekly treasury and BOM bill auctions were introduced in 1991. In these primary auctions, a predetermined quantity of bills was offered for sale, and financial institutions tendered their bids; bids below an arbitrary cutoff yield were not accepted. The bank rate was linked to the weighted average yield in the auctions.

Credit ceilings were abolished in July 1993. Exchange controls were also liberalized, as Mauritius accepted in 1993 the obligations of Article VIII of the Articles of Agreement of the International Monetary Fund, and liberalized the exchange regime for current account transactions. This was followed by a complete liberalization of capital controls in 1994 and by the establishment of an interbank foreign exchange market. In 1997 the foreign exchange surrender requirement for the export proceeds of the Mauritian Sugar Syndicate was abolished. The liberalization of capital movements did not result in any dramatic movements in the exchange rate or in international reserves.

Following the abolition of the credit ceilings in 1993, the central bank introduced a reserve-money-programming and liquidity-forecasting framework in order to control the overall money supply. The main objective was to maintain the monetary base on a path consistent with the central bank's inflation target and the Central Statistics Office's economic growth forecast. This resulted in a forecast for the demand for money, and the central bank would set a domestic credit target consistent with the inflation objective. The monetary programming continued to be accompanied by an exchange rate objective, with a view to keeping the rupee broadly stable in real terms on a trade-weighted basis. Thus, the central bank stood ready to buy or sell foreign exchange to maintain the exchange rate at the targeted level, and under its monetary base programming policy would sterilize these operations by modulating the sale of treasury bills on the government's behalf.

Operationally, in the absence of open market operations, the instruments used were the treasury bills auction process and the establishment of rediscount tranches. Effective July 1994, the bank rate was set as the average treasury bill auction rate over the previous 12 weeks, plus a margin determined by the BOM, and commercial banks' access to central bank credit was recast and set within rediscount tranches, plus an unlimited tranche at a penalty rate.³⁴ In this system, the stance of monetary policy was set by the amount of treasury bills sold at the weekly auctions, which could exceed the borrowing need of the government for monetary policy purposes. The lack of an active secondary market in treasury bills meant that the BOM could not use secondary market operations to implement monetary policy, and financial institutions faced difficulties in liquidity management. To address the situation, the BOM established a secondary market cell in 1994 to stimulate trading outside the weekly auctions. However, the secondary market cell at the BOM was fairly passive, and the BOM was reluctant, except under extreme circumstances, to conduct outright purchases of treasury bills to meet liquidity shortfalls of banks. As a result, the secondary market operations have been relatively modest, and banks typically hold treasury bills to maturity.

To establish open market operations for monetary policy purposes and to improve liquidity management, the BOM in December 1999 introduced a Lombard facility and a framework for repurchase and reverse repurchase transactions. The Lombard facility is a standing facility to provide overnight collateralized advances to banks at a preannounced interest rate; the rate is used

³⁴This automatic access was eliminated in mid-1996, and in the following years commercial banks' borrowing from the central bank was negligible.

by the BOM as a signaling mechanism for its monetary policy stance. The repurchase and reverse repurchase transactions have become a tool for fine-tuning liquidity, complementing the primary auction of treasury bills; the amount of transactions has been modest, and transactions have halted since mid-2003, as the interbank rate fell significantly below the Lombard rate.

Inflation as a Monetary Policy Objective in Mauritius: Challenges in Recent Conduct of Monetary and Exchange Rate Policy

The liberalization of capital controls in 1994 necessitated an increased emphasis by the BOM on maintaining price stability and ensuring confidence in the currency. Annual inflation had averaged close to 10 percent over the years 1989 to 1993, accompanied by considerable variability. Thus, there was a need for monetary policy to achieve lower inflation and to do so consistently. To this end, the BOM tightened monetary policy by raising in 1994 the level of interest rates at the same time as capital controls were lifted.³⁵ After the monetary-programming framework was implemented in 1993, the BOM took a lead in influencing inflationary expectations, particularly since inflation is the key input in the wage-bargaining process. In fiscal year 1996/97 (July to June), the BOM started announcing an inflation objective in its annual report. As shown in Table 8.1, the BOM has been able to meet the preannounced inflation objective in all years except in 2001/02, when unanticipated increases in the value-added tax and a cyclone resulted in the target being missed.

It should be noted that the monetary regime prevailing in Mauritius in recent years cannot be considered a fully fledged inflation-targeting regime. Such a regime requires a clear mandate to the central bank to achieve price stability, together with an institutional framework in which all other monetary policy objectives are subordinated to inflation targeting and in which the central bank is held accountable for reaching the target and for having to explain the reasons for any deviations between outcomes and targets. This requires that high-frequency inflation reports be prepared, and appropriate analytical models elaborated, for inflation forecasting and for highlighting the channels between policy instruments and inflation. While many countries preannounce inflation targets, many at the same time adhere to other policy objectives such as monetary targets or some form of exchange rate targeting. Fully fledged inflation-targeting

³⁵In fact, the BOM maintained high domestic interest rates even as international interest rates declined in the 1990s.

Table 8.1. Inflation Target and Outcome, 1997/98–2003/04

Year	Announced Inflation Target	Realized Inflation
1997/98	6.0	5.4
1998/99	8.0	7.9
1999/00	6.0	5.3
2000/01	5.5	4.4
2001/02	5.5	6.3
2002/03	6.0	5.1
2003/04	4.0	4.0

Source: Annual Reports of the Bank of Mauritius.

countries, on the other hand, commit to subordinating other policy objectives to the inflation target, using continuously updated inflation forecasts as the intermediate guide to monetary policy.³⁶

In the case of Mauritius, while annual inflation targets have been announced by the central bank since 1997, the inflation forecasting is still rudimentary. It is not formulated in the framework of a medium-term trajectory that takes into account the lags between policy changes and inflation (only a forward-looking 12-month target is announced), and an analytical framework specifying the channels between monetary policy instruments and inflation is not yet available. The monetary authorities, however, plan to further refine in the period ahead their inflation-forecasting methodology, together with the analysis of the transmission mechanism between monetary policy and inflation.

In a small open economy like Mauritius, the exchange rate has a large impact on inflation, so that the exchange rate policy of the authorities has been closely interlinked with the behavior of inflation. In the 1980s and the 1990s the authorities let the nominal effective exchange rate depreciate steadily, with a view, up to the early 1990s, to achieving a depreciation of the real effective exchange rate in order to promote competitiveness. From the mid-1990s the

³⁶For a comprehensive discussion on the difference between countries with fully fledged inflation targeting and countries that announce inflation objectives but are not able to maintain inflation as the foremost policy objective, see Schaechter, Stone, and Zelmer (2000) and Stone (2003).

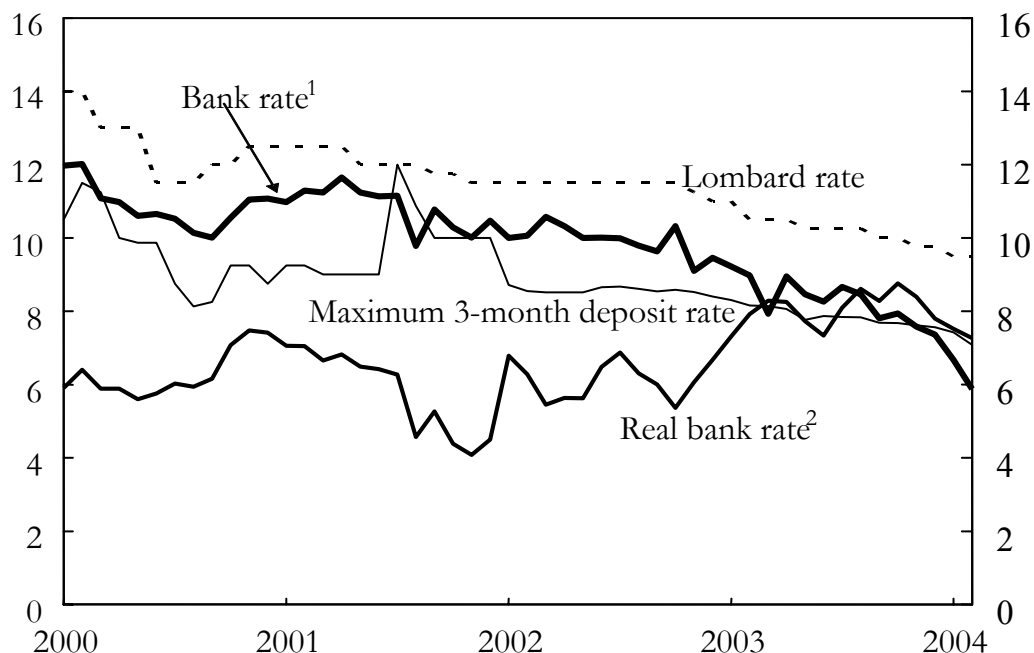
objective shifted to maintaining a broadly stable real effective exchange rate (Figure 8.4), with the authorities aiming at a gradual depreciation of the nominal exchange rate to compensate for the positive inflation differential with partner countries. The gradual nominal depreciation, together with the backward-looking characteristics of the wage-bargaining process, in which wage increases were based on past increases in the cost of living, is a critical factor in explaining why annual inflation has declined only slowly through the 1990s and early 2000s, from 10.5 percent during 1993 to 6.7 percent during 2002.

With the balance of payments in significant surplus since mid-2000, owing mainly to an improvement in the current account, the monetary policy of the BOM has been confronted with additional challenges. In this environment, the BOM opted up to mid-2003 for significant interventions in the foreign exchange market to preserve competitiveness, resulting in a sharp increase of its net foreign assets (from US\$665 million at end-June 2000 to US\$1.34 billion at end-June 2003 and US\$1.5 billion at end-December 2003), but was unable to fully sterilize the resulting increase in bank liquidity. Reserve money and money growth thus significantly exceeded the growth in nominal GDP—the annual average growth rates from end-1999 to end-2003 were, respectively, 9.9 and 10 percent—and velocity of money declined. At the same time, beginning in early 2002, the central bank lowered the Lombard rate in five steps, from 11½ percent to 9½ percent at end-January 2004. The rate of consumer price inflation in Mauritius remained broadly stable during this period, from 5.3 percent in the year ending June 2000 to 5.1 percent in the year ending June 2003.³⁷ In part, the stability in domestic inflation in Mauritius may be attributed to the declining and remarkably low inflation worldwide that has been witnessed over the past few years. The stability in inflation rates also in part reflects the confidence of investors in the Mauritian economy.

Since mid-2003 the BOM has shifted to a policy of less intervention in the exchange market, resulting in some nominal appreciation of the exchange rate and a fall in inflation, to 3.9 percent in the 12 months to December 2003. In the 12 months to September 2004, consumer price inflation picked up somewhat, to 4.8 percent, reflecting higher oil prices, leading the BOM to raise the Lombard rate to 9.75 percent in October.

³⁷There was a brief inflation spike to 6.3 percent in the year ending June 2002, as a result of increases in VAT rates and a cyclone.

Figure 8.6. Principal Interest Rates, January 2000–February 2004
(In percent)



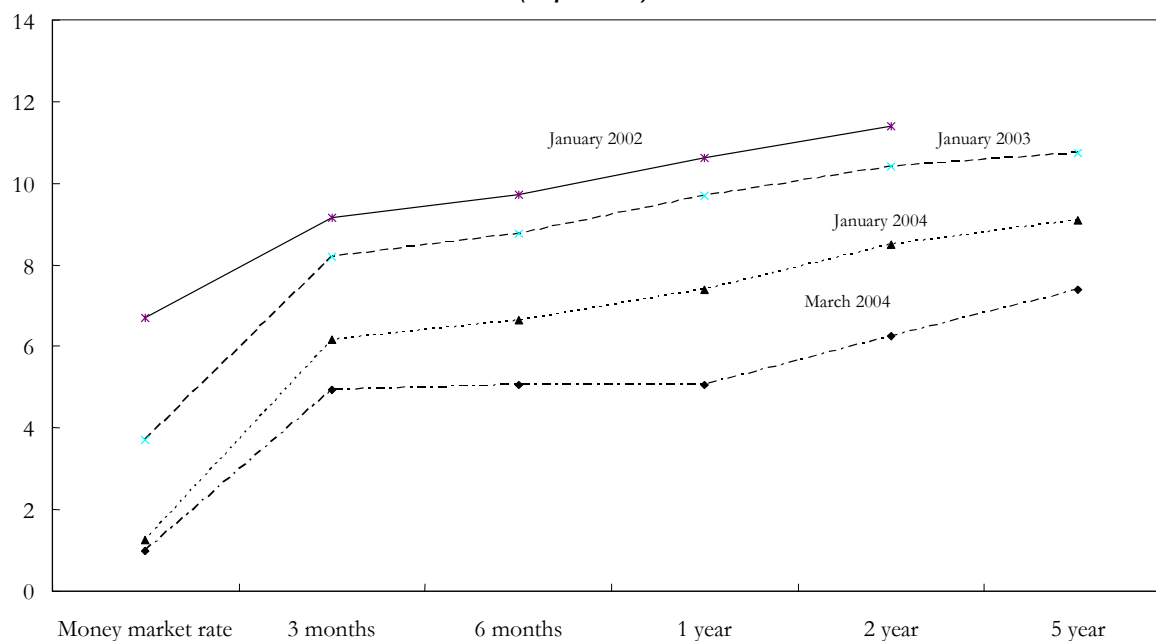
Source: Bank of Mauritius.

¹The bank rate is the weighted average of 1-, 6-, and 12-month treasury bill rates. It is used for central bank advances to the government.

²Discounted by the annual average consumer price inflation rate.

The experience in many countries shows that in the presence of a strong balance of payments surplus an appreciation of the real exchange rate is ultimately unavoidable, since sterilization operations can be very costly and ultimately self-defeating, as the higher interest rates caused by sterilization are likely to attract capital inflows. In fact, since 2003 the Bank of Mauritius has not fully sterilized the increase in net foreign assets and in government deposits, leading to excess liquidity. The commercial banks' reluctance to expand credit, because of concerns over the viability of the EPZ firms, also contributed to excess liquidity. Thus the treasury bill rates and the interbank rates have fallen sharply since mid-2003 and are now well below the Lombard rate (see Figure 8.6). The treasury bill yield curve has also shifted downward considerably since early 2003 (see Figure 8.7).

Figure 8.7. Yield Curve for Treasury Securities
(In percent)



Source: Bank of Mauritius.

An effort to model the Bank of Mauritius monetary policy in recent years has been presented in a paper by Porter and Yao (2004), whose findings are reported in Box 8.2. The analysis shows that the central bank, as can be expected, modified its objective for the short-term interest rates on the basis of the behavior of inflation, the real exchange rate, and the output gap. As the inflation target was reduced only very gradually, it is not surprising that changes in the short-term interest rate targets have also been small over time.

Box 8.2. Econometric Analysis of Bank of Mauritius Monetary Policy Rule

An effort to estimate econometrically the Bank of Mauritius monetary policy rule is contained in Porter and Yao (2004). It is assumed that the monetary rule of the central bank is similar to that recommended by Ball (1999) for small open economies: nominal interest rate i is set as a function of the output gap y , inflationary expectations are captured by L , the deviation between actual and expected inflation is $\pi - L$, the real exchange rate is q , as well as the desires to smooth the real interest rate. Thus,

$$i = L_t + \rho_s (i_{t-1} - L_{t-1}) + (1 - \rho_s) [\gamma_q q_t + \gamma_\pi (\pi_t - L_t) + \gamma_y y_t] + u_{st} \quad (1)$$

where $u_{st} = \rho_u u_{s,t-1} + \varepsilon_{s,t}$.

It is assumed that the behavior of the nominal interest rate is captured by two latent factors, the slope of the yield curve S (i.e., the difference between the long-run and the short-run interest rates), and the level of the yield curve,

$$i = L + S + \delta. \quad (2)$$

Thus L can be seen as representing inflationary expectations, and S as the real interest rate.

Replacing (2) in (1) we obtain:

$$S = \rho_s S + (1 - \rho_s) [\gamma_q q_t + \gamma_\pi \pi_t + \gamma_y y_t] + u_{st}. \quad (3)$$

The parameter in (3) should indicate the relative importance of each of the objectives of the BOM. If $\rho_s = 0$, S is determined by the monetary policy adjustment. If $\rho_s \neq 0$, monetary policy exhibits persistence, and adjustment is gradual.

The model contains a set of additional equations: an equation for the output gap, as a function of the expected output gap, lagged output, the real exchange rate, and the real interest rate; an equation for the inflationary expectations, as a function of past inflationary expectations and actual inflation, $L_t = \rho_L L_{t-1} + (1 - \rho_L) \pi_t + \varepsilon_{L,t}$; an equation for inflation, as a function of past inflation and the real exchange rate; and an equation for the real exchange rate, as a function of past real exchange rate and the real interest rate.

The model has been estimated by maximum likelihood for the informal inflation-targeting period July 1996–March 2004, using monthly data on government bond yields (for 3-, 6-, and 12-month maturities), annualized CPI inflation, and the real exchange rate calculated by the IMF's Information Notice System. As monthly output gap estimates are unavailable, seasonally adjusted monthly credit to the economy and to the private sector has been used as a proxy for the output gap.

The factor representing inflationary expectations L_t is extremely persistent, with ρ_L estimated at 0.992; this means that actual inflation carries a very small weight in the formation of inflation expectations.

The BOM's estimated monetary policy rule is

$$S_t = 0.9898 S_{t-1} + 0.11 [0.6674 q_t + 0.9301 (\pi_t) + 0.0096 y_t] + u_{st},$$

where $u_{st} = 1.17 \exp(-5) u_{s,t-1} + \varepsilon_{s,t}$.

Since the estimated $\rho_s = 0.989$, S_t is also highly persistent, which is consistent with the inertia in the BOM monetary policy setting, as it reduces only gradually the targeted inflation. It also indicates that the BOM has only a small influence on the short-term interest rate, with $1 - \rho_s = 0.0011$. The relative importance of the inflationary deviations, the output gap, and the real exchange rate are indicated by the estimates of γ_π , γ_q , γ_y , respectively 0.9301, 0.6474, and 0.0096. These estimates suggest that multiple objectives influence monetary policy, implying a flexible inflation targeting in Mauritius. It must also be noted that these parameters are estimated imprecisely, with none actually being significant. Finally, the estimate suggests there is no autocorrelation in unanticipated monetary shocks u_{st} .

Medium-Term Challenges and Concluding Remarks

The Factors Behind Sustained Growth

The discussion in the previous chapters leads to some key conclusions. First, the Mauritian growth performance since the 1970s has been exceptional.

Second, Mauritius's approach to openness was very country specific. It did not introduce a conventional trade regime, as its import regime during the 1970s, the 1980s, and much of the 1990s has been rather restrictive. As stressed by Rodrik (1999a) and Subramanian and Roy (2001), Mauritius was heterodox in the manner in which it prevented import taxation from becoming a tax on export and trade. Thus, the anti-export bias was offset by segmenting the export sector from the import-competing sector, and by heavy intervention to promote the former through more liberal labor market policies and through the tax system. The segmentation was achieved through the creation of the EPZ sector. However, the key factor that acted as an offset to the anti-export bias was the preferential access provided to Mauritius by its trading partners, mainly in sugar, but also in textiles and apparel. Thus, while some of the interventionism in Mauritius's trade and development strategy is reminiscent of the policies in some East Asian countries, trade performance was greatly assisted by the preferences granted by trading partners.

It should be noted that while Mauritius was able to offset the anti-export bias, it did not achieve a protrade bias, and did not register exceptional trade performance as in the case of the tigers of East Asia. Thus, Mauritian trade performance cannot by itself explain Mauritius's exceptional growth performance. The efficiency of the service sector, including ports, telecommunications, and financial services, should also not be underestimated as a contributor to growth.

It must be noted that other developing countries tried to exploit similar trade opportunities and pursued similar policies, but did not succeed as Mauritius did. To a great extent, strong domestic institutions have contributed substantially to the Mauritian success. In contrast to many developing countries, Mauritius has

since independence been a vibrant democracy and has developed strong participatory institutions, to promote inclusion rather than division among its ethnically diverse population. Indeed, Mauritius has succeeded in reaping the benefits of diversity, including strong ties between the local Indian and Chinese communities with their ethnic counterparts in the world.³⁸ The need to manage diversity led to the development of efficient political institutions and culture, including free and fair elections, the rule of law, an independent press, and respect of property rights, all factors that have attracted investments to Mauritius.

Thanks to a culture of respect for diversity, Mauritius avoided one of the major pitfalls made in most of resource-rich Africa, namely “destroying the cash cow.” Thus while many African countries heavily taxed the agricultural sector, the newly independent government of Mauritius steered away from this dangerous course. Instead, the majority Indian community left the minority Franco-Mauritian community to retain its ownership and stewardship of the sugar sector, in exchange for political control. The divide between the economic elite (a minority) and the political elite (the majority) and the need to achieve balance between the two in a newly independent state was resolved peacefully and in a “win-win” situation for both sides, by ensuring the fortunes of the sugar sector. In return, the prosperity of the business sector allowed for the extraction of some rent to maintain a relatively well-paid civil service, staffed predominantly by the majority Indian community, and to finance a generous system of social protection, particularly in the form of pensions. This can be considered an optimal system of rent sharing between political and economic elites, as noted by Subramanian and Roy (2001).

In conclusion, the Mauritian experiment rested on a successful interventionism that was made possible by the quality of the domestic institutions and political process. The future international trading environment is likely to be less favorable, because the preferential prices and access rights that Mauritius has been enjoying in the past will slowly but inevitably decline as global liberalization proceeds apace. However, the solid foundations of an efficient civil service and good educational and social achievements are likely to provide a strong basis for coping with the challenges ahead.

The Challenges for Policy

Some factors that contributed to the exceptional growth of Mauritius, specifically trade preferences, will be fading over the medium term. Thus the sugar sector and the EPZ, which centers on textiles (an engine of growth in the past that has

³⁸The benefits of diversity in the Mauritian case are analyzed in Subramanian and Roy (2001).

generated considerable value added), are facing the need for restructuring. Indeed, it is very likely that the sugar sector will gradually shrink, while the textile sector will need to specialize in niches where it can maintain some competitive advantage. The tourist sector still has prospects for expansion, but these are not without limits, given the constraints on available land resources. The authorities are fully engaged in responding to these difficult challenges, while the textile and sugar sector enterprises are taking important measures to strengthen their viability, by seeking to improve productivity.

Competitiveness in the textile sector particularly hinges on moderating labor costs that have increased significantly in recent years. A more flexible wage-bargaining system, which allows bargaining at the firm level, would be helpful in order to strengthen the link between wage increases and productivity growth. In addition, simplifying regulations on the conditions of employment, including limits on the ability of firms to redeploy workers, could promote the creation of jobs for low-skilled workers.

The continued diversification of the economy is essential in order to secure growth over the medium term. Sectors that are expected to contribute to growth are information and communication technology (ICT), financial services, wholesale and retail trade, and transport, in addition to tourism. The ICT sector had a promising start, with a number of foreign companies having expressed interest in opening facilities in Mauritius, although recently some companies seem to have changed their plans. Efficient port facilities are contributing to attracting high-value-added services in transportation that are oriented to servicing a regional market. There is also the potential to strengthen the private sector's contribution in the electricity sector and to other key infrastructures.

The success of the transformation of the economy hinges critically on maintaining macroeconomic stability and external competitiveness, while preserving social cohesion. A fiscal policy directed at reducing the persistent deficits, so as to allow a stabilization and subsequent fall of the high public debt, is essential in order to preserve stability and reduce the risk from external shocks. A reduction of the budget deficit from the 5.5 percent of GDP projected for 2003/04 to about 3 percent over the next five years would allow the public debt to fall from 73 percent at the end of 2003/04 to about 64 percent of GDP by 2007/08. Persistence of the budget deficit at current levels would lead to a debt of close to 80 percent by 2007/08, making public finances very vulnerable, as possible shocks to real GDP growth and real interest rates could rapidly raise the debt to about 100 percent and critically diminish the authorities' credibility in the management of public finances.

The monetary authorities have been successful in reducing inflation, and in this they have been helped recently by the strong balance of payments, which has contributed to some appreciation of the exchange rate. Looking ahead it will be important that the ample liquidity of the banking system be absorbed, in order to

make sure that it does not contribute to inflationary pressures. With the exchange rate mainly market determined, competitiveness can be fostered only through real productivity gains. Maintaining an appropriate competitiveness of the Mauritius economy will remain a key challenge for the future; moderation of labor costs, accompanied by adequate flexibility in the labor market and a continued upgrading of the quality of the labor force through investments in education and training, will remain an essential requirement in order to sustain the transition of the economy toward activities with rising value-added content.

References

- Acemoglu, D., S. Johnson, and J.A. Robinson, 2001, “The Colonial Origins of Comparative Development: An Empirical Investigation,” *American Economic Review*, Vol. 91, pp. 1369–1401.
- Ball, Laurence, 1998, “Policy Rules for Open Economies,” Research Discussion Paper No. 9806 (Sidney: Reserve Bank of Australia).
- Banerjee, Abhijit, and Lakshmi Iyer, 2002, “History, Institutions and Economic Performance: The Legacy of the Colonial Land Tenure System in India” (unpublished; Cambridge, Massachusetts: MIT).
- Barro, Robert, and Jong-Wah Lee, 2000, “International Data on Educational Attainment, Updates and Implications,” NBER Working Paper No. 7911 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Bosworth, Barry, and Susan Collins, 2003, “The Empirics of Growth: An Update” (unpublished; Washington: Brookings Institution).
- Cohen, Daniel, and Marcelo Soto, 2001, “Growth and Human Capital: Good Data, Good Results,” Technical Paper No. 179 (Paris: Organisation for Cooperation and Development).
- Craig, Peter, and Paul Ryberg, eds., 2004, *Mauritius-U.S. Trade Bulletin*, Vol. 10, No. 3 (April).
- Easterly, William, 2002, “Inequality Does Cause Underdevelopment: New Evidence,” Center for Global Development Working Paper No. 1 (Washington: Center for Global Development).
- , 2003, “Tropics, Germs and Crops: How Endowment Influence Economic Development,” *Journal of Monetary Economics*, Vol. 50 (January), pp. 3–39.
- Ebrill, Liam, and others, 2001, *The Modern VAT* (Washington: International Monetary Fund).
- Gulhati, R., and R. Nallari, 1990, “Successful Stabilization and Recovery in Mauritius,” *EDI Development Policy Case Series* (World Bank).
- Hall, Robert E., and Charles I. Jones, 1999, “Why Do Some Countries Produce So Much More Output Than Others?” *Quarterly Journal of Economics*, Vol. 114, No. 1, pp. 83–116.
- Herrmann, Roland, and Dietmar Weiss, 1995, “A Welfare Analysis of the EC-ACP Sugar Protocol,” *Journal of Development Studies*, Vol. 31, No. 6, pp. 918–41.
- Hinkle, Larry, and A. Herrou Aragon, 2001, “How Far Did Africa’s First Generation Trade Reforms Go?” (unpublished; Washington: World Bank).

- International Monetary Fund, 2003a, *Mauritius, Staff Report for 2003 Article IV Consultation*, IMF Country Report 03/319 (Washington).
- , 2003b, *Mauritius, Financial System Stability Assessment*, IMF Country Report No.03/321 (Washington).
- , 2003c, “Growth and Institutions,” Chapter III in *World Economic Outlook*, April (Washington).
- , and World Bank, 2002, “Market Access of Developing Country Exports—Selected Issues,” September (Washington).
- Jagers, K., and T.R. Gurr, 1995, “Tracking Democracy’s Third Wave with Polity III Data,” *Journal of Peace Research*, Vol. 32, pp. 469–82.
- Johansen, Soren, 1988, “Statistical Analysis of Cointegration Vectors,” *Journal of Economic Dynamics and Control*, Vol. 12, pp. 231–54.
- , 1991, “Estimation and Hypothesis Testing of Cointegrating Vectors in Gaussian Vector Autoregressive Models,” *Econometrica*, Vol. 59 (November), pp. 1551–80.
- , 1992, “Testing Weak Exogeneity and the Order of Cointegration in UK Money Demand Data,” *Journal of Policy Modeling*, Vol. 14 (June), pp. 313–34.
- , and Katarina Juselius, 1990, “Maximum Likelihood Estimation and Inference on Cointegration—With Application to the Demand for Money,” *Oxford Bulletin of Economics and Statistics*, Vol. 52 (May), pp. 169–210.
- Kaufmann, Daniel, Aart Kraay, and Pablo Zoido-Lobaton, 1999, “Aggregating Governance Indicators,” World Bank Policy Research Working Paper No. 2195 (Washington: World Bank).
- McDonald, Calvin, and James Yao, 2003, “Mauritius: Unemployment and the Role of Institutions,” IMF Working Paper 03/211 (Washington: International Monetary Fund).
- Milner, C., and A. McKay, 1996, “Real Exchange Measures of Trade Liberalization: Some Evidence for Mauritius,” *Journal of African Economies*, Vol. 5, No. 1, pp. 69–91.
- Porter, Nathan, and James Yao, 2004, “Inflation Targeting in a Small Open Economy: The Case of Mauritius” (unpublished; Washington: International Monetary Fund).
- Rodrik, Dani, 1999a, *The New Global Economy and Developing Countries: Making Openness Work* (London: Overseas Development Council).
- , 1999b, “Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses,” *Journal of Economic Growth*, Vol. 4, pp. 385–412.
- , Arvind Subramanian, and Francesco Trebbi, 2002, “Institutions Rule: The Primacy of Institutions Over Geography and Integration in

- Economic Development,” IMF Working Paper 02/189 (Washington: International Monetary Fund).
- Rumbaugh, Thomas, and Nicholas Blancher, 2004, “China: International Trade and WTO Accession,” IMF Working Paper 04/36 (Washington: International Monetary Fund).
- Sachs, Jeffrey, 2003, “Institutions Don’t Rule: A Refutation of Institutional Fundamentalism,” NBER Working Paper No. 9490 (Cambridge, Massachusetts: National Bureau of Economic Research).
- , and Andrew Warner, 1995, “Economic Reform and the Process of Global Integration,” *Brookings Papers on Economic Activity*, 1, pp. 1–95.
- , 1997, “Sources of Slow Growth in African Economies,” *Journal of African Economies*, Vol. 6, pp. 335–76.
- Schaechter, Andrea, Mark Stone, and Mark Zelmer, 2000, *Adopting Inflation Targeting: Practical Issues for Emerging Market Countries*, IMF Occasional Paper No 202 (Washington: International Monetary Fund).
- Stone, Mark, 2003, “Inflation Targeting Lite,” IMF Working Paper 03/12 (Washington: International Monetary Fund).
- Subramanian, Arvind, and others, 2000, *Trade and Trade Policies in Eastern and Southern Africa*, IMF Occasional Paper No. 196 (Washington: International Monetary Fund).
- Subramanian, Arvind, and Devesh Roy, 2001, “Who Can Explain the Mauritian Miracle: Meade, Romer, Sachs, or Rodrik?” IMF Working Paper 01/116 (Washington: International Monetary Fund).