

II. External Competitiveness of Mauritius

In the recent past, the growth performance of the Export Processing Zone (EPZ) sector in Mauritius, which accounts for the bulk of Mauritius's manufacturing exports, has declined substantially. During the last Article IV consultation discussions, many Mauritian representatives attributed this decline to a deterioration in Mauritius's external competitiveness, relative to competitor countries, affecting particularly the textile sector. However, their assessment has been essentially qualitative and based on anecdotal evidence, including the marked decrease in foreign direct investment to the EPZ sector, and the fact that Mauritius has not fulfilled its clothing quota in the U.S. market during the past two or three years. It was also suggested that the large wage increases granted in recent years have made labor costs in Mauritius much higher than in other textile producing countries such as China, India, Malaysia, or Thailand, and that these increases have not been compensated by higher productivity gains in Mauritius.

In a relatively preliminary fashion, this chapter looks at the available data (admittedly, of varying quality) to assess developments in Mauritius's external competitiveness. It is organized as follows: Section 1 presents the conceptual framework for analyzing competitiveness. Section 2 reviews the traditional competitiveness indicators, with their pros and cons, while Section 3 presents the results of calculations of these indicators for Mauritius. Section 4 discusses the trends in these indicators with respect to the equilibrium exchange rate and external performance.

1. Conceptual framework

A common approach to the analysis of competitiveness consists in comparing movements in exchange rates and prices, based on the concept of purchasing power parity (PPP). This approach predicts that the real exchange rate should tend to return to a constant long-run equilibrium after experiencing short-term shocks and, therefore, that nominal exchange rate movements tend to offset relative price movements. Indeed, deviations between the market exchange rate and the equilibrium exchange rate, defined as the rate that equalizes the prices of a common basket of goods in two different countries, are viewed as being short lived, since they should be eliminated by arbitragers purchasing goods in one country and selling them in another.

This approach to assessing competitiveness is valid only if one considers that the equilibrium real exchange rate is constant, which, in fact, is not necessarily correct. A useful framework for determining equilibrium exchange rates is based on the macroeconomic balance approach. ^{1/} It defines the equilibrium real exchange rate as the value that is consistent with internal and external balance over the medium term. Internal balance is normally defined as achieving the underlying level of potential output

^{1/} See Clark and others (1994).

consistent with both full employment and a low, sustainable rate of inflation. External balance is defined as achieving an equilibrium position in the current and capital accounts, which could be specified as the sustainable net flow of international capital that corresponds to equilibrium levels of national savings and investment over the medium term. Accordingly, the equilibrium real exchange rate will change in response to shocks that alter these balances. Such disturbances can be related, *inter alia*, to technological changes, shift in demand, changes in prices of natural resources, or political events.

Thus, the movements in real exchange rate indices do not necessarily mean misalignment or changes in competitiveness. The assessment of the latter is complicated by the fact that equilibrium exchange rates remain essentially a qualitative concept, being not observable and not easily calculated. This can explain why, in the empirical literature, it has been difficult to establish a clear link between real exchange rates indices and trade, especially in the short term.

As a complement to this macroeconomic approach to exchange rates, the competitiveness of a particular sector or industry can be assessed by comparing price or cost developments with respect to the main competitors. This more partial analysis usually helps in understanding the performance, as measured by market shares, of particular industries on the world markets.

2. Traditional competitiveness indicators

A variety of indicators are traditionally used to provide a broad assessment of developments in real exchange rates that may affect a country's ability to trade in world markets. These indicators differ primarily in their use of different price indices to deflate nominal exchange rates. The various deflators used include the consumer price index (CPI), GDP deflator, exports deflator, and unit labor costs. The real exchange rate is also often measured as the relative price of nontradable to tradable goods, based on the idea that the balance of trade in goods should equal excess demand in the market for nontradable goods. Then, a trade surplus can be eliminated and equilibrium in the market for nontradable goods restored by a rise in prices of nontradable goods relative to tradable goods (i.e., a real appreciation), as it will shift production from tradable to nontradable goods, and consumption from nontradable to tradable goods.

All these indicators have pros and cons. CPI-based real exchange rates are easily available, have a large product coverage, but reflect taxes and other institutional distortions, as well as prices of imported goods, thus making the associated measures of competitiveness less indicative of prices faced by producers. GDP-deflator-based real exchange rates reflect the ratio of the relative prices of nontradable to tradable goods at home and abroad, and, accordingly, movements in important determinants of trade flows, but are less frequently available and more imprecise measures. Export-deflator-based real exchange rates are more closely related to competitiveness for the home country in its export markets, are not affected by different trends in productivity among tradables and nontradables, but are subject to sampling bias (as this indicator does not include all

exportable goods, but only those goods that are priced sufficiently low to be exported) and are less comprehensive. Unit-labor-cost-based indicators compare more appropriately the profitability of nonlabor factors at home and abroad, and are defined similarly across countries, but are essentially focused on the manufacturing sector, and provide only a rough approximation of the relative incentives for labor allocation, because they are defined in terms of average instead of marginal labor costs, ^{1/} and are subject to large measurement errors. Finally, the relative price of nontradable to tradable goods may not be a reliable indicator of changes in competitiveness, especially when growth in labor productivity differs across sectors of the economy.

3. Competitiveness indicators for Mauritius

The competitiveness indicators discussed above have been calculated for Mauritius. The analysis of their evolution will be focused on the period from the mid-1980s to early 1990s, after the external balance of Mauritius experienced structural shocks in the early 1980s, with the implementation of financial adjustment policies and the liberalization of the trade regime.

The CPI-based real effective exchange rate computed by the IMF in its Information Notice System (INS) is presented on Chart 1. It shows that, after a marked depreciation between 1982 and 1987, this real effective exchange rate has remained broadly constant since 1988.

A relative price index of nontradable to tradable goods has been calculated based on the CPI index for Mauritius, detailed by major commodity group (see Chart 2). Housing, health, transport, recreation, and miscellaneous commodity groups constitute nontradable goods, while food, alcohol, clothing, and fuel constitute tradable goods. This relative price index, calculated on a monthly basis for the 1988-95 period, has been virtually constant over the whole of this period.

The other indicators, while not available on the INS system for developing countries, have been calculated based on the World Economic Outlook (WEO) data base, and using the same set of countries and weighting system as the ones used for the INS real effective exchange rate. These indicators are presented in Table 1.

The GDP-deflator-based indicator, while fluctuating substantially from year to year, shows a depreciation in the first half of the 1980s, and an overall appreciating trend since 1986. The export-deflator-based index, while also depreciating in the early 1980s, indicates a strong appreciation of around 40 percent between 1987 and 1993. Finally, the unit-labor-cost-based real exchange rate, which includes only industrialized countries as competitors to Mauritius, shows an appreciation of 20 percent between 1987 and 1993.

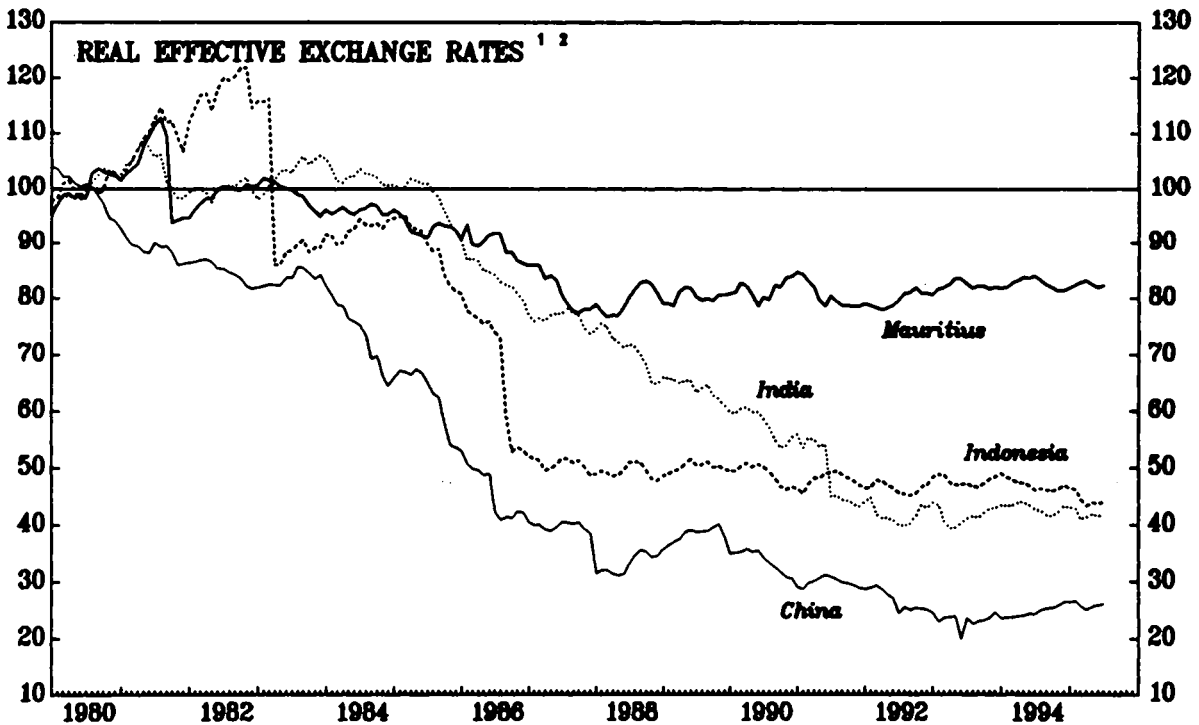
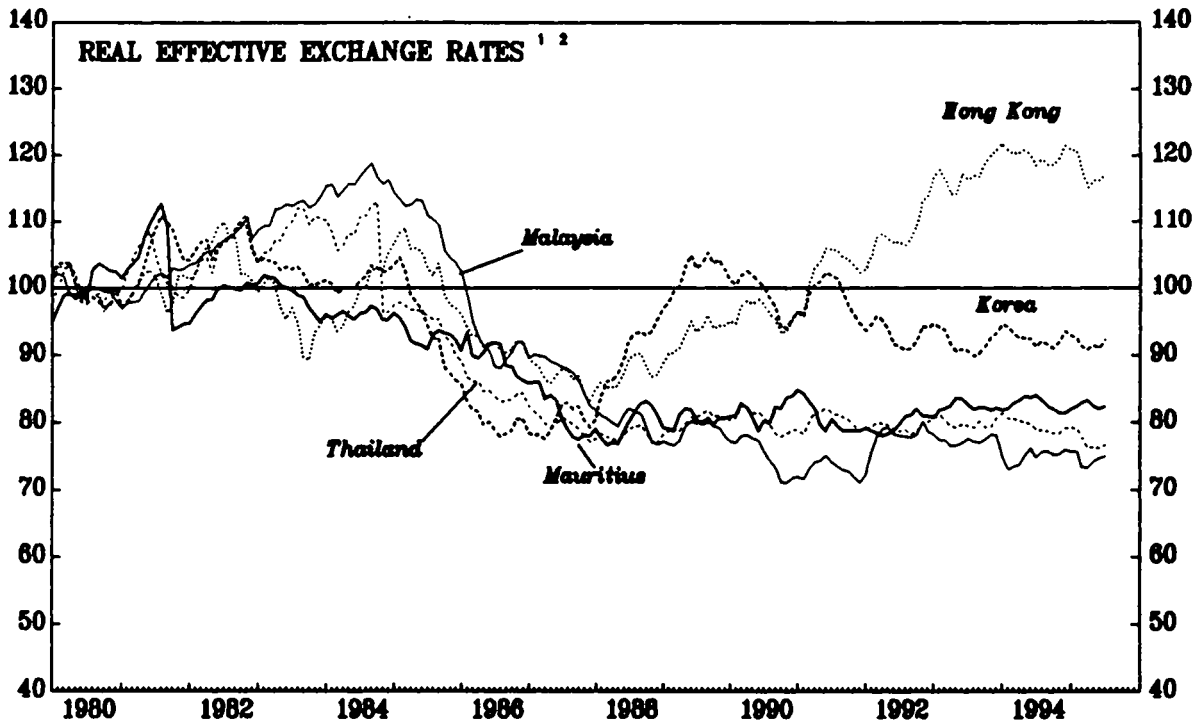
^{1/} In that respect, changes in unit labor costs may reflect only changes in capital/output ratio that are unrelated to competitiveness.

CHART 1

MAURITIUS

EFFECTIVE EXCHANGE RATE INDICES, 1980-95

(1980=100)

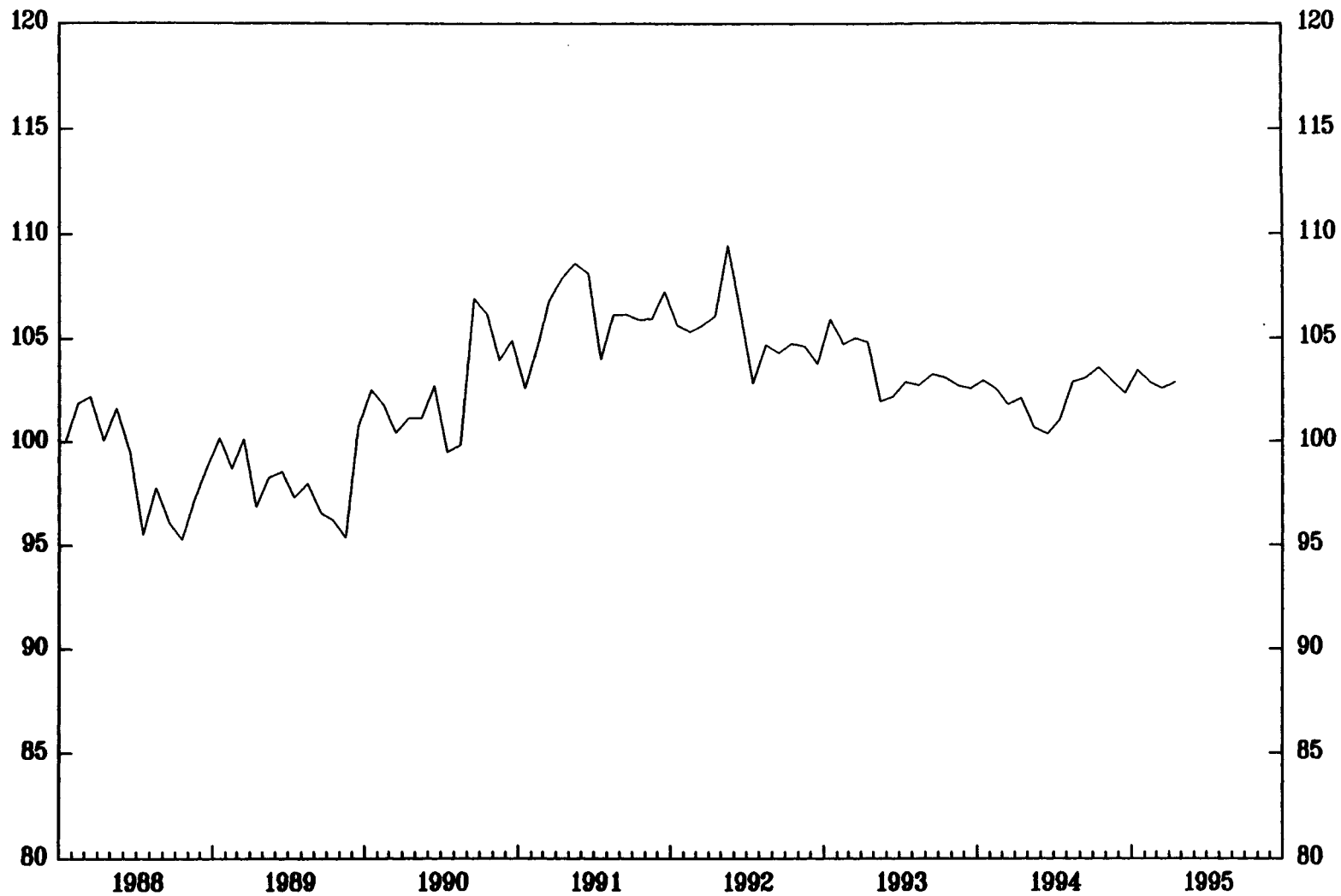


Source: IMF, *International Financial Statistics*.

1/ Information Notice System multilateral weights based on the geographical pattern of trade and tourism and including third-market effects in 1980-82 on average.

2/ Based on relative consumer prices.

CHART 2
MAURITIUS
RELATIVE PRICE OF NONTRADABLE TO TRADABLE GOODS, 1988-95
(Index, January 1988=100)



Sources: Central Statistical Office; and staff estimates.

**Table 1. Mauritius: Real Exchange Rate (RER) Indicators, 1980–93.
(1985=100)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
CPI-based RER <u>1/</u>	107.4	111.4	106.1	106.6	103.1	100.0	96.5	87.7	85.6	86.2	87.6	86.6	85.7	88.4
GDP-deflator-based RER	111.4	111.5	102.1	107.9	110.9	100.0	94.9	98.0	100.6	101.2	93.6	103.5	98.3	108.2
Export-deflator-based RER	103.6	106.1	96.0	97.3	100.2	100.0	90.1	90.2	101.0	101.3	89.3	107.1	104.9	125.6
Unit-labor-cost-based RER <u>2/</u>	90.6	95.5	105.7	100.0	93.8	94.6	103.1	103.1	90.8	99.8	98.0	114.0

Sources: Information Notice System (INS); World Economic Outlook (WEO) database; and staff estimates.

1/ From INS.

2/ Covers only industrialized countries as competitors.

These indicators, thus, differ somewhat in their conclusion as regards competitiveness developments between the mid-1980s and early 1990s. On the one hand, CPI-based indicators do not point to a deterioration in competitiveness over this period, while, on the other hand, GDP-deflator, unit-labor-cost-, and especially export-deflator-based indices show an appreciation (from a slight appreciation by the GDP-deflator-based indicator to a more significant one by the export-deflator-based indicator). As discussed in the previous section, the latter set of indicators are in principle related to competitiveness more closely than the former set. In particular, the measure of inflation, which is based on the CPI, may be biased downward as a measure of Mauritius's competitiveness, particularly since this index has been subject to the influence of price controls and subsidies for some basic necessities. This would lead to the conclusion that the observed real exchange rate has appreciated over the recent past.

One possible significant shortcoming of these indicators is that they may put too much emphasis on industrialized countries, when comparing the Mauritian economy to the rest of the world. The weighting system used puts 75 percent of total weights on industrialized countries. However, Mauritius competes on the world markets relatively more with other developing countries, in particular in the clothing sector, than with developed ones. It is indeed recognized that the bulk of EPZ production is at the lower end of the market. When comparing Mauritius with the group of nonindustrialized countries only, 1/ it appears that the real exchange rate appreciated significantly more between 1985 and 1993, from 15 to 100 percent, depending on the indicator.

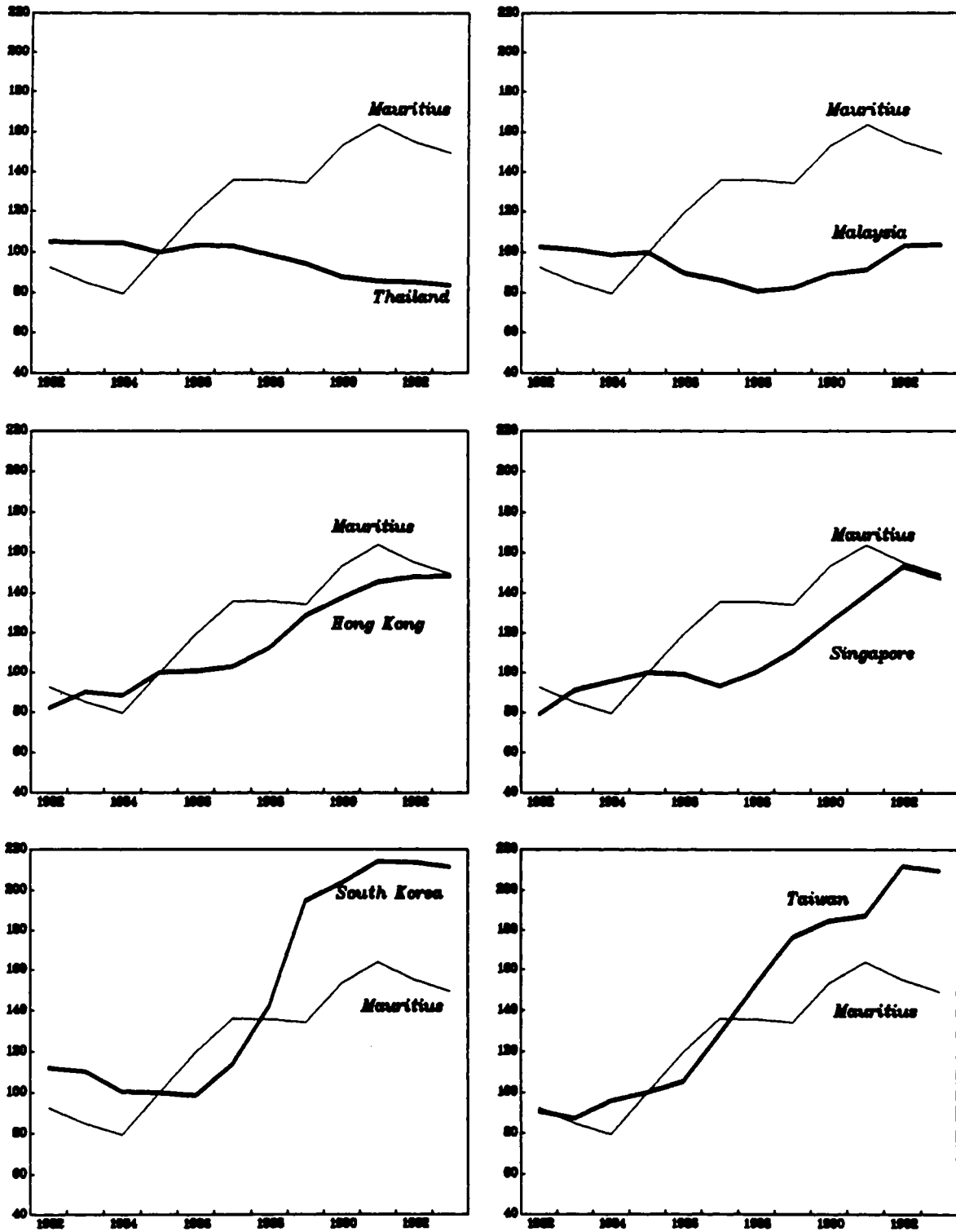
Other more industry-specific indicators were also calculated for some developing countries, which are Mauritius's competitors. First, unit-labor-cost indices in manufacturing over 1980-93 have been compiled from Fund sources for selected Asian countries, including Hong Kong, Malaysia, Singapore, South Korea, Taiwan, and Thailand (See Chart 3). These indicators show that since 1985, unit labor costs in Mauritius have grown between 50 and 60 percent faster than in Malaysia and Thailand, at about the same pace as in Hong Kong and Singapore, and around 50 percent slower than in South Korea and Taiwan. Second, other unit-labor-cost indices in wearing apparel industry and total manufacturing over 1985-91 were compiled from the UNIDO industrial statistics yearbook for Hong Kong, India, Indonesia, Malaysia, Morocco, Poland, South Korea, and Turkey (all are important producers of textiles and clothing) (see Tables 2 and 3). These indicators show that unit labor costs in Mauritius have grown in general much faster than in the countries considered. This has been either as a result of higher growth in labor cost, or slower growth in average labor productivity, depending on the country to which Mauritius is compared. 2/

1/ This groups includes China, Fiji, Guyana, Hong Kong, India, Kenya, Singapore, South Africa, and South Korea.

2/ Higher growth in average labor productivity (measured here by the value-added per employee) in competitor countries like Hong Kong may also reflect an upgrading to higher value-added products.

CHART 3

UNIT LABOR COST INDICES FOR MAURITIUS AND SELECTED ASIAN COUNTRIES, 1982-93 (1985=100)



Source: Staff estimates

Table 2a. Unit Labor Cost, Wearing Apparel Industry, 1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China					
Hong Kong	100.0		123.8	136.4	145.6
India	100.0	76.5	66.7	60.3	
Indonesia	100.0	69.0	63.5		
Malaysia	100.0		79.5	86.0	89.9
Mexico					
Morocco	100.0			173.2	177.9
Poland	100.0			84.9	
South Korea	100.0		165.9	157.3	152.3
Thailand					
Turkey	100.0		109.9	147.0	147.1
Mauritius	100.0		147.8	169.5	178.1

Table 2b. Average Total Labor Cost per Employee, Wearing Apparel Industry, 1/ 1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China					
Hong Kong	100.0		160.4	173.0	194.5
India	100.0	121.9	114.0	116.4	
Indonesia	100.0	82.7	90.9		
Malaysia	100.0		103.1	117.7	123.6
Mexico					
Morocco	100.0			166.4	176.7
Poland	100.0			70.3	
South Korea	100.0		232.0	260.0	304.7
Thailand					
Turkey	100.0		165.2	237.1	279.9
Mauritius	100.0		159.4	195.7	206.7

1/ Defined as the ratio of total labor cost to the number of employees.

Table 2c. Value Added per Employee, Wearing Apparel Industry, 1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China	100.0			108.9	100.4
Hong Kong	100.0		129.6	126.9	133.6
India	100.0	159.3	171.0	193.1	
Indonesia	100.0	119.9	143.2		
Malaysia	100.0		129.7	136.9	137.5
Mexico	100.0			83.4	81.0
Morocco	100.0			96.1	99.3
Poland	100.0			82.8	
South Korea	100.0		139.9	165.2	200.1
Thailand					
Turkey	100.0		150.3	161.3	190.3
Mauritius	100.0		107.8	115.4	116.0

Source: UNIDO industrial statistics yearbook, 1995.

Table 3a. Unit Labor Cost, Total Manufacturing, 1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China					
Hong Kong	100.0		121.0	129.9	135.7
India	100.0	100.1	87.7	85.5	
Indonesia	100.0	77.8	73.4		
Malaysia	100.0		82.9	89.5	90.2
Mexico					
Morocco	100.0			116.8	117.3
Poland	100.0			56.3	
South Korea	100.0		181.3	169.9	172.8
Thailand					
Turkey	100.0		109.8	158.3	181.2
Mauritius	100.0		142.9	162.2	175.7

Table 3b. Average Total Labor Cost per Employee, Total Manufacturing, 1/1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China					
Hong Kong	100.0		169.1	189.2	215.4
India	100.0	118.4	113.5	117.5	
Indonesia	100.0	88.7	93.9		
Malaysia	100.0		92.7	96.3	102.8
Mexico					
Morocco	100.0			141.8	148.8
Poland	100.0			77.2	
South Korea	100.0		238.4	269.0	313.9
Thailand					
Turkey	100.0		157.1	246.6	332.2
Mauritius	100.0		147.0	178.7	192.7

1/ Defined as the ratio of total labor cost to the number of people employees.

Table 3c. Value Added per Employee, Total Manufacturing, 1985-91.
(In US dollars, index 1985=100)

Country	1985	1988	1989	1990	1991
China	100.0			115.2	123.6
Hong Kong	100.0		139.8	145.6	158.8
India	100.0	118.3	129.4	137.3	
Indonesia	100.0	114.1	127.9		
Malaysia	100.0		111.9	107.6	114.0
Mexico	100.0			97.8	94.7
Morocco	100.0			121.4	126.9
Poland	100.0			137.2	
Korea	100.0		131.4	158.3	181.6
Thailand					
Turkey	100.0		143.0	155.8	183.3
Mauritius	100.0		102.9	110.1	109.7

Source: UNIDO industrial statistics yearbook, 1995.

The latter findings are supportive of the prevailing view of Mauritian representatives that Mauritius's competitiveness in the textile sector has deteriorated markedly, compared with the major producers among developing countries. In the context of the phased elimination of the Multi-Fibre Arrangement, this seriously raises the issue of the future of the textile sector in Mauritius.

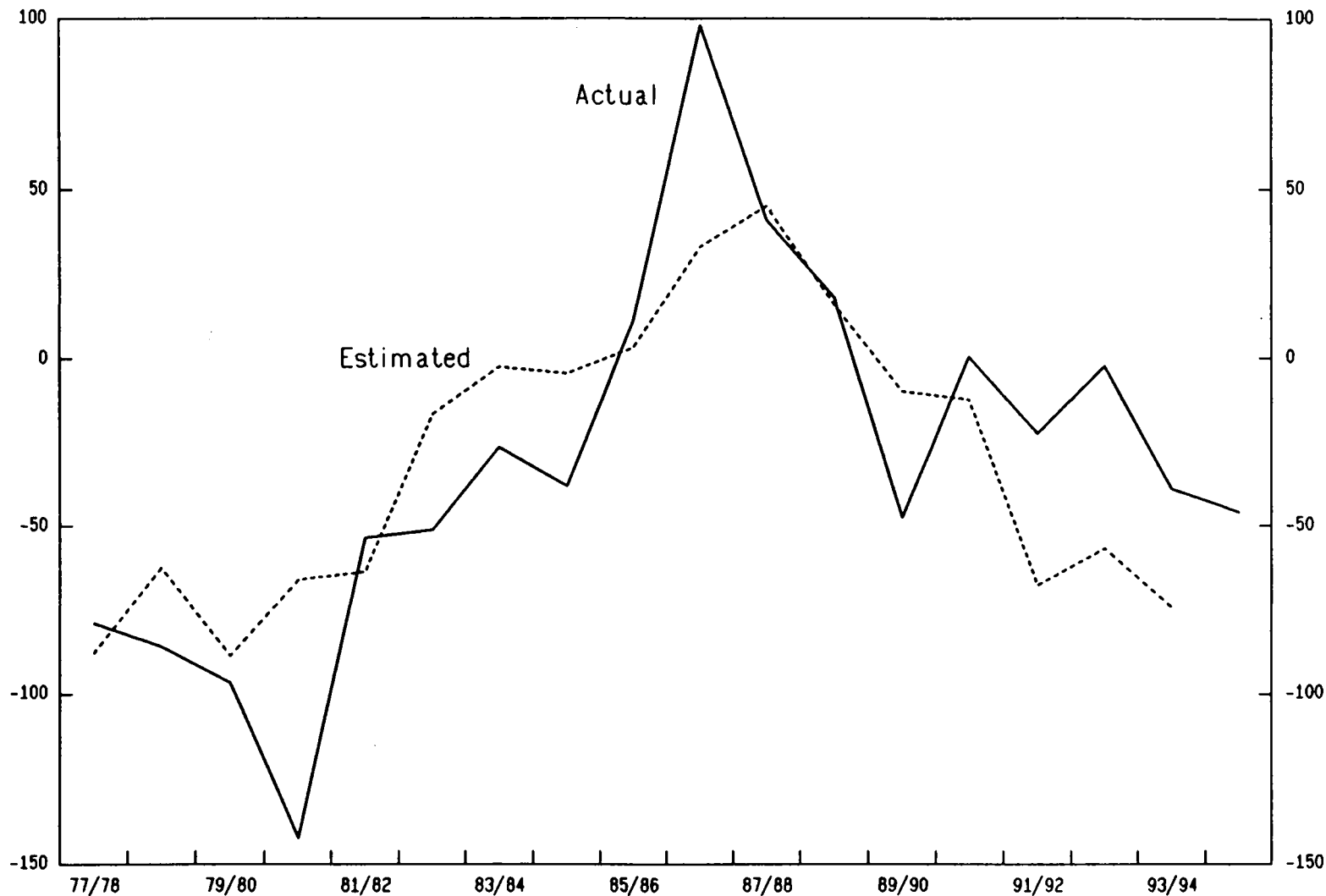
4. Equilibrium exchange rate and external position

As mentioned earlier, developments in real exchange rate indicators should be analyzed with respect to the equilibrium exchange rate. There are several ways of estimating equilibrium real exchange rates, which are based on comprehensive models of exchange rate determination (see in particular Edwards (1994) for an estimation on developing countries). Such an ambitious goal is not followed here, and the analysis is limited to trying to identify factors that could have affected the equilibrium real exchange rate in Mauritius. For the period 1987-94, where an appreciation of real exchange rate indicators has been pointed out, there is no evident factor that could have caused an appreciation of the equilibrium exchange rate: terms of trade have been broadly constant; the external trade environment has not particularly changed in favor of Mauritius's products; and, as indicated by the very sluggish productivity growth in the manufacturing sector since the early 1980s (see Chart 5 of the Statistical Annex), productivity growth does not seem to have been higher in the tradable sector than in the nontradable sector. On the contrary, some additional measures of trade and exchange payment system liberalization were implemented over this period, pointing to an eventual depreciation of the equilibrium exchange rate. Thus, on this basis, the appreciation of the real exchange rate indicators described in the previous section can reasonably be associated with some loss in external competitiveness.

The trends revealed by these indicators need also to be viewed in conjunction with those in the external accounts. Developments in the current account balance since 1977/78 (see Chart 4) show that after a significant improvement during the first half of the 1980s, the performance of the external sector has significantly weakened since 1986/87. This reversal is fairly well tracked by the export-deflator-based exchange rate indicator. ^{1/} A simple and rough estimation of a current account balance equation suggests that the real appreciation of 40 percent in this indicator

^{1/} The export-deflator-based indicator outperforms the other indicators in explaining current account developments. Also contributing is the growth in the trading partner countries; domestic demand indicators appear to be statistically not significant.

CHART 4
 MAURITIUS
 CURRENT ACCOUNT BALANCE, 1/ 1977/78-1994/95
 (in millions of SDRs)



$$\text{Current Account} = -238.2 \cdot \log(\text{reer_xp}) + 20.3 \cdot \text{gdp_part} + 1043.2$$

(3.5) (2.6) (3.3)

R-square = 0.58, F-Statistic(2,14) = 9.5, DW = 1.5

1/ Excluding imports of aircrafts and ships.

between 1987 and 1993 would have contributed to a decrease in the current account of around SDR 100 million. ^{1/}

However, additional information would be needed in order to infer exchange rate policy from this analysis. To do so requires one to assess whether the current account deficits experienced recently are sustainable over the medium term or not. On the one hand, one can observe that net foreign assets have declined substantially over the last three years, in relation to the lower levels of (mainly unidentified) capital inflows. Such a decline cannot be sustained over a long period even if the current level of reserves is still reasonably high. It is also possible that the real appreciation observed until 1993/94 may have further negative impacts, in particular in the textile sector, given the time lags with which changes in exchange rate exert their influence on the current account. On the other hand, the current relatively low level of external debt (at around 30 per cent of GDP) leaves some room for future external borrowing on appropriately suitable terms, without risking sustainability.

5. Conclusion

In this chapter, developments in Mauritius's real exchange rate indicators have been reviewed. These, put in perspective with considerations on the equilibrium exchange rate, indicate that the Mauritian economy has experienced a loss in its external competitiveness since 1987/88. More industry-specific indicators show that the textile sector has been particularly affected. These developments have been associated with a weakening in the external accounts. Given the context of the future liberalization of the world market in the textile sector, efforts to ensure competitiveness will be critical for the prospects of this industry in Mauritius.

References

- Clark, P., and others, "Exchange Rates and Economic Fundamentals: A Framework for analysis", IMF Occasional Paper no. 115, 1994.
- Edwards, S., "Real and Monetary Determinants of Real Exchange Rate Behavior: Theory and Evidence from Developing Countries", in Williamson, J., Estimating Equilibrium Exchange Rates (Washington: Institute for International Economics, 1994).

^{1/} The following estimation of a current account equation was made over the 1977/78-1994/95 period:

$$\text{CA} = - 238.2 \cdot \log(\text{reer_xp}) + 20.3 \cdot \text{gdpr_part} + 1043.2$$

(3.5) (2.6) (13.3)

where CA is the current account balance (excluding imports of aircraft and ships) in million of SDRs, reer_xp is the real effective exchange rate based on export deflators, and gdpr_part is the growth rate of real GDP in partner countries. Domestic demand variables were found not significant.