2 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

3

Table 2.1. Inheritance: Mauritius Versus Rest of World[1]

	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).
[1]The fast-growing countries include Thailand, Malaysia, Indonesia, China, Hong Kong SAR, and Singapore.
[2]Log of real GDP per economically active population in 1965.
[3]Probability that two randomly selected people from a country will not belong to the same ethnic or linguistic group.
[4]Growth of working age population minus growth of total population between 1965 and 1990.
[5]1 if it is landlocked, 0 if it is not. For a group it depicts the fraction of countries landlocked.
[6]Remoteness 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

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[1]Quoted 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.
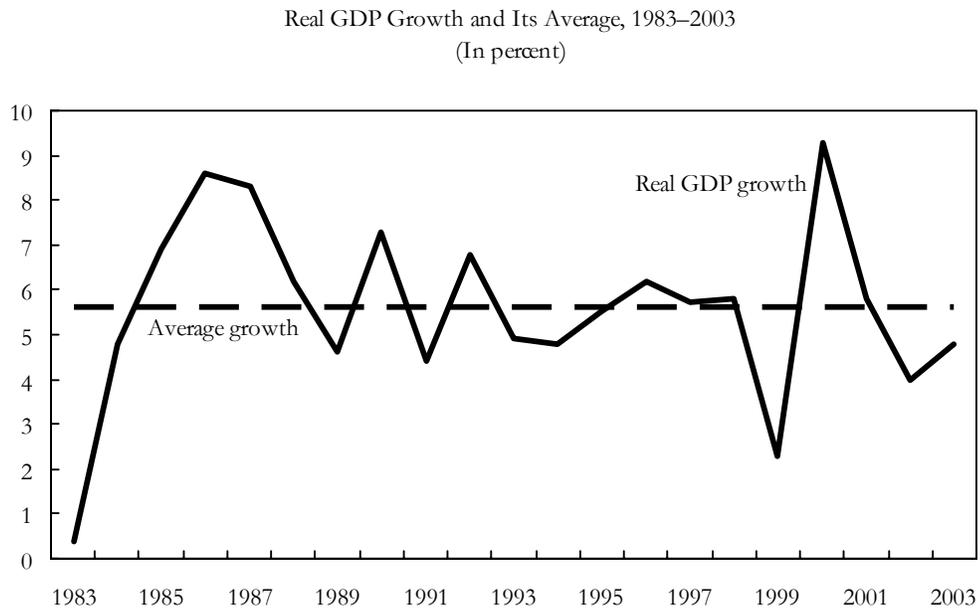
6

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.
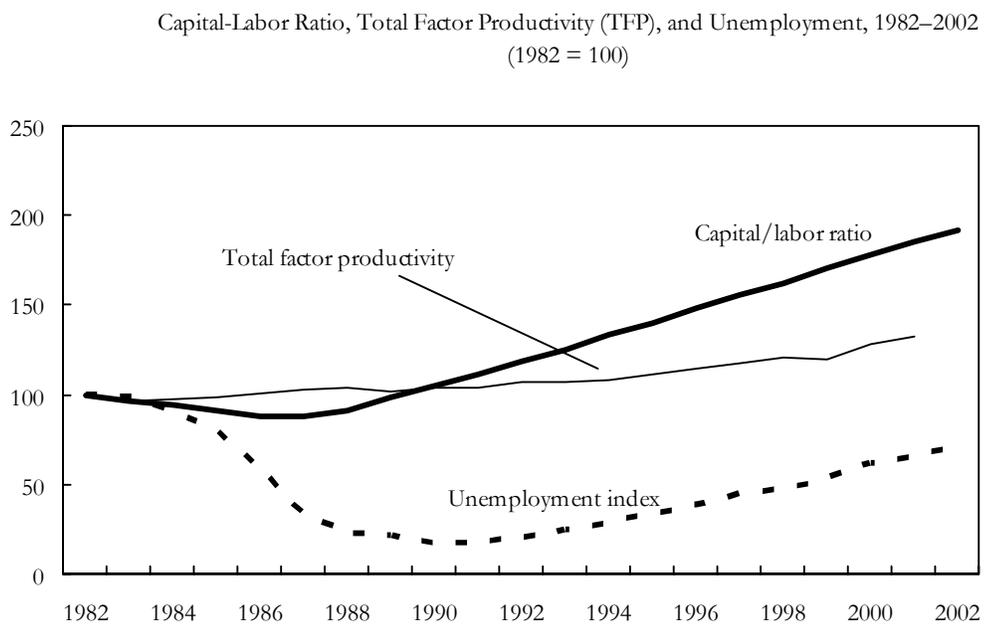
The successful diversification of the economy contributed to a sharp turnaround of the external current account. The large current account deficits of the late 1970s and early 1980s were eliminated in the second half of the 1980s. Sustained by the preferential agreements with the United States and the 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

Real GDP Growth and Its Average, 1983–2003
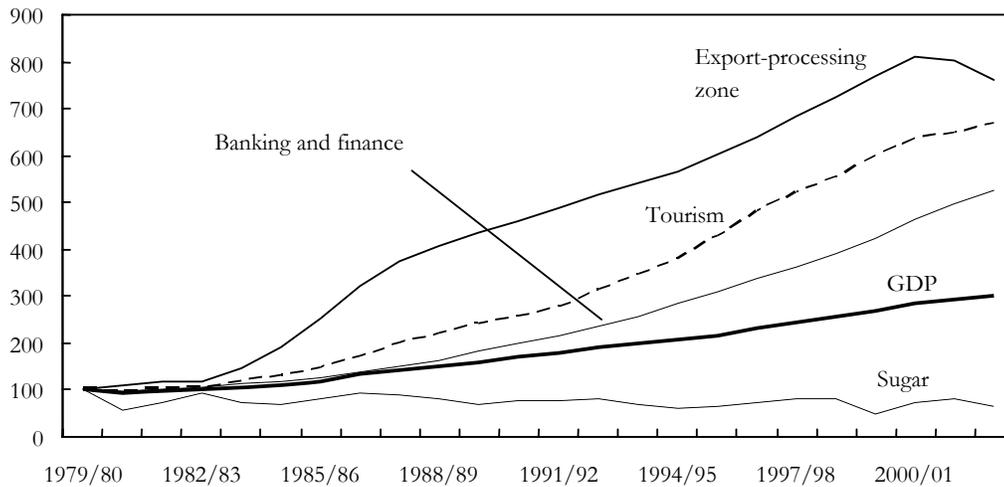(In percent)

Sources: Central Statistics Office and IMF staff estimates.

Capital-Labor Ratio, Total Factor Productivity (TFP), and Unemployment, 1982–2002
(1982 = 100)

Sources: Central Statistics Office and IMF staff estimates.
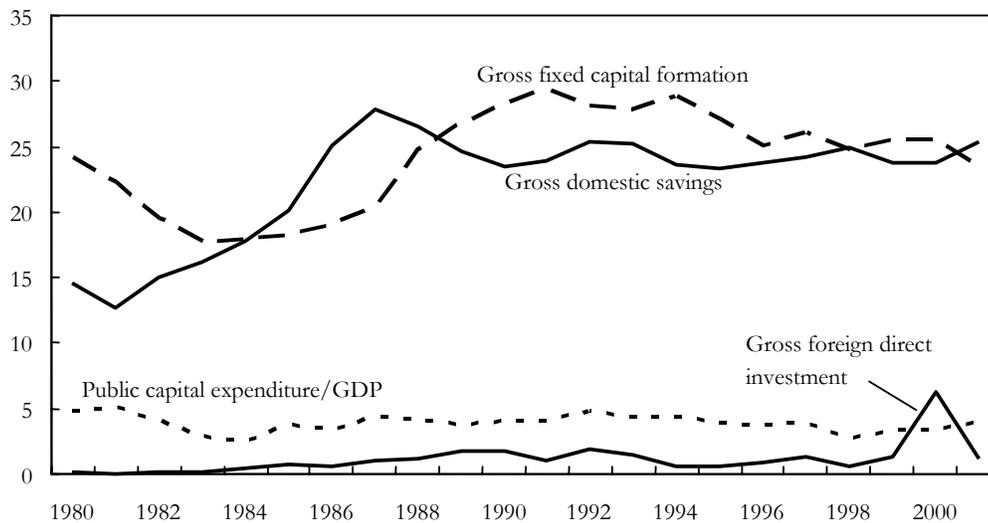
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Figure 2.1 *(concluded)*

GDP at Constant 1992 Prices, 1979/80–2002/03[1]
(Index, 1979/80=100)

Sources: Mauritian authorities and IMF staff estimates.

[1]Fiscal 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.

9

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

10

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

11

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

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[2]It 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.

[3]Bosworth 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).

[4]They 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.