

The Agricultural Sector of Mauritius

Economic Aspects
Past, present and future



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- The place of agriculture in the economy of Mauritius
- Evolution since 1968 to the present time
 - The sugar industry
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Highlights of the Economy of Mauritius

(Figures given are orders of magnitude and refer to the present time)

	Agriculture		Manufacturing		Tourism	Financial Services (c)
	Sugar(a)	Other	EPZ	Other		
Turnover - Rs. Billion	9.0	4.0	33.5	30.0	18.0	30.0 (d)
Contribution to GDP - %	4.5	3.5	11.0	10.6	6.0(b)	15.0
Numbers employed	22,000	26,000	82,000	52,000	40,000 (d)	20,000

- Includes sugar manufacturing
- Hotels and restaurants only
- Both onshore and offshore activities, as well as Freeport
- Estimated

Sources: (1) *Economic Indicators and Digest of Statistics – Central Statistical Office*
(2) *Various Annual Reports*

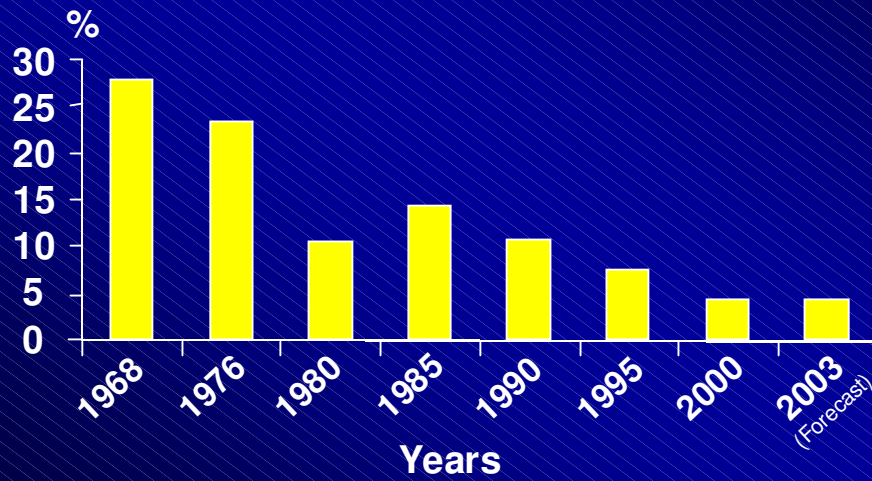
FLASHBACK Sugar Industry

	1968	1975	1980	1985	1990	1995	2000	2003(b)
Contribution to GDP - %	27.6	23.2(a)	10.5	14.2	10.7	7.6	4.4	4.4
Percentage of Total Exports - %	96.0	86.5	69.7	45.2	30.8	25.0	14.9	19.6(d)
Percentage of Employment (c) - %	45.3	33.5	25.9	21.6	14.1	12.2	9.5	6.0
Percentage of Total Employment - %	N/A	N/A	N/A	N/A	11.4	8.8	6.5	4.4

- Year 1976
- Forecast
- Establishments employing 10 persons or more
- Year 2002, provisional

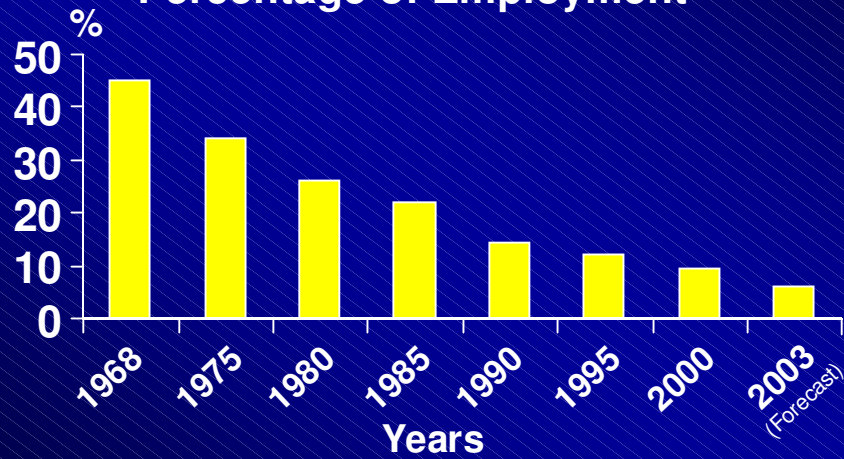
FLASHBACK - Sugar Industry

Contribution to GDP



FLASHBACK - Sugar Industry

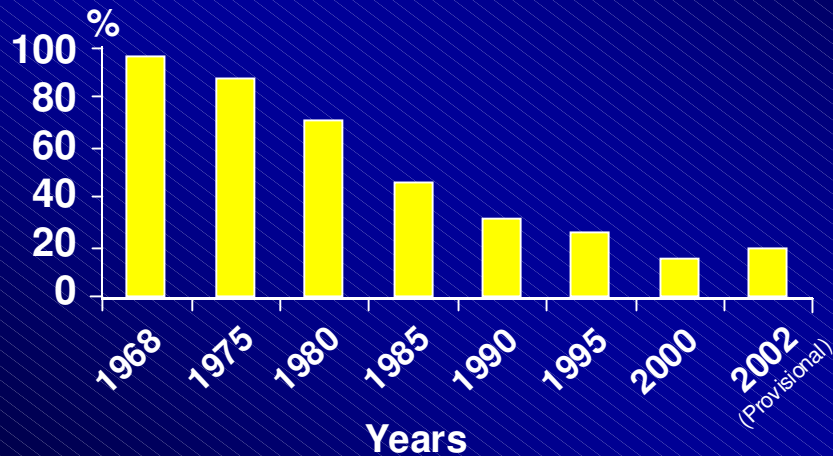
Percentage of Employment *



* Establishments employing 10 persons or more

FLASHBACK - Sugar Industry

Percentage of Total Exports



Over the last 35 years Reduced importance of the sugar industry

- Contribution to GDP – 6 times smaller
- Percentage of total exports – 6 times smaller
- Percentage of employment in large establishments – 7.5 times smaller
- Percentage of total employment – only 4.4 per cent at present, compared to 11.4 per cent in 1990

Physical Indicators – (1)

	1968	1975	1980	1985	1990	1995	2000	2002
Area under cultivation - ha	85,895	86,390	85,538	83,497	82,352	76,838	76,962	76,478
Canes harvested - thousand tonnes	5,152	4,316	4,564	5,583	5,548	5,159	5,110	5,792
Sugar production - thousand tonnes	596.5	468.3	477.0	645.8	624.3	539.5	569.3	645.6
Canes per hectare harvested - tonnes	64.4	54.0	57.6	71.6	72.7	71.6	69.9	79.1
Sugar per hectare harvested - tonnes	7.46	5.85	6.02	8.28	8.18	7.49	7.79	8.44
Number of sugar mills	23	21	21	19	19	17	14	12*

* Reduced to 11 in 2003

Physical Indicators – (2)

Observations

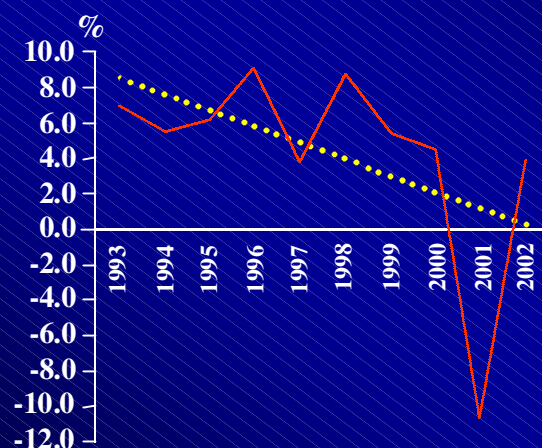
- Area lost to cane cultivation, over the last decade, is about 9500 hectares, i.e. 11 per cent of the 86000 – odd hectares under cane in 1968
- Under favourable climatic conditions, present day sugar production and sugar per ha. compare well with the past – cf. 2002 to 1985 for instance

Physical Indicators – (3)

- In 2002, a year of recovery after the drought of 1999, sugar per hectare harvested was 8.44 tonnes, i.e. only 5 per cent lower than in the record year 1973 (718,464 tonnes of sugar produced)
- Apart from the decrease in the land area under cane, are there other reasons for the reduced importance of the sugar industry?

Other Causes

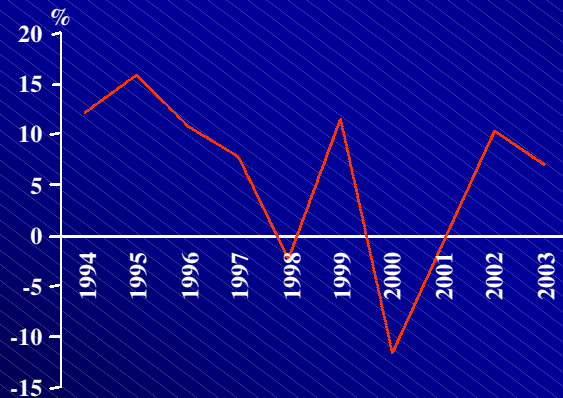
A – Internal to the sugar industry



- Generally downward trend of growth rate of the price indices of sugar exports, over the last ten years

Other Causes

B – Internal to the sugar industry



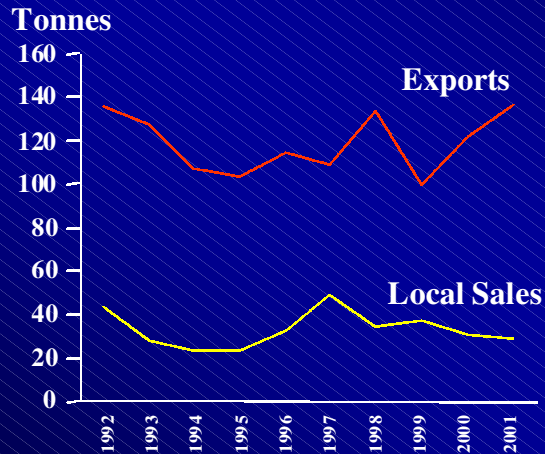
- Declining trend of the annual growth rate of the Ex-Syndicate price, coupled with instances of negative growth
- The average annual growth rate of the Ex-Syndicate price was 9.6% in the eighties, but only 5% during the last ten years

Other Causes

C – External to the sugar industry

- Rapid growth of manufacturing for exports (mainly garments and textile products) during the 80's and 90's, with consequential effects on employment and contribution to value added
- Constant growth and expansion of the tourism industry over the same period and with similar effects on employment particularly
- Emergence of the financial services, thanks to freeport and global business activities

Molasses



- Exports seem to be picking up again to return to the level of the early 90's

Alcohol Products



- It is interesting to observe that the exports of alcohol products have started since 1996, rising from 220,000 litres to 800,000 litres in 1998. The next few years averaged about 225000 litres per year, but in 2002 a peak of 980,000 litres was recorded.

Bagasse used for energy production

Years	Tonnes (million)	Percentage of Total Production of Bagasse %	Thermal generated units bought by CEB (Bagasse + Coal) Kwh (million)	Thermal % Total
1998	1.44	82.8	256.9	16.7
1999	0.92	72.2	343.8	24.2
2000	1.10	77.5	601.2	38.4
2001	1.14	65.4	710.2	42.9

Agricultural Production (other than sugar cane) Growth Rate (%)

	1996	1997	1998	1999	2000	2001
Tea and Tobacco	-25.1	-27.9	-11.6	-1.5	-9.7	13.6
Foodcrops, fruits and flowe	-1.4	1.3	-7.5	-7.2	31.8	4.7
Livestock and poultry	5.0	0.1	-12.4	12.7	22.3	6.5
Fishing	-10.6	-1.3	-20.4	7.4	-25.8	12.1

• Note the generally downward trends, except for livestock and poultry

Exports of agricultural products (other than sugar) As a Percentage of Total Exports

	1996	1997	1998	1999	2000	2001
Fish and fish preparations	2.5	2.9	2.6	2.6	2.5	2.5
Cut flowers and foliage	0.4	0.4	0.4	0.3	0.4	0.4
Vegetables and fruits	0.1	0.1	0.1	0.1	0.1	0.1
Wheat products	N/A	N/A	N/A	N/A	0.4	0.5
Tea	0.1	-	-	-	-	-
Live primates and live animals	N/A	N/A	N/A	N/A	0.7	0.7
Other (including food products)	1.8	1.9	1.3	1.5	0.7	0.5
TOTAL	4.9	4.3	4.4	4.5	4.8	4.7

-- means negligible

N/A means not available

- Exports of agricultural products stagnate below 5 per cent of total exports

Facing the future

- Agriculture at the crossroads
- Cane sugar
 - set to face stiff competition on the EU market
 - hence Sugar Sector Strategic Plan 2001-05, in course of implementation
- Other agricultural products
 - Significant boost required in terms of growth rate and exports
 - hence Non sugar Strategic Plan 2003-2007

Facing the future (contd.)

- Both plans will be reviewed during presentations later today
- For the rest of this presentation,
 - Focus on cane sugar, the core of Mauritian agriculture
 - Scope: comparison of key cost and productivity indicators (Mauritius/other countries)

Note of caution

- Source of comparative figures
 - A study carried out for the MSPA by LMC International in 1998
- Comparison worked out through averaging costs for a three year period; 1995-96 to 1997-98
- Five years later, comparison may have improved or worsened for Mauritius

Note of caution (contd.)

- No pretension therefore to establish a precise comparison
- Our objective: to give an idea of the weaknesses to be addressed in respect of sugar exports on unprotected/less protected markets

Index of F.O.B. Sugar Production Costs for selected countries

(average 1995-96 to 1997-98)

Mauritius – Index 100

	Cane Sugar Countries*	Beet Sugar Countries*
Less than Index 50	Brazil	
	Australia	
	Malawi	
Index 50	Zimbabwe	
50-100	Thailand	USA
	Fiji	
	India	
	Swaziland	
	South Africa	
	Guyana	
	USA	
100-150		Spain
		Netherlands
		France
Over 150		Germany
		Poland
		UK
		Italy

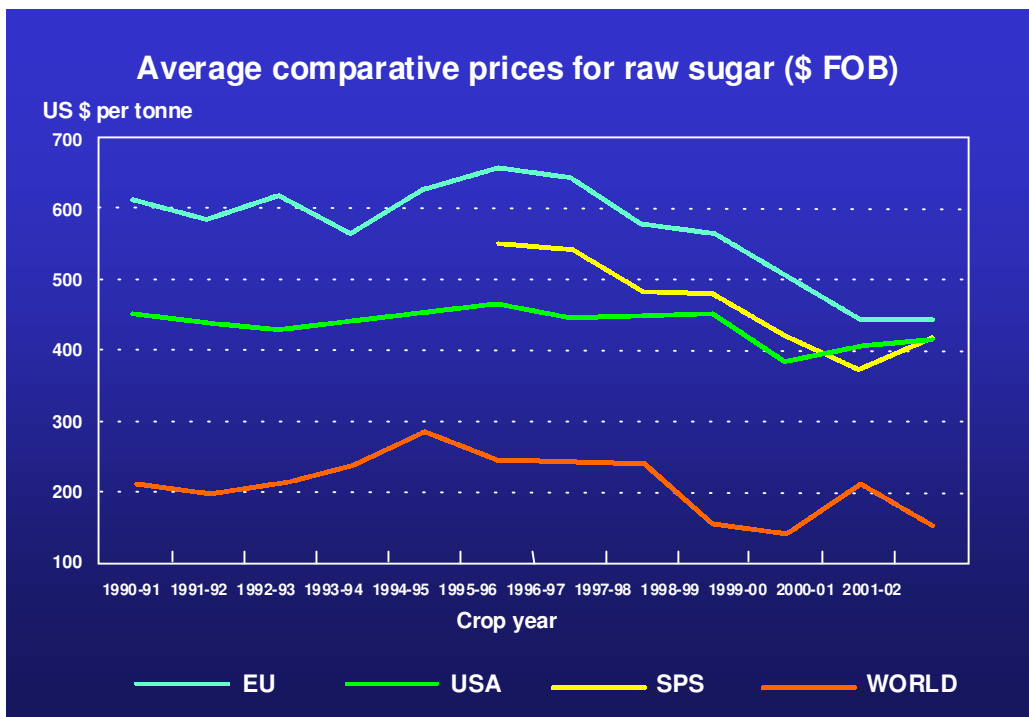
* Listed in ascending order of costs

Highest Cost Cane Sugar Producer

- In the average period 1995-96 to 1997-98, Mauritius was the highest cost cane sugar producer amongst the selected countries, which included ACP's and large producers (Australia, Brazil, India)

World Market Sugar Price v/s Production Cost Mauritius Sugar

- Per LMC study in 1998
- Long run average world sugar price
 - Raw US\$231 (equal to 53% of production cost of Mauritius sugar)
 - White US\$309 (equal to 71% of production cost of Mauritius sugar)
- Derived production cost of Mauritian sugar US\$435 per tonne (average period 1995-96 to 1997-98)



World Market Sugar Price v/s Production Cost Mauritius Sugar (contd.)

- Mauritius cannot compete on the residual world market
- Serious difficulties ahead if EU, US and SPS preferences are eroded
- Of paramount importance: reduce the production cost

Determinants of Production Costs

Productivity of Inputs

Sucrose yield

Factory Capacity

Length of Crushing season

Sugar per tonne cane

Price of Inputs

Land

Capital

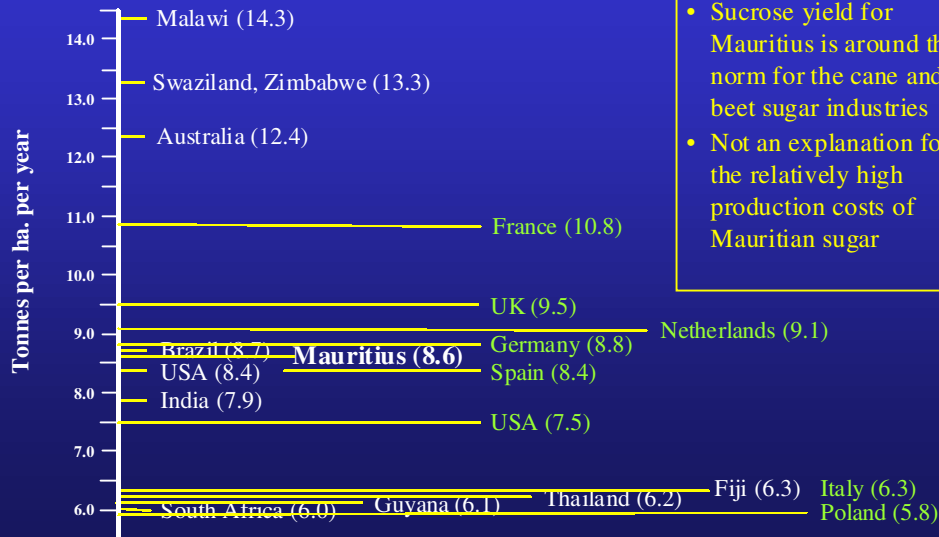
Labour

- The comparative exercise relates to the average period 1995-96 to 1997-98

Determinants of Production Costs (contd.)

- Rules to remember
 - the higher the productivity of an input, the lower the cost of production (this is a function and responsibility of management, subject however to institutional/government policy restrictions/interference)
 - the lower the price of inputs, the lower the cost of production (usually prices are determined by the market and/or institutional intervention, i.e. outside the control of producers)

Sucrose Yield (tonnes per ha. per year)



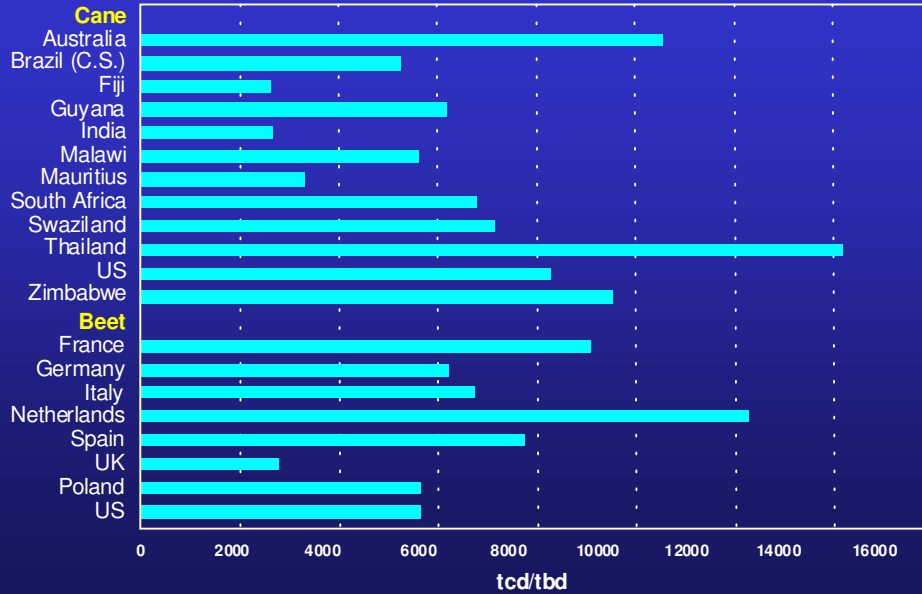
- Sucrose yield for Mauritius is around the norm for the cane and beet sugar industries
- Not an explanation for the relatively high production costs of Mauritian sugar

Sucrose Yield (tonnes per ha. per year)

France (10.8)
 UK (9.5)
 Netherlands (9.1)
 Germany (8.8)
Mauritius (8.6)
 Spain (8.4)
 USA (7.5)
 Italy (6.3)
 Poland (5.8)

- Sucrose yield for Mauritius is around the norm for the cane and beet sugar industries
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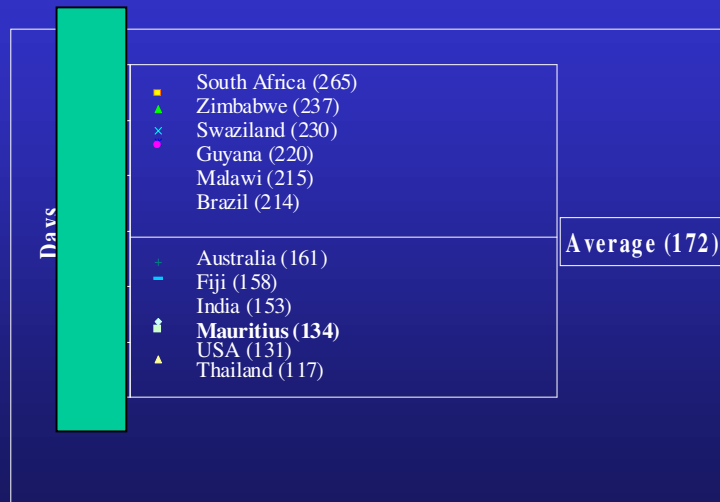
Average daily factory capacity (tcd/tbd), Average 1995/96-1997/98



Factory Capacity (contd.)

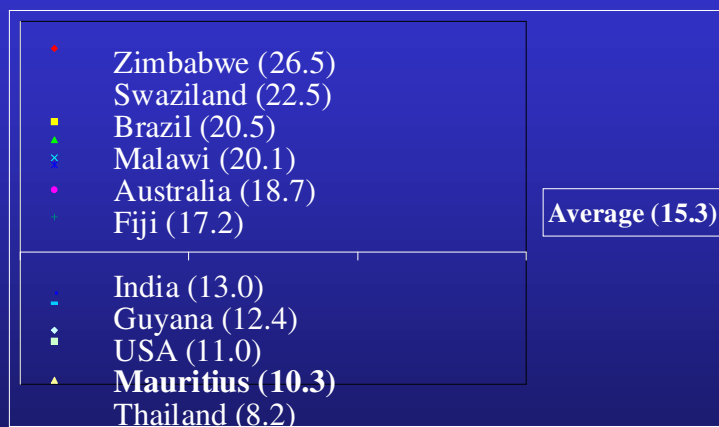
- Average factory capacity and utilisation (3700 tonnes cane per day in 2002) is low by international standards
- Need to streamline structure of milling sector (since 2003, only 11 mills left operating)

Length of Crushing Season Cane sugar producers



- Mauritius has one of the shortest crushing seasons amongst the selected cane sugar producers

Tonnes of sugar per tonne cane



- The Mauritius ratio is one of the lowest and is below the average of 15.3

Price of Inputs

- Three out of the four productivity of inputs ratios have proved unfavourable, namely factory capacity, the length of the crushing season and the quantity of sugar produced per tonne cane
- Next exercise: examination of price of inputs, for same average period 1995-96 to 1997-98
- Three components
 - Land
 - Capital
 - Labour

Land

- Not retained in the LMC comparative analysis
- From an economic point of view, there is an opportunity cost for land under cane cultivation: the area could be devoted to other gainful activities (in Mauritius: other agriculture, tourism, ...)

Land (contd.)

- Given the small geographical size of Mauritius, the opportunity cost of land stands to be relatively higher than in large countries
- Hence, the necessity for the other inputs of the sugar industry (labour and capital) to be both productive and reasonably priced

Capital

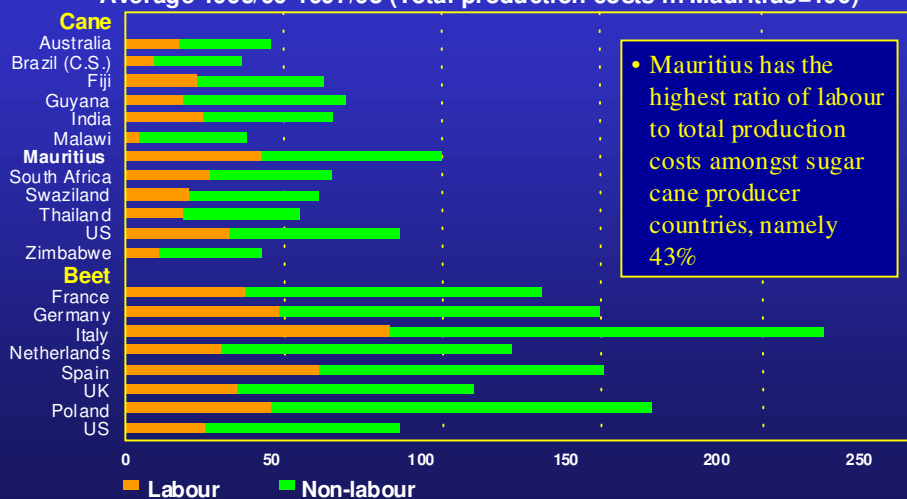
- Capital goods are traded internationally
 - A new state-of-the-art mill is expected to have a relatively similar cost from country to country
- The main differentiating cost factor is the choice of technology
 - The higher the cost of a unit of labour, the greater the incentive to invest in modern, mechanised and automated equipment so as to reduce labour input and utilise productive/efficient capital units. Capital is substituted for labour

Capital (contd.)

- The reverse is equally true. The lower the cost of a unit of labour, the lower the need to install modern and more productive/efficient technological equipment. Labour is substituted for capital
- Thus, because of the trade-offs explained above, the price of capital goods tends not to be what differentiates production costs between countries

Labour

Index of total labour and non-labour costs in sugar production
Average 1995/96-1997/98 (Total production costs in Mauritius=100)



Why? – (1)

- Field labour costs are equal to 80% of total labour costs. This is the highest ratio of all the countries included in the comparison exercise
- Largely permanent employment in the field
- Proportion of full time workers in the factory: 93% (highest of all countries – both cane and beet – except for Swaziland)

Why? – (1) (contd.)

- Short working hours

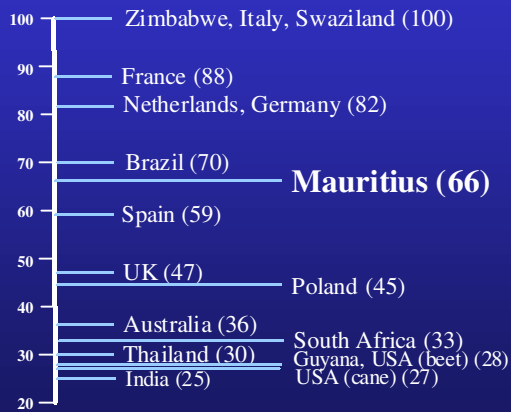
Average number of hours per employee per week in the field



Why? – (2)

- The impact of fringe benefits

Non-wage costs as a Percentage of the Basic Wage in the factory (1997)



- Mauritius is amongst the high non-wage costs countries

What next?

- Key observations during that presentation
 - Reduced role of agriculture (stagnation of export price, less land area, growth of other industries)
 - But employment (48000 persons) equal to nearly 10 per cent of economically active population
 - Exports of sugar equal to some 20 per cent of total exports
- Therefore, agriculture, particularly sugar, still an important contributor to the economy

What next? (contd.)

- The threats
 - External (e.g. erosion of protection)
 - Depends on outcome of decisions and negotiations
 - Mauritius: Just one player out of many
 - Internal (e.g. productivity deficiencies vis-à-vis other producers, comparatively higher cost of inputs)
- How to respond to internal threats
 - Continued implementation of Sugar Sector Strategic Plan 2001-05
 - Requires full partnership and consensus of all stakeholders, namely government/regulatory institutions, (owners, managers, trade unions and workers)