



Caribbean Labour Market
Information Project Report



Saint Lucia Government
Statistics Department

Establishing Labour Productivity Indicators for Saint Lucia

**The National CLMIS report on the compilation of labour productivity indicators
for Saint Lucia for the period 1986 to 2001 and details of the methodology
utilized**

**Richard K. Harris, National
Specialist for the productivity
indicators activity of the
CLMIS
Castries, October 2003**

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Introduction

The importance of labour productivity indicators in Saint Lucia

Prolonged spells of economic uncertainty, coupled with the development of public and private policies aimed at cultivating a more competitive local, regional and international environment, have significantly augmented the demand for a more valid and comprehensive set of economic indicators. In this regard, the measurement of changes in the productivity of labour must be viewed as a critical addition to the current range of consistently available statistics on Saint Lucia's economy.

Labour productivity indicators will provide policy makers, local business establishments and international investors the means to adequately detect and eliminate inefficiencies within the production process that can eventually lead to lower real costs and greater competitiveness.

Within the Saint Lucia Government Statistics Department the development of productivity indicators opens up new opportunities to satisfy the need for critical information needed to achieve the national development aims. At the national level, the Lucia Government Statistics Department is the main institution instructed by law to:

- 1) "Collaborate with departments of Government and with local authorities in the collection, compilation, analysis and publication of statistical records..." and
- 2) "Organise a co-ordinated scheme of social and economic statistics relating to this island".

Therefore, the department naturally assumed the role of lead agency for the CLMIS Project in Saint Lucia and undertook the responsibility that was originally accepted by the Department of Labour. The statistical department's direct involvement in the project's computation of labour productivity indicators, for Saint Lucia, secured easy access to the relevant production, national accounts and labour force data and practical expertise that was required to ensure an expedient execution and sustainability of the exercise.

The relation with the CLMIS

The CLMIS Project initiated, supported and guided the whole effort expended by the Statistics Department in the calculation of labour productivity figures for the total economy and manufacturing industry of Saint Lucia. A training workshop conducted by the project was instrumental in the dissemination of tools, including technical worksheets, information and knowledge that guaranteed the successful implementation of the work that aimed to not only compute local productivity statistics but also make those statistics internationally comparable. Comparability would be achieved through the harmonization of methods employed by the lead agencies throughout the region. Financial and technical sustenance of all procedures

involved in the process of calculation was also provided by the project and included the invaluable assistance of Dr. Adam Szirmai, Professor of Development Studies at the Eindhoven University of Technology in The Netherlands

Challenges and Recommendations

Challenges experienced during implementation of the project activities can be grouped in the following categories:

1. *Product Matching*. The process of matching locally manufactured commodities with US products proved to be the most tedious procedure of the productivity exercise. In several instances, some local products were left unmatched due to vague product descriptions and inappropriate units of measurement. The most notable omission was that of beer, stout and malt products. Regretfully, these products were left out of the unit value calculations, although they contribute substantially to Saint Lucia's manufacturing base. [For example, in the year 2001, beer, stout and malt products represented 28 percent of value added for the manufacturing industry.](#)
2. *Lack of input data*. Unavailability of an Appropriate Series of Data on Employment, Labour Costs Payments and other Missing Data Values
3. *Developmental and other challenges*. [Computing productivity indicators is not an institutionalised activity within the CSO of Saint Lucia and the input data, although available from some of the "in-house" databases are not compiled or tabulated on a regular basis. There is a need for a redeployment of human and non-human resources that would facilitate a consistent presentation of productivity statistics.](#)

Based on the challenges confronted and the options for developing productivity indicators in Saint Lucia, the following recommendations are advanced:

1. *Improvement of input data*: The consolidation of productivity data collection methods and sources would enhance the quality of the productivity calculations. National Accounts questionnaires have already been modified to supply data on hours worked, payments to labour and the number of persons employed by industry. Therefore, in future productivity calculations, National Accounts tables will offer all the input data required to produce the CLMIS productivity indicators. This would limit the extent to which final productivity figures are affected by differences in reference periods, data coverage and other conceptual definitions employed by varying data sources.
 - a) An extensive and comprehensive data collection effort to furnish information on prices and products within the Tourism Industry that is vital to Saint Lucia's economy. This would allow comparisons between productivity of the local tourism sector to that of competitors participating in the same or similar markets.
 - b) Include the collection of input data to include the calculation of internationally comparable productivity indicators to other important industries, like Agriculture and Construction.
2. *Dissemination of the indicators*: Productivity data dissemination should essentially be targeted at the Manufacturers' Association, the National

Development Corporation, the Economic Council, the Chamber of Commerce, the Research and Policy Division of the Ministry of Finance, the Department of Labour and other relevant departments of government.

3. *The need for follow up activities.* The relationship developed among the CLMIS Project, the group of international specialists and the Statistics Department is imperative to the provision of funds and expert assistance that would help sustain the following future activities:
 - a) Institutionalise the series of Productivity Indicators for Saint Lucia after the initial launching of the series. This should include:
 - i) Assign the responsibility to produce the data the series on an ongoing basis to the most appropriate unit (please specify) of the CSO.
 - ii) Allocate staff for the routine aspects of the ongoing production of the series of productivity indicators. At least two staff members of the CSO should be trained in the methodology.
 - iii) Design a project to implement the developmental aspects of the recommendations presented above. If funding is acquired for this project a national specialist can be contracted to implement these recommendations.

4. *Increased collaboration between agencies involved:* As outlined previously, the longevity of the relationship established among the CLMIS members, the international specialists and the Saint Lucia Government Statistics Department is most important to the provision of future productivity estimates. For unit value calculations, the issue of an additional list of products and services that are common to all CLMIS member countries within the region should be considered. Such a list would make the comparability of regional productivity indicators more plausible. Also, the harmonization of data collection methods across the region would be useful.
 - a) Increase collaboration between statistical and other agencies involved in producing and using productivity indicators with the objective of exchanging best practices in calculating productivity indicators in CARICOM region. More specifically it is recommended to:
 - 1.1.1 The ECCB takes a supporting and facilitating role in the computation of labour productivity data with respect to the ECCB countries.
 - 1.1.2 Establish ongoing communication between the responsible unit within CSO and its counterparts of Statistical Departments of the sister countries in the region. The objective is to exchange information and experiences in this area. In this way, some standardization in the collection of data, concepts and definitions and procedures could be attained.
 - 1.1.3 Develop a product list for the ECCB countries, so that all countries can calculate their unit value ratios based on the same list.
 - 1.1.4 Promote the use of the ILO bulletin board and web conferences to compare ideas and consolidate methods.

2 Estimates of productivity levels in Saint Lucia

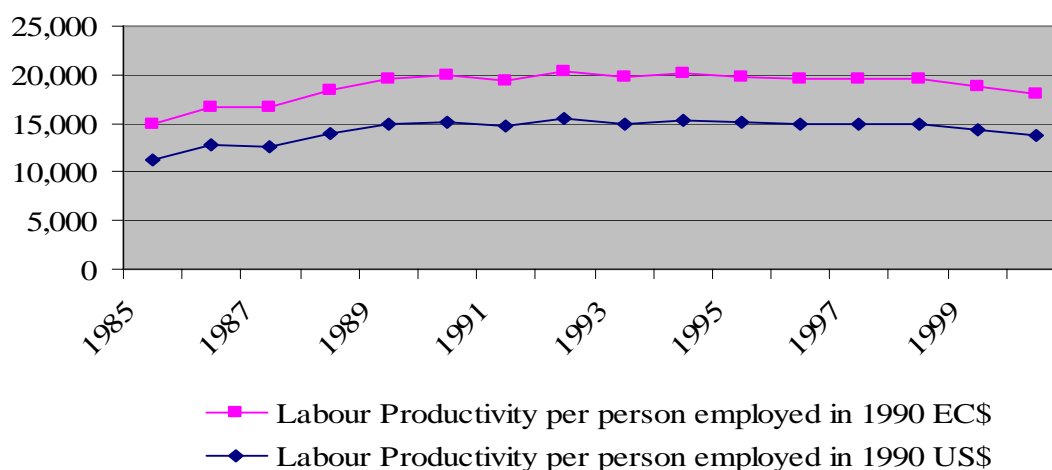
2.1 Labour productivity in the total Saint Lucian economy

2.1.1 *Labour productivity levels in the total Saint Lucian economy*¹

In the total economy of Saint Lucia Labour Productivity per employed person has declined by 11.5 percent during the nineties, down from a high of 1990 EC\$20,394 or 1990 US\$15,516 in 1992 to 1990 EC\$18,040 or 1990 US\$13,725 in 2000. This decline is more pronounced if Labour Productivity per hour worked is analysed. This indicator shows a 13.8 percent decline of productivity for this period: from a high of 1990 EC\$ 10.57 (1990 US\$8.04) in 1992 to 1990 EC\$ 9.11 (1990 US\$6.93) in 2000. While Labour productivity declined GDP continued to expand in this period, although at a slower pace than during the eighties and the early nineties.

Figure 1

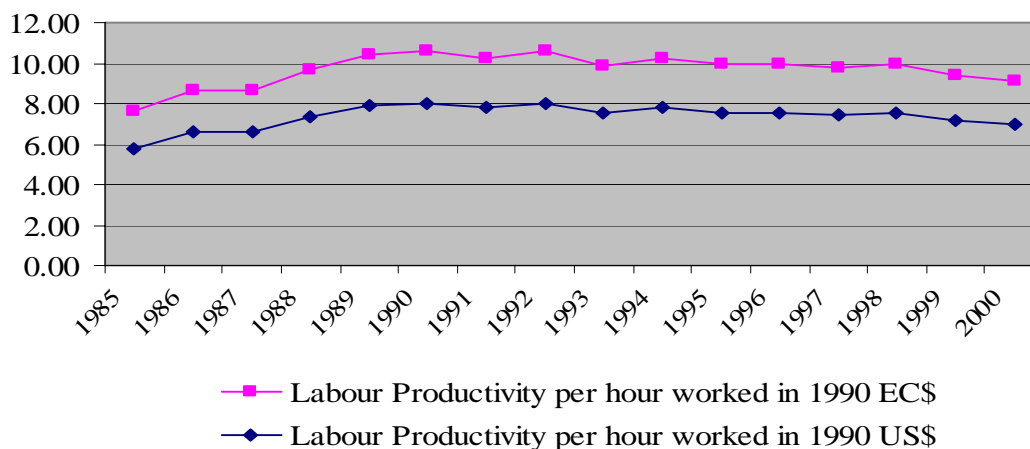
Value added per person employed in constant 1990 EC and 1990 US dollars in the total economy in Saint Lucia



Source: Saint Lucia Government Statistics Department

¹ GDP per hour worked was not computed due to difficulties experienced with input data for hours worked.

Value added per hour worked in 1990 EC and 1990 US dollars in the total economy in Saint Lucia



Source: Saint Lucia Government Statistics Department

Table 1.1 Total GDP in 1990 US\$, GDP per Employed person in 1990 EC\$ and US\$, GDP per hour worked in 1990 EC\$ and US\$ for the total economy in Saint Lucia in the period 1985-2001

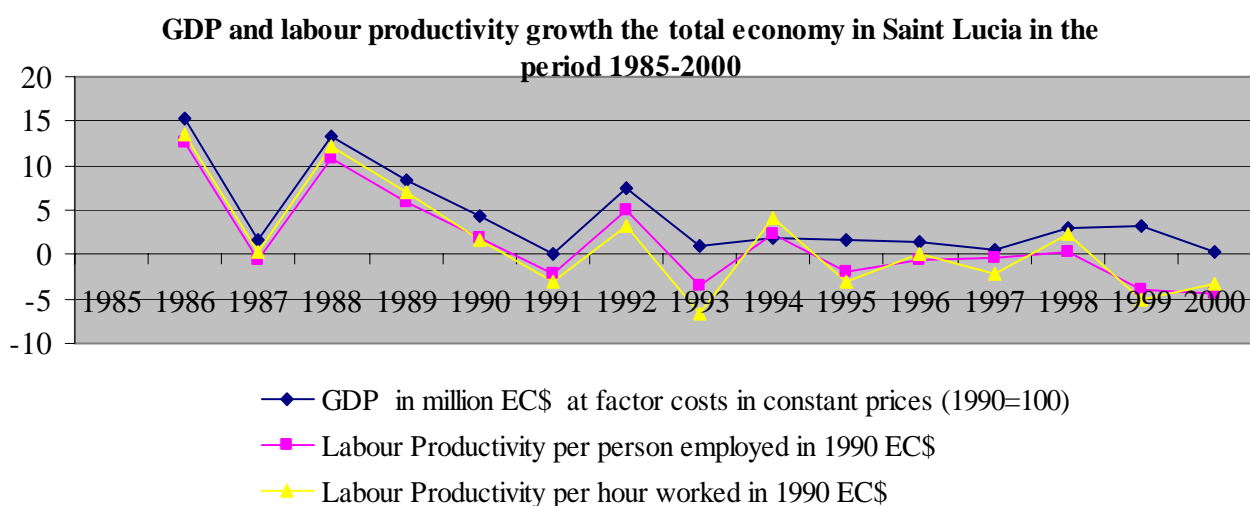
Year	Labour Productivity Indicators					
	GDP in million EC\$ at factor costs in constant prices (1990=100)	Labour Productivity per person employed in 1990 EC\$	Labour Productivity per hour worked in 1990 EC\$	SLU-GDP fc constant prices in million 1990 US\$ (Expenditure PPPs)	Labour Productivity per person employed in 1990 US\$	Labour Productivity per hour worked in 1990 US\$
1985	633.5	14,885	7.59	482.0	11,324	5.78
1986	730.2	16,761	8.62	555.6	12,752	6.56
1987	742.6	16,651	8.65	565.0	12,669	6.58
1988	841.6	18,435	9.71	640.3	14,026	7.39
1989	912.5	19,524	10.38	694.2	14,855	7.90
1990	951.1	19,880	10.56	723.6	15,125	8.04
1991	951.8	19,435	10.24	724.1	14,786	7.79
1992	1,022.4	20,394	10.57	777.8	15,516	8.04
1993	1,033.1	19,683	9.86	786.0	14,975	7.50
1994	1,052.0	20,142	10.26	800.4	15,324	7.81
1995	1,069.9	19,758	9.95	814.0	15,032	7.57
1996	1,084.5	19,633	9.96	825.1	14,937	7.57
1997	1,090.7	19,574	9.73	829.8	14,893	7.40
1998	1,124.2	19,619	9.95	855.3	14,926	7.57
1999	1,159.0	18,849	9.43	881.8	14,341	7.18
2000	1,161.4	18,040	9.11	883.6	13,725	6.93

Source: Saint Lucia Government Statistics Department

Growth of Labour Productivity was positive in the 1985 to 2000 period; Value added per person employed and per hour worked grew both at an annual average of 1.4%. However, the downward trend of labour productivity levels in Saint Lucia during the nineties is best reflected by the negative average annual growth rate of productivity:

1. Labour productivity measured as Value Added per person employed, declined at an average annual rate of -0.7%. Value added per hour worked showed a sharper decline in productivity of -1.1% annually.
2. A more worrisome aspect of the decline of productivity during the nineties is that the decline accelerated in the 1997-2000 period. While the decline averaged -0.2% and -1.1% annually between 1991 and 1996 the decline accelerated between 1997 and 2000 to annual average of 2.7% and 2.1% (see table below).
3. The high GDP growth rates of the late eighties and the early nineties coincided with high rates of productivity growth. Similarly the low growth rates of the late nineties coincide with negative productivity growth.

Figure 2



Source: Saint Lucia Government Statistics Department

Table 1.2 Average annual change in GDP, Labour Productivity per person employed and Labour Productivity per hour worked in 1990 EC and US dollars in Saint Lucia 1985-2000

Period	GDP (fc) in million EC\$ in constant prices (1990=100)	Labour Productivity		GDP fc in constant prices in million 1990 US\$ (Expenditure PPPs)	Labour Productivity	
		Per person employed in 1990 EC\$	Per hour worked in 1990 EC\$		Per person employed in 1990 US\$	Per hour worked in 1990 US\$
1985-1990	8.6	6.1	7.0	8.6	6.1	7.0
1991-1996	2.0	-0.2	-1.1	2.0	-0.2	-1.1
1997-2000	2.1	-2.7	-2.1	2.1	-2.7	-2.1
1985-2000	4.2	1.4	1.4	4.2	1.4	1.4
1990-2000	2.2	-0.7	-1.1	2.2	-0.7	-1.1

Source: Saint Lucia Government Statistics Department

Table 1.3: Percent annual change in GDP in 1990 US\$, GDP per person employed in 1990 EC\$ and GDP per person employed in 1990 US\$ for the total economy in Saint Lucia in the period 1991-2001

Year	GDP (fc) in million EC\$ in constant prices (1990=100)	Labour productivity		GDP fc constant prices in million 1990 US\$ (Expenditure PPPs)	Labour productivity	
		Per person employed in 1990 EC\$	Per hour worked in 1990 EC\$		Per person employed in 1990 US\$	Per hour worked in 1990 US\$
1985						
1986	15.3	12.6	13.6	15.3	12.6	13.6
1987	1.7	-0.7	0.3	1.7	-0.7	0.3
1988	13.3	10.7	12.3	13.3	10.7	12.3
1989	8.4	5.9	6.9	8.4	5.9	6.9
1990	4.2	1.8	1.8	4.2	1.8	1.8
1991	0.1	-2.2	-3.0	0.1	-2.2	-3.0
1992	7.4	4.9	3.2	7.4	4.9	3.2
1993	1.1	-3.5	-6.7	1.1	-3.5	-6.7
1994	1.8	2.3	4.1	1.8	2.3	4.1
1995	1.7	-1.9	-3.1	1.7	-1.9	-3.1
1996	1.4	-0.6	0.1	1.4	-0.6	0.1
1997	0.6	-0.3	-2.2	0.6	-0.3	-2.2
1998	3.1	0.2	2.2	3.1	0.2	2.2
1999	3.1	-3.9	-5.1	3.1	-3.9	-5.1
2000	0.2	-4.3	-3.4	0.2	-4.3	-3.4

Source: Saint Lucia Government Statistics Department

2.2 Labour productivity in the Saint Lucian manufacturing sector

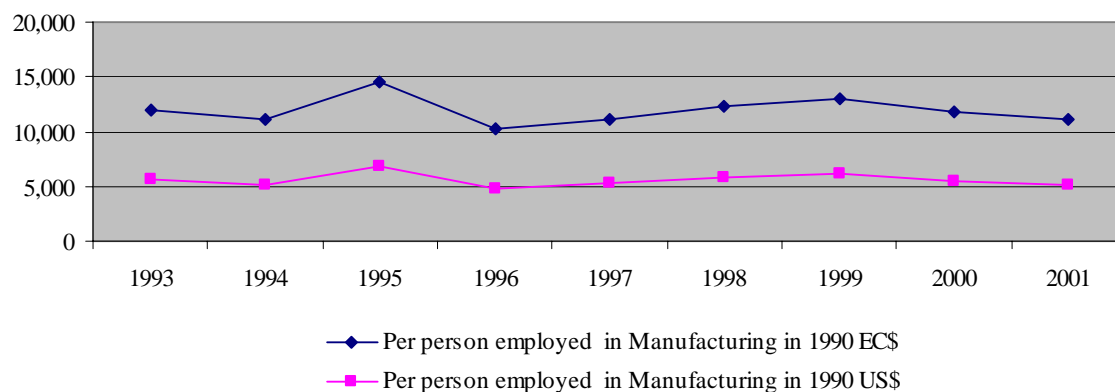
As part of the Caribbean Labour Market Information System (CLMIS) Project, internationally comparable productivity indicators were compiled for the Manufacturing sector. Due to the availability of input data, the time series on Labour Productivity had to be limited to the 1993-2000. The lack of input data on hours worked and compensation of employees labour hampered the computation of labour productivity per hour worked and Unit Labour Costs² which could not be computed.

The decline of Labour Productivity levels in Saint Lucian manufacturing -measured by GDP per employed person- is less pronounced than the decline of found in the total economy (figure 3 and table 1.3). Over the period 1993-2001 GDP per employed person fell by 7.4% (both in 1990 US\$ and EC\$) from EC\$11,907 to EC\$11,029 (US\$5,577 to US\$5,166). Labour productivity levels rebounded between 1997 and 1999 reached a peak in 1999 of 1990 EC\$13,041 (1990US\$6,108). However, productivity levels fell again in 2000 and 2001 to 1990 EC\$11,029 (1990 US\$5,166), to a level that is below the productivity reached in 1997.

² In follow up activities attempts will be made to compute these indicators.

Figure 3

Value added per person employed in manufacturing in 1990 EC and US dollars in Saint Lucia (1993-2001)



Source: Saint Lucia Government Statistics Department

Table 1.4 Total manufacturing GDP in 1990 EC\$ and US\$, GDP per Employed person in 1990 EC\$ and US\$ in Saint Lucia in the period 1993-2001

Year	Manufacturing GDP (fc) in constant (1990)		GDP in Manufacturing	
	(Million) EC\$	(Million) US\$ (Expenditure PPPs)	Per person employed in 1990 EC\$	Per person employed in 1990 US\$
1993	74.48	34.88	11,907	5,577
1994	70.86	33.19	11,116	5,206
1995	75.06	35.16	14,518	6,800
1996	69.97	32.77	10,322	4,834
1997	69.74	32.66	11,151	5,223
1998	68.91	32.27	12,358	5,788
1999	71.77	33.61	13,041	6,108
2000	69.87	32.72	11,818	5,535
2001	66.95	31.36	11,029	5,166

Source: Saint Lucia Government Statistics Department

Figure 4

Average annual percent change in manufacturing GDP (fc) in 1990 US\$ and Value Added per person employed in 1990 US\$ in Saint Lucia (1994-2001)

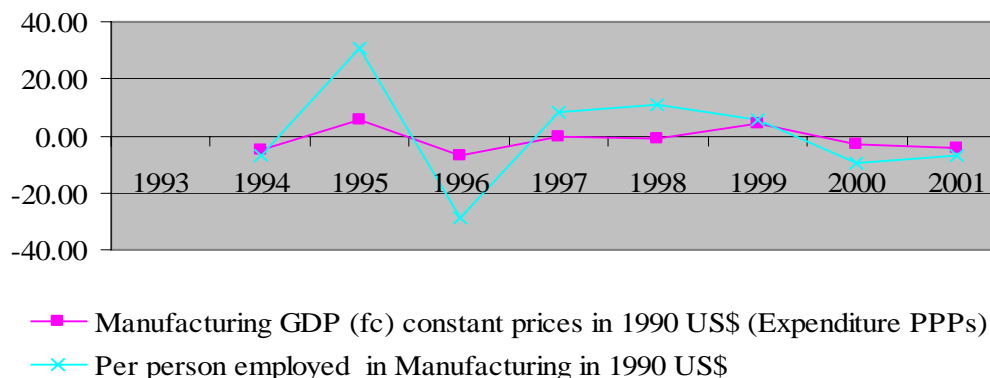


Table1.5 Annual average percent year to year change in manufacturing GDP in 1990 EC and US\$ and GDP per Employed person in 1990 EC\$ and US\$ in Saint Lucia in the period 1993-2001

	Manufacturing GDP (fc) constant (1990) prices		Labour Productivity in Manufacturing	
	In EC\$ in constant prices 1990	In US\$ (Expenditure PPPs)	Per person employed in 1990 EC\$	Per person employed in 1990 US\$
1994-2001	-1.2	-1.2	0.4	0.4
1994	-4.9	-4.9	-6.6	-6.6
1995-1996	-0.4	-0.4	0.9	0.9
1997-1999	0.9	0.9	8.1	8.1
2000-2001	-3.4	-3.4	-8.0	-8.0

Source: Saint Lucia Government Statistics Department

Productivity growth in the Manufacturing industry in Saint Lucia, as indicated by the year to year change in labour productivity levels, was slightly positive between 1994 and 2001. On average Value Added person employed grew by 0.4 percent annually. But during these period two distinctive trends can be distinguished. The period 1995-1999, during which labour productivity growth averaged 5.2% annually while a decline in labour productivity, at an annual average of -8.0 percent, characterised the period between 2000 and 2001. This decline coincided with negative growth of Manufacturing GDP of -3.4% annually.

Table 1.6 Percent year to year change in manufacturing GDP in 1990 EC and US\$ and GDP per Employed person in 1990 EC\$ and US\$ in Saint Lucia in the period 1994-2001

Year	Manufacturing GDP (fc) in constant (1990) prices		Labour Productivity in Manufacturing	
	In EC\$	In US\$ (Expenditure PPPs)	Per person employed in 1990 EC\$	Per person employed in 1990 US\$
1994	-4.9	-4.9	-6.6	-6.6
1995	5.9	5.9	30.6	30.6
1996	-6.8	-6.8	-28.9	-28.9
1997	-0.3	-0.3	8.0	8.0
1998	-1.2	-1.2	10.8	10.8
1999	4.2	4.2	5.5	5.5
2000	-2.6	-2.6	-9.4	-9.4
2001	-4.2	-4.2	-6.7	-6.7

Source: Saint Lucia Government Statistics Department

2.3 Labour productivity in the Saint Lucian Hotel and Restaurant Industry

As part of the Caribbean Labour Market Information System (CLMIS) Project, internationally comparable productivity indicators were compiled for the Hotel and Restaurant sector. However, not all the indicators could be computed for the Hotel and Restaurants sub-sector because of a lack of input data. Input data were missing to compute a converter to the US dollar and the average number of hours worked in this industry. As a result the productivity indicators presented below are only in 1990 constant EC dollars³ and value added per person employed.

In 2001 GDP in the Hotel and Restaurant sector in Saint Lucia had increase by EC\$ 40 million (constant 1990 prices) or 40.3 percent compared with 1993. How does this substantial increase in GDP match with labour productivity. By the end of this period 2001 labour productivity in this sector was slightly below its 1993 level. Value Added per person employed in the sector had fallen 1.9 percent or 1990 EC\$429. Despite this decline over the period as a whole, it should be noted that Value Added per person employed rose during most of this time except for three years of consecutive decline (See figure 5 below). Value Added per person employed declined in 1999, 2000 and 2001 with respectively -0.5% or EC\$127, 7.8 percent or EC\$2,084 and 12.6 percent or EC\$3,122 (see table 1.7).

³ This makes them comparable among the countries of OECS.

Figure 5

Value Added per person employed in 1990 EC\$ in the Hotels & Restaurants Sector
in Saint Lucia (1993-2001 in 1985 EC\$)

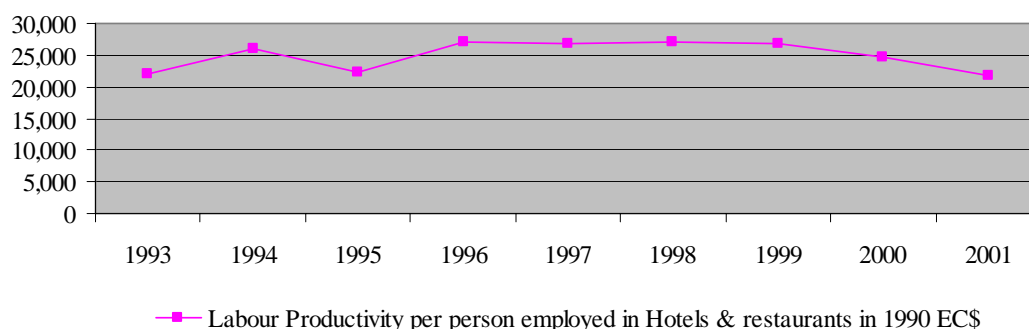


Table 1.7 GDP (fc) in 1990 EC\$ and Value Added per Employed person in 1990 EC\$ in the Hotel and Restaurant industry in Saint Lucia in the period 1993-2001

Year	GDP (fc) in Hotels & Restaurants in EC\$ in constant prices 1990	Labour Productivity per person employed in Hotels & restaurants in 1990 EC\$
1993	99.2	22,089
1994	118.0	26,094
1995	119.3	22,271
1996	128.5	27,207
1997	142.1	26,933
1998	145.4	26,992
1999	151.6	26,865
2000	155.6	24,782
2001	139.2	21,660

Source: Saint Lucia Government Statistics Department.

Note: Owing to the lack of the data relevant to the calculation of unit value ratios for the Hotel and restaurant sector, the indicators could not be converted to 1990 US dollars.

Although GDP growth rates remained positive during most of the period for which data were available (1993-2001) its growth slowed down after 1997. Over the period as a whole annual GDP growth averaged 4.6 percent while Value Added per employed person averaged 0.5 percent. However, Labour Productivity has been on the decline in the Hotel and Restaurant sector in Saint Lucia since 1997, with the exception of 1998 when labour productivity increased slightly by 0.2 percent. Value Added per person employed in this sector decline annually by an average of 4.3 percent. Despite this decline GDP in the sector increased in the same period with an average of 1.9 percent.

Figure 6

Average annual percent change of GDP and value added per person employed in 1990 EC\$ in the Hotel and Restaurant sector in Saint Lucia (1994-2001)

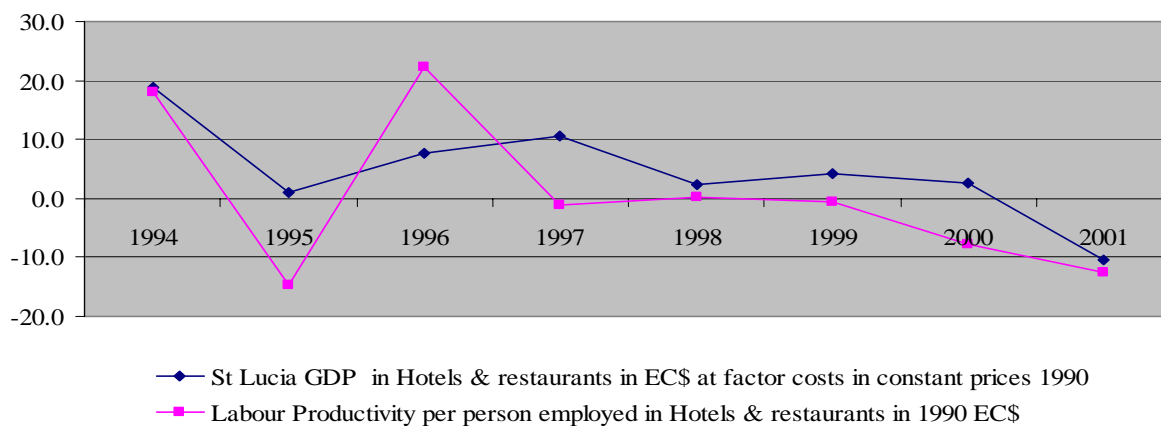


Table 1.6: Annual percent change of GDP in 1990 EC\$ in the Hotel and Restaurant industry, GDP in 1990 EC\$ and US\$ per person employed in the Hotel and Restaurant industry in Saint Lucia in 1992-2001

Year	St Lucia GDP in Hotels & restaurants in EC\$ at factor costs in constant prices 1990	Labour Productivity per person employed in Hotels & restaurants in 1985 EC\$
1994	19.0	18.1
1995	1.1	-14.7
1996	7.7	22.2
1997	10.6	-1.0
1998	2.4	0.2
1999	4.2	-0.5
2000	2.7	-7.8
2001	-10.5	-12.6

Source: Saint Lucia Government Statistics Department's.

3 Methodological and conceptual issues

3.1 Methodological remarks

3.1.1 *Reconciling differences in the use of classifications*

The United Nations' International Standard Industrial Classification (ISIC) was used to classify the industrial activities observed by all the surveys relevant to the computation of the productivity indicators. Notwithstanding very slight modifications (including one made specifically to capture the activity of banana farmers), all local economic activities were defined, without deviation, by applying the codes of the ISIC. Therefore, there was little need for the reconciliation of differences in the use of the industrial classification.

3.1.2 **Labour Productivity**

The decision to compute a labour productivity measure that is based on value added was greatly influenced by the availability of a reliable data set and the relative simplicity of the calculations involved. For instance, for the total economy, a labour productivity in local currency was easily measured by dividing the gross domestic product at constant 1990 prices by the total number of persons employed in the economy. For manufacturing, the calculation was repeated using total manufacturing value added and the total number of persons employed in manufacturing. However, as the OECD Productivity Manual points out, this particular type of productivity measurement “only partially reflects the productivity of labour in terms of the personal capacities of workers or the intensity of their effort” and is influenced by the degree of capitalization and the dynamics of other technological and organizational factors. In addition, since this indicator of productivity is measured residually, additional factors, including the conceptual and practical difficulties associated with the measurement of value-added, would have influenced any observed changes in productivity. Multi-factor productivity measures should allow more refined indicators to analyse these several aspects of productivity but the lack of input data to compute these measures must be tackled first.

In future exercises attempts will be made to measure sector productivity, in Manufacturing and Tourism, by following Bartelsman and Doms' instructions in computing a weighted average of firm level productivity. This gross output based productivity measure, although more complex, can help neutralize the effects of value added measurement errors.

3.1.3 **Unit Labour Costs**

Unit Labour Cost is defined by the quotient obtained by dividing total labour cost by the gross domestic product. Although requested by the project, it was not possible to include any unit labour costs in this present productivity exercise. The Earnings and Hours Worked Survey (ES) is at present the only establishment based survey used to collect data on labour costs by occupation and industry in Saint Lucia. Although the

survey has collected data on an annual basis, since 1998, information it is unfortunate that this information is only available for the years 1998 and 1999.

National accounts records provide little data on the compensation of employees and other labour costs due to a low and inadequate response to those issues in the national accounts inquiry forms. Income data from the Labour Force Survey (LFS) was forthcoming, but was not used since the LFS is a household based survey and would essentially provide an invalid representation of labour costs as defined by the project. However, Saint Lucia plans to produce the full sequence of the United Nations' System of National Accounts tables by the end of the year 2003. These tables will furnish data on the compensation of employees and other labour costs that will allow unit labour costs to be highlighted in future productivity series.

3.1.4 Value Added or GDP

In line with the CLMIS methodological Guidelines" the operational definition for output used in Saint Lucia's was value added. Value added was available both at current and constant prices for the total economy and the manufacturing industry. An excerpt from a publication describing how the Saint Lucia Government Statistics Department estimates Value Added or GDP (current and constant prices) for Saint Lucia's National Accounts from 1977 to 2001 is included as Annex 4 of this report. The entire publication can be downloaded from the Statistical Department's website at www.stats.gov.lc.

3.1.5 Converting GDP to US 1990 dollars using PPPs

Purchasing Power Parities were used to compile internationally comparable labour productivity indicators for the total economy. The Penn World Tables (version 5.6) supplied the purchasing power parity (PPP) figure of 1.54 that was used to convert Saint Lucia's gross domestic product at current local prices to 1990 US dollar constant prices. Converting local gross domestic products to 1990 constant US dollars allowed the countries participating in the CLMIS project to make international comparisons of the productivity indicators by converting value added per employed person of per hour worked to US currency (in 1990 prices).

3.1.6 Converting manufacturing GDP to 1990 US dollars using Unit Value Ratio's⁴

For manufacturing, a weighted, geometric mean of aggregated unit value ratios replaced the PPP as the variable used to make that industry's labour productivity indicators internationally comparable. The first step in the computation of this geometric mean was an elaborate exercise of matching locally manufactured products with similar US-made products using the Central Product Classification (CPC), version 1.1. The next step was the calculation of ratios of local and US unit values for each matched classification of manufactured products. Throughout this particular

⁴ See also Part I Chapter 3 in of this paper that discusses the conceptual approach and the methodology used in detail.

exercise, careful consideration was given to the conversion of local value and quantity measurement units to those of the US products, so as to ensure the accuracy of the unit value ratio calculations. The unit value ratios for the individual product classes were then aggregated to industry, branch and total manufacturing levels. The result of the aggregation at the total manufacturing level, a value of 2.51, was then used, in a similar manner as the PPP, to convert total manufacturing value added at current local prices to 1990 constant US dollars. As in the case of the total economy, this conversion to constant US dollars would allow the labour productivity of the manufacturing industry to be evaluated on an international scale.

3.2 Employment measures used: total employment and hours worked

Data concerning persons employed in the total economy and the manufacturing industry was obtained from the Statistical Department's Labour Force Survey which has been conducted on a biannual basis since 1992. For this survey, "the employed labour force comprises of all persons 15 years and over who during the reference week were in the following categories.

- 1) Paid Employment: meaning, (a) "at work" persons who, during the reference week performed some work for wage or salary, cash or in kind; (b) "with a job but not at work" persons who, having already worked in their present job, were temporarily not at work during the reference week but had a formal attachment to their job.
- 2) Self Employment: meaning, (a) "at work": persons who during the reference-week performed some work for profit or family gain, in cash or in kind; (b) "with an enterprise but not at work": persons with an enterprise, a firm or a service undertaking, which were temporarily not at work during the reference week for some specific reason."

Total employment

The total number of persons employed in the total economy was estimated using both the Census and the Labour force Survey as sources. For the period 1985 to 1993 the annual number of employed persons was estimated using the mathematical formula below⁵. For the period 1993 to 2000 the estimates of the Labour Force Survey for total number of employed persons were used.

For the total number of people employed in the Manufacturing and Hotel and Restaurant sectors were estimated as follows:

- Annual estimates of the total number of persons employed in Saint Lucia (1991-2001) were produced from the 1991 and 2001 Population censuses using a mathematical method of estimation.
- Estimates of the number of persons employed in Manufacturing and Hotels and Restaurants were computed using the share of these sectors in total employment found in the LFS. The relative shares of these sectors in the LFS were applied to the total employment estimates found in step 1.

⁵ *This estimation was necessary because the Labour Force Survey was first conducted in 1992. Before that time, ten-year Census data was the only reliable source of labour statistics.*

Planned Hours Worked series

In future productivity series, hours worked, from the Earnings and Hours of Work Survey, will be presented and defined in the following manner:

- “Normal Hours – Normal hours paid for including normal working hours spent on vacation, sick leave, holiday and other forms of leave with pay.
- Overtime Hours – They represent the hours worked in excess of normal hours of work and for which premium payments are usually made.”

For the years 1991 and 2001, data relating to the total number of employed persons was obtained from the results of the Population and Housing Census. The Labour Force Survey supplied that data for all the other years in the series. The National Accounts Inquiry, a survey of business establishments, provided all value added (GDP) data. Appropriate weighting structures were applied to all the estimates obtained from the aforementioned sources in order to deal with differences in data coverage, measurement errors and non-response.

Standard errors for the labour force surveys for total employment were, on average, 1.1 percent at a 95 percent confidence level.

ANNEX 1. Statistical Annex

ANNEX 2. Estimation Hours actually worked

ANNEX 3. Product list and UVRs

ANNEX 4. Computing Value Added in Saint Lucia⁶

Sources and Methods: Value Added for each economic sector is calculated by using one of the following methods, (a) the production, (b) income, (c) expenditure and commodity flow approach (see table 1). Summing value added for all the economic sectors that are classified for international comparison, by ISIC (International Standard Industrial Classification), and deducting an imputation made for banking service charge, result in the aggregate, Gross Domestic Product at factor cost.

Gross Domestic Product that is derived is used as benchmark data to calculate market prices GDP, Gross National Product (GNP) and Gross Savings.

Production Approach: The production approach consists of deducting intermediate inputs from gross value of output to derive value added. This approach is compiled mainly for industries producing commodities e.g. agriculture, mining and quarrying, manufacturing etc.

Income Approach: The income approach consists of amassing estimates of compensation of employees and operating surplus. This approach is mainly used to estimate value added for the service sectors.

Expenditure Approach: The expenditure approach is used to generate market prices GDP, it also satisfies the criteria for the accounting identity $GDP = C + G + I + XM$ for key aggregates of balance of payments flows and accounts of the total economy.

C = private final consumption expenditure

G = government final consumption expenditure

I = gross domestic investment

X = exports of goods and services

M = imports of goods and services

GDP = gross domestic product (market prices)

Methods Used To Measure GDP in Saint Lucia

Item	ISIC	Classification Approach
1	Agriculture	Production Method
2	Mining & Quarrying	Production Method
3	Manufacturing	Production Method
4	Construction	Commodity Flow
5	Electricity & Water	Production Method
6	Wholesale & Retail Trade	Commodity Flow
7	Hotel & Restaurants	Production Method
8	Transport	Production Method
9	Communication	Production Method
10	Financial Intermediation	Production Method
11	Banking	Production Method
12	Insurance	Production Method
13	Real Estate and Owner Occupied Dwellings	Commodity Flow
14	Producers of Government	Income Approach

Item	ISIC	Classification Approach
15	Services Other Services	Production Method

Gross domestic product at market prices is derived by adding to factor cost GDP, indirect taxes and deducting subsidies. Net exports of goods and services identified in the accounting identity as XM ($GDP = C + G + I + XM$) is obtained from the BOP statistics.

Gross Capital Formation (I) is sourced from the CIF values of capital goods imported.

Government consumption expenditure calculated as the sum of compensation of employees (salaries, wages, social security etc.) plus intermediate expenses less non industrial sales of government is identified in the accounting identity as (G) and the residual private consumption expenditure (C) is derived as the difference between GDP *market prices* - $(G + I + XM) = C$.

ANNEX 1. Bibliography

Hussmanns, R. Mehran, F. and Verma, V: (1990) *Surveys of Economically Active Population, Employment, Unemployment and Underemployment: An ILO Manual on Concepts and Methods*, International Labour Office, Geneva.

Organization for Economic Cooperation and Development: (2001) *OECD Productivity Manual: A Guide to the Measurement of Industry-Level and Aggregate Productivity Growth*, OECD Statistics Directorate, Paris.

Saint Lucia Government Statistics Department (1993): *Labour Force Report*, Castries, Saint Lucia.

Saint Lucia Government Statistics Department: (2002) *Saint Lucia National Accounts, 1977 to 2001*, Castries, Saint Lucia.

Szirmai, A: (2002) *A Methodological Guideline for Computing KILM Labour Productivity Indicators for the Manufacturing Sector and the Total Economy*, Paper prepared for the Caribbean Labour Market Information System project.

The Statistics Act of Saint Lucia, No. 13 of 1973

United Nations: (1993) *System of National Accounts*, Prepared under the auspices of the Inter-Secretariat Working Group on National Accounts: Commission of European Communities-Eurostat, International Monetary Fund, Organization for Economic Cooperation and Development, United Nations, World Bank, Brussels/Luxembourg, New York, Paris, Washington, D.C.

END NOTES