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**EXPORT PROCESSING IN THE CARIBBEAN:
LESSONS FROM FOUR CASE STUDIES**

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INTRODUCTION AND SUMMARY

Export processing has become increasingly important to economies of the Caribbean. Countries of the subregion are receiving both foreign and domestic investment in offshore data processing and in the assembly and manufacture of garments, footwear, electrical and electronic equipment, toys and other goods for export. Investors are attracted by low labour costs, freedom from foreign exchange controls and bureaucratic restrictions, and by the promise of exemption from all taxes, including taxes on profits and taxes on imports of equipment, raw materials and intermediate goods used in production for export. Local economies receive foreign exchange, since local currency must be purchased for wages and other local expenditures. In addition, they benefit from generation of employment, from possible linkages with the domestic economy and from transfer of technology.

This document reviews case studies of four countries--the Dominican Republic, Jamaica, Saint Lucia and Trinidad and Tobago--and assesses the contribution that export processing has made to industrial development in each. By 1993, export processing provided jobs for 6.6% of the employed labour force in the Dominican Republic, 5.8% in Saint Lucia, 3.4% in Jamaica and a negligible amount in Trinidad and Tobago. In each case, garment factories account for most of the employment, but the assembly of footwear is also important in the Dominican Republic, as is data processing in Jamaica and the manufacture and assembly of electrical and electronic equipment in Saint Lucia.

The experience of Mauritius is briefly summarized because of the similarity of that country's economy to many countries of the Caribbean and because of its increasing reliance on export processing since 1971. Export processing in Mauritius is also concentrated in garments, but the sector is much more important in Mauritius than it is in any Caribbean economy. By 1990 approximately 90,000 persons, equivalent to nearly a third of the labour force of that small island, were engaged in export processing. As a result, the rate of unemployment, which had exceeded 20% of the labour force, is now less than 4%. This contrasts sharply with the 20%-30% rates of unemployment commonly observed in the Caribbean.

Of the four Caribbean countries studied, only Trinidad and Tobago failed to develop a significant export processing sector. This failure cannot be ascribed to a shortage of labour or to high wages. Indeed, not only are sewing machine operators in excess supply in Trinidad and Tobago, their wages are lower than in Jamaica or Saint Lucia, and they are competitive with wages in the Dominican Republic. Rather, the failure seems to be linked to an absence of foreign investment in export processing plants.

At another level, one must ask why no foreign entrepreneur has invested in export processing in Trinidad and Tobago. This may simply reflect the Government's failure to effectively promote export processing. But it may also stem from fear of militant trade unions, which can rapidly turn low labour costs into high costs even in an economy with a surplus of labour. Mauritius blocked the power of trade unions by giving export processing companies the

right to dismiss workers without notice and without severance pay.¹ In the Caribbean, investors defined themselves against unreasonable labour demands by remaining "footloose", i.e., by leaving quickly, or threatening to leave when labour costs rise. For this reason, in all countries with a flourishing export processing sector, investors are offered the option of leasing factory shells. In Trinidad and Tobago, investors in the Point Lisa's Free Zone are expected to build their own factory buildings on leased land. This makes them less "footloose" and increases the risk that they may have to give in to wage demands.

There is no evidence that foreign investment displaces local investment in export processing. On the contrary, local entrepreneurs typically follow the example of the foreign investors. The first garment factories in Mauritius were established by Chinese investors from Hong Kong, but a majority are now owned by local businessmen who have learned much from the Chinese example. Local entrepreneurs are also very active in the export processing sectors of the Dominican Republic and Jamaica. They are conspicuously absent in Saint Lucia, a small island with approximately 140,000 inhabitants and a wealth of investment opportunities in tourism and construction.

Export processing creates employment, but to a large extent it is employment of relatively unskilled labour. It would be wrong, however, to conclude that it does not bring any transfer of technology, for two reasons. First, export processing introduces Caribbean workers for the first time to a competitive industrial environment. Second, export processing plants employ local supervisors, technicians and plant managers who are also acquiring skills that are extremely important to the economies of the subregion.

Governments, through laws and regulations, often prevent the formation of linkages between the export processing sector and the rest of the economy. In the Dominican Republic, exporters are restricted to free zone enclaves and have no contact with the domestic economy. Saint Lucia and Jamaica, however, do not restrict export processing plants to specific physical locations. Despite the small size of its economy, Saint Lucia has been successful in encouraging backward linkages by providing incentives to indirect exporters (local suppliers of the export processing plants) as well as direct exporters. Jamaica, in contrast, confines export processors not to physical, but rather to economic enclaves where virtually all material inputs are imported.

Of the four countries, Saint Lucia has been most successful in utilizing export processing as an instrument of industrial development. The challenge for the Dominican Republic is to remove geographic restrictions on the location of export processing plants, to make the transition from export processing zones to an export processing country. A challenge for both Jamaica and the Dominican Republic is to transform themselves from export processing into export-oriented economies by extending to indirect exporters the incentives that are now restricted to direct exporters. The task for Trinidad and Tobago is greatest, for the country has yet to begin serious promotion of export processing.

¹ Hein (19899, pp.52-53) refers to this as "flexible labour legislation". The owners of the small, domestically-owned garment factories in Trinidad and Tobago effectively exercise this right as well, but it is not guaranteed by law and would be lost were the factory to become a union shop.

OVERVIEW OF THE FOUR COUNTRIES

Dominican Republic²

Export processing in the Dominican Republic dates from 1969 with the opening of a privately owned free zone at La Romana. In 1973, the Government's industrial development corporation (Corporacion de Fomento Industrial), opened a second free zone in San Pedro de Macoris. By the end of 1992, 23 free zones were in operation that contained 362 plants employing more than 132,000 workers. An additional 24 establishments with "special free zone" status employed more than 9,000 persons. Altogether, free zones account for two thirds of manufacturing jobs and 6.6% of all jobs in the Dominican Republic (see table 1).

Although the range of products produced in the free zones has increased over the years, manufacture of textile products continues to occupy more than two thirds of the companies and employees. Assembly of electronic and electrical equipment has grown rapidly, but this activity accounts for less than 5% of free zone employment.

A new free zone export is data processing. In 1987, Caribbean Data Services, a subsidiary of American Airlines, began operations in San Isidro Free Zone. The company employs 600 data entry operators who handle reservations for American Airlines (10% of the work) and jobs such as compilation of health insurance claims for outside clients. To date, however, no other data processing company has been attracted to a free zone, despite the availability of state-of-the-art international communications following the inauguration of Telepuerto San Isidro in 1990.

Jamaica³

The Jamaican Government began to promote export processing in 1976 with the establishment of Kingston Free Zone in the industrial heart of the capital city, adjacent to a modern port. The zone did not attract many investors, however, until after 1982. A second free zone began to operate in Montego Bay in 1985. In 1989, Jamaica Digiport International (JDI) opened to provide low-cost satellite communications for data processing and telemarketing companies that rent office space in the Montego Bay Free Zone.⁴ The Garment Free Zone opened in 1987 only two kilometres from the Kingston Free Zone. By the end of 1992, these three publicly-owned free zones contained 39 companies that employed more than 14,000 persons, largely in the assembly and manufacture of garments, but also in data processing and a limited number of other activities.

² For details, see Willmore (1993a).

³ For details, see Willmore (1993b)

⁴ JDI offers its clients speeds between 9,000 and 1,544 mega bits per second, international (800) toll-free members, credit card authorization for direct selling, and rates as low as 24 US cents per minute for calls to the United States.

Outside the free zones, there exist some 50 garment factories and 20 data processing firms that operate exclusively as export processing companies. A few of the garment producers have obtained free zone status from the Government. The remainder of the garment manufacturers, and some of the data processing firms, operate under the Export Industry Encouragement Act (EIEA). This legislation, which dates from 1956, allows approved companies a holiday from taxes on profits and dividends as well as exemption from duties on capital goods and imported raw materials. The EIEA regime offers exporters in the customs territory nearly all the benefits associated with free zone status. The main difference is that EIEA exporters are not free from foreign exchange controls or from quantitative restrictions on imports. In recent years, with liberalization of foreign exchange and removal of import quotas, there is less distinction between the two regimes.

Table 1

DOMINICAN REPUBLIC, JAMAICA AND SAINT LUCIA: EMPLOYMENT
IN EXPORT PROCESSING COMPANIES, 1993

	Number	As % of all manufacturing	As % of total
Dominican Republic	141,056	63	6.6
Jamaica	31,150	30	3.4
Saint Lucia	2,820	47	5.8

Source: Willmore (1993a, 1993b and 1993c).

Note: Data for the Dominican Republic and Jamaica refer to December 1992, while those for Saint Lucia refer to the first quarter of 1993. Employment in export processing plants in Trinidad and Tobago, though not known with certainty, probably does not exceed 200 persons, a negligible number.

In contrast to the Dominican Republic, export-processing establishments in Jamaica thus are not restricted to fenced free zones, but are found in cities, towns and villages throughout the island. A total of 109 companies provide employment for more than 31,000 persons, equivalent to more than 3% of all workplaces in the economy and 30% of all jobs in the manufacturing sector (see table 1). The garment industry accounts for most of this activity: two thirds of the firms and nearly 90% of the employment (see table 2). Data processing is the second largest export activity, but the companies are small compared to garment factories, so those 26 firms employ only 8% of the sector's workers.

Saint Lucia⁵

Export processing in Saint Lucia commenced in 1968, with the establishment of Manumatics Ltd., a United States-owned plant that coils wire for transformers and fields of electrical motors. Few historical data are available, but the sector appears to have grown steadily through 1987. After that growth must have slowed, for there was no net increase in the number of plants. At the beginning of 1993 there were 17 export processing plants employing approximately 2,800 workers. ECLAC (1990, pp. 35-36) reported for the year 1989 the same number of firms, with virtually the same number of persons employed. Employment in export processing amounts to nearly half the jobs in manufacturing and 6% of all jobs in Saint Lucia's economy (see table 1).

There are no fenced free zones in Saint Lucia, and companies have a choice between two virtually indistinguishable regimes: enclave industry or free zone status. In neither case is the exporter allowed to sell in the local market, even though firms producing behind import barriers receive similar fiscal incentives.

The manufacture of clothing now accounts for 72.3% of total employment in export processing companies, up from 65% in 1989 (see table 2). There are three data processing firms with enclave industry status that employ fewer than 100 persons. The remainder of the export processing firms operate in a variety of activities, including assembly of electrical motors and transformers, assembly of circuit boards, manufacture of resistors and delay lines, and the production of plastic novelty items, including souvenirs for Euro-Disney.

⁵ For details, see Willmore (1993c).

Table 2

DOMINICAN REPUBLIC, JAMAICA AND SAINT LUCIA: DISTRIBUTION
OF EXPORT PROCESSING EMPLOYMENT BY SUBSECTOR. 1993

(Percentages)

	Dominican Republic	Jamaica	Saint Lucia
Clothing, textile products	69.8	89.8	72.3
Data entry/processing	0.5	8.2	3.1
Other	29.7	2.0	24.6
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Willmore (1993a, 1993b and 1993c).

Note: Export processing in Trinidad and Tobago is concentrated wholly in garment factories.

Trinidad and Tobago

Oil-rich Trinidad and Tobago for many years could afford the luxury of ignoring export processing industries. Not until 1977 did its Government address the depressed state of the garment industry by inviting "American purchasers to the country with the aim of stimulating exports of garments to the United States. These purchasers, however, found that despite the good quality of the garments, the prices ... were un-competitive ..." (CSO, 1978, p. 31). In the late 1970s the garment industry provided employment for approximately 12,000 persons producing largely for the local market; this fell to 3,000 by the late 1980s as a result of the recession that began with the end of the oil boom in 1982.

To aid the industry, the Government of Trinidad and Tobago in 1986 imposed quotas on garments imported from CARICOM countries, limiting their share to 20% of the market (CSO, 1986, p. 26). In 1987, the Government banned imports of garments altogether (CSO, 1987, p. 34). At the same time, the Government began to encourage in-bond export processing as a way to make use of excess capacity in the garment industry. A number of local garment manufacturers began to produce under contract for the United States market, but exports were modest, and garment production continued to stagnate (see table 3). Precise figures are not available, but it is unlikely that employment in factories processing garments for export ever exceeded 300 persons, some 10% of total employment in the garment industry.

Table 3

TRINIDAD AND TOBAGO: GARMENT PRODUCTION
AND EXPORTS, 1977- 1992

	Production (<u>index, 1971-100</u>)	Exports to USA (<u>thousands of US dollars</u>)
1977	80.8	-
1978	76.8	-
1979	76.0	-
1980	85.1	-
1981	65.0	-
1982	55.8	-
1983	48.6	1.2
1984	46.7	4.1
1985	36.4	45.3
1986	45.4	2.7
1987	32.6	339.7
1988	25.6	830.0
1989	23.8	616.4
1990	27.0	659.6
1991	25.8	1,006.9
1992	25.8	444.3

Source: ECLAC based on official data.

Note: The production index is for textiles and garments. Exports refer to SITC division 84.

As the recession continued, open unemployment, which had been approximately 10% of the labour force in the early 1980s, increased steadily, reaching 22% by 1987. Government then saw the need to create employment by attracting foreign investment in light industry, and felt that free zones were needed for this purpose. Point Lisa's was to be the first of five free zones, the other four being Pierce Airport, La Brea, Point Fortune and Chaguaramas. All were to be Government-owned, and legislation was needed before work could commence.

In July of 1988, following long and bitter opposition first from the Women Against Free Trade Zones Action Committee and then from organized labour, Parliament enacted the Free Zones Act. One trade union leader, referring to free zones, stated "the jobs created are low paying jobs, are best described as underemployment" (Trinidad Guardian, 19 February 1988),

while another voiced the opinion that free zones are "the most exploitive form of labour since the abolition of slavery" (Trinidad Guardian, 27 February 1988).

In January of 1990, Phase I of the construction of the Point Lisa's Free Zone was completed, at a cost of TT\$ 1.5 million (US\$ 350,000). The site preparation for eight lots measuring from 10,000 to 18,000 square metres included a water and sewerage system with connections to the Water and Sewerage Authority (WASA), storm drains, an access road, sidewalks and earthwork. In February 1990, a group of investors from Hong Kong announced their intention to build a US\$ 1 million garment factory in the free zone to produce denim garments for the United States and European markets. The investors eventually lost interest and the investment never materialized.

In July 1991, Phase II of the Point Lisa's Free Zone was completed, comprising an additional four lots and six warehouses. The first tenant of the free zone was a teleport: Textel Division of Telecommunications Services of Trinidad and Tobago Limited, the Government-owned telephone company. The intent was to stimulate development of data processing, much as the Government of Jamaica has done in Montego Bay.

Through all of 1992, the teleport remained the sole tenant of the free zone. Finally, in 1993, a United States company (Nucor) agreed to build a US\$ 60 million plant to produce 320,000 metric tons of iron carbide a year from Brazilian iron ore using natural gas purchased at low cost from the Trinidad Government-owned National Gas Company. All the output is to be exported to North Carolina to replace some of the steel scrap currently used in Nucor's sheet steel mills. Construction began in June 1993 and the plant is scheduled to open at the end of 1994. It will employ 50 persons, four of whom will be highlevel expatriate personel from the parent company. If the investment proves profitable, there is the possibility of constructing three additional plants and a total employment of close to 200. This is not the labour-intensive, light industry envisaged for the Point Lisas Free Zone.

LABOUR

The image many have of export processing plants is that of "sweatshops" where workers are exploited with long hours, low pay and no job security. A researcher who visited 26 garment factories in the Dominican Republic reports, for example, that without exception managers "are trying to squeeze salaries as much as possible, paying only the minimum wage, limiting the payment of bonuses and avoiding the cost of keeping workers beyond the three-month training period" (Hoffman, 1991, p. 55). Another study notes similar instability of employment for workers in shoe factories of the Dominican Republic:

“ . . . all companies end operations on the 15th of December and almost all workers are laid off and given severance pay and their Christmas bonus. The majority of the firms reopen in February, but with low levels of production. They proceed to rehire a few employees to prepare for the first peak in demand: Mother's Day in the month of May. Even though demand falls substantially after

this date, production continues to rise slowly in preparation for the largest peak in demand in the Christmas season. until the factories close once again on the 15th of December." (Beriestain and Fleury, 1992, p. 24).

Both studies refer, however, not to free zone plants, but rather to factories producing for the protected local market! To be consistent, reformers who want to protect workers by closing export processing plants ought to recommend that import-substituting industries be closed as well.

Wages and benefits of workers are of course much lower in Caribbean countries with export processing industries than they are in the United States or the European Community; if this were not the case, none of the labour-intensive processes would be done there for the United States or European Inarkets. But it is not true that wages, benefits and working conditions are worse in export processing plants than in plants producing for the domestic market. In fact, they tend to be much better.

In the Caribbean, owners of export processing companies are subject to the same labour laws as any employer in the manufacturing sector. Labour unions are permitted to operate, but there has never been union activity in the free zones of the Dominican Republic, and few workers belong to unions in the export processing plants of Jamaica, Saint Lucia or Trinidad and Tobago. The work week is 40 hours in Jamaica and Saint Lucia, and 44 hours in the Dominican Republic. Overtime must be paid with a 35 % bonus in the Dominican Republic and at time-and-a-half in Jamaica and Saint Lucia. Sundays and public holidays are paid at double-time in all three countries. In Trinidad and Tobago there is no legal work week, nor legally mandated overtime pay, but most garment factories work a 40-hour week.

Table 4 reports the prevailing minimum and average wages in each of the four countries for sewing machine operators, a common occupation in export processing plants. Legal minimum wages exist only in the Dominican Republic and Jamaica. The wages include the cost to the employer of legally mandated fringe benefits, but some of these are excluded from the calculations reported in table 4 as they are conditional on the occurrence of some event, such as retrenchment, pregnancy or illness. In Jamaica, for example, employees are legally entitled to up to two weeks of sick leave each year, and a medical certificate is required only for sick leave in excess of two consecutive days. To discourage misuse of sick leave, many companies pay their workers the unused sick leave days as a Christmas bonus at the end of the year. A female employee over the age of 18 who has worked for a minimum of 12 months in a Jamaican company is entitled to 12 weeks maternity leave, with eight weeks full pay. In all countries except Trinidad and Tobago, companies typically grant their employees additional fringe benefits that are not required by law, such as a punctuality bonus, free or subsidized lunches and transportation, additional health insurance, additional sick, vacation and maternity leave, and retirement benefits.

Table 4

DOMINICAN REPUBLIC, JAMAICA, SAINT LUCIA AND TRINIDAD AND TOBAGO:
MINIMUM AND AVERAGE WAGES FC)R SEWING MACHINE OPERATORS,
1992/1993

(US dollars per hour)

	Minimum	Average
Dominican Republic	0.55	0.94
Jamaica	0.40	1.34
Saint Lucia	0.87	1.41
Trinidad and Tobago	0.38	1.00

Source: Willmore (1993a, 1993b and 1993c) and direct survey of export processing plants in Trinidad and Tobago.

Note: Wage rates exclude overtime bonuses, but include cost to employers of legally mandated fringe benefits, amounting to 24% of base pay in the Dominican Republic, 19% in Jamaica, 15% in Saint Lucia and nil in Trinidad and Tobago. The survey dates are January 1992 for the Dominican Republic, May 1993 for Jamaica and Saint Lucia, and July 1993 for Trinidad and Tobago.

Saint Lucia and Trinidad and Tobago have no legal minimum wages; hence the data reported in table 4 may overstate labour costs in those two countries. In Saint Lucia, incentive pay is often greater than regular wages. Indeed in some cases payment is solely by the piece or keystroke with the result that workers receive no holiday or vacation pay, although they are covered by social insurance. Trinidad and Tobago is unique in that cash wages represent the total cost of labour; there are no fringe benefits of any kind: no paid holidays, no sick leave and no notice or indemnity in case of retrenchment or layoffs. The full cost of social insurance (employer's and employee's contribution) is deducted every payday from each employee's earnings.

With these caveats, it is possible to conclude that labour costs are higher on average in Jamaica and Saint Lucia than they are in Trinidad and Tobago or the Dominican Republic. Minimum wages, surprisingly, are highest in Saint Lucia, a country without a legally mandated minimum wage. This is no doubt a reflection of the fact that the rate of unemployment is much lower in Saint Lucia than it is in the other three countries.

Export processing firms in Jamaica, Saint Lucia and Trinidad and Tobago are filled predominantly by women, especially young women. Some researchers argue that this has the effect of drawing secondary workers into the labour force rather than reducing the rate of unemployment of heads of households. On the other hand, young women in the Caribbean are often single parents, and it is precisely this demographic group--young females--that exhibits the highest rate of unemployment in the Caribbean.⁶

In the Dominican Republic, women also constituted at first nearly all the free zone labour force. The proportion of women decreased steadily over the years, however, and was only 60% at the end of 1992 even though factories producing clothing and other textile products accounted for 70% of total employment. In many of the garment factories of the Dominican Republic today, men work side by side with women. Indeed, some factories hire only male operators, but these are definitely a minority.

NATIONALITY OF OWNERS

Export processing has attracted considerable local investment in the Dominican Republic and Jamaica (see table 5). More than a quarter of the free zone companies in the Dominican Republic are owned by nationals of that country; they also employ approximately a quarter of the labour force. Jamaican entrepreneurs own nearly half the export processing establishments in that country, but the locally owned companies are much smaller on average than foreign-owned companies and therefore account for less than a quarter of total employment in the export processing sector. The absence of local ownership of export processing companies in Saint Lucia is due not to discrimination against native investors, but rather to a lack of interest on the part of local entrepreneurs.

The United States, the main market for products of export processing plants in the subregion, is also the main source of overseas investment (see table 5). The three countries have also attracted investment from the Republic of Korea, Hong Kong and several European countries. Only the Dominican Republic is host to investment from Taiwan, province of China.

⁶ ECLAC (1990, p. 20) reports "in Jamaica an estimated 90 to 95% of supervisors and operators have children, while an estimated 85% to 90% are said to be single parents".

Table 5

DOMINICAN REPUBLIC, JAMAICA AND SAINT LUCIA:
DISTRIBUTION OF EXPORT PROCESSING COMPANIES
BY NATIONALITY OF OWNER, 1993
(Percentages)

Ownership	Dominican Republic	Jamaica	Saint Lucia
Dominican Republic	26.7	---	---
Jamaica	---	46.8	---
United States	51.0	33.0	70.6
Republic of Korea	10.1	6.4	5.9
Hong Kong	0.8	11.9	17.6
Taiwan. province of China	3.1	---	---
Other	8.3	1.8	5.9
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Willmore (1993a, 1993b and 1993c).

Note: Assumes that 24 companies operating as "special free zones" in the Dominican Republic are locally owned and that all 20 data processing firms located outside the Jamaican free zones are locally owned. Data for Trinidad and Tobago are not shown, but the small number of factories that comprise Trinidad and Tobago's export processing sector are known to be locally owned.

TRANSFER OF TECHNOLOGY

Export processing is universally valued as a means of employing large numbers of relatively unskilled workers, but its value for transfer of technology is frequently overlooked or even denied. None the less, the importance to an economy of introducing workers for the first time to the rigors of a competitive environment, to notions of punctuality, quality control and deadlines, should not be minimized. Moreover, for local entrepreneurs offshore assembly provides a low-risk method of entry into export activity. After all, with subcontracting arrangements, the customer provides the raw materials, which reduces drastically an export processor's need for working capital. As the industrialist moves along his learning curve, gaining confidence and access to finance, he can begin to purchase his own raw material. Eventually he may even design his own products.

Much of the export processing carried out in the Dominican Republic is mere assembly and is characterized by repetitious tasks that require little skill. There are exceptions. Cigar makers are highly skilled, as are those who cut and polish diamonds or craft jewellery of gold, silver and precious stones. The data processing company in the San Isidro Free Zone hires only secondary school graduates with typing skills, and is very selective in choosing those who are allowed to graduate from the four-week basic skills course to a further four weeks of on-the-job training. But the overwhelming majority of workers in the export processing zones (EPZs) have little education and receive no more than two or three months of on-the-job training.

Despite the low level of skills required for most jobs, it would be rash to conclude there has been no transfer of technology to free zones in the Dominican Republic. The introduction of more than 140,000 workers to factory work is potentially of enormous benefit to the industrialization of the Dominican Republic. Moreover, nearly all free zone production is 100% Dominican, including supervisors, technicians and plant managers. These technical and managerial personnel are acquiring skills that are extremely important for the industrial development of their country. This is equally true for Saint Lucia, where all of the supervisors and most of the managers of export processing plants are local nationals. Particularly in the case of United States-owned companies, in both countries the local manager typically has a large amount of autonomy, and sees an executive from the parent company only four or five times a year.

The footwear industry in the Dominican free zones is an activity where one would expect to find minimal transfer of technology. Eighteen factories employ nearly 12,000 workers, but they do not produce a single, complete shoe! Dominican factories sew only the uppers, which are then "bottomed" in Puerto Rico and shipped to the mainland United States for distribution. This truncated production process exists so the producing companies can qualify for Section 936 income tax exemptions and obtain quota and duty free access to the United States market.

None the less a report commissioned by the United Nations Development Program (UNDP) praises the technical and managerial skills displayed in these footwear plants:

"Most of the [free zone] companies employ more than a thousand operators, utilize advanced computing systems to program and control the production process, and have attained high productivity, avoiding the bottlenecks so common in sewing. Several of the companies are introducing and increasing their use of the new organizational techniques of just-in-time, total quality control and continuous improvement. Employee training is permanent. Inventories are low thanks to careful planning and expeditious customs procedures. " (Beriastain and Fleury, 1992 p.36) [emphasis added].

The authors of the report regard this as a significant transfer of technology, even though free zone production has not had any effect on the small, technically backward plants that produce for the local market:

"In general, this modern structure [in EPZ] is dictated by the parent company of which the Dominican plant is a branch or works as a subcontractor. None the less, the fact that Dominican businessmen, technicians and operators have reached this degree of modernization, even though it has been induced or imposed from outside, implies considerable transfer of technology. It illustrates the potential of the national footwear sector if domestic producers were to forge linkages with the free zones." (Beriastain and Fleury, 1992, p. 36).

A report prepared for the UNDP on the Dominican Republic's garment industry (Hoffman, 1991) reaches similar conclusions. Firms producing for the domestic market operate at low levels of efficiency, for "there are high wastage rates, deficient practices are everywhere in evidence and the level of training is very low" (p. 52). In addition, factory visits revealed "a large amount of work in progress, slow rotation and frequent scenes of chaos" (p. 55). In contrast:

"All [the free zone companies visited were competently administered and managed in such a way as to produce a large volume of output using the 'best practice' methods of conventional production. In general, they are able to satisfy the strictest requirements of quality and delivery; ... [and] the quality and skill of their employees is high." (Hoffman, 1991, PP . 70-71) .

Although few of the garment factories carry out any operation other than sewing pieces of cloth cut in the United States, the report concludes that:

"These [free zone] companies are well placed to lead the transformation and restructuring of the domestic segment, both by example and by exploring innovative forms of subcontracts and backward linkages. Although it is true that the competence of the free zone companies contrasts sharply with many of the local firms, this is a problem of circumstance, and not of inherent abilities, for Dominican workers and managers work in both types of firms." (Hoffman, 1991, p. 71).

In Jamaica the situation is very different from the Dominican Republic and Saint Lucia. The economic recession of the 1970s and early 1980s, combined with social tension, stimulated the emigration of skilled labour, including managerial talent. As a result it is rare today to see a Jamaican plant manager in factories producing garments for export. In fact, even Jamaican-owned companies resort to expatriate managers. On the positive side, skills are improving: 10 years ago even supervisors were imported from abroad; now all supervisors are Jamaican nationals. Numerous high-level management positions exist that are currently filled by expatriates. They are available for a new generation of Jamaicans trained in fields such as business administration and industrial engineering.

In Saint Lucia much of the work of export processing companies cannot be described as mere assembly. In the garment industry, nearly three quarters of the workers are employed by

factories engaged in the cutting, making and trimming of garments (CMT) rather than sewing of pre-cut garments imported from the United States under the 807 scheme.⁷ In contrast, nearly half of the garments exported by Jamaica and almost all those exported by the Dominican Republic are sewn from cloth cut in the United States. Since these 807 exports are given generous quotas, the differing importance of CMT in the three countries reflects the fact that the Dominican Republic faces numerous binding quotas, Jamaica a few, and Saint Lucia--because of its small size-- none at all. In other industries, too, manufacture is more common than assembly in Saint Lucia. The largest electronics firm on the island produces wirewound resistors to exacting specifications using sophisticated equipment, then coats and labels them. Another company uses plastic injection machines to produce from PVC Pellets and its own waste plastic a variety of novelty items, including souvenir coasters and key chains for Euro-Disney.

As a vehicle for transfer of technology through training of the labour force, these two types of export processing plants--assembly and manufacture--are very similar, at least in Saint Lucia. In terms of technical education, there is little difference between plants that assemble pieces into a finished product, such as 807 apparel production, the wiring of transformers or the assembly of circuit boards, and those that carry out a full production process, such as CMT garment production, the manufacture of wirewound resistors or the injection, trimming, painting and packaging of plastic novelties. The reason is that the production process has been subdivided into simple component parts, so that a new worker with no training can become fully trained in two, or at the most three, months in a specialized task. This is not an enormous amount of technical training.

Taking into account the fact that Saint Lucia is an agricultural society, export processing may represent a useful first step in the path of industrialization. Plant managers complain that Saint Lucian workers are "laid back" and require constant incentives and motivation to obtain satisfactory productivity and punctuality. Hong Kong investors have addressed this problem by importing Chinese sewing machine operators who work alongside local workers in order to "pace" them. The Chinese and Saint Lucia's are paid the same piece rates, but the Chinese are more productive, hence earn more than their Saint Lucian counterparts. The manager of one of the factories reports that after many years of experience, six Saint Lucian sewing machine operators have met and passed the productivity of the Chinese operators. Perhaps there is continued learning on the job, even in the garment industry, well beyond an initial two- or three-month training period.

⁷ Under item 807 (now 9802) of the United States customs code, products assembled of parts imported from the United States pay duty only on the value added by assembly. The sewing and trimming of cloth that is cut in the United States is deemed to be assembly for the purpose of the customs authorities. If, in addition, the cloth is manufactured in the United States, the garment receives virtual quota-free access to the United States market.

FORWARD LINKAGES

Forward linkages are almost nonexistent. In all four countries, legislation permits the "export" of goods to the domestic economy. but Governments are reluctant to allow export processors to compete with protected domestic firms as a result, authorities do their best to ensure that export processing plants remain hermetically sealed from the rest of the economy. Workers in these plants and their families are not allowed to consume the foods that they produce.

The result is a segmented manufacturing sector. One segment is modern, large-scale, efficient, highly productive and produces solely for the export market. The other segment is small-scale, largely unspecialized, with low productivity and produces for the domestic and, to a very limited extent, subregional markets. There is virtually no contact between the two segments; neither workers nor managers move from one segment to the other. Government prohibits sales by exporters in the domestic market out of desire to protect the inefficient segment of the industry. Despite these efforts, considerable contraband (from suitcase traders, not the exporters) enters Caribbean countries, so that protection of local industry is frequently eroded.

BACKWARD LINKAGES

Export processing plants in the Dominican Republic and Jamaica have not developed backward linkages for the same reason that they have not developed forward linkages: government policy. In order for a business in Jamaica or the Dominican Republic to supply any product or service to an export processing company, it must be a registered exporter.⁸ Registration is a bewildering bureaucratic process involving multiple forms and considerable administrative discretion. One requirement of exporters in Jamaica, for example, is that they obtain each month a tax compliance certificate that must be stamped by six different agencies.

This "red tape" combined with taxes discourages the local purchase even of small items such as office supplies, despite the willingness of companies to source some of their inputs locally. Jamaican companies receive a tax rebate of 7.5% on "exports" to EIEA and free zone companies, but this is not sufficient to overcome the competitive disadvantage caused by bureaucratic obstacles and by taxes it imported raw materials. In the Dominican Republic, no rebate of any kind is given for duty paid on imported raw materials; and legislation dating from 1979 which provides for the temporary import of goods that are incorporated into exports has never functioned very well. In these circumstances, it is not surprising that export processing companies find domestic products to be uncompetitive with imports.

⁸ The registration requirement was lifted in the Dominican Republic in January of 1993, but remains in effect in Jamaica.

A market exists for numerous goods that could be supplied to export processing plants, if only local products were competitive in price and quality with imported goods. As an example, consider the case of paperboard boxes. Export processors consume an enormous amount of this product. Seven box factories operate in the customs territory of the Dominican Republic, yet not one of them has been able to sell to a free zone company on a regular basis. Their only sales are sporadic, emergency sales when a shipment from abroad is delayed, for local producers cannot compete with imported boxes. Similarly, not a single exporter purchases cartons from local suppliers in Jamaica.

Paperboard boxes are bulky items in which freight represents a large proportion of the CIF cost of imports, so that there is an incentive to obtain this input locally. In September 1985, Jamaica's largest garment producer, which is owned by Hong Kong interests, set up a "box factory" within its factory. A total of 35 employees now produce an average of 40,000 boxes a month, a small portion of which are sold to other garment exporters.

Free zone factories in the Dominican Republic have also begun to substitute imports of paperboard boxes. The import substitution process began a few years ago when a Korean arrived as manager of a garment factory in the Bonao Free Zone. He saw large quantities of paperboard boxes that were imported from abroad, at great expense in terms of transportation costs, so decided to leave salaried employment and open his own box factory in the free zone. After establishing the company, which now employs 40 persons and is known as United Packaging, he sold it to another Korean and began construction of a second box factory in Hainamosa Free Zone. In the meantime, another Korean has opened a factory in Nigua Free Zone that also employs 40 persons in the production of boxes and cartons.

Since the Saint Lucian economy is tiny, one would not expect to see any evidence of backward linkages on that island. All the more surprising, then, to find numerous examples of such linkages. With only one exception, all export processing plants purchase all their requirements of paperboard boxes from a local factory, Windward Islands Packing Company, Ltd. (WINERA), whose main product is banana cartons. Most export processing companies also purchase polythene packaging material from a local factory that exists, like WINERA, primarily to service the banana industry. One of the companies not only purchases cartons and polythene sacks locally, but also wire display racks that are exported to EuroDisney along with souvenir key chains. The racks are produced by artisan methods in a workshop where the main product is dish racks, sold for use in the home.

Saint Lucia's export processing companies have been able to develop backward linkages for several reasons. First, and most importantly, local businesses can sell goods and services to enclave and free zone factories without first obtaining an export license. Second, backward linkages from the banana industry (to plastic bags and paperboard cartons) mean that intermediate goods are produced on a large enough scale that costs are not excessive. Third, producers of intermediate goods pay no tax other than a 3% customs service charge on the raw materials they import, and sales to exporters are automatically exempt from the consumption tax that is charged on goods destined for the local market. In sum, policies in Saint Lucia are

conducive to the formation of backward linkages, in sharp contrast to policies in effect in Jamaica or the Dominican Republic.

Saint Lucia's success in developing backward linkages, though unusual, is not unique. Export processing plants in the Republic of Korea and Mauritius are also known to purchase a significant amount of material inputs from local producers. When Korea opened the Mason Export Processing Zone in 1971, local factories supplied only 3.3% of the raw materials and intermediate goods processed in the zone. Their share increased to 25% in just four years, and eventually reached 44% (Healey and Lutkenhorst, 1989, pp 24-32; UNCTC. 1991, pp. 331-43). Mauritius, a small island in the Indian Ocean, also inaugurated in 1971 an Export Processing Zone that attracted considerable Chinese investment in garment factories. By 1982, domestic producers were supplying 41 % of all the intermediate inputs into the zone's garment industry, including nearly all the cardboard boxes, and a large proportion of the cloth, thread, and trimmings (see table 6). Because of its similarity to many Caribbean economies, the case of Mauritius is summarized below in some detail.

By implementing appropriate policies, Korea, Mauritius and Saint Lucia have facilitated linkages between their export processing plants and the domestic economy. The three countries differ in many respects, but they have one thing in common: in each case customs authorities encourage domestic producers to supply the export processing zones and they give them access to material inputs at duty-free prices. This is not the case in the Dominican Republic or Jamaica where, as a consequence, export processors import virtually all their raw materials and intermediate goods.

EXPORT PROCESSING: THE EXPERIENCE OF MAURITIUS⁹

The Island of Mauritius lies approximately 2,400 km off the east coast of Africa. Though the country is only one third the size of Trinidad and Tobago, it is densely populated and has almost as many inhabitants. Two thirds of the population is of Indian origin, while 30% are descendants of French and Africans and 3% are ethnic Chinese. English is the official language, but French is widely spoken and is preferred over English by much of the population.

At the time it gained its independence from the United Kingdom in 1968, Mauritius was a typical plantation economy. A single crop--sugar--accounted for 90% of export earnings, 41 % of the employed labour force and 25% of gross domestic product. Per capita income stagnated at around US\$ 200. Unemployment amounted to 17% of the labour force, and was rising rapidly due to growth of the labour force and mechanization of agriculture. Some of the most dynamic residents were migrating, taking with them their skills and their savings.

⁹ This section is based on Hein (1989), Luchman (1991) and Sengupta (1991).

The outlook was bleak for the newly independent country. Consumer goods were manufactured for the local market behind protective tariffs, but this provided little employment, and the small size of the economy restricted the scope for further import substitution. Development of tourism on a large scale was impossible because the already crowded island had few beaches that were attractive to international tourists. In 1967 an international expert had been invited to study the feasibility of establishing export processing industries, but his report was unfavorable.

The Government of Mauritius decided to undertake a fresh examination of export processing zones (EPS) and sent a team to study industrial development in small countries with an export orientation. The team's report was received in July 1970, and Parliament responded in December 1970 with the Export Processing Zone Act.

The EPZ Act provides for long-term tax holidays, free repatriation of capital and profits, and duty-free importation of machinery, equipment and raw materials. Mauritius, like Jamaica and Saint Lucia, imposes no geographic restrictions on export processing: factories can operate anywhere on the island so long as they possess an EPZ certificate. To attract entrepreneurs, the Government offers low-interest loans, leases factory shells, sets minimum wages for EPZ at levels much below those for the rest of the economy, and excludes EPZ from many of the existing labour laws. An important concession is that EPZ firms are allowed to dismiss workers without notice and without severance pay; this effectively weakens the power of trade unions. In addition, the Government maintains a competitive exchange rate, guaranteeing that low wages in local currency translate into low wages in foreign currency.

The Mauritius Export Processing Zone has been a phenomenal success. Employment in EPZ firms grew to 17,000 by 1976 and reached 90,000, nearly a third of all jobs on the island, by 1990. Full employment was attained in 1988 and farmers reportedly began to find it difficult to recruit labour for the sugar harvest.¹⁰ The EPZ minimum wage was initially set much higher for men than for women, with the result that men accounted for only 20% of EPZ workers. In late 1984, as a measure to promote male employment in EPZ plants, Government abolished the minimum wage for men while retaining the minimum wage for women. The proportion of men employed in EPZ began to increase as a result, reaching 34% in 1988.

Initial investors were from Hong Kong, attracted by the existence of a small ethnic Chinese community, low-cost labour and freedom from quotas on garments set by the United States and the European Union. Local entrepreneurs followed the example of the Chinese, and domestic participation in equity of EPZ firms reached 53% in 1990. On the negative side, production remains concentrated in knitwear and other garments. Sales are concentrated geographically as well, with 70% going to the European Union and the remainder to North America. This leaves the economy vulnerable to the effects of new barriers to trade in textile products.

¹⁰ Unemployment fell steadily from 22% of the labour force in 1982 to 9% in 1987, 5% in 1988 and 4% in 1989.

Table 6

MAURITIUS EXPORT PROCESSING ZONE: INPUTS
INTO GARMENT PRODUCTION. 1982

(Percentages)

Gross value of output	100.0
<u>Imports of intermediate goods</u>	<u>35.3</u>
Cloth, yarn, thread, trimmings	31.5
Paper, paperboard, printing	0.1
Chemicals, plastic products	2.7
Other intermediate goods	1.0
<u>Local purchases</u>	<u>32.3</u>
Cloth, thread, trimmings	20.7
Paper, paperboard, printing	1.7
Chemicals, plastic products	1.2
Other intermediate goods	0.9
Utilities (electricity and water)	1.0
Services (transport, communications, etc.)	6.8
<u>Value added</u>	<u>32.4</u>

Source: Calculated from data in Hein (1989, table 6). The original source is Central Statistical Office, National Accounts of Mauritius, 1984, Table 2.27.

The Mauritius EPZ has been quite successful in the development of backward linkages to local suppliers of intermediate goods for the garment industry. Statistics reported in Table 6 for the year 1982 indicate that, even with only one textile plant in existence, EPZ garment factories purchased 40 % of their cloth from the local producer.¹¹ In addition, EPZ garment producers in 1982 purchased from local factories nearly all their paper and paperboard boxes, as well as 30% of their chemicals and plastics. As a result, imports of raw materials and intermediate goods amounted to only 35% of the gross value of garment production. There is, of course, a substantial import content in the intermediate goods produced on the island. All cloth, for example, is woven from imported yarn. None the less, a large proportion of Mauritius' exports of garments represents national value added, in sharp contrast to exports from a typical Caribbean country.

Beginning in 1984, linkages between EPZ and the rest of the economy were strengthened by granting incentives to exporters without an EPZ certificate, and by gradually removing the restrictions on the proportion of EPZ production that could be sold domestically. Today there is almost no difference in incentives given to a firm operating under the export processing scheme and those available to an exporter operating without an EPZ certificate. EPZ firms are subject to lenient labour laws compared to other exporters, but with full employment this no longer represents much of an advantage, as the market clearing wage is well above the minimum wage.

CONCLUSION

The Governments of the Dominican Republic, Jamaica and Saint Lucia have successfully promoted export processing, thus providing employment opportunities for their citizens. In contrast, Trinidad and Tobago has failed to develop a significant export processing sector. This failure is usually ascribed to three factors:

1. **High labour costs.** It is true that wages in Trinidad and Tobago are high compared to some of the Asian countries, such as Sri Lanka, the Philippines or the People's Republic of China, but they are much lower than those prevailing in Hong Kong, Korea or Taiwan, province of China. Moreover, wages of workers in garment factories are lower in Trinidad and Tobago than in Jamaica and Saint Lucia, and they are similar to those of workers in the free zones in the Dominican Republic. In addition, Trinidad and Tobago remains an insignificant exporter of garments, so that, like Saint Lucia, the country has quota-free access to the protected United States and European markets.
2. **Militant trade unions.** This is an important obstacle, for wage costs can escalate rapidly when a plant is unionized. Mauritius also has a history of militant trade unions, but their power was effectively blocked by making it easy for EPZ firms to dismiss workers. In the Caribbean,

¹¹ The growth of garment production, hence demand for textiles, allowed two additional textile weaving and finishing factories to open in 1987.

investors defend themselves by remaining "footloose", that is, by leaving quickly, or threatening to leave, when union demands are perceived as unbearable.

3. **Lack of promotion of foreign investment.** Government agencies in Trinidad and Tobago have not been aggressive in attracting foreign investors in export processing. Career civil servants frequently assume, for example, that the existence of excess capacity in the garment industry implies that the country does not need investment by foreign entrepreneurs. There is little appreciation that the foreign investor brings to the host country, not only machinery and equipment, but also knowledge of foreign markets and the ability to supply them with the quality and type of goods that are in demand. In all countries with a flourishing export processing sector, investors are offered the option of leasing factory shells. In Trinidad and Tobago, investors in the Point Lisas Free Zone are expected to build their own factories on leased land. This makes them less "footloose" and more susceptible to demands of trade unions.

Of the three factors --high wages, militant trade unions and lack of promotion of foreign investment-- only the last two are convincing explanations for the almost total absence of export processing in Trinidad and Tobago.

Industrial development comes from learning-by-example as well as from learning-by-doing. It is not surprising that export processing in Trinidad and Tobago has not progressed without the example of foreign entrepreneurs. Nor is it an accident that Koreans and Chinese rather than Dominicans or Jamaicans were the first to supply garment factories with paperboard boxes produced in the free zones. Of course, for local entrepreneurs to learn by example, they too must invest in export processing plants. Local entrepreneurs are fortunately very active in the export processing sectors of both the Dominican Republic and Jamaica. They are noticeably absent in Saint Lucia, but this may reflect the small size of that economy, as well as the existence of attractive investment opportunities in the booming construction and tourism sectors.

Export processing admittedly provides jobs that require little in the way of skills. Yet it would be wrong to conclude that there has been no transfer of technology, for two reasons. First, a large number of workers have been introduced for the first time to a competitive industrial environment. Second, local supervisors, technicians and plant managers also work in these plants, and they are acquiring skills that are extremely important for the industrial development of the subregion. Even in the case of Jamaica, where native technicians and managers are in short supply, the fact that good jobs exist that are now occupied by expatriates is an incentive for Jamaicans to return home, or for young Jamaicans to train themselves for demanding positions.

In the immediate future, export processing in the Caribbean is likely to remain concentrated in activities that use standard technologies requiring large amounts of labour, low wages and low skills. This is not undesirable for a subregion in which a considerable proportion of the labour force is unemployed and has limited industrial skills. As unemployment falls, wages rise and skills increase, exporters in each country will want to consider a shift away from simple manufactures to the production of goods that require skilled labour and sophisticated technology.

Fenced EPZs inevitably become less important once Governments provide incentives for companies located outside special export enclaves. This happened early in the industrial development of the Republic of Korea and Taiwan, province of China, where all exporters, direct and indirect, were given the same privileges as firms in the EPS. Mauritius from the very beginning allowed EPZ factories to open anywhere in the country and gradually extended export incentives to plants that do not have EPZ status; in effect, the entire island is now an export processing zone.

The situation is very different in the Dominican Republic, where exporters are restricted to free zone enclaves and have no contact with the domestic economy. Saint Lucia and Jamaica, like Mauritius do not restrict export processing plants to designated locations. Despite the small size of its economy, Saint Lucia has been successful in encouraging backward linkages by providing incentives to indirect exporters (local suppliers of the export processing plants) as well as direct exporters. This is not the case in Jamaica, where government policies confine export processors not to physical enclaves, but rather to economic enclaves where few goods are bought or sold in the local market. In the final analysis, restrictions on export processing are nearly as stringent in Jamaica as they are in the Dominican Republic.

In conclusion, of the four Caribbean countries, Saint Lucia has been most successful in utilizing export processing as an instrument of industrial development. The challenge for the Dominican Republic is to remove geographic restrictions on the location of export processing plants, to make the transition from export processing zones to an export processing country. A challenge for both Jamaica and the Dominican Republic is to transform themselves into export-oriented economies by extending to all exporters, direct and indirect, the incentives that are now given to export processors. The task for Trinidad and Tobago is even greater, for the country has yet to begin serious promotion of export processing .

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