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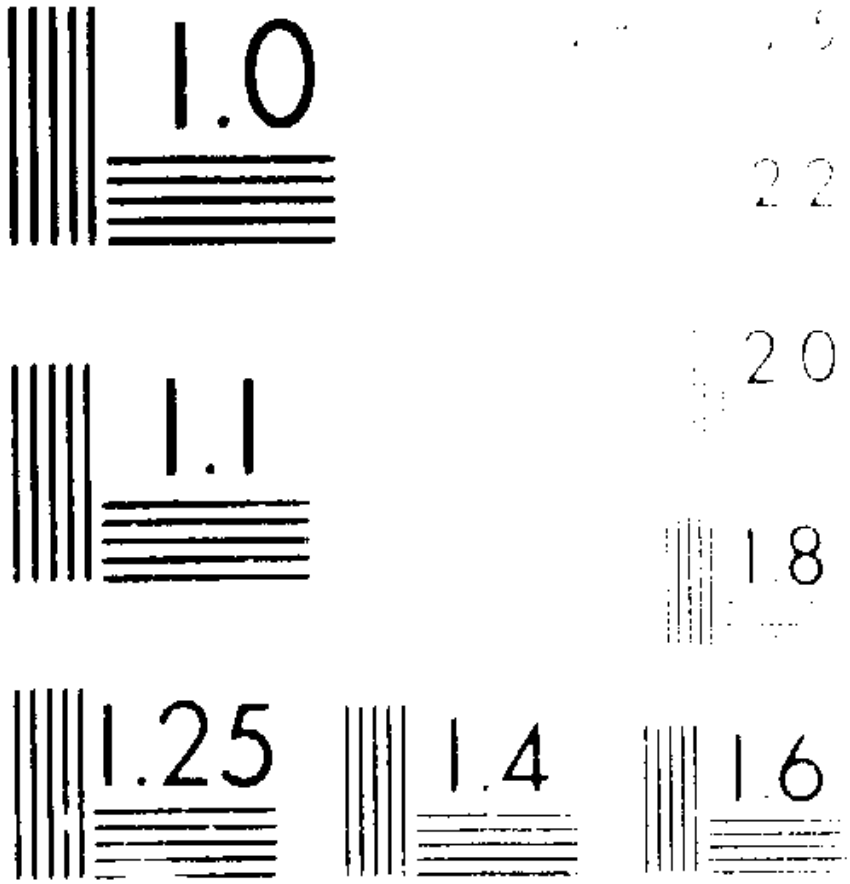
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EXPORT PROCESSING ZONES IN DEVELOPING COUNTRIES

--- UNIDO SURVEY FINDINGS AND RECENT DEVELOPMENTS

FIRST DRAFT, DECEMBER 1982

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INTRODUCTION

The UNIDO Survey on EPZs

The rapid spread of export processing zones(EPZs) to many developing countries has rendered information constantly lagging behind recent developments in this area. In view of this informational gap, UNIDO conducted a world-wide survey in late 1981 on EPZs and industrial estates(IEs). The latter are also included since some of them may accomodate mainly export processing activities without using the name EPZ.

More than sixty IEs and EPZs responded to the survey. In essence, the survey touches upon the following aspects of EPZs and IEs: facilities and services, fiscal incentives, the degree of foreign participation, problems and prospect, employment structure and wage rates, structure of production and the distribution of sales revenues(a questionnaire of the survey can be found in Annex II).

The purpose of this paper is then an attempt to update information of EPZs, using materials obtained from this survey. The EPZ, being an instrument to promote export-oriented foreign direct investments, has ignited discussions ranging from its potential to create employment to the transfer of technology — a wide spectrum of issues which no single survey can fully capture. Moreover, the responses to some of the questions in the survey are not very complete(especially the last two questions). Therefore, recent studies are also used to supplement the survey in order to fill up some of the lacunae.

Background and Main Issues of EPZs

Most developing countries regard their active participation in foreign trade — and hence in the international division of labour — as essential to their economic growth. The dramatic growth of world trade in manfactures compared to primary commodities during the sixties and seventies has strengthened the belief that manfacturing for export is the engine of growth. The export processing zone represents one particular ploicy package of a government for pursuing export-led industrialization.

An EPZ is a relatively small, geographically separated area within a country, the purpose of which is to attract export-oriented industries, by offering them expecially favourbale investment and trade conditions as compared with the remainder of the host country. In particular, the EPZ provides for the importation of goods to be used in the production of exports on a bonded duty free basis. By far the largest part of investors are foreign companies which have their origin in developed countries, though there is also an increasing number of firms from less developed countries investing in newer EPZs.

The EPZ is a development and modification of the earlier free ports and free trade zones, and in practice it is difficult to distinguish between zones engaged in manufacturing activities and those engaged in commercial activities. On the one hand, not all zones in which full-scale industries are actually operated are designated as EPZs. on the other hand, many so-called free trade zones are concerned with manufacturing as well.[1]
The analysis in this paper adopts a narrow definition of EPZs which focusses on those engaged primarily in manfacturing activiries host countries

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1/ Thus a very broad definition of EPZs is given by the World Export Processing Zone Association(WEPZA) covering quite different types of zones:

"All government authorized areas such as, free ports, free trade zones, customs free zones, industrial free zones or foreign trade zones, or any other type of zone as the Council may from time to time decide to include."

See Article 1 of the Statutes of the World Export Processing Zone Association, UNIDO document ID/WG. 266/6, 28 February 1978.

From the viewpoint of the developing countries, the key questions for evaluating the benefits of an EPZ for the host country are:

- Do the EPZs represent a catalyst or a dead-end method of export-led industrialization? Under what conditions are they likely to constitute a catalyst and under what conditions are they likely to fail?
- From a national point of view, what is the social impact of setting up a modern industrial complex in an enclave in a developing country? What are the economic consequences of establishing an EPZ?
- From a financial point of view, is the investment of the scarce capital resources and foreign exchange of the developing countries in creating EPZs warranted? That is, does this investment pay, especially in the light of potential competition between the increasing number of zones?

Within these main issues there are specific questions. These include the extent to which the zones -

- generate employment and foreign currency surpluses;
- link and integrate with the remainder of the domestic economy;
- stimulate the transfer of technology and managerial skills;
- stimulate the training of workers in industrial skills;
- aid or detract from other national objectives, including regional policy;
- generate exports that are volatile and footloose.

It is important to note that many of the externalities generated by the EPZ is not easily quatifiable and so there is a tendency to pay more attention to the immediate and measurable consequences, though there is no theoretical justification for this imbalanced treatment of the costs and benefits of EPZs. The following discussion will try to avoid this bias.

Chapter one outlines the main features and objectives of EPZs noting the substantial growth in their number during the 1970's and their concentration in Asia. Chapter two examines the determinants of direct investments in EPZs. Chapter three describes the impact of the EPZs in terms of their economic and social consequences in the host countries. The paper concludes in Chapter four by summarizing the main observations and outlining suggestions to host governments when establishing or operating EPZs so as to include these to fulfil their expected role as a means of fostering export-led industrialization.

CHAPTER ONE: UNIDO SURVEY FINDINGS ON EPZS AND SOME RECENT DEVELOPMENTS

This chapter will first look into the overall configuration of EPZs using information from the survey and previous studies. The survey also enables us to compare industrial estates(IEs) and EPZs along several dimensions. It is however important to note that there is in fact no clearcut distinction between IEs and EPZs in some countries.[1] In some cases, even though EPZs do not exist on paper, yet special incentives are conferred on firms exporting 100% of their output and they are usually located in industrial parks or estates e.g. Barbados. In our sample, there are also zones that are mainly engaged in commercial activities besides manufacturing.

1/ Mauritius, for example, allows EPZ firms to set up their factories in sites other than those designated by the government.

Objectives

The establishment of EPZs usually embodies the following objectives:

1) to create employment,
2) to encourage exports in order to earn more foreign exchange,
3) to promote the transfer of technology,
4) to foster regional development.

It is hoped that EPZs serve as a catalyst for industrialization. These objectives certainly do not emerge from a vacuum. Earlier development experience, changing international environment, new trends in economic thinking all contribute to the formulation of these objectives. The disillusionment with the experience of import substitution among many developing countries and the remarkable success of export-led growth in such developing countries as the republic of Korea, Singapore and Hong Kong have prompted many to steer a different course. The twist towards export-oriented industrialization is further bolstered by studies which reveal the cost of protection and the potential employment effort in following an outward looking strategy.[1] The worsening balance of payments induced by the oil shocks and the subsequent deflationary policy of industrialized countries are also conducive to the image of EPZs as a panacea for foreign exchange shortage and unemployment. An attempt will be made in later sections to assess the contribution of EPZs in achieving these objectives.

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[1] See, for example, Little, Scitovsky and Scott(1970), Krueger(1978) and Krueger, Lary, Monson and Akrasanee(1981).

Geographical Distribution

Table 1 shows the geographical distribution of IEs and EPZs in the UNIDO survey. The classification in table 1 is based on the questionnaires. Again, it must be stressed that some IEs may engage in export processing of some sort. There are altogether 15 EPZs in our survey, six of them in Asia and five in the Carribean and Central America. This corresponds to the geographical distribution of the sixty or so EPZs operational in the third world by the end of 1982.[1] Many more EPZs are coming into the arena. Our survey, though not complete, indicates that 14 more are planned or under construction and there are 80 planned IEs, some of which may probably also engage in export processing activities. This phenomenon is not just confine to market economies. The People's Republic of China has recently set up five Special Economic Zones which are in many ways similar to EPZs.[2]

1/ Annex I updates information on the distribution of EPZs in the developing countries.

2/ See "Lucky Shenzhen is next to Hongkong: other SEZs will find life more difficult", Far Eastern Economic Review, October 1, 1982.

TABLE 1

GEOGRAPHICAL DISTRIBUTION OF EPZS/IES IN THE SURVEY

	EXISTING			PLANNED	
	EI	EPZ	OTHER [a]	EI	EPZ
Asia	5	6	0	43	8
Middle East	5	0	5	5	5
Africa	2	2	0	5	0
Europe	18	2	0	3	0
Central America +Carribean	5	5	0	24	1
S. America	15	0	1	0	0
Total	50	15	6	80	14

Source: UNIDO survey on EPZs, 1981

a. mainly commercial zones

Facilit es and Incentives

The survey shows that, on the whole, the facilities and services offered by IEs and EPZs are very similar in some aspects, as can be seen in Table 2. Besides serviced land and sites which are provided by nearly all IEs and EPZs usually at low and subsidized prices, communications services such as telex and international subscriber dialing are offered in most cases. Also common are construction services, one-storey modular factory buildings and fiscal concessions.

The differences between IEs and EPZs lie in three areas. EPZs usually offer a package of fiscal incentives including duty-free import and export, tax holidays, low corporate tax rates, and the absence of restriction on profit remittance, which are more generous than IEs (except those countries which also offer the same incentives to export-oriented firms in IEs).[1] A more independent EPZ Authority is often created to expedite administrative procedures. The removal of red tapes is in fact the raison d étre of the EPZ. While imports and exports are duty-free from EPZs and administrative procedures simplified, delay due to customs and cumbersome admin stration may be longer for IEs. As indicated in the survey, the delay can be as long as one month. For EPZs, it does not usually exceed seven days.

TABLE 2

FACILITIES AND SERVICES PROVIDED BY EPZS AND FTZS

SERVICES/ FACILITIES	NO. OF EPZS AND FTZS WITH THESE SERVICES/ FACILITIES	NO. OF EPZS WITH THESE SERVICES/ FACILITIES
Centralized one-stop administration	33 (.63)[a]	11 (.79)[b]
Serviced land and sites	51 (.98)	13 (.93)
Construction services	26 (.50)	8 (.57)
Preferential corporate income tax concessions	29 (.56)	9 (.64)
other fiscal concessions	30 (.58)	9 (.64)
One-storey modular factory buildings	34 (.65)	9 (.64)
Multi-storey factory buildings	9 (.17)	2 (.14)
Central warehouse facilities	9 (.17)	4 (.29)
Workers' canteens	25 (.48)	6 (.43)
Recreation centres	14 (.27)	5 (.36)
International subscriber dialing	45 (.87)	13 (.93)
Telex	48 (.92)	12 (.86)
Export marketing assistance	11 (.21)	4 (.29)

Source: UNIDO survey on EPZs, 1981

a. The figures in brackets are the proportions of zones and estates to the providing these services and facilities to the total number of zones and estates which responded to this particular question.

b. The figures in brackets are the proportions of EPZs providing these services and facilities to the total number of EPZs responding to this particular question.

The Composition of industries

As pointed out in many previous studies, investments in EPZs are up to now concentrated in two industries: garments and electronics. The difficulties in automating some labour-intensive production processes renders EPZs very attractive to firms in these industries.

A comparision of the industries in IEs with that of EPZs suggests that the industrial structure is more diversified in the former case. The figures do not suggest any major structural change in the composition of industries in EPZs as compared with previous studies, with most of the occupant firms in textiles, garments and electronics

TABLE 2

COMPOSITION OF INDUSTRIES IN EPZS/IES[a]

ISIC	IES ONLY	EPZS ONLY	TOTAL
31	74	12	86
321	137	12	149
322	50	70	120
323	6	24	30
324	7	3	10
33	70	5	75
34	26	1	27
351+352	79	3	82
353+354	7	0	7
355	7	2	9
356	45	5	50
36	18	8	26
37	17	0	17
381	136	32	168
382	7	15	22
3831	42	1	43
3832	34	60	94
3833	7	1	8
384	4	2	6
385	3	10	13
39	38	35	73

Source: UNIDO survey on EPZs, 1981

a. The figures are the total of those EPZs/IEs responded to this question. There are altogether 11 EPZs and 20 IEs.

In the questionnaires, firms are grouped into large (more than 50 employees) and small(less than 50). For those EPZs that provide the data, there are althgether 77 small and 236 large enterprices. Comparing with IEs, EPZ firms seem to employ more workers per firms. (see table 4) However, we cannot tell whether this implies a higher labour intensity or larger scale of production.

Employment

Previous studies on EPZs have put the estimate of total employment in EPZs at approximately 60,000 in 1978 (Currie, 1979). Table 3a also shows th employment for some zones in 1980. In general, a number of factors affect the estimate. Some countries like Barbados have incentives extremely similar to EPZs without using the name. Their exclusion may bias the estimate downwards. Workers in EPZs may not be employed in manufacturing. Many construction workers will be employed at the beginning. Free zones are also engaged in commercial activities as witnessed by the data from the survey e.g. the zones in Chile and Egypt. As long as manufacturing industries are our main concern, they tend to inflate the level of manufacturing employment. From our sample of EPZs, the numbers for manufacturing, construction and service are 90182,2134 and 298 respectively.

The importance of these zones in terms of employment to each country varies and is probably determined by such factor as country size, resource endowment, trade policy and the stage of economic development. For those countries which are successful in integrating EPZs to their industrialization efforts, the importance of the EPZ will decline over time.

The employment structure in manufacturing can be

TABLE 3

EMPLOYMENT PER FIRM IN EPZS/LDS

ISIC	EPZ ONLY	LDS ONLY
31	240	121
321	303	151
322		94
323	185	167
324	1392	397
33	39	43
34	43	22
351+352	13	75
353+354	—[a]	76
355	398	133
356	52	64
36	138	26
37	—	20
381	37	321
382	56	43
3831	101	577
3832	782	3212
3833	--	—
384	107	33
385	51	—
39	179	128

Source: UNIDO survey on EPZs, 1981

a. data not available

TABLE 3a

EMPLOYMENT IN EXPORT PROCESSING ZONES [1]

COUNTRY/ TERRITORY	1978	1980
Africa		
Mauritius	17,500	22,002
Senegal	600	501
Asia		
Hong Kong [2]	59,600	
India	3,200	4,500 [3] / 46,888 [4]
Malaysia	56,000	27,431
Philippines	24,600	31,452
Republic of Korea	120,000	
Singapore	105,000	7,631
Sri Lanka	5,200	80,166 [5]
Other Asia	77,400	
Carribean and Latin America		
Brazil	27,300	
Colombia	2,800	
Dominican Republic	14,400	17,454
El Salvador	2,900	
Haiti	40,000	
Honduras	1,500	851
Jamaica	1,000	
Mexico	70,000	119,546
Nicaragua	5,000	
Panama	600	
Middle East		
Egypt	10,000	16,402
Jordan	600	
Syrian Arab Republic	600	

Sources: 1978 data from Currie(1979), Frobel et.al.(1977) and 1978 Annual Report of the Philippines EPZ Authority. 1980 data from UNIDO survey and Tandon, Prakash, "the case of India", OECD Development Centre's research project on "Policies to attract export oriented industries: the role of F.E.P.Z.". See two forthcoming publication (1981) (i) by A. Basile and D. Germidis: "The role of F.E.P.Z.: a synthesis study", OECD Development Centre, and (ii) D. Germidis and M. Lester: "The role of F.E.P.Z.'s, country case studies", Hawaii University Press.

1/ This table includes only those countries for which employment figures in export zones are available. With the exception of Singapore - 1974, Mauritius 1977, Hong Kong - 1975, all figures in the second column are for 1978.

2/ Includes only employment in foreign-owned firms.

3/ Figure for Bayan Lepas and Sungei Way only

4/ Figure for Batsan only

5/ 1979 figure

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Singapore	105,000	
Sri Lanka	5,200	7,631
Other Asia	77,400	80,166 5/
Carribean and Latin America		
Brazil	27,300	
Colombia	2,800	
Dominican Republic	14,400	17,454
El Salvador	2,900	
Haiti	40,000	
Honduras	1,500	851
Jamaica	1,000	
Mexico	70,000	119,546
Nicaragua	5,000	
Panama	600	
Middle East		
Egypt	10,000	16,402
Jordan	600	
Syrian Arab Republic	600	

Sources: 1978 data from Currie(1979), Frobel et. al.(1977) and 1978 Annual Report of the Philippines EPZ Authority. 1980 data from UNIDO survey and Tandon, Prakash, "the case of India", OECD Development Centre's research project on "Policies to attract export oriented industries: the role of F.P.Z.", See the forthcoming publication(1981) (i) Lall S. and D. Germidis "The role of [illegible] synthesis study, OECD Development Centre, and (ii) D. Germidis and S. Lester: "The role of F.E.P.Z.'s, country case studies", Hawaii University Press.

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analysed along the following two dimensions: sex and skill composition. The data of EPZs manifest a significant preference for female over male employee for individual EPZ. In our survey, the ratio of female workers to total employment ranges from 70% to over 90%. Moreover, as a whole, the ratio is significantly higher than IEs(49%). This discrepancy may probably be attributed to the composition o industries. The concentration of highly labour-intensive and assembly-type industries in the zones partly accounts for the preference of women whose "nimble fingers" are thought to be particularly suitable to these operations.

As regards skill composition, employees are divided into three main categories:1)managers and technicians, 2)skilled workers and 3)unskilled workers. Table 3 presents summary statistics with respect to the skill composition of those estates/zones that responded to this question. Since our main concern is with the manufacturing sector, the following discussion will focus on manufacturing employment. On the average, managers and technicians in EPZs make up of approximately 8% of the total manufacturing employment, whereas the average for non-EPZs is 12 %. This difference may be potentially important to the issue of technology transfer. However, the figures vary greatly among different estates/zones. To further investigate whether there is any statistically significant difference between EPZs and IEs in this respect, a linear regression is run using a dummy variable, assigning 1 to EPZs and 0 to non-EPZs, with the percentage of employees belonging to the category of managers and technicians as dependent variable. The same exercise is performed for unskilled labour. The regression does not have a good fit. The demarcation between EPZs and IEs does not seem to explain the skill composition although on the average EPZs seems to employ more unskilled labour. The variations may probably be better explained by such factors as the stage of economic development of the host countries which influence the supply of skilled employees.

TABLE 4

EMPLOYMENT STRUCTURE [a]

	IES +OTHERS	EPZS	ALL
MANUFACTURING			
MANAGERIAL + TECHNICAL	16641	6289	23396
SKILLED	57323	14606	71929
UNSKILLED	57712	23691	81403
MALE	73050	14063	87113
FEMALE	71113	44919	116032
CONSTRUCTION			
MANAGERIAL+ TECHNICAL	136	9	145
SKILLED	440	34	474
UNSKILLED	1114	80	1194
MALE	1703	193	1896
FEMALE	127	105	232
SERVICE			
MANAGERIAL+ TECHNICAL	566	438	1004
SKILLED	374	50	424
UNSKILLED	416	0	416
MALE	4315	1611	5926
FEMALE	1475	521	1996

Source: UNIDO survey on EPZs, 1981

a. The figures are only the total of those responded to this question. Note also that the total of the different categories of employees and that of male and female may not be equal because some of the zones/estates did not give figures of some of these items.

Foreign Ownership and Transnational Corporations

Table 4 indicates that the percentage of 100 % locally owned firms in EPZs is 16.9, much lower than that in IEs. This is not at all surprising given the nature of EPZs. The high incidence of joint ventures may, inter alia, be due to host countries' policies to restrict foreign ownership. Foreign control and influence are, however, determined not just by ownership. A joint venture may be so dependent on its foreign partner for, say, marketing that it may virtually become a subsidiary of the foreign partner. One should, therefore, be extremely careful in drawing inference from these data.

The discussion of EPZs has in many instances been linked to the activities of and allegations against TNCs. In the survey, the respondents were asked to put down the percentage of firms that are TNCs. It is not uncommon that size, geographical spread and ownership are used as criteria to define a TNC. Presumably, these criteria are employed by the respondents. From the viewpoint of assessment of TNCs, these characteristics are not of interest by themselves. They serve as proxies to reflect more fundamental forces at work e.g. the capability of a firm to carry out a rational allocation of resources on a global scale in definace of national boundaries, monopolistic advantages and bargaining power, etc. However, there is no exact correspondence between these proxies and what they intend to measure. Moreover, there are some intangible relationships e.g. through international subcontracting and dependence one single buyer which renders a legally independent firm virtually a subsidiary in the global network of TNCs.[1] A definition based on ownership and size would therefore understate the presence and influence of TNCs in a EPZ. However, lacking a better alternative to identify the presence and influence of TNCs, we have to be satisfied with a second best solution as a first approximation.

From the survey(see table 4), the proportion of TNCs as perceived by the respondents is on the average 41.5 % for EPZs as opposed to 14.5 % for the IEs alone. It is not surprising, as EPZs serve conveniently as a clog in TNCs' international division of labour and the host countries with EPZs are often eager to court TNCs so as to help create a favourable investment climate.

1/ for a discussion of multinational buying groups, see Hone(1974) and Helleiner(1978)

TABLE 4

FOREIGN OWNERSHIP IN EPZS/IES

AVERAGE PERCENTAGE

	IE+OTHERS	EPZS	ALL
100% LOCAL OWNERSHIP	66.9	16.9	53.5
100% FOREIGN OWNERSHIP	19.4	53.0	29.1
JOINT VENTURES	14.6	32.3	19.4
PROPORTION OF FOREIGN FIRMS THAT ARE TNCS	14.3	41.5	26.5

Source: UNIDO survey of EPZ, 1981

Besides the TNCs from industrialized countries, recently there is an influx of firms from developing countries into some new zones e.g. Katunayake in Sri Lanka and Shenzhen in the People's Republic of China. Some studies (Kumar and McLeod, 1981; Lecraw, 1977), not particularly related to EPZs, have tried to establish the differences between these foreign firms from developing countries and traditional TNCs from industrialized countries which may work to the advantages of the host countries. Whether these differences may occur within the context of EPZs will be explored later.

To sum up, the survey leads to the following observations:

— EPZs and IEs provide very similar facilities and services. But, owing to their detachment from the domestic customs area, EPZs can avoid those bureaucratic red tapes encumbering firms in IEs in some countries as can be seen by the time they take to clear customs.

— whereas the composition of industries is more diversified in IEs, garments and electronics predominate in EPZs and most of them are firms employing more than 50 persons. EPZ firms also employ more women than men.

-- from our survey information, EPZs have proportionately more TNCs on average than IEs as would be expected. In many instances, foreign direct investments are in the form of joint ventures due probably to government policies. However, one must be extremely careful in drawing inference from this feature since foreign control is determined not just by ownership.

CHAPTER TWO: FACTORS ENHANCING THE ATTRACTIVENESS OF EPZS

There is by now a vast literature on the determinants of foreign direct investments. The different strands of thoughts have recently culminated in the "eclectic theory" propounded by Dunning(1980). International production implies that foreign firms should possess some advantages over their local counterparts. Dunning calls them ownership-specific factors. On the other hand, the host country in question must have possessed some location-specific factors which make her attractive to foreign investors. The decision to invest abroad is then explained by the potential benefits a firm derives from internalizing these advantages. The ownership-specific advantages of TNCs like their global information network, marketing skill and technology are well-known and therefore need no further discussion. In the following sections, we shall concentrate on the location-specific factors relevant to EPZs.

Wage Costs

The available evidence from the recent UNIDO survey indicates that wage rates in EPZs and IEs are higher than the legal minimum for the clothing and electronics industries. The figures below indicate that employees

AVERAGE HOURLY EARNINGS
PLUS SUPPLEMENTARY LABOUR COSTS(1980)

AVERAGE OF ALL EPZS AND IES(U.S. $)	SUPERVISOR	OPERATIVE
CLOTHING	1.78	1.09
ELECTRONICS	2.85	1.30
AVERAGE FOR EPZS ONLY(U.S. $)[a]	**SUPERVISOR**	**OPERATIVE**
CLOTHING	1.58	0.68
ELECTRONICS	2.41	0.87

Source: UNIDO survey on EPZs, 1981

a. Ireland is excluded since it is a developed countries whose wage rate is three or four times that of the others.

in both EPZs and IEs are paid higher wage rates in electronics than in clothing. This may probably reflect the skill levels of employees in the two industries. On the average, in our sample, operatives in EPZs receive much lower average hourly earnings than IEs. Whether this discrepancy is due to the production activities which require lower skill level is uncertain since to make inference from international comparison of wage rates can be quite dangerous.

Compared with U.S. average hourly earnings in textiles($4.66), clothings($4.24) and electronics($6.31) in 1979, the wage rates of those EPZs in our survey are on the average three or four time less. Looking into the data for the individual countries, the difference is even more striking. For example, in Indonesia, the average hourly earnings in these two industries(excluding supplementary labour costs) are 27 cents for supervisors and 14 for operatives. The differences are so large, especially among those late comers to the EPZ family that their role in relocating labour-intensive operations to developing countries is beyond doubt.

If a trainee system is practiced in the zone, the wage level presented here are not applicable, as trainees are paid less during their period of training. This can lead to malpractices. For example, in the Philippines, firms operating in the Bataan EPZ can pay workers only 75% of the minimum national wage for their six-month probation period. It is the practice of some companies to abuse this labour code by paying workers the reduced rate for six months and then firing them so that they can hire others at the 75% rate.[2] A similar strategy is also reported to be employed by some companies in Haiti(Delatour and Voltaire, 1980).

The attractiveness of wage costs in the developing economies compared to the industrialized economies is generally reduced when wage costs per unit of output are considered since the productivity of labour in the developing

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1/ The figures are from ILO Yearbook, 1980. We may understate the difference a little since the comparison is with wage rates of EPZs in 1980.

2/ See "Trouble at t'mill", Far Eastern Economic Review, October 8, 1982.

countries is usually below that of the labour in the industrialized economies. This is not the case with many assembly operations typically undertaken within zones for which it is possible to achieve high productivity with unskilled, low-cost labour. Several sources state explicitly that for the type of export production undertaken in the zones and the developed countries, there are no significant differences in labour productivity.[1]

Labour productivity in developing countries is most likely to compare favourably with developing countries in machine-paced jobs. Presumably in such cases the lack of prior industrial experience of the average industrial workers in a developing country is less of a handicap. Also, in a developed country, workers dislike machine-paced jobs; hence such tasks may be performed either by inherently low-calibre workers, or by workers who insist on working at a leisurely pace. Because most developing countries lack an industrial tradition, it may however often be necessary to have a higher ratio of supervisory personnel to manual workers than would be required in a developed country. Also, it may be found desirable to split up tasks done by one operative in a developed country, so that each worker has a more limited (and hence similar) set of operations to perform(Sharpston, 1975). Productivity levels in the Mexican Border zone(Bareersen, 1971) are estimated to be around 80 - 140% of U.S. levels and similar high productivity levels have been noted in Korea(Ranis, 1972).

The combination of high productivity and low wages makes the location of labour-intensive activities, in particular, in the zones extremely attractive. There is a concern that in their attempts to increase further the attractiveness of the zones, host governments may have restricted the application of existing labour laws in the zones, to ensure the investors of a docile labour force which can be utilized to its fullest extent. However,a survey by the Swedish Ministries of Foreign Affairs and Trade suggests that existing labour laws were applied in most EPZs.[2] Nonetheless, its results should

1/ U.S. Tariff Commission, "Implications and Multinational Firms for World Trade and Investment and for U.S. Trade and Labour". Report to the Committee on Finance of the United States Senate and its Subcommittee on on International Trade, Washington, 1973; Sharpston, M., "International Subcontracting", Oxford Economic Papers, Vol. 27, No.1, 1975, p. 98; Bareersen, D.W. The Border Industrialization Programme of Mexico, Lexington19

2/ Utrikes- och Handelsdepartementens Enhet II(UHD), "Industriella Frizoner - en Förberedande Undersökning", Promemoria, 21 July 1978, p. 14-15.

be interpreted carefully since only the general lines of the countries' labour legislation were examined. Moreover, in some countries, at least, the existing labour laws are such that no modifications are necessary to attract investors to the EPZ. In these countries, strict control is maintained over trade unions, strike holidays for employees of transnational corporations, special labour laws ruling out industrial disputes with foreign firms, etc.[1]

1/ See for example, Nayyar(1978), p. 77; Frank, C. R. Kim, K.S. and Westphal, L.E., Foreign Trade Regimes and Economic Development: South Korea, Vol. VII, National Bureau of Economic Research, New York 1975, pp. 242-43.

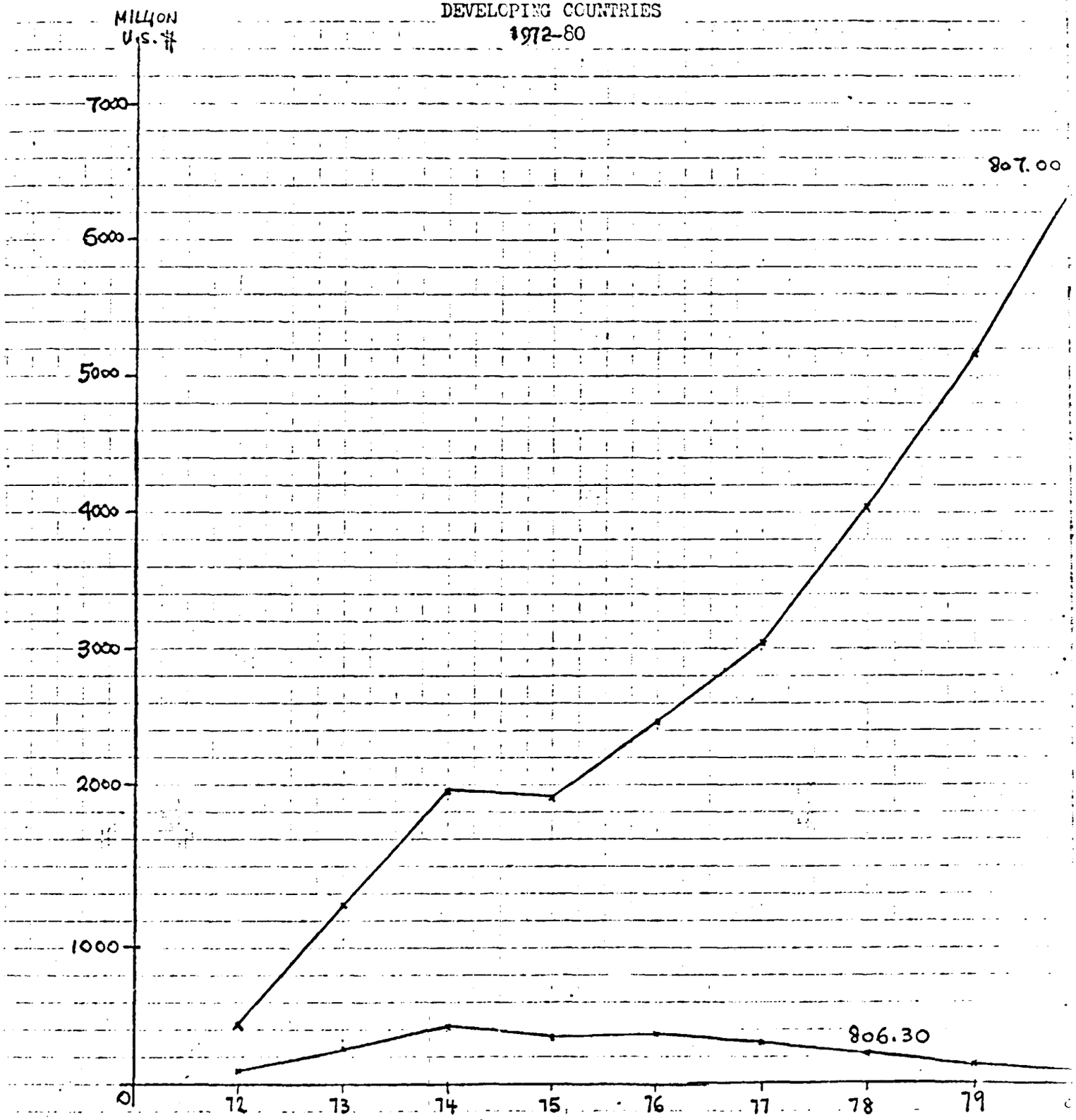
Trade Preferences and Offshore Assembly Provisions

The inclination towards freer trade and the granting of trade preferences to developing countries in the 60's and 70's created a very congenial atmosphere, enhancing the attraction of EPZs to investors from industrialized countries. The trade preferences to developing countries include, inter alia, the generalized system of preferences(GSP) and the preferential access of ACP countries to the EEC market according to the Lomé Convention. A study of the electronic industry in Malaysia(Lim, 1978) indicates that some firms in Malaysia's Free Trade Zones started their operations to capitalize on GSP. The EPZ in Mauritius boomed in the seventies mainly because of her preferential access to the EEC market.

Another important impetus behind EPZs is those offshore assembly provisions provided by the industrialized countries. The most prominant feature of these provisions is that only value added of imports is dutiable. Domestic materials and components re-imported are exempted from tariffs. They are particularly favourable to those industries which can relocate part of the labour-intensive process to low-wage countries. The best-documented offshore assembly provisions are tariff items 806.30 and 807.00 of the U.S. Diagram 1 shows the rapid growth of 806/807 imports. The EPZ with its simplified customs procedures and other incentives is a perfect match with these tariff provisions. The success of the border zones in Mexico can be largely explained by 806/807. In 1971, the value of exports under 806/807 from Malaysia was just a modest $9,600. Malaysia began to set up free trade zones in the early seventies which attracted many TNCs in electronics. Since then Malaysian exports under 806/807 has shot up manifold. (this is , however, not to deny the importance of such factors as the intense competition between the U.S. and Japanese firms to cut costs or the relaxation of foreign investment control in Japan). There is also increasing tendency among other industrialized countries to follow suit. The outward processing traffic of the EC countries is also expanding rapidly(see table 5).

DIAGRAM 1

TARIFF ITEMS 806.30 AND 807.00: U.S. IMPORTS FROM DEVELOPING COUNTRIES
1972-80



Sources: U.S. International Trade Commission, periodical publications on tariff items 806.30 and 807.00

TABLE 5 : IMPORTS OF GOODS UNDER OUTWARD PROCESSING ARRANGEMENTS FOR EEC-9

1977 and 1980.

	1977		1980 1/	
	Millions EUA	%	Millions EUA	%
Germany, Federal Rep.	879.21	36	887.30	31.5
France	1,266.05	51	1,270.50	45.1
Italy	57.75	2.3	57.18	2.
Netherlands	209.58	8.4	218.59	7.8
Belgium-Luxembourg	57.50	2.3	28.65	1.
United Kingdom	--	--	329.76	11.7
Ireland	--	--	.01	--
Denmark	--	--	22.62	.8
TOTAL EEC-9	2,470.84	100.00	2,814.60	99.9

1/ To September.

SOURCE: Commission of European Communities, Statistical Office, Nimexe 6, SCE 2119, Various issues.

It is important to note that TNCs are the chief beneficiaries of these offshore assembly provisions which, together with EPZs, chime in very well with their global strategy. Intermediate inputs and components can be exported to EPZs and then re-imported into their home countries without any hindrance at the borders. Moreover, TNCs, with their efficient communications network and the ability to organize flows of resources on a global scale is likely to make much better use of these provisions and EPZs so outperform their smaller competitors and indepedent Third World exporters, channelling a larger and larger share of the market into their orbits. Some recent developments further reinforce the dominance of TNCs in this respect. In concluding the Multifibre Arrangement Mark III with developing countries, the EC strategy is a stick-and-carrot one, demanding the big Asian exporters to reduce their quotas while, at the same time, partly compensating their losses through outward processing trade.[1] The outcome of the MFA will render the penetration into the markets of industrialized countries all the more difficult, while the TNCs can maintain and further improve their competitive edge over small third world exporters of textiles and garments as a result of the relatively more liberal treatment of outward processing which is their expertise.[2]

So far, the environment has been in favour of the triple alliance of TNCs, EPZs and offshore assembly provisions. However, changing international environment may in the future modify the situation. For one thing, the prolonged global recession and the rising debt burden of companies in industrialized countries may slow down the growth based on this tripartite arrangement. Soaring unemployment in the West has increasingly prompted trade unions to target their attack on outward processing and EPZs, exerting pressure on their governments to limit this flow of trade. Whether a high growth rate based on this international division of labour can still be sustained remains to be seen.

1/ See "Coming apart at the seems", Far Eastern Economic Review, March 19, 1982.

2/ See John Cavanagh, "Northern transnationals can use new MFA to sew up markets", in South, May 1982.

Efficient Facilities, Services and Administration

Of all the attractions offered by the EPZ, the provision of a wide range of facilities and services (see table 2) and efficient administration are extremely crucial in channelling foreign direct investments into EPZs. In common with industrial estates, EPZs can facilitate and accelerate factory investment, particularly in comparison with foreign firms acting alone or in joint ventures with local capital. Even in countries where the bulk of the factory investment would still have taken place outside the zone or estate, prepared sites and services accelerate the investment decision process and in some cases might be a plus factor inducing a company "go" decision or investment which otherwise might have been a "no go" or "wait".

From a market survey for the planning of one industrial estate, for instance, it was concluded that, on average, develped estate land ready for construction would reduce the time between approval of a factory investment by firm and startup of operations by up to 18 months. It was further concluded that perhaps on out of five potential projects would either be aborted or seriously delayed for years if no viable alternative (an industrial estate) were available to the discouraging task of finding and developing a suitable factory site independently. The problem is equally acute in other countries where inadequate records and rules concerning land ownership and use, bureaucratic processing of land purchase agreements and applications for power, water and telephone services prevail. These deterrents are greatly magnified for small to medium size firms since these firms do not normally havethe resources - management, legal, capital - to persist in their objectives as do large-scale operations.

1/ The emphasis given by transnational corporations to the availability of infrastructure is illustrated by their initiating role in some zones and industrial estates. For instance, one corporation's interest in developing an injustrial estate in Indonesia led to its early involvement in the major feasibility studies and subsequently a management and technical assistance contract to assist in the management of the Pulo Gadung Industrial Estate. Similarly, La Romana Free Zone in the Dominican Republic was established in empowering the latter to manage and operate the zone. (Renma Consultants Limited, "Kingston Export Trade Zone", A report for the Port Authority, Kingston, Jamaica, UNIDO Contract - 74/37. Project US/JAM/74/003, p. 25)

Under such adverse conditions, in the absence of a zone or estate, many of the factories located in a zone or estate would be delayed and some of them might never be built. On the other hand, this incentive to locate in zones and estates is much smaller in the more developed of the developing countries. To have achieved their current levels of industrialization, they have generally already removed many of the obstacles that make location of foreign investment within a zone essential in the least developed countries.

Besides those advantages mentioned above, EPZs also have other locational advantages. They are often quite close to international airports and/or deep sea ports. Whether the proximity to an airport is more valuable t a deep sea port hinges on the types of industries in EPZs. The above consideration is, however, frequently secondary to the availability of cheap labour supply . Problems will arise in transporting employees to their factories if they live too far away from the zones. The survey indicates that most EPZs are situated right next to the area with a large pool of cheap labour .

EPZs share many of the features with IEs. Yet, they excel the estates in administrative efficiency. Whereas the latter are in the domestic customs area and have to comply with all the rules and regulations, the EPZ usually streamlines customs procedures and reduces red tapes. As pointed out above, delay due to customs usually does not exceed 3-7 days, whereas for some IEs, it may be as long as a month. The delay is especially damaging when delivery on time is important. A recent book by David Morawetz[1] on Columbia offers a vivid discussion of the delay inherent in Columbia's Vallejo Plan(which exempts imported inputs used in exports) and at ports and customs. He attributes the failure of the Columbian clothing industry to compete with East Asian producers partly to these bureaucratic barriers. In a highly competitive export market, administrative efficiency may be as valuable to an exporter as generous fiscal concessions.

1/See Morawetz(1981)

Fiscal Incentives

A package of generous fiscal incentives such as low corporate tax rate and tax holidays offered to firms operating in EPZs is often the rule rather than the exception. However, it has often been argued that fiscal concessions are not the crucial determinant in attracting foreign investments into EPZs for a number of reasons.

One important feature of international taxation is that many capital exporting countries/such as Japan and the U.S. grant foreign tax credits unilaterally to firms operating in a foreign country to avoid double taxation. Under this scheme, only profits net of foreign corporate tax will be taxed. In so far as the tax rate is higher in the capital exporting country, it will become the effective tax rate facing the firm and the rate of the host country will become immaterial in affecting the amount of tax paid by the firm.

In the case of EPZ, since a large share of their foreign capital are derived from Japan and the U.S. which grant foreign tax credits to their national firms, the intended effect of low corporate tax rate and tax holidays to stimulate foreign investments into the zones will be completely nullified. Moreover, it is uncommon among some countries like the U.S. to sign tax sparing treaties committing capital exporting countries to forego taxing those profits exempted from taxation by the host countries through tax holidays. Therefore, what is thought to be an attraction to foreign investors only leads to the transfer of tax revenues to the treasuries of the capital exporting countries.

Another factor which tends to reduce the importance of fiscal incentives is the ability of firms to manipulate their effective tax rates thro transfer pricing. Intra-firm transactions and a high degree of product differentiation in some industries like electronics, render transfer pricing of inputs or outputs easier. Besides, there are many ways e.g. through royalties or interest payments etc. for a TNC to reduce their global tax rates.

2/ See for example the articles in Murray(1981).

It is a tendency among EPZs to compete with each other by offering extremely generous fiscal incentives. However, as shown above, the practice in international taxation and the ability of TNCs to determine their effective tax rate through transfer pricing render fiscal concessions not a very essential calculation in deciding to invest in EPZs. It is, therefore, not surprising that a survey of firms in some Asian EPZs indicates that tax concessions are usually not the most crucial consideration.[1] On the other hand, the drain on the tax revenues of the host countries can be very substantial.

1/ See V ttal(1977)

Physical and Psychic Distance

The decision to locate foreign direct investment is also influenced by transport cost and cultural similarity. Not surprisingly, a large share of foreign direct investments at the EPZs in Central America and the Carribean originates in the U.S. One extreme example being the border zones of Mexico. U.S. firms can set up twin plants on both sides of the border. Components are then shipped by trucks to the Mexican plant, to be assembled and are then carried back to the parent plant in the States.

Cultural proximity serves as another conduit for channelling foreign direct investments. The influx of Japanese investments into Korea's Masan EPZ, among other things, reflects the cultural and colonial ties between the two states. Being an Islamic country may also be a factor in propelling Arabian investors to start their business in the Karachi EPZ in Pakistan.

Political Stability of the Host Country

Political stability and a traditionally positive policy towards private foreign investment is of major importance in the investment decision. Policy statements by the host country favouring foreign investment, cannot be regarded by the investor as a long-run guarantee, particularly when the country is known to have a strong traditional attitude against foreign influence. Indeed, as has been found in various surveys [1/], companies attach particular weight in their investment decisions to the estimated degree of continuity of government rules and regulations affecting foreign collaboration. The establishment of a zone or an estate may be regarded by a potential foreign investor as a long-term commitment by the host government to collaboration with foreign companies and institutionalized means for continuous safeguarding of operations. In that sense the successful establishment of a zone or estate is a method of "showing the flag", an incentive for foreign companies to invest generally in the host country.

In conclusion, the EPZ was a timely introduction during the 60's and 70's when the atmosphere of the world community was in favour of freer trade as witnessed by tariff reductions and preferences. Also, at a time of rapid advances in information system which enhances TNCs' capability to organize global resource flows and with the increasing competition for a larger share of the global market among TNCs from different nationalities, especially between the U.S. and Japan, the EPZ has been able to provide the right kind of facilities, cheap labour and investment climate as discussed above, rendering it a crucial link in the whole network of the international division of labour.

CHAPTER THREE: THE SOCIAL AND ECONOMIC IMPACT OF EPZ

This chapter attempts to carry out an overall assessment of the costs and benefits generated by EPZs. Different viewpoints pertaining to the costs and benefits of EPZs will be presented; then the findings from the UNIDO survey on EPZs and other up-to-date empirical studies related to EPZs are surveyed so as to assess the extent of EPZs' contribution along different dimensions. In the course of the discussion, we shall try to emphasize the appropriate methods or indices to weigh EPZs' contribution vis a vis some usual practices which may be misleading.

Foreign Exchange Effect

The earning of foreign exchange is one of the primary objectives in setting up EPZs. Table 6 depicts inflow and outflow of foreign exchange in three EPZs: Iri in Korea, Bayan Lepas in Malaysia and Shannon Ireland. Shannon is introduced here to see how an EPZ in a developed country is compared with those in developing countries. Typical of the zones, imported material inputs eat up a large chunk of the foreign exchange earnings generated by exports(62% for Iri, 63% for Bayan Lepas and 52% for Shannon). Apparently, even taking this into account, net foreign exchange earnings, defined as the difference between exports out of and imports into the EPZ, may represent a sizeable contribution especially in the case of small countries with poor resource endowmnet, as shown in table 7.

However, one must be careful interpreting these figures. The difference between exports and imports only reflects the foreign exchange position from the firm's point of view. It includes repatriated profits which have to be deducted. The share of repatriated profits may be particularly significant in the case of EPZs. If we assume that EPZ firms remit all their profits and tax revenues are negligible, data from table 6 show that the share of repatriated profits can be over 60 per cent of value added. Net foreign exchange earnings as defined above will thus considerably exaggerate the direct contribution of EPZs in this respect.

The direct foreign exchange contribution is also likely to diverge from the overall foreign exchange effect in so far as the former glosses over hidden foreign exchange gains or losses to the rest of the economy. In other words, all inputs and outputs should be valued at their shadow (or world) prices. Moreover, in the final analysis, the significance attributed to foreign exchange earnings stems from their contribution to saving and growth. Foreign exchange drained into consumption should be valued less than a unit of foreign exchange saved. Using the terminology of Little and Mirrlees(1974), net domestic value added denominated in free foreign exchange in the hands of government is the overall foreign exchange impact or the value of the EPZ to the domestic economy. In so far as government revenues derived from EPZs are small due to generous concessions, the above adjustment will further reduce the contribution of EPZs to foreign exchange.

TABLE 6

DISTRIBUTION OF INCOME IN TWO EPZS (1980)

REP. 6F

	IRI (KOREA) (THOUSAND WON)	BAYAN LEPAS (MALAYSIA) (THOUSAND M$)	SHANNON (IRELAND) (IR£)
GROSS OUTPUT AT MARKET PRICE	29,448,569		139,930,000
DOMESTIC SALES	811,467	39,979	7,693,000
EXPORT SALES AT MARKET PRICES	28,626,448	593,503	132,237,000
WAGE BILL	4,985,232	—	20,397,000
VALUE ADDED	12,926,572	—	60,085,000
MATERIAL, INTERMEDIATE INPUTS, FUEL			
- DOMESTIC	2,637,889	137,851	6,611,000
- IMPORTED	15,466,797	423,902	62,659,000
SERVICES			
- DOMESTIC	1,547,011	—	7,104,000
- IMPORTED	1,553,511	—	3,471,000

Source: UNIDO survey on EPZs, 1981

TABLE 7

NET FOREIGN EXCHANGE EARNINGS AS A PERCENTAGE OF TOTAL IMPORT

	71	72	73	74	75	76	77	78	79	80
MASAN (KOREA, Rep. of)	.0[a]	.1	.4	.4	1.0	1.3	1.5	1.5	1.5	—
IS. OF TAIWAN	.3	3.0	2.8	2.9	2.7	4.0	4.3	3.3	4.0	
MAURITIUS	—[b]	—	—	—	.3	1.5	4.5	4.7	5.3	5.4
DOMINICAN REPUBLIC	1.0	1.0	1.1	1.1	1.4	1.6	—	—	—	—
BARANQUILLA (COLOMBIA)	—	—	.1	.1	.1	.2	.4	—	—	—
BATAAN (PHILIPPINES)	—	—	—	—	—	—	—	.4	.6	—

Source: Masan and Taiwan from papers presented in the APO Symposium 1980; Mauritius from Kadress Vencatachellum, "Industrial Policy and Planning in Mauritius", presented at the expert group meeting on industrial planning organized by UNIDO in Vienna from 1-5 Nov. 1982; Dominican Republic from World Bank Country Report 1978; Baranquilla from Morawetz(1981); Bataan from EPZ Annual Reports.

a. Negligible
b. Not available or not applicable

The overall net foreign exchange earnings derived /from the above reasoning only indicate the gain in one year.[1] Moreover, it does not take into account the initial set-up costs of EPZs. The latter involves land preparation and the construction of basic infrastructural facilities which can be a substantial share of the government budget of a small country. Moreover, since all the facilities and services have to be up to the international standards, the import content of the project may be very high, representing a drain of the country's foreign exchange. For example, out of the Rs. 317.14 million allocated to Phase I of the Karachi EPZ, 63.056 million is in foreign exchange.[2] Therefore, in order to correctly assess the overall profitability in terms of uncommitted foreign exchange, the stream of foreign exchange earnings and initial set-up costs of the EPZ should be employed to calculate the economic return.

Rigorous assessments along the line mentioned above/and based on the actual performance of EPZs are few. Many studies use partial indices such as the sum of export or net foreign exchange earnings at market prices over the years which, as discuss above, are not theoretically sound. There are, however, lending appraisals undertaken by the World Bank suggesting internal rates of return around 13-15% but ranging up to 36% depending on the assumptions used.

Mauritius - Coromandel Industrial Estate (1973)	15%
Colombia - Cartagena Industrial EPZ	13-36%
Thailand - Minburi (Lat Krabang) Industrial Estate (1978)	14%

It is unclear whether or not these rates of return are typical of the commercial returns available to governments acting as entrepreneurs in establishing industrial estates and zones in developing countries. Projects submitted to the World Bank for lending appraisals are likely to be the more certain, more profitable. Development projects undertaken for political or prestige reasons are more likely to be financed by the host governments themselves, possible/avoiding the same/external scrutiny. In addition, rates of return will vary between countries and locations. Moreover, rates of return on past investments in individual estates may provide little or no guidance to the returns available in new projects.

1/ Note that in the case of the Little-Mirrlees method, net social income each year is the also the overall foreign exchange effect and the net social discounted value is the discounted value of the stream of foreign exchange earnings (at world prices) generated by the EPZ.

2/ Figures are from Karachi EPZ, Progress Report, August 1982.

These rates of return compare favourably with rates of return available from alternative investments in developing countries. A similar benefit-cost analysis for Masan EPZ in Korea suggests a rate of return of comparable magniture(Choe, 1976). On the basis of these four appraisals, it appears that t physical establishment of host governments of the estate on which the zone is based may well be justified purely in terms of the commercial return alone, that is, without reliance on the less certain long-term benefits depend on the EPZ playing a catalytic role in the countries' industrialization.

Total Employment Effect

The number of jobs created is usually taken as a good indicator of the success of EPZs. So long as there is an unlimited supply of labour and EPZ firms pay a wage above the shadow price of labour(which may practically be zero), then to maximize employment in EPZs will increase social welfare.

The total employment effect should include the direct and indirect employment created by the EPZ. They depend on the labour intensity of the production processes used in the zones and the local procurement policies of EPZ firms. Insofar as a major motive to invest in EPZs is to make use of cheap local labour, the common criticism of foreign firms from industrialized countries introducing very capital-intensive and thus inappropriate technology may not be applicable here since it is exactly those labour-intensive production processes that these foreign firms transfer.

On the other hand, the indirect impact in terms of employment on the rest of the domestic economy is determined by the local procurement policies of the firms in EPZs. The more a firm buys from the local economy, the more jobs will be created indirectly. Considering the "enclavistic" nature of EPZs, it is unlikely that indirect employment generated will be very significant.

The survey attempts to estimate the indirect effect by asking the respondents the number of associated employees outside the estate/zone for each job inside. The responses are few. Most of them put the figure at one or two. From table 3a, the direct employment of EPZs was around 600 thousand in 1978. Using the above information from the survey, the total employment effect would be in the range of 1.2 to 1.8 million. Of course, it is important to note that these figures are only orders of magnitude and do not represent accurate estimates.

Linkage effect

No discussion of the benefits and costs of EPZs can be regarded as complete without taking into account the linkages to the local economy. The dynamic effects generated through local purchase are thought to be essential to the effort of industrialization. In the following paragraphs, the determinants of local procurement by firms in EPZs will be explored. Then we shall look at the empirical evidence. The discussion will centre around backward linkages, since in most cases, all output is exported.

A number of factors may affect the level of local procurement by a firm in the EPZ at a certain moment in time:

1) Cost and reliability of local inputs in terms of quality and delivery. EPZ firms may demand inputs which are much more sophisticated than what the local firms can supply, e.g. certain electronic components(Lim and Pang, 1977). Delivery by local suppliers may be erratic. High production cost constitutes another barrier when th host country is at the early stage of economic development or pursues a trade strategy which give heavy protection to the local market, in which case local firms cannot exploit economies of scale nor are they given the incentive to supply products that are internationally competitive. One example from a World Bank report is the production of grey cloth in Senegal which is 45 percent more expensive than the world price. As a consequence, imported grey cloth is used to make printed and dyed cloth for exports. This impedes firms from the free zone at Dakar to buy from the local economy.

2) Trade barriers and preferences. The trade regime of a country, as mentioned above, may turn firms away from local materials and components. But policies from developed countries also have repercussions on the decisions to buy local products. The offshore assembly provisions of many industrialized countries virtually lower the price of inputs from developed countries relative to local products. The higher the tariffs on

value added, the lower would be the level of local procurement.[1] For example, the relatively low backward linkages in the Mexican Maquiladora (see table 8)can probably be attributed largely to their proximity to the U.S. border. The negligible transport costs render the price differentials between U.S. and Mexican inputs much wider.

On the other hand, GSP offered to developing countries encourages EPZ firms to use a higher level of local inputs in order to qualify for the preferential rates. The survey by Lim and Fong(1977) has shown that, in order to fulfill GSP requirements, some foreign firms in Singapore even take pains to give technical assistance to local suppliers so that these firms can buy from them products of the required standard.[2] However, on the whole, the restrictive nature of the GSP seems to make it a less powerful incentive then offshore assembly provisions.

3) The multinationality of EPZ firms. Efficient communications systems and global connections enable multinationals to buy from the cheapest sources, a capability probably not available to local and small foreign firms from developing countries. Moreover, the hedging of risks may require TNCs to diversify their sources of inputs instead of buying from one single country. The option of transfer pricing also tends to bias TNCs towards intra-firm in lieu of arm's-length transactions.

1/ See Grunwald(1979) for a formal analysis of 806/807.

2/ Similar findings are reported by Lim(1978) for Malaysia.

No systematic data base is available for the assessment of backward linkages of EPZs. From what can be gathered in table 6, one can observe that, out of the total cost of materials, intermediate inputs and fuel used in production in Iri, 85.43% are imported. The figure for Bayan Lepas is 75.46%. Even for an industrialized country like Ireland which, one can expect, are more capable of supplying material inputs through the local economy, the ratio is 90.45%. As regards the change in backward linkages over time, table 8 tries to put together evidence derived from the UNIDO survey and other sources. Backward linkages as measured by the rat o of the value of domestic material inputs to sales(sales figures have to be used as an approximation because/figures on total cost of material inputs over time are not available) have been increasing over time in the case of Masan and the three EPZs in Is. of Taiwan. In the case of the Mexican Border Zones, the ratio is extremely low and stable over time. For the other two cases, the ratio for Bayan Lepas decreased from 1977 to 1980 whereas the ratio for Iri remained constant. However, the time span for these last two cases is so short that there is no way of judging the long-run trend of backward linkages.

Evidence of backward linkages at the firm-level is even scantier. The previous discussion on the determinants of backward linkages suggests that local firms should maintain a higher level of linkages than foreign firms.

TABLE 8

DOMESTIC MATERIAL INPUT AS A PERCENTAGE OF SALES FOR SOME EPZS

(PERCENT)

	1971	1975	1976	1977	1978	1979	1980
BAYAN LEPAS (MALAYSIA)				21.76			13.64
IRI (REPUBLIC OF KOREA)				8.89			8.96
MASAN (REP. OF KOREA)	1.75	17.34		24.16	22.44	24.59	
MEXICAN BORDER ZONES			2.24	1.12	1.11	1.08	1.27
ISLAND OF TAIWAN a/	26.91	24.67	26.43	26.02	39.83	40.56	

Sources: Bayan Lepas, Iri and Mexican Border Zones from UNIDO survey on EPZs; Is. of Taiwan and Masan from papers presented in the 1980 APO Symposium on EPZs.

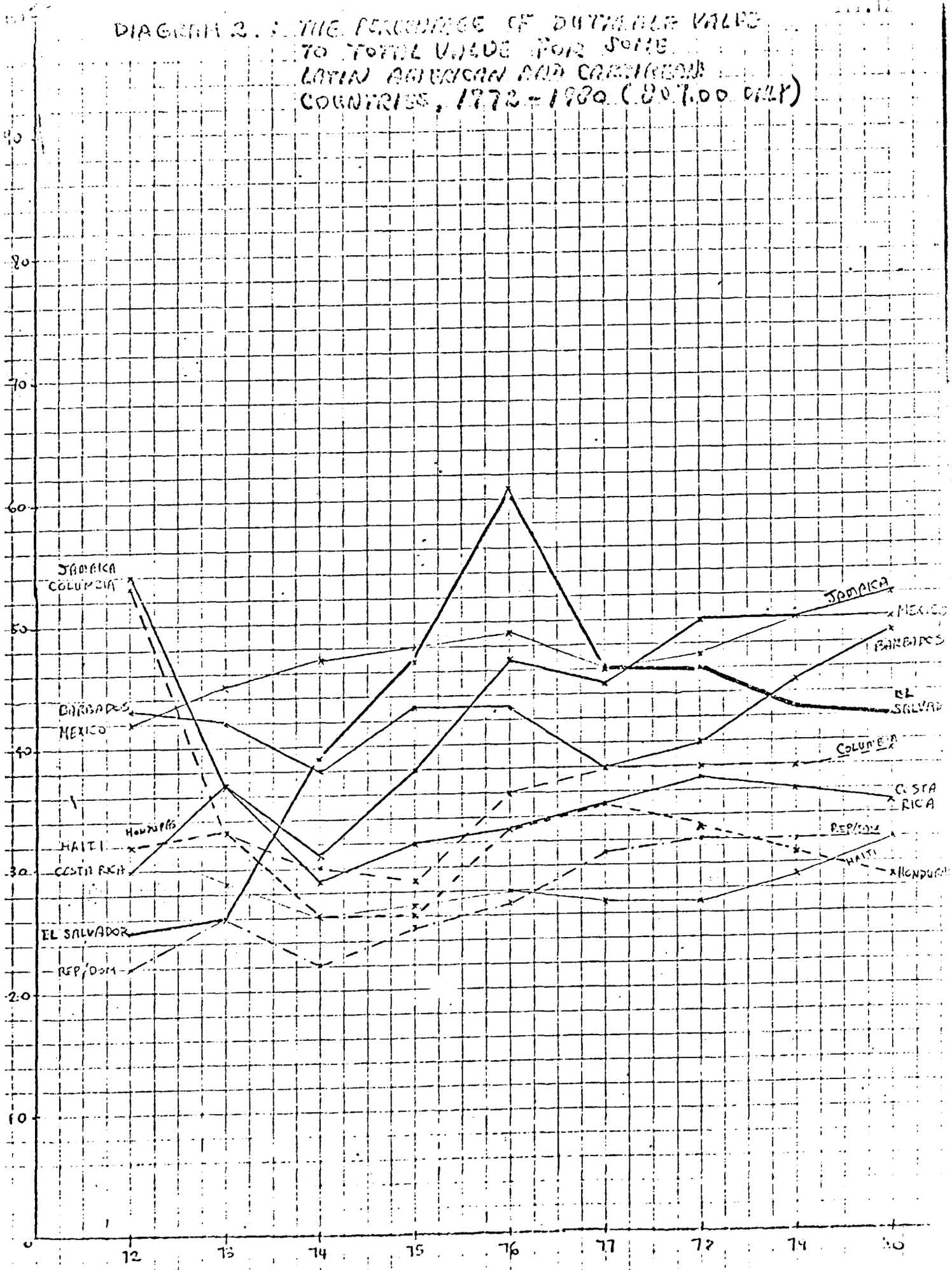
a/ The figures on local purchase in this case may include machinery and equipment.

A study of India's EPZ at Santa Cruz (Subrahmanian and Mohanan, 1978) concludes that local firms and firms with a lower degree of foreign participation tend to have higher value added. From our survey data, imported material inputs as a percentage of total sales at Gumi Industrial Estate in Korea, an export-oriented estate, is only 24% in 1977 and 1980 as opposed to 58.98 and 52.54 in Iri. Taking into consideration the fact that 88 percent of the firms in Gumi are 100% locally owned as against 11% in Iri and the export orientation of these estates, one may infer that local firms tend to use more domestic materials.

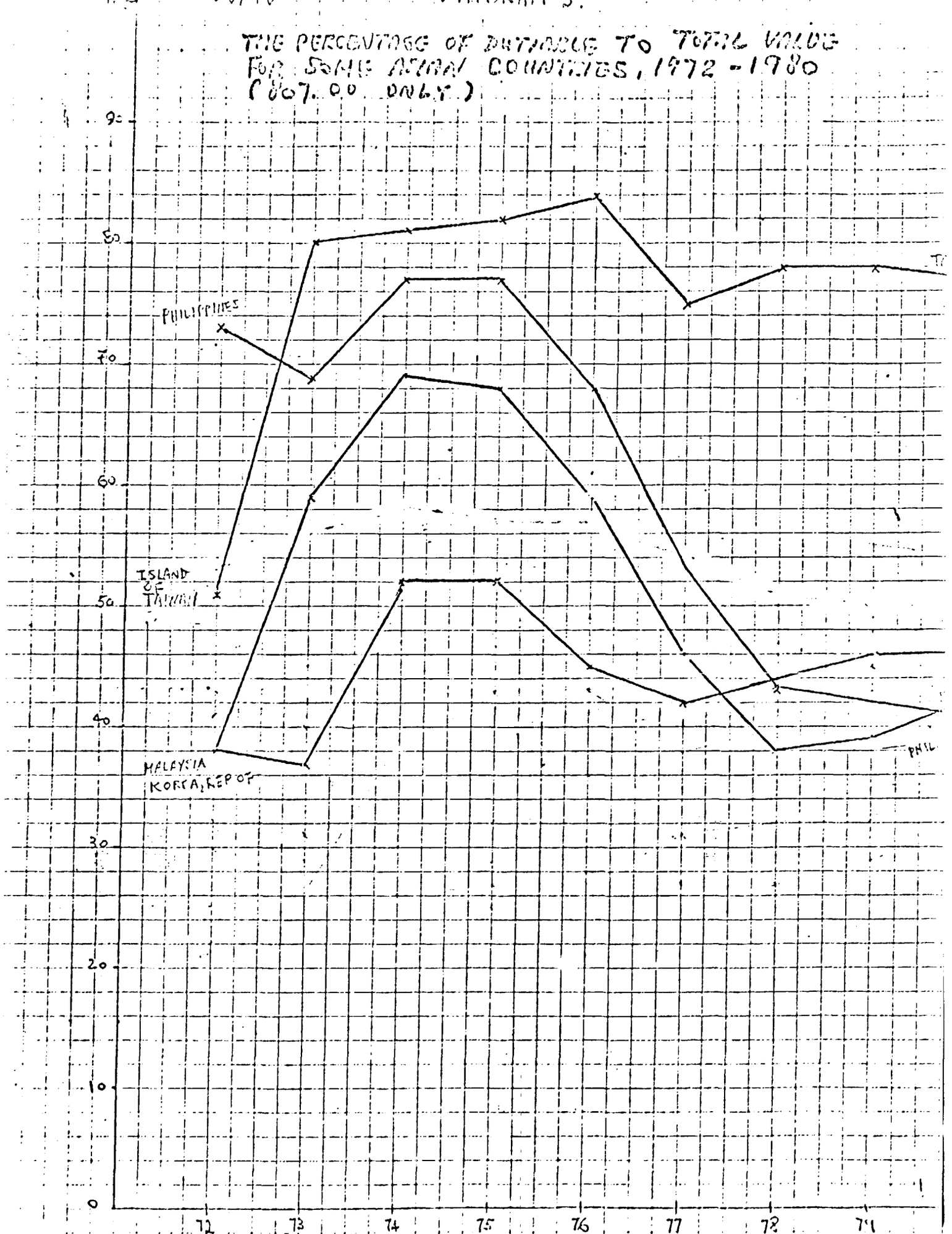
The heavy involvement of EPZs in offshore assembly also enables us to get a glimpse of EPZ trade with respect to backward linkages through 806/807 as firms from the zones are as likely as not to be heavy users of offshore assembly provisions. The U.S. government regularly publishes statistics on tariff items 806/807. Dutiable value of 806/807 may serve as a proxy for backward linkages. However, care must be taken on what is actually behind dutiable value which is composed of profits, wages and materials and services not originated in the U.S. This measure is therefore only an upper bound to backward linkages as all profits of foreign firms will probably be repatriated. We shall concentrate on 807.00 which makes up a large share of the trade flow. Those countries with EPZs are picked out for analysis.

Interestingly, one can observe distinct patterns of backward linkages (defined as dutiable value over total value, see diagrams 2 + 3) between some Asian exporters and those in Central America and the Carribean. A careful reading of more disaggregated data seems to reveal that the patterns can be ascribed to the different composition of industries and the change in the electronics industry over this period of time(1972-80). The non-Asian users of 807.00 concentrate largely on textiles and garments and therefore are less affected by the internal dynamics of the electronics industry. For these non-Asia countries, the ratio ranges from a low of about 20% to about 50%(it has to be remembers that these figures are upper limits). Since EPZs are important in these countries e.g. Mexico, Barbados and Dominican Republic, the trend of 807.00 may as well be taken as that of EPZs. Over time, the trend seems to be constant or mildly increasing.

DIAGRAM 2. : THE PERCENTAGE OF DUTIABLE VALUE TO TOTAL VALUE FOR SOME LATIN AMERICAN AND CARIBBEAN COUNTRIES, 1972-1980 (807.00 ONLY)



Source: U.S. International Trade Commission, periodical publications on 806.30 and 807.00



Source: U.S. International Trade Commission, periodical publications on

The same index for the Asian countries, however, fluctuates wildly. Dutiable value as a share of total value rose sharply before 1974, reaching a peak in 1974 and has been declining since then. However, the absolute value keeps on increasing. The decline, as suggested by a recent UNIDO study on the semiconductor industry,(1982) is due to technological changes rather than a change in the procurement policy of the TNCs.

In sum, the scattered evidence from EPZs and the trend of 807.00 seems to suggest that the level of local procurement is low for EPZs and increases mildly [illegible] or more or less constant over time.

The considerable efforts injected into the discussion of backward linkages seem to be engrossed with the level of local purchase or value added, without however carefully scrutinizing the rationale for using these criteria for backward linkages. The latter is a plus only if it generates static as well as dynamic benefits. Usually, it is the latter which economists tend to lay more emphasis when they talk about linkages. However, the level of local purchase or value added is a necessary but not a sufficient condition for these gains to materialize. A simple example will illustrate this point. If the supply curve of a local input is horizontal EPZ firms pay the market price for it, then no static gain will be incurred. The purchase only registers a transfer of resources from the local economy to the EPZ firms. There is no economic reason that a purchase by EPZ firms and not a local firm should confer more benefits on the domestic economy. Moreover, if the purchase is an arm's-length transaction, there may not be any long-term spin-offs from the transaction. In the worst case, as pointed out by Lall(1980), the linkage may even be harmful if the foreign firm has some monopsonistic power.

What is therefore needed seems to be some sort of microeconomic information pertaining to to the relationships between EPZ buyers and local buyers and subcontractors. This brings us into the territory of technology transfer in the next section.

Transfer of Technology and Learning

The acquisition of technology and skills is a major concern of host governments in implementing their industrialization strategies. Foreign investment in the zones provides a further channel through which technological skills might acquired. However, the technology transfer is directly linked to the character of the production process. A production strategy which locates only parts of the total production process in a developing country is likely to result in a limited transfer of technology only. This is illustrated by the results of an investigation of transfer effects from U.S. investments in South-east Asia(Allen, 1973). As this investigation shows, the subsidiary operations in developing countries are predominantly assembly activities using general machinery which would be available also from other sources. Both the preassembly stages requiring advanced technology and the related research and development activities remain located in the companies' centres(Allen, 1973).

In addition, even if complex, modern techniques are used in EPZs, the host country does not automatically gain access to them. In the electronics industry, for instance, the assembly process in the zone is physically separated from, but totally dependent on, the higher technology aspects of the production process(in semi-conductor manfacturing the two high technology processes, mask-making and wafer fabrication, are undertaken in the home country).

Most assessments of EPZs with respect to the transfer of technology usually concentrate on the transfer of sophisticated proprietary technologies and R+D among EPZ firms. The narrow focus on these aspects as vehicles for the transfer of technology has recently been challenged by economists specializing in this area(Katz, 1978 ; Lall 1980; Nelson and Winter 1974). The scope of technology transfer has considerably been widened to embrace minor and continuous technological improvement acquired through learning by doing , trouble shooting and mangerial and organizational know-how. As noted by Katz(1978), technologies cannot be transferred into another environment without some modifications. The very process of improving and adapting imported technologies to internal and external pressure adds to the technological capacity of the country in question. The culmulative effects may be tremendous over time(Westphal et.al. 197 The extent of these effects in the case of EPZs, of course, depend on the involvement of local employees, subcontractors and suppliers in and outside the zones.

Not much research has been done alone those lines discussed above on EPZs. The exception be the two papers by Mark Lester on EPZs in Malaysia and Philippines [1]. The results seem to support that transfer of skills to local employees is significant. Managers and technicians usually perform a wide range of jobs and, in the case of Malaysia,the skills learned are not just specific to the semiconductor industry. Managers and technicians moving out of the EPZs also find their previous experience useful.

Linkage creation with local vendors also seems to have the effect of upgrading technology. However, no active support on the side of EPZ firms, to local firms seems to be evident.

In the case of Taiwan's EPZs, Island of there are reported incidents where

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1/ See Mark Lester, "The Transfer of Technolog cal and Managerial Skills Through Multinational Corporations: A Case Study of the Vertically Integrated Electronics Industry in Export Processing Zones",,East-West Centre, Culture Learning Institute, Honolulu 1979 and "Transfer of Technology in Export Processing Zone in Malaysia",East-West Centre, Cultural Learning Institute, Honolulu, Hawaii, no date.

technical staff acquiring the technology in manufacturing a certain product left companies in EPZs to set up their own firms. Local processing of raw materials supplied by EPZ firms is also permitted. Yet, it is not known how extensive it is and what types of relationships are developed. Vertical linkages are also detected in Singapore(where the environment approximates that of EPZs) between TNCs and local suppliers(Lim and Pang, 1982) and it is thought to have accelerated the pace of technology diffusion made possible by market forces.

It is not known how representative are the surveys by Lester and other anecdotes mentioned above.

There is also a lack of information on how high mobility of EPZ employees is , serving as an instrument in the diffusion of skills and know-how to the rest of the economy.

The general impression seems to be that learning of simple technologies, managerial and organizational know-how exists in the context of EPZs. On the other hand, TNCs in EPZs do not invest ~~heavily~~ significantly in R+D and the transfer of complete and sophiscated technologies is negligible. Whether the EPZ approach to launch technological development will in the long run lead to the generation and mastering of complete technologies by the developing countries themselves is, however, debatable.A recent study of technology export by developing countries (Lall, 1982) points out the possibility of slowing down or even inhibiting the local process of learning if heavy reliance is put on the transfer of technology through TNCs. In dealing with the question of technology transfer in the context of EPZs, the broader question of the desirable path of technological development should not be overlooked. More research in this direction is desperately needed.

Export Instability and "Footlooseness"

It is characteristic of many developing countries that the rhythm of economic development is conditioned by their ability to earn foreign exchange for the purchase of much-needed capital and intermediate goods. The variability of foreign exchange earnings therefore directly hinders their developmental efforts and increases the uncertainty of planning. Whether exports from EPZs are particularly unpredictable is thus a matter of concern.

The stability of foreign exchange earnings from EPZs can be viewed from two angles: 1) the cyclical fluctuation of exports (or more important, net domestic value added) over time and 2) flight of foreign capital and thus a/ exports due to a change in the comparative advantage or tax incentives of the host countries when firms move to other locations.

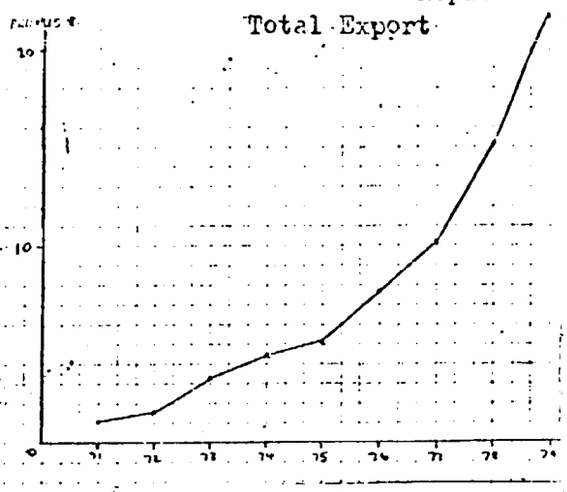
Theoretically, it is not export revenue per se but domestic value added and its swing over time that is of interest. The extent of fluctuation in value added of EPZ firms may be attributed to the following considerations: market and product concentration, the specific nature of an industry and policies of firms in EPZs. Exports from EPZs usually have their destinations mainly in the U.S. and Japan. There is also a high concentration of product lines, namely electronics and garments. It is therefore not inconceivable that these characteristics may increase the volatility of foreign exchange earnings. On the other hand, the export of some products may behave countercyclically. For instance, , since electronics is a fast-growing industry, it serves as a buffer to a decline in output and employment in case of an external shock, as witnessed by the continual increase in exports and value added in some zones during the oil crisis in 1974 and 1975. Finally, the policy of TNCs to rationalize their global allocation of resources may alleviate or aggravate the fluctuation of ~~exports~~ value added.

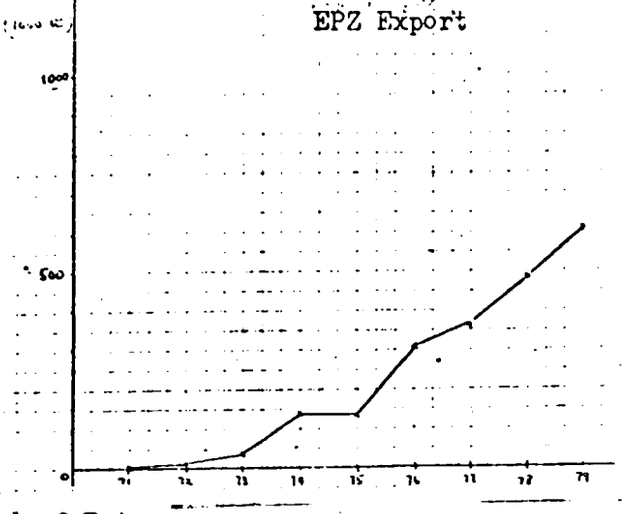
Looking at the evidence from Taiwan, Korea and Island of Mauritius, exports from EPZs do not indicate a marked difference from total exports of the respective countries in terms of export variability (see diagram 5), except Mauritius. The assessment of export instability may also be done indirectly through data from 806/807. Dutiable value is used because this is what matters. On the whole, there is no sign of great variability (see diagram 6).

1/ In the case of Mauritius, exports from EPZ moved independently upwards as opposed to a more sluggish and volatile trend of the country's total export. The latter can partly be explained by the country's reliance on sugar export. EPZ exports then have the effect of mollifying export instabili-

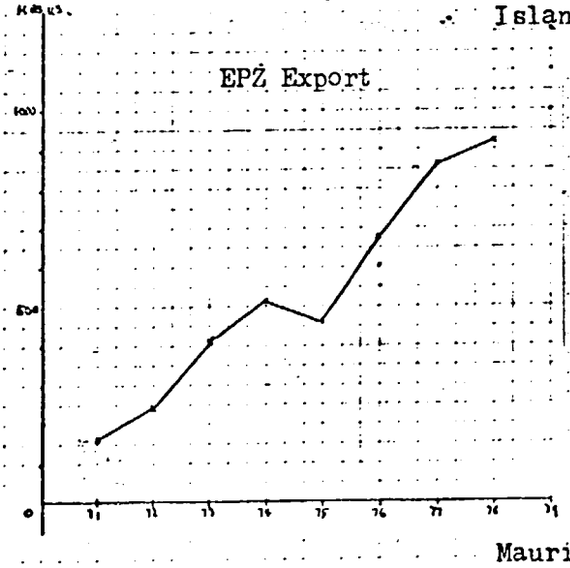
COMPARISON OF THE TRENDS OF TOTAL AND EPZ EXPORTS FOR SOME COUNTRIES

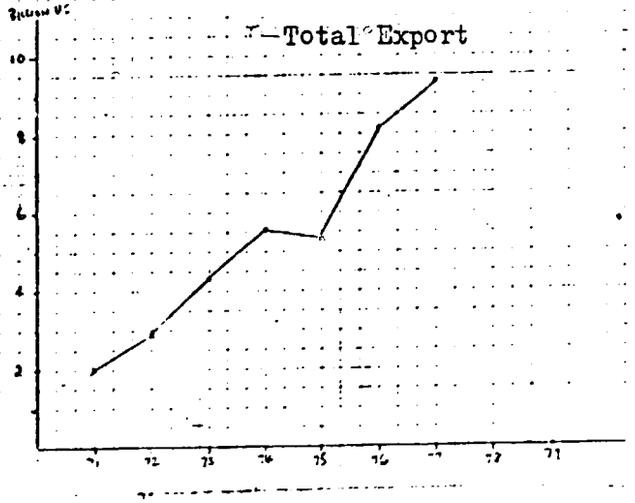
Republic of Korea



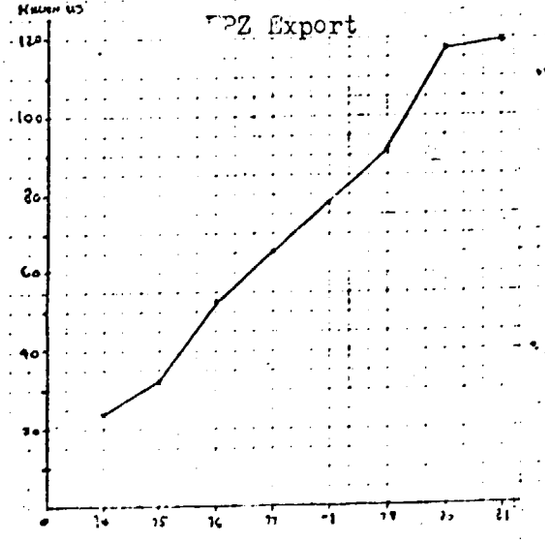


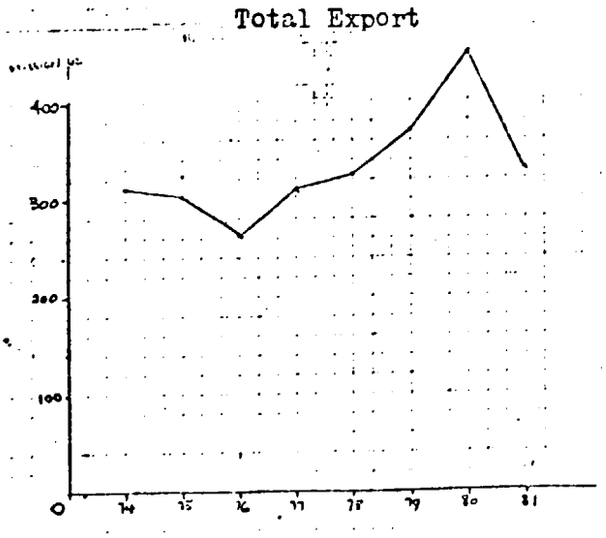
Island of Taiwan





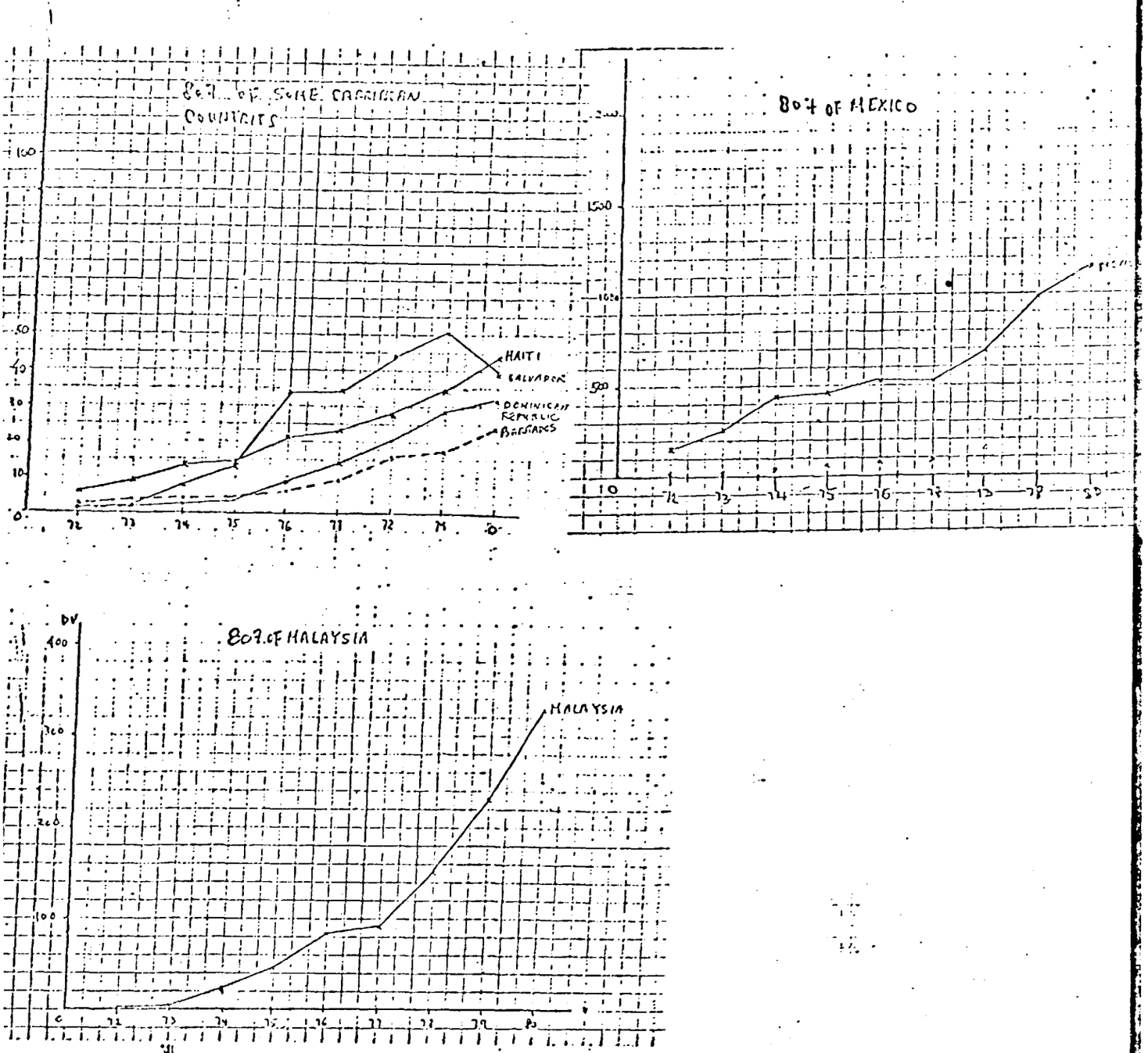
Mauritius





Sources: U.S. International Trade Commission, periodical publications on 806.30 and 807.00

807.00 DUTIABLE VALUE OF SOME COUNTRIES WITH EPZS



Sources: U.S. International Trade Commission, periodical publications on 806.30 and 807.00

The trends seem to be smooth and predictable. Even during the oil crisis, there does not seem to be an extremely sharp drop in dutiable value. The trends of 807.00 also seem to be more predictable when compared with total exports of the respective countries. One explanation is that export of primary commodities may simply be more volatile than manufactured exports. The greater fluctuations of exports outside EPZs may also be supply-induced e.g. shortage of raw materials which may not affect EPZ firms since they can always buy from the world market.

Another factor that affects the stability of exports from EPZs in the long run is the alleged footlooseness of industries in the zones. It has been argued that the labour-intensive nature and small capital expenditures committed by EPZ firms enable them to relocate easily as economic environment changes. They may move to countries with lower wage rates or pack up when tax holidays are due to end. However, so far, this scenario has not materialized in a large scale. Experience from the Is. of Taiwan, Singapore and Hong Kong shows that rather than moving out of these high-wage countries completely, foreign firms would tend to move upmarket. Moreover, as suggested above, tax concessions are not the foremost consideration.

There are also discussions on the possibility of firms relocating back to developed countries as a result of technological change in electronics and garments industries. Yet, as pointed out in a paper of UNIDO(1981), despite the falling ratio of value added(as can be observed in diagram 3) to total output due to technological change, there is a continual increase in the absolute value of exports and value added. The growth of foreign direct investments from the U.S. was strong for the past

few years (the ~~fall~~ slowdown after 1979 may be cyclical, relating to the second

GROWTH OF U.S. FOREIGN DIRECT INVESTMENTS IN DEVELOPING COUNTRIES

	78	79	80	81
Manufacturing(%)	14	15	9	9
Electronics(%)	-	-	17	12

Source: Survey of Business, various issues.

oil shock). The growth rate for the electronics industry is even more spectacular. In the Asia and Pacific region, it grew at a rate of 26% and 17% in 1980 and1981 respectively.[1] For DAC countries, the average annual growth rate of foreign direct investments between 1973 and 1978 was 19.4%, much higher than the previous decade(OECD, 1981, table 6). There is thus no sign of a fall in foreign direct investments in LDCs and relocation back to the North.

On the whole, export fluctuations of EPZs does not seem to be worse than the rest of the countries. The electronics industry even served as a cushion during the oil crisis in some countries like Malaysia. There is also no imminent danger of TNCs relocating back to the North. However, overconcentration in one or two industries makes the zones very vulnerable to any sudden and unexpected change in the international environment(e.g. the abolition of 806/807 which are constantly under the fire of trade unions in developed countries)or the internal dynamics of a few industries(which may only be strong and healthy at the moment). Even though the recent trend does not indicate exports from EPZs as excessively instable, there is certainly a case for diversifying the industries in EPZ for the rainy days ahead.

1/ U.S. Department of Commerce, Survey of Business, August, various issues.

Social and Regional Consequences

The social and regional implications of industrial redeployment in general and the zones in particular, may differ according to the socio-economic conditions prevailing the host country and the location of the zones. However, in virtually all countries the growth in employment opportunities associated with the zone — and export-oriented industrialization generally — has been met by the large scale entry of young women into the labour force. Our survey does not indicate any structural change away from this imbalance(see chapter one). In many cases the women enter factory employment direct from their rural communities or even in some cases as migrant workers from adjoining countries. The women do not remain in employment long. The rate of turn-over is high. Employment which is unstable and temporary in nature can lead to substantial social disruption and costs. Moreover, the uprooting of the labour force from its traditional setting into the modern industrial sector and its dismissal after a few years without significant upgrading of skill is likely to involve further andmore substantial social costs.[1] While industrialization always brings with it some social tension and conflicts, the concentration of employment in the zones on women would appear to generate additional tensions. First, there are conflects between traditional local communities on the one hand, and the women workers, their employers and the host government on the other, regarding the desirability and necessity of factory jobs, especially for women. This conflict is exacerbated by the sexual imbalance in the zones which can lead to difficulties finding suitable marriage partners and a high proportion of unwed mothers.

Second, there are potential and actual conflicts between the sexes on many levels. Unemployed males may resent the employment of females, feeling that this constitutes their own employment opportunities and lowers the general wage level; thus, for example, male-dominated unions are often hostile to organizing female workers. Family relationships may be affected as women increasingly become important or sole supporters of the family, since they can obtain jobs wile men — fathers, brothers and husbands — remain unemployed.

1/ The dimension of social consequences of the employment of women in export associated industries, particularly in the zones is explored further in UNIDO working papers on structural changes no. 18,"Women in the Redeployment of Manufacturing Industry to Developing Countries", UNIDO/IOAS.165, July, 1

Social conditions, involving wages, social security and other social services are generally found to be rather better than worse in EPZs than in local firms outside the zones. Our survey also shows that EPZ firms pay wages higher than the legal minimum. The managed environment of many zones and industrial estates results in a general improvement in factory building standards and working conditions, waste disposal control and greater facilities. On the other hand, relative to the standards of factories in industrialized countries, conditions obviously are poor. In the assembly operations there is evidence to suggest that a more stable work force would not maintain the pace of work. That is, to some degree the young workers are "burnt out" by the inherent monotony and adverse conditions(UNIDO, 1980). In the absence of the very rapid turnover and the young age of the labour force, companies would be unable to maintain the very high pace.[1] As regards the rights of workers, the survey indicates that very few of them have unions. The emphasis of a disciplined labour force in EPZs probably has an adverse effect on union activities.

A concern relating to the enclave character of EPZs is the concentration of employment opportunities in the zones which induce migration of workers from surounding regions thereby adversely affecting the future development potential of these regions. On the other hand, zones and estates can directly assist regional objectives by encouraging industrialization away from established centres. Thus, the Lat Krabang estate in Thailand is seen as contributing directly to reducing the congestion and critical over-loading of utilities in the city core of Bangkok. Nonetheless, the location of zones specifically to meet regional objectives can have adverse effects on the success of the zone unless the prerequisite conditions for industrialization are met. For instance, the initial delay in the development of the Bataan zone in the Philippines is partly attributable to its location in an area lacking a rea dily available work force and the housing to accomodate ~~the new work force~~ after its expansion(Currie, 1979).

1/ Lo-Tidningen -- Rapport from LO's Ostasien -- delegation(Manuscript), page 72.

IV. DISCUSSION OF ISSUES

The governments of developing countries increasingly view EPZs as an efficient means for attracting foreign export-oriented companies which are expected through their investments and operations to provide investible resources, technology, employment and foreign exchange to the host country and thus to contribute to industrial and economic development. Foreign companies view EPZs as a preferred location in developing countries for selected production lines using low-wage labour and aimed at export markets. There are now more than 55 zones with more than 20 being planned.

There obviously seems to exist a basic convergence of interests between host country governments in developing countries and foreign companies with respect to the establishment of EPZs. However, from the side of the host country, a number of questions can be raised:

1. Is an EPZ an efficient and viable means for attracting those industrial activities in search for a low-wage export base?
2. Do the EPZs represent a dead-end method of beginning export-led industrialization?
3. What are the social and economic consequences in the host country of production and activities in an EPZ?
4. What is the role of EPZs in the context of the total trade and industrial policies of the host country?
5. Are those product lines and those organizational forms which are attracted to an EPZ an appropriate choice for the industrial development process of the host country?

Regarding the first question as to the efficiency of EPZs as a set of incentives for foreign investment, it may be noted that EPZs generally have succeeded in attracting foreign industrial companies to set up production and employ local labour. Studies on redeployment opportunities in developing countries show that some of the most significant obstacles faced by companies when considering redeployment were the lack of well functioning administrative system, import controls and the socio-political conditions. 1/ In the zones these obstacles are largely removed. As is shown in various surveys 2/, companies which have located production in the zones regard the unbureaucratic, centralized public administration of the zone

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1/ UNIDO Working Papers on Structural Changes No. 2, "Industrial Redeployment in Sweden: Prospects and Obstacles", UNIDO/ICIS.54/Rev. 1, 10 December 1979, pages 8-10; UNIDO Working Papers on Structural Changes No. 5, "Industrial Redeployment Tendencies and Opportunities in the Federal Republic of Germany, UNIDO/ICIS.90, 30 May 1978, page 32.

2/ See for example, Laestadius, S., op. cit., 1979, pages 46-48.

activies and the physical infrastructure as essential advantages. Wage levels and regulation of labour conditions seem to constitute criteria of less significance for enterprises in their choice of locating inside or outside a zone in a particular country. Indeed, as already noted, wage levels and social conditions on the whole tend to be better in the large foreign companies in EPZs than in smaller indigenous companies outside the zones. On the other hand, wage and productivity differences between various EPZs would appear to be of substantial importance for companies' locational decisions.

The important influence that the administrative and physical infrastructure in EPZs have on companies location decision provides the essential justification for a developing country to develop a geographical enclosure equipped with the necessary facilities rather than waiting for the country's entire administration and infrastructure to be developed first before foreign industries can be attracted. It follows, that the EPZs would loose their importance when these infrastructural developments in the country have taken place and reached the satisfactory level.

On the other hand, though the banner of EPZs may stimulate foreign direct investments, the intensive competition among LDCs for export-oriented foreign direct investments will reduce the gains they may derive from EPZs. As eloquently argued by Streeten and Lall(1977), the division of quasi-rent between the host country and foreign TNCs is basically the outcome of a bargaining process. The possibility of appropriating ~~these~~ this quasi-rent by the host country would however be reduced as a result of its weakened bargaining position vis a vis TNCs which can threaten to move from one location to another. This is probably the price that the host country has to pay for this kind of foreign direct investments.

Do the EPZs represent a dead-end method of beginning export-led industrialization or are they a catalyst for ongoing industrialization? Moreover, under what conditions are they likely to be a catalyst and under what conditions are they likely to fail? The difficulty in answering this set of questions is that the experience with EPZs has been very short and thus the answers must be conditioned on the short period of operation over which they can be observed. However, a detailed knowledge of the existing EPZs is but a precondition to answering these key questions, which require a careful and systematic evaluation of the EPZs in the context of the trading environment and development stages in each country.

The question also arises to what extent companies in EPZs are "footloose". We have discussed this issue in the previous chapter and will not rehearse the findings here. In brief, the trends so far do not point towards that direction. EPZ firms tend to move upmarket rather than to felocate .

The successful operation of an EPZ over the longer term may depend crucially on the extent to which the skills and education of the labour force are upgraded. Thus the fact that companies which have come easily to a zone may just as easily go, is more likely to be a problem in the least developed economies where the education system is inadequate and unable to upgrade education levels at the rate and direction required by the industrialization process. In this view a significant responsibility for the longer term success of the EPZ lies in the education and man-power policies and practice of the host country.

The third question concerns the social and economic impact of the EPZ on the host countries. The success of the EPZs in generating employment and investment is obvious. However, the indirect employment effect of the EPZs is limited by its enclavistic nature. Further more, the employment structure is heavily geared towards employment of low-skilled young female workers.

As regards the diffusion of technology and skill, recent studies [1] , suggest that learning among technicians, managers and workers does occur in EPZs and it is not insignificant. Since no production process can be replicated in another environment, unchanged, learning will go on hand in hand with efforts to solve local production problems. This continuous non-spectacular learning process may accumulate over time and increase the problem solving capacity of the country. On the other hand, whether this kind of learning process will enable the host country to master more complex production processes in the long run is however unclear. Regarding the integration of the EPZ into the surrounding domestic economy through linkages, evidence is scanty. Recent works by Lester show that they can be quite significant. However, it is not known how far they can be generalized since the sample is relatively small. The total foreign exchange effect, properly defined, seems to be positive but is much less than the difference of export and import. In the extreme case, the net earnings may be limited to the wage bill.

1/ See Mark Lester, "The Transfer of Technological and Managerial Skills Through Multinational Corporations: A Case Study of the Vertically Integrated Electronics Industry in Export Processing Zones, East-West Centre, Culture Learning Institute, Honolulu 1979 and "Transfer of Technology in Export Processing Zone in Malaysia", East-West Centre, Cultural Learning Institute, Honolulu, Hawaii, no date.

A crucial question for the host governments therefore is how the backward linkages can be strengthened. The acquisition of "spill-over" effects from the international sub-contracting activities in the zone depend on the nature of the operations and the policy environment in which it is carried out. 1/ Sub-contracted production involving single processes generates, in itself, very little backward linkages. Thus, it is unlikely that subcontracted assembly of, for instance, semi-conductors would develop any backward linkages to the production of wafers. However, if a transition to more integrated production processes - "total product sub-contracting" - or even component sub-contracting would take place, the positive effects on economic development could be stronger. 2/ Governments in host countries may need to consider ways of increasing integration of activities in zones with activities in domestic economy. This could involve explicit assistance to local suppliers through the imposition of tariffs on key imports or less transparent assistance in the form of a minimum local contract scheme. 3/ Long-term integration of the zone with the domestic economy, however, requires serious attempts to strengthen the ability of local suppliers to meet EPZ demand by using institutional, educational and financial means.

Regarding the fourth question as to the role of EPZs in the context of the total trade and industrial policies of the host government, the most successful EPZs are located in countries with outward-looking policies favouring manufactured exports across the board. These policies include low or moderate tariff protection; a realistic or undervalued exchange rate; and, a favourable attitude to foreign investment and participation; access to financial and capital markets. In these countries, the structure of incentives encourages all industries, both whether located within or outside the zones to take advantage of the country's endowment of labour and resources. The result - as typified by the economies of the Republic of Korea and Singapore - has been rapid expansion of exports and increased employment and earnings in the manufacturing sector.

The industrial development policies of many countries continue to favour import substitution against exporting activities. Although the benefits of export-led industrialization are attractive, they may be outweighed by real or perceived costs of a change in policy. For a government, part of these costs are the costs of offending established interests. In this situation an EPZ appears to offer a ready solution to the country in the form of a policy enclave. By creating an area isolated from the rest of the economy, it is possible to create

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1/ UNCTAD, op. cit., 1975, page 8.

2/ Sharpstone, op. cit., 1975.

3/ For example, the Mexican Government in the set of regulations for in-board industry put into effect in October 1977, intends to encourage location in priority areas, production of complementary goods, and use of Mexican materials. Licensing seems to be the major instrument for achieving these goals. The regulations imply, among others, that production has to be in line with the planned industrial structure of the country, i.e., directed towards heavy industry and automotive products.

a special set of incentives that are not applicable outside the zone. The EPZ in effect locates part of the country's manufacturing sector in the international market, in competition with other countries, exploiting its advantages of wages, skills and resources.

In this enclave the host government can allow production of goods not intended for the domestic market, such as unacceptable from a social point of view and as distorting the consumption pattern and goods that might conflict with the vested interest of producers in the domestically oriented part of the economy. 1/ Moreover, it is possible to limit the influence of foreign dominated entities on the society.

However, the limitation of export-led industrialization to a policy enclave may similarly limit the economic benefits to that enclave. That is, in the absence of a general trading and economic environment conducive to manufactured exports, the desired longer term stimulation to industrialization (through backward linkages and integration with the domestic industries) may not eventuate. This view raises a dilemma for developing countries contemplating investment in zones: the poorer the industrial infrastructure of the country and the greater the incentives for import substitution, the more necessary a zone may be to achieve any significant growth of manufactured exports at all. On the other hand, the more a zone is an enclave, atypical of the infrastructure and incentives available outside, the less successful the zone is likely to be in achieving wider economic benefits.

This view therefore denies the zones a large part of the catalytic role more popularly assigned to them: in essence the zones have been most successful where the trading environment generally was most conducive to their success and to the growth of manufactured exports generally. 2/

1/ Full adherence to the "enclave" concept also requires protective tariffs or licensing to prevent later imports of these unwanted goods.

2/ To assess the role and importance of EPZs in the total context of the trade and industrial policies of the developing countries requires detailed analysis of the policies and experiences of zones. The growth of the zone is a feature of the seventies and perhaps for this reason zones are not mentioned (at all) in either the major surveys of the foreign trade regimes and economic development covering the sixties and seventies.

See Little, I., Scitovsky, T., Industry and Trade in Some Developing Countries: A Comparative Study, Oxford University Press, New York, 1970.

and Krueger, A.O., Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences, Volume X, National Bureau of Economic Research, New York 1978, and companion volumes.

On the fifth question concerning the appropriateness of the product lines and organizational forms found in the zones to the needs of a developing country there is little agreement. A typical feature of the zones is the heavy involvement of TNCs. There is of course no a priori reason why foreign direct investments involving TNCs are necessarily detrimental to the interests of host countries. Nevertheless, the weak bargaining position of host countries induced by their competition for foreign direct investments, their eagerness to solicit investments from giant TNCs to enhance the zones' image and the free rein given to firms operating in EPZs constitute enough grounds for concern. The heavy presence of TNCs in certain industries may also create strong pressure groups whose interests may not be in line with that of the country.

The recent influx of firms from developing countries into EPZs e.g. in Sri Lanka and China, seems to modify the picture a little bit. They may bring with them more appropriate technologies. These foreign firms are generally of smaller size and may not wield the power excercised by giant TNCs. They are weaker in their bargaining position vis a vis the host country and are more willing to enter into joint ventures with local entrepreneures. Superficially, foreign direct investments from other developing countries may be a healthy trend towards the much-talked-about south-south co-operation. However, it must be remembered that some of these investors from developing countries e.g. Hong Kong, Taiwan and Korea maintain strong ties with the industrialized countries and their operations in the EPZs are only another platform to bolster their export-drive into the markets of the North without increasing trade among LDCs. They may also be subcontractors of large buying groups and TNCs. What is thought to be a bridge to promote trade among developing countries may turn out to be a veil hiding the international trading network of multinational buying groups and corporations behind it.

1/ See, for example, Nugawela, Patrick, "The Case of Sri Lanka", OECD Development Center's research project on "Policies to attract export oriented industries: the role of F.E.P.Z.". See two forthcoming publications(1983) (i) by Basile and D. Germidis: "The role of F.E.P.Z.: a synthesis study" OECD Development Centre, and (ii) D. Germidis and M. Lester: "The role of F.E.P.Z.'s: country case studies", Hawaii University Press.

Concluding remarks

Despite the growing attention towards the effectiveness of the EPZ as a catalyst of industrialization, the evidence is in many cases anecdotal and there are still many questions waiting to be answered systematically.

Though there are unresolved disputes over the extent of economic benefits derived from EPZs, be they the transfer of technology or employment, the limited evidence does seem to point to some positive financial contribution by EPZs. However, to ensure the success of EPZs as a catalyst and the shedding of their enclavistic image, the host countries probably will have to pursue a cross-the-board export promotion strategy. The question therefore becomes one of choosing an exported-oriented strategy or a more inward-looking policy. From this perspective, the establishment of EPZ is only a second order problem. One cannot isolate the discussion of the EPZ from the general picture of trade policy. For very small countries like Babados or Mauritius, their limited resource endowment may force them to embark upon an export-oriented strategy using foreign direct investments. But for countries like China, Brazil or India, there seems to be much more options to tinker with and the choice is not so clearcut.

The relationship between manufactued exports based on foreign direct investments and south-south co-operation is also worth looking into. The EPZ serves as another conduit for the flow of north-south trade. Instead of correcting the existing bias towards north-south trade, the EPZ further cement it. The presence of some TNCs from LDCs, as pointed out, may simply be another trading networks of TNCs. Moreover, the incentive to undercut each other in concessions indirectly undermines the bargaining strength of the developing countries.

Economic considerations aside, export-oriented policy based on foreign direct investments seems to steer social policy in certain direction. In order to lure potential EPZ investors, the rights of labour may have to be curtailed. Certainly, it may be argued that labour's rights in these countries are limited anyway. However, one also has to ask whether the chance of improving them is reduced by the introduction of EPZs.

conducive to the formation of very powerful interests groups which may threaten the national interests.[1]

As regards the prospect of EPZs in the eighties, rising unemployment, mounting debts and huge balance-of payments deficits among non-oil producing LDCs, as projected by many economists will certainly boost the image of the EPZ as a panacea for unemployment and foreign exchange shortage. The imminence of these problems and the instinct for political survival will help to shove aside for the moment the social and economic implications of a broader scale before the decision makers have the time to ponder about them. The rising tide of protectionism coupled with the "herd instinct" to set up EPZs will act like a pair of pincers, further squeezing LDCs into more combative or competitive relationship despite the rhetoric of a more co-operative spirit, while at the same time enabling the TNCs to carve out a more comfortable niche in international trade.

For those developing countries contemplating to set up EPZs, a number of things have to be taken into consideration before turning on the green light. The function of EPZs should first be put into the correct perspective. It should not be regarded as the be-all and end-all in the persuance of export-led industrialization. The EPZ is only one among the many instruments to achieve this goal and successful cases of export-led growth like the Republic of Korea never rely solely on EPZs. Second, while the government should be well aware that the initial set-up costs of EPZs can be very high and may eat up a large share of the government revenues. Therefore, like any government project, an initial cost-benefit analysis should be undertaken to ensure social profitability of the EPZ. Conventional techniques of cost-benefit analysis however tends to overlook many less quantifiable externalities which are equally important in the assessment

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1/ See the discussion of Pomfret(1982) on the growing importance of export-oriented TNCs in the clothing industry in Malta and their influence on the government.

of EPZs. Every effort should therefore be made to include them. The assumptions used in the analysis should reflect the realistic international environment which may prevail in the 80's. The spectacular success of some EPZs in the early 70's may not be a very useful guide in this respect. The prolonged recession in the West and the consequent rise of protectionism is likely to put a brake on manufactured exports from developing countries to industrialized countries. Moreover, unlike the 60's and 70's when only a few countries had EPZs, there are now more than 60 and many more are entering the arena. The authorities concerned should therefore realize that a much higher price will probably have to be paid if their EPZs are to be successful and the rapid growth of some EPZs may not be repeated in the past.

In terms of advice to host governments operating established zones and seeking to obtain the potential long-term benefits: A prime task is to integrate the zone with the remainder of the economy. This implies that the participation of domestic companies in and around the zones should be encouraged. Policies and regulations precluding domestic investment and participation within the zones may maximize the net short term contribution of the zones to foreign exchange earnings but their retention minimizes their longer term secondary benefits.

Second, greater integration between the zone and the domestic economy requires that domestic firms can deliver goods and services of the required quality at internationally competitive prices. One approach to directly promoting commercial integration would be to establish industrial estates around the periphery of the zone and thus gradually to reduce the enclave nature of the zone. 1/ This approach could be complemented to regular reviews by the host governments, domestic enterprises and the zone authorities of the possible additional services, materials and goods which could be commercially supplied to companies operating in the zone. In addition, the zone authorities and companies should be encouraged to indicate where they see scope for greater domestic involvement and to identify the obstacles precluding it. An alternative approach would be to specify minimum levels of local content. Such an approach, however, requires special care since unrealistic stipulations for increased local content are more likely to impair the viability of the zone than to lead successfully to greater integration between the zone and the domestic economy.

If the zones are to be a forerunner of general industrialization in the host country, then the country as a whole must be equipped accordingly. That is, the physical and administrative infrastructure of the economy as a whole must be shifted in the direction of those of the zone. The challenge facing the governments of developing countries is how to break the distinction between the zones and the remainder of the economy.

1/ This strategy was successfully used, for instance, by the Republic of Korea.

ANNEX I

DEVELOPING COUNTRIES OUTSIDE EUROPE OPERATING EXPORT PROCESSING ZONES (1982)

COUNTRY/TERRITORY	NUMBER OF ZONES/AREAS	LOCATION	
Africa			
Liberia	1	Monrovia	
Malta	1	Various sites	
Mauritius	1	Various sites	
Senegal	1	Dakar	
Tunisia	2	Mégrine Ben Arous	
Asia			
India	2	Kandla Santa Cruz	
Malaysia	10	Malacca	(Batu Berendam (Tanjong Kling
		Johore	(Senai
		Penang	(Pulan Jerejak (Prai (Prai Wharves (Bayan Lepas
		Selangor	(Sungai Way/Subang (Ampang/Ulu Klang (Telok Panglima Garang
Philippines	4	Baguio Bataan Cebu Mactan	
Republic of Korea	2	Iri Masan	
		Export Industrial Estates	(Gumi (Gurudong(3) (Bug Yong (Juan(2)
Singapore	1	Various sites	
Sri Lanka	1	Katunayake	

Banglasdash	1	Chittagong
China	5	Shenchen Zhuhai Shantou Xiamen Hainan
Indonesia	1	P.T.(Piersero)Bonded Warehouses
Pakistan	1	Karachi
Thailand	1	Lat Krabang
Other Asia	3	Kaohsiung Nantze Taichung
Carribean and Latin American		
Barbados	1	Various sites
Belize	1	Belize City
Brazil	1	Manaus
Chile	1	Iquique
Colombia	4	Barranquilla Buenaventura Cartagena Palmaseca
Dominican Republic	3	La Romana San Pedre de Macones Santiago de los Caballeros
El Salvador	1	San Bartolo
Guatemala	1	Santo Tomás de Castillo
Haiti	1	Port-au-Prince
Honduras	1	Puerto Cortes
Jamaica	1	Port of Kingston
Mexico	1	Various sites along the border area
Nicaragua	1	Las Mercedes Airport, Managua
Puerto Rico	1	Mayagüez
Middle East		
Egypt	2	Cairo(El Nasr) Alexandria
Jordan	1	Aquaba
Syria Arab Republic	3	Aleppo Lattakia Tartous
Pacific Islands		
Western Samoa	1	Western Samoa

ANNEX 11

THE UNIDO QUESTIONNAIRE

UNIDO SURVEY OF INDUSTRIAL ESTATES AND EXPORT PROCESSING ZONES

PURPOSE: To obtain information on industrial estates and export processing zones in developing countries. This information will directly aid UNIDO's programmes of technical assistance and research and assist developing countries in the formulation of their industrial policies.

NOTES:

1. One estate: one questionnaire:

   One copy of the questionnaire should be completed for each estate or zone. However, where this is impractical and the answers provided by you refer to several estates or zones, please indicate how many and their location.

2. 1980 or nearest available date:

   The questionnaire seeks information on the estates and zones for the calendar year 1980. Where it is more convenient to provide information for another date, please indicate appropriately.

3. Local currency:

   Please show all values in local currency.

4. Reliability of estimates:

   Where possible please indicate the source of the statistics (e.g., Estate or Zone Authority, Census Bureau, private estimates) and whether they are likely to be under or over-estimates.

5. Annual reports:

   Please enclose copies of annual reports for 1975, 1977 and 1980 together with other material relevant to your estate/zone.

6. Forward answers to UNIDO:

   Please return the complete questionnaire by 30. November 1981 to:

J.S. Marsden
Global and Conceptual Studies Branch
Division for Industrial Studies
D2104, UNIDO
P.O. Box 300
Vienna, A-1400
AUSTRIA

1. GENERAL INFORMATION

(Please tick where appropriate)

1(a) Basic data

Name of Estate or Zone .....

Country ..... Location ..... Area .....

Commencement date .....

Plots available for investors ..... No. ..... Total area .....

Plots sold/leased ..... No. ..... Total area .....

Rent per square metre: Factory ..... Serviced sites .....

☐ Industrial estate ☐ Export processing zone ☐ Other, please specify

Legislative authority (give date) .....

Does this estate/zone have a separate legal status or is it part of an "umbrella" authority covering several separate physical locations?

☐ Separate entity ☐ Part of an umbrella authority ☐ Other, please specify

1(b) Distance in kilometres from:

International Airport ..... Deep Sea Port .....

Rail Terminal .....

Resident of majority of workers .....

1(c) Customs procedures

Do companies operating in the estate/zone have to follow the same customs procedures applying generally throughout the country?

☐ Yes — Do these common customs procedures normally cause delays exceeding:

- ☐ More than 30 days
- ☐ Between 8 and 30 days
- ☐ Between 3 and 7 days
- ☐ Less than 3 days

☐ No — Method of entry for estate/zone is:

- ☐ Duty free entry into bonded warehouse
- ☐ Duty free entry within estate/zone
- ☐ Duty free entry, other. Please specify .....
- ☐ Other. Please specify .....

1(d) The estate/zone provides:

- ☐ Centralized one stop administration
- ☐ Serviced land and sites
- ☐ Construction services
- ☐ Preferential corporate income tax concessions
- ☐ Other fiscal concessions (please detail or attach brochure)
  .....
  .....
- ☐ One-storey modular factory buildings
- ☐ Multi-storey factory buildings
- ☐ Central warehouse facilities
- ☐ Workers' canteens
- ☐ Recreation centres
- ☐ International subscriber dialing
- ☐ Telex
- ☐ Export marketing assistance

1(e) Types of investors:

100% locally owned .....%
100% foreign owned .....%
Joint venture .....%

What proportion of foreign investors are large transnational corporation?
.....%

1(f) Industrial investment promotion

What methods of industrial investment promotion do you find to be successful for your estate/zone? .....
.....

How are these linked with industrial investment promotion for the country as a whole? .....
.....
.....

What is the closure rate of companies in the estate/zone? .....
.....

1(g) Future developments

What are the main problems faced by the estate/zone?.....
.....
.....
.....

How many new estates and new zones will become operational in your country in the period 1982 to 1986?

..... zones
..... estates

Name of Industrial Estate or Zone .....

2. EMPLOYMENT AND WAGES RATES AS AT END OF 1980

Question 2(a) seeks information on average earnings, legal minimum wage rates and supplementary labour costs (such as payroll taxes and employer's contributions to sickness benefits and social security).

Question 2(b) requests the numbers of males and females employed in factories, service operations (such as estate administration, electricity, fire and health, customs and transport) and construction activities as at the end of 1980.

Questions 2(c) and (d) concern associated employment outside the estate or zone and the extent to which labour is unionized.

2(a) Wage rates and earnings per hour as at 31.12.80.

	Supervisors	Operatives
Average hourly earnings in:		
- clothing	.....	.....
- electronics	.....	.....
Legal minimum hourly wage in:		
- clothing	.....	.....
- electronics	.....	.....
Supplementary labour costs (such as payroll tax and employers' contributions for sickness and social security benefits) as per cent of:		
- legal minimum wage	.....%	.....%
- average earnings	.....%	.....%

2(b) Employment in industrial estate/zone at 31.12.80.

	Manufacturing	Services	Construction	TOTAL
Management and technical:	.....	.....	.....	.....
Skilled:	.....	.....	.....	.....
Unskilled	.....	.....	.....	.....
TOTAL:				
Males:	.....	.....	.....	.....
Females:	.....	.....	.....	.....

2(c) Associated employment outside the estate/zone.

Activities undertaken inside the estate/zone generate employment outside through the need for sub-deliveries, transport outside the zone, food, recreation, and community services.

Please provide a quantitative estimate of the number of associated employees outside the estate/zone for each job inside:

Please tick one. ☐ 1 person ☐ 2 to 3 persons ☐ 4 or more persons

2(d) What is the position on unionized labour?.....

.....

Percentage of labour unionized .....%

Name of Industrial Estate or Zone .....

3. GROSS OUTPUT, EXPORT SALES AND PRODUCTION COSTS - 1977 and 1980

This question seeks information on the wage bill and other key financial aggregates for all activities in the estate/zones in 1980. For comparative purposes the same information is also requested for 1977. Please show all values in market prices, including taxes, tariffs and subsidies.

	1977	1980
Gross output at market prices	_____	_____
Domestic sales	_____	_____
Export sales at market prices	_____	_____
Wage bill (domestic and expatriate)	_____	_____
Value-added	_____	_____
Materials, intermediate components and fuel		
- domestic	_____	_____
- imported	_____	_____
Services		
- domestic	_____	_____
- foreign	_____	_____

Please state and describe where taxes, tariffs, quantitative restrictions on imports and/or subsidies affect significantly the estimates given above. For example, taxes on wage payrolls, taxes or tariffs and restrictive quotas on imported materials and components.

Name of Industrial Estate or Zone.....

4. MANUFACTURING ACTIVITIES* IN ESTATE/ZONE IN 1980

This question seeks information on the range of manufacturing activities undertaken in the estate/zone during 1980. This information is sought in terms of four characteristics:

- number of factories
- factory employment
- value of output
- export sales

Please distinguish between small factories (50 employees or less) and large factories (more than 50 employees).

ISIC*		Activity	No. of Factories		Factory Employment	Value of Output	Export Sales
			small	large			
31		Food, beverages and tobacco					
32	321	Textiles					
	323	Clothing, garments and apparel					
	323	Leather and products of leather, leather substiutes and fur, except footwear and apparel.					
	324	Footwear, except vulcanized or moulded rubber or plastic footwear					
33		Wood and wood products, printing and publishing.					
34		Paper and paper products, printing and publishing.					
35	351 352	Chemicals					
	353 354	Petroleum products					
	355	Rubber products					
	356	Plastic products					
36		Non-metallic mineral products except products of petroleum and coal, pottery and glass.					
37		Basic metals					
38	381	Metal products, except machinery and equipment.					

continued on next page

4. continued

ISIC*		Activity	No. of Factories		Factory Employment	Value of Output	Export Sales
			small	large			
38	382	Machinery except electrical					
	3831	Electrical industrial machinery					
	3832	Radio, television and electronics					
	3832	Domestic electrical appliances					
	384	Transport equipment					
	385	Scientific, photographic and optical goods					
39		Other manufacturing industries					
TOTAL							

*Small: 50 or less employees

Large: 50 or more employees

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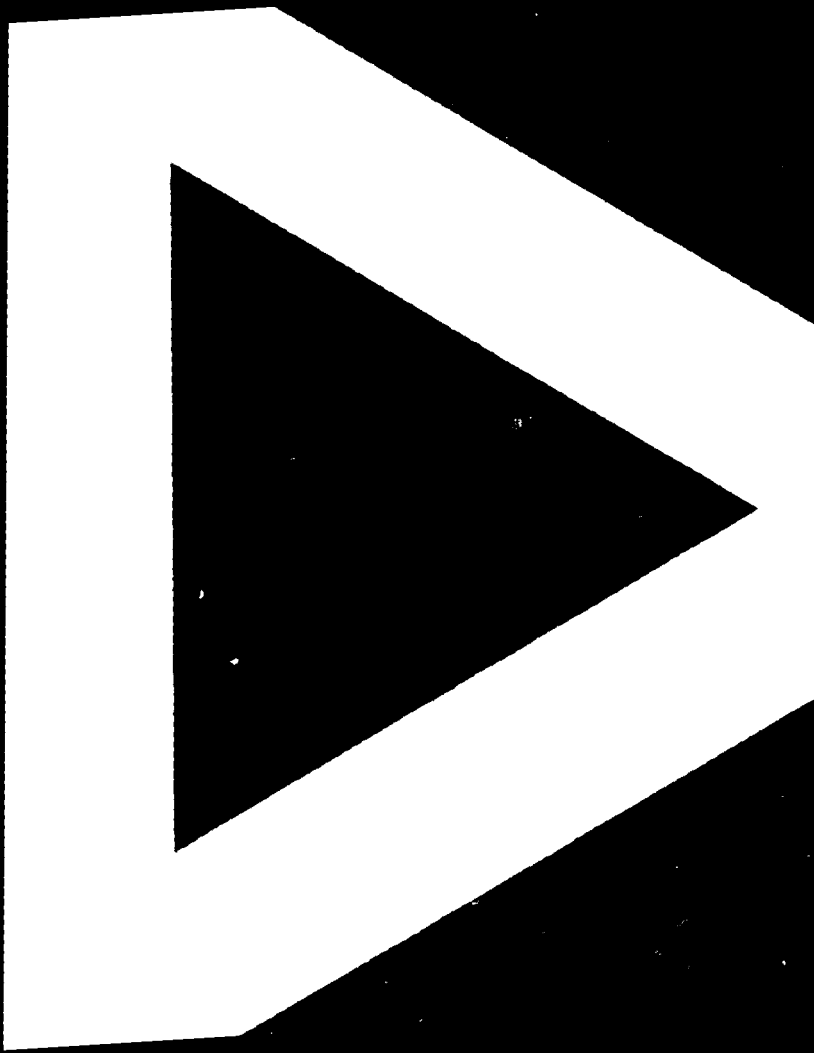


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