

INTERNATIONAL SUBCONTRACTING AND DEVELOPING COUNTRIES

BY

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1 INTRODUCTION

In the 1960s, a re-evaluation set in with regard to the development policies of those less developed countries (LDCs) which had thus far mainly been orientated towards import substitution. This meaning that alternatives then received more attention. An important alternative is a policy directed towards export-industrialization.¹ The greater number of authors in this field argue that LDCs should concentrate on labour-intensive industries, which would be more compatible with policies towards export industrialization in view of the international division of labour. These industries would offer the best opportunity to reduce unemployment, in view of their relatively low capital intensity. Some other authors do not agree. They stress that low capital intensity and a low wage level imply low productivity and, therefore, poor countries should concentrate on capital intensive industries which could stimulate the development of technological know how and its diffusion, which consequently promotes opportunities for further industrialization and growth.

This controversy is mitigated by the structure of industry in that every breakdown according to labour intensity, or capital intensity, is debatable. If any, there is a floating border-line between the two types of industries. The discussions on policy matters like the choice of labour-intensive or capital-intensive industries therefore are or should be in some respects different from the question whether export industrialization or import substitution should have priority in formulating a development strategy. This is clearly demonstrated by the phenomenon called international subcontracting, the very subject of the present article.

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1 See for instance: Little, Scitovsky and Scott (1970).

2 TYPES OF SUBCONTRACTING

Subcontracting may be defined as a means to settle complementary co-operation between two or more firms which agree on certain conditions for such a co-operation. An important condition often is that the subcontractor supplies the contractor with special components, products and the necessary technology depending on the nature of the (part of the) production activity to be subcontracted. The essential difference between subcontracting and ordinary commercial relationships is that subcontracting avoids marketing problems for the subcontractor. This aspect especially makes international subcontracting attractive to many LDCs that wish to promote and extend exports of manufactures. Watanabe (1972a) distinguishes several types of subcontracting; they can be grouped according to the following three descriptions:

- 1 Industry X in country A receives orders from local or foreign clients. These are put out to contract to other industries in country A, or in other countries. Actually, X is a trader or commission agent. In Watanabe's terminology this is *commercial subcontracting*.
- 2 Industry Y in country A puts out to contract the production of certain components, or their assembly, to industries in country A in order to assemble these components in its own firm or sell the products assembled by contract via its own sales channels. This could be called *internal subcontracting*. *Active subcontracting* could be defined as the assembly, in country A, of components or semi-manufactured goods produced in country B.
- 3 Industry Z in country A puts out to contract the production of certain components, or the assembly of components made by Z, to industries in country B to re-import them for further processing, or to sell the products assembled abroad via its own sales department. This could be described as *passive subcontracting*.

International subcontracting consequently consists of active and passive subcontracting. The distinction between active and passive, in this context depends on the viewpoint chosen: that of country A or country B or, for example, that of all other countries except A. The United Nations Industrial Development Organization (UNIDO, 1969) distinguishes the types of subcontracting according to, one might say, its very cause. This has led to three notions: economic subcontracting, specialized subcontracting, and capacity subcontracting.

Economic subcontracting occurs when considerable savings in costs can be gained by pertinent subcontracting. For instance, when the required quantities are too small to justify an investment by the contractor. These cost savings may be counteracted, or even eliminated, when the technical assistance, which might sometimes be necessary, is too extensive.

Specialized subcontracting occurs when the contractor lacks the specific know how for the production of certain specialized components. Its distinction from economic subcontracting is sometimes difficult because of the existence of patents, licenses, etc. This type of subcontracting seems to be less sensitive to changing market conditions, e.g. prices.

Capacity subcontracting occurs when the subcontractor considers the production of certain components in his own factory impossible, or prohibitively expensive, within a limited period of time. This means that unforeseen circumstances are often a contributive cause for this type of subcontracting. The time factor dominates, which implies that this type is mostly restricted to a local or regional matter.

3 AIM

The present article is restricted to international subcontracting arrangements in which the contractor is a firm from a rich country and the subcontractor a firm from a developing country. It seeks to quantify the size and importance of the inherent phenomenon, guided by the scarce statistical data in this field. An evaluation will be made of the question whether international subcontracting could be a viable component of an export-orientated development strategy. A complication is the relationship between contractor and subcontractor that can either be one between autonomous firms, or one between subsidiaries. International subcontracting with LDCs does not yet occur frequently, as far as firms are concerned which are completely autonomous. As will be shown below, subcontracting activities in LDCs have expanded considerably over the last few years, and gained impetus by so-called 'bonded processing.'

In most industrialized countries, international subcontracting could well be regarded as the logical follow-up of internal subcontracting. An essential condition for internal subcontracting is a certain minimum degree of industrialization which has resulted in a welter of large, medium-sized and small firms which, for each other, can function as contractors as well as subcontractors. On the other hand international subcontracting of the assembly type can take place at a still relatively low level of industrialization. Through international subcontracting, a process may be started which could be more or less opposite to that which has manifested itself in the rich countries. This process may be described as follows. In the rich countries, increasing internal subcontracting gradually stratified into international subcontracting. In LDCs, as can be expected or anyway is aimed at, international subcontracting may lead, under certain conditions, to increasing internal subcontracting. These conditions may briefly be characterized as forward and backward linkage possibilities, which are determined by the available industrial structure.

Such an aim becomes obvious from a governmental requirement stipulated for subsidiary firms in some LDCs that, in the course of time, the products made should contain an increasing percentage of locally produced materials and components.

4 ADVANTAGES AND DISADVANTAGES

UNIDO (1974) mentions the following advantages and disadvantages for both contractor and subcontractor.

4.1 *Advantages for the Contractor*

- a) labour costs are often lower in small enterprises than in large firms;
- b) most subcontractors have less equipment and machinery and simpler workshops than large firms, and their depreciation costs are lower;
- c) subcontractors spend little on research and marketing, which also reduces their costs;
- d) subcontractors have more flexibility: management can take decisions more quickly and production programmes may be changed or adjusted more easily;
- e) subcontractors, especially when highly specialized, can often produce certain items more efficiently and cheaper than contractors.

4.2 *Disadvantages for the Contractor*

- a) technical and managerial weakness of the small firms;
- b) risk of delivery targets not being met by the subcontractor.

4.3 *Advantages for the Subcontractor*

- a) stability of orders;
- b) opportunity for specialization of production;
- c) supply of raw materials is assured in most cases, and so is technical and managerial assistance;
- d) financial assistance is rendered, especially in the case of 'affiliated' subcontractors.

4.4 *Disadvantages for the Subcontractor*

- a) contract prices being imposed by large contractors;
- b) delayed payment by the contractor, which might cause liquidity problems;
- c) excessively technical requirements (quality);
- d) requirement to maintain a certain level of inventory;
- e) subordination to middlemen, if these are concerned with subcontracting agreements.

4.5 *Advantages for the LDCs*

The two main advantages for LDCs involved with international subcontracting are:

- a) increased availability of foreign currency.

This is quite important in view of the well-known payments gap in many LDCs. Therefore, many development economists have long considered the shortage of foreign currency as the main bottle-neck for the development of backward countries;

- b) increased industrial employment and income.

It is estimated that industrial employment in those LDCs which we will deal with in this article, has increased by some 250 to 300,000 jobs through international subcontracting. This aspect should not be underestimated because unemployment in LDCs might be one of the main sources for social and political disruption in future. This might force local governments to divert productive funds to create employment in unproductive sectors like army and police, inflated bureaucracies, *etc.* (Sharpston, 1976).

- c) There is no statistical information available to judge any major change in the income distribution of LDCs involved with international subcontracting. However, especially the share of the middle income groups in these countries might increase, simply because of the evident relationship between employment and income distribution. The extent of the increase will be the larger, the larger is the share of industrial employment in international subcontracting.

Further advantages could be mentioned; for example:

- d) International subcontracting permits a developing country access to certain markets which would otherwise not be available. Even when direct exportation is a feasible alternative, international subcontracting may well enable the developing country to achieve a far faster growth in exports;
- e) Since Kingston (1973) and Lawson (1974) could demonstrate that export stability increases with an increasing share of manufactures in LDCs exports, international subcontracting might well be expected to contribute to an improved export stability of LDCs;
- f) Since some industrialized countries have granted tariff preferences for subcontracted products, extorted by their local contractors, international subcontracting could be a means to 'burst' the tariff structure of the industrial countries, which is characterized by very high rates of effective protection.

4.6 *Disadvantages for the LDCs*

There are generally strong parallels between the disadvantages of international-subcontracting for a developing economy and those of a dualistic development pattern. Such a dualistic development pattern is manifest in many LDCs with a

western-orientated modern industrial sector, which contrasts with a largely backward agricultural and a mainly urban, informal sector. The modern sector tends to be an enclave nature in that hardly any diffusion towards the backward sectors occurs. This means that backward and forward linkages, which are an argument in Rostow's theory of leading sectors, are not established. This will be the more so be the case with international subcontracting located in free-processing zones (see section 7), which in a physical sense are even more emphatically enclaves and which, for that reason, now and again have been described as modern plantation systems. As far as subcontracting not located in such zones is concerned, however, it will depend on the very nature of a specific subcontracting arrangement whether such linkages may be established. Taiwan, for instance, realized forward linkages in that after initially having subcontracted the assembly of semi-conductors, the integrated production of TV-apparatus was started, and a backward linkage in that a plastic film production for the electronics industry was established. One could quote more of such examples; they all show that such linkages will heavily depend on both, the type of subcontracted work involved and the institutional and industrial structure of the developing country concerned.

Another disadvantage of enclave industrialization will be the occurrence of regional imbalances in economic development because of cluster effects, especially within urban areas. Social imbalances are often caused by a tendency to pay higher than average wages within these enclaves, which might stimulate open unemployment because it induces and reinforces the rural-to-urban migration in LDCs.

LDCs involved with subcontracting, or wishing to practise it, will have to take adequate measures to avoid that they carry the burden of an economic recession, when the subcontracting arrangement is of the capacity type described in section 2. Large companies in the rich countries have often used subcontracting to reduce the effects of cyclical fluctuations in supply and demand in order to increase their capacity in periods of upswing, which is then decreased in periods of recession. In this context it would be interesting to know the effects of the present – or is it recent? – almost world-wide recession on the size and growth of international subcontracting. However, in view of the well-known time lag in statistical information, it is probably still too early to analyse this matter.

5 SUITABLE INDUSTRIES

In LDCs, industries which are open to international subcontracting are those that have an existing or potential comparative advantage with regard to the contractors concerned. In view of the present factor endowments, they are the

relatively labour-intensive industries. In other words; those industries are the ones which make a relatively intensive use of the least scarce factors. Some authors argue that endowments of natural resources should be included in selections of industries on which LDCs should concentrate. This is explicitly not the case with international subcontracting in that the materials and components needed are imported, and that can be seen as a disadvantage of this type of economic activity, since the volume of the positive effect on the balance of payments will be equal to the value added on the goods thus produced and exported, only. This situation is comparable with the export of services.

There are several ways to ascertain which industries have to be concerned as suitable ones. One such way is to compile a list of industries within LDCs, which are already engaged in international subcontracting (heuristic method). A second way might be offered through the theory of international division of labour (theoretical method). A third possibility is presented by Seugé (1974), who wields seven selection criteria (normative method). The ratios concerned have minimum respectively maximum values which should, or must, not be exceeded. A

TABLE 1 - INDUSTRIAL SECTORS SUITABLE FOR
INTERNATIONAL SUBCONTRACTING, FRANCE 1972

SITC number	Sector/commodity	Criteria						
		A	B	C	D	E	F	G
612	Leather, <i>etc.</i> manufactures	33.7	19	58	2.6	76.2	24.9	17.2
632	Wood manufactures	32.4	21.7	61	2.6	75	30.3	17.8
656	Textile products	30.8	23.2	70	3.3	72.9	33.6	15.6
695	Tools (small)	33.1	24.5	70	2.5	70	32.9	8.9
697	Basic metal household equipment	30.3	24.7	71	3.1	70.8	31.5	12.4
841	Clothing	33	16.7	54	2.8	79.5	21.1	14.6
851	Footwear	34.6	17	56	3.4	81.1	24.1	23.4
894	Toys, sports goods	30.2	20.2	66	2.6	72.1	29.2	27.1
897	Jewellery	32.4	21.7	61	2.6	75	30.3	17.8

Criteria

*Critical
value:*

A: Wage bill/Production value ratio in %

> 30%

B: Wage bill/Number of employees ratio in 1,000 French francs

≤ FF 25,000

C: Balance sheet total/Profit after taxes ratio in %

< 71%

D: Fixed capital/Profit before taxes ratio in years

< 3.5 yrs

E: Wage bill/Value added ratio in %

> 70%

F: Fixed capital/Production value ratio in %

< 34%

G: Export value/Sales ratio in %

∞

Source: A. Seugé, *Moniteur de Commerce International*, 18 March 1974, p. 94.

weak point is the said author's omission of an (theoretical) explanation regarding the absolute values requested for the ratios. The nine industrial sectors selected by Seugé are presented in Table 1, and they satisfy the ultimate values of the nine ratios as given at the bottom of the table.

The character of many subcontracted activities makes that one can hardly use the labour intensity of certain branches of industry, or even production processes, to select products or sectors which are suitable for subcontracting as has been done by Seugé (1974). This also makes the theory of international division of labour, thus far, less suitable for this purpose. Bhalla (1975) states that a distinction between different levels of aggregation needs to be borne in mind; he suggests a distinction between over-all national, sectoral and plant levels. With regard to international subcontracting it may be considered self-evident that not even plant-level data on the labour intensity will suffice. Especially in the case of the USA it is clear that, looking at only the (average) sector labour-intensity, one would never have succeeded in demonstrating that semi-conductors are suitable for being subcontracted in LDCs. The production of semi-conductors is both capital- and skill-intensive: only a very specific phase in the production cycle, *i.e.* the assembly, is highly intensive in terms of use of practically unskilled labour.

So, for the identification of subcontracting possibilities, a disaggregation towards the process level will be necessary. In most cases products are involved with a high value to weight ratio. Many assembly operations are bulk-creating and the ensuing freight costs may make an operation unsuitable for international subcontracting, despite its labour-intensiveness. The still labour-intensive production processes in operation in the rich countries have, for one reason or another, survived the trend towards increased mechanization. They are mostly the said assembly activities, certain finishing activities and, for instance, a labour-intensive process like foundry, for which in the rich countries often foreign labourers are brought in from poor countries.

6 MULTINATIONALS AND INTERNATIONAL SUBCONTRACTING

There is some discussion as to whether the notions of this paragraph exclude each other. Some authors (Watanabe, 1972a, for instance) think so; others like Helleiner (1973a) and Dunning (1974), hold an opposite view. The clash, as is often the case, can be reduced to the definition used for multinationals and that for international subcontracting. Watanabe is of the opinion that one cannot speak of international subcontracting if contractor and subcontractor are not completely autonomous. The UNCTAD (1971a), Helleiner and Dunning do not exclude subsidiary firms in defining international subcontracting.

The variety in definition for a multinational, on the other hand, might also

cause problems. The United Nations (UN, 1973) considers a company to be a multinational when it has foreign subsidiaries, and a consolidated sales value of at least US\$ 100 million, and when the company can be characterized by mainly oligopolistic features, product differentiation, and intensive marketing and research activities. Actually, the UN gives only one fundamental characteristic, *viz.* oligopoly; the others obviously are derivatives from this qualification. Multinationals located in LDCs seem to concentrate on the so-called Ricardo goods and product-cycle goods. This distinction between groups of manufactures can be found with Hirsch (1967), who distinguishes Ricardo goods, Heckscher-Ohlin goods and product-cycle goods. Ricardo goods are manufactures of which the comparative advantage is explained mainly by the volume of natural resources incorporated. Heckscher-Ohlin goods are manufactures of which the comparative advantage is determined by the relative factor proportions involved in their production. Product-cycle goods are manufactures which have resulted from recent innovations and research and development efforts. With regard to labour, as a production factor, a further distinction is made according to skill (see *e.g.* the Leontief paradox).

A careful breakdown of the activities of multinationals in LDCs, however, shows that also Heckscher-Ohlin goods are produced by these companies. One could in fact distinguish the following categories of multinationals operating in LDCs:

- a) production of goods and services exclusively for the local market (non-traded goods);
- b) production of goods and services which are importable (import substitution);
- c) production of goods and services for both the local and foreign markets (especially other LDCs): Heckscher-Ohlin goods;
- d) production of basic materials for export: Ricardo goods;
- e) production of semi-manufactures and final products only for markets in industrialized countries: Heckscher-Ohlin goods and product-cycle goods.

Especially, multinationals that can be categorized under e), and to a lesser extent under c), seem to be relevant with regard to international subcontracting. Clearly, the flood of objections against multinationals does not keep pace with the *rivulet* of quantitative information which is published on the activities of multinationals in LDCs. It is the very scarcity of such quantitative information that leads to this irony.

7 FREE-PROCESSING ZONES

According to Stans (1970), there are more than one hundred free-trade areas spread throughout the world. The number of these areas has increased con-

siderably after World War II. The greater part of the new free-trade areas has been established in LDCs at places which lie on the so-called junctions of intensively used international sea and air routes in the region concerned. Often more privileges are granted besides the well-known complete or partial exemption of import duties, such as, for instance, tax holidays for producers of manufactures. Such measures made the new free-trade areas more and more develop into free-processing zones. This type of zone is an industrial area controlled, all around, by the customs. The necessary raw materials, components as well as capital equipment, can be imported duty-free. Imports of raw materials, semi-manufactures and final products from this area into the host country are not allowed. The success of this kind of areas is highly determined by their geographic position, an adequate infra-structure, a good investment climate (regulations and political stability) and efficient administrative procedures. The planning towards creation of a free-processing zone calls for a careful evaluation of the attractiveness of the zone for future participants, *i.e.* subcontractors. If prospective activities do not justify the creation of a free-trade zone, nor that of a free-processing zone, sometimes 'bonded warehouses' or other privileged systems may be profitable. It will become clear, below, that the activities that have got off the ground in these areas are mainly those related to international subcontracting. Although scarce, there are some quantitative data on a number of processing zones: those data offer the possibility to quantify at least a part of the very phenomenon of international subcontracting.

8 A SURVEY OF STATISTICAL DATA

A quantification of the impact of international subcontracting will now be attempted for, consecutively, Mexico, the Caribbean, Hong Kong, Taiwan and South Korea. With regard to Mexico it will be restricted to the international subcontracting activities of US companies along the US border, although an increasing number of Japanese firms are also active in this area. The Caribbean is well-known because of its locations for so-called US run-away industries; Hong Kong is a free port which has evolved into a large free-processing zone. Hong Kong is the largest exporter of manufactures among all LDCs. Although, one could wonder whether it is still correct to call Hong Kong a developing country. The free-processing zones of Taiwan and South Korea have attracted relatively much attention. That is why they ought to be mentioned in an article about international subcontracting.

8.1 *Mexico*

Mexico is a developing country that evidently is influenced by its big neighbour,

the USA. The opportunity for US firms to settle in the Mexican border zone, however, is relatively new. The *Programa de Industrializacion Fronteriza* dates from 1966. It resulted from the need to do something against the increasing unemployment in that area. This problem originated when, by the end of 1964, the US ended the regulations with regard to the *braceros*, viz. agricultural workers who were allowed to work temporarily within US farms near the border. The programme enabled the creation of a processing zone with a maximum width of 12 miles from the border, especially for assembly industries which are allowed to import equipment and materials duty-free. Exports and personnel traffic across the border are free too. The end-products of these firms are not allowed for importation into Mexico.

The placing of bonds was necessary to meet the requirement that imports of raw materials were temporary indeed ('In-bond-plants'). According to Hunt (1970), there were 103 such firms in the border zone by mid-1969. Derossi (1971) gives a different and possibly conflicting figure: 112 for the end of 1968. Hunt's figures reveal that about one third of these companies produced electronic equipment and one fourth produced clothing. The results of his questionnaire showed that the most important locational factors were the low wage costs and

TABLE 2 - INTERNATIONAL SUBCONTRACTING
IN THE MEXICAN BORDER ZONE, 1968

SITC number	Sector/commodity	Number of firms	Investment ¹ (1000 US\$)	Employment (number)	Production/export value (1000 US\$)	Labour-intensity (man/1000 US\$) ³
032	Food processing	6	671	610	10,904	0.9091
729	Electrical equipm/mach	40	5,665	5,570	34,128	0.9832
821	Furniture	8	847	459	5,188	0.5419
841	Clothing	26	807	1,927	11,392	2.3879
894	Toys, sports goods	6	259	1,060	505	4.0927
899	Miscellaneous n.e.s.	26	1,442	1,301	nd.	0.9022
	Total	112	9,691	10,927	(62,017) ²	1.1275

1 Initial investment outlay.

2 According to Helleiner (1963a), reimports under heading 807.00 from Mexico amounted to 60.5 million dollars in 1966 and to 500.0 million dollars in 1970.

The figure of Derossi (5 commodities) of 62.017 million dollars matches this picture.

3 Labour-intensity is taken to be defined as number of men per 1,000 US\$ initial investment.

Source: Derossi (1971).

an ample labour supply. Like in other free-processing zones, the relatively large proportion of women in the total employment force is conspicuous. The advantage of Mexico, compared with countries offering the same facilities in Asia, is its proximity to the USA. The data of Table 2 are Derossi's. From them, the labour intensity could be calculated; it is presented in the same table.

The labour intensity for furniture turned out to be relatively low while that for toys and sports goods was relatively high, *i.e.* about 4 labourers per US\$ 1,000 investment outlay.

8.2 *The Caribbean*

As from May 1st, 1974, a common market of ten Caribbean countries has been in existence: Van Houten (1973) supplies data on the export of assembled manufactures from a number of its member-countries. In almost all member-countries, programmes have been formulated to attract industries interested in international subcontracting. The main goals are: improvement of the balance of payments, augmentation of capital assets, stimulation of employment opportunities, and transfer of technology. The tax facilities offered in most cases,

TABLE 3 - INTERNATIONAL SUBCONTRACTING
IN THE CARIBBEAN (1970/1971)

Country	Number of firms involved (number)	Employment	ISC ¹	ISC ²	ISC ³	Total exports ⁴	% ISC ⁵	% ISC ⁶
Barbados	21	2,650	3.3	4.1	3.3	35	9.4	8.0
Costa Rica	n.a.*	n.a.	n.a.	n.a.	2.1	231	0.9	n.a.
Dominican Republic	13	2,095	0.2	0.8	n.a.	214	0.1	0.1
Haiti	n.a.	10,000	8.3	11.8	6.1	40	21.0	6.6
Jamaica	25	5,100	11.1	15.0	9.1	342	3.2	3.6
Trinidad/Tobago	n.a.	n.a.	4.2	4.0	4.2	224	1.9	0.7
Total	n.a.	n.a.	27.1 ⁷	35.7 ⁷	24.8 ⁸	1,095	3.2	2.0 ⁷

1 International subcontracting exports value according to Van Houten (1973) in 1970, millions of US dollars.

2 ditto, in 1971.

3 ditto, according to Helleiner (1973), in 1970.

4 1970, millions of US dollars.

5 ISC¹ as a % of total exports in 1970.

6 Value added in ISC as a percentage of total value added in industry, 1970.

7 Exclusive of Costa Rica.

8 Exclusive of Dominican Republic.

* n.a. = no data available.

however, are not directly related to the labour intensity of the production activities. This implies that the factor capital is still favoured. In this respect, one may have doubts as to whether the present legislation is suitable to stimulate a further growth of international subcontracting. About 3% of the total exports of five countries involved are exports based on international subcontracting.

In Haiti, which is not a member of the Caribbean Common Market, the share of international subcontracting in total exports is even 21%, while two thirds of the firms involved are indigenous. The remainder has ties with US firms. The data presented by Van Houten (1973) and Helleiner (1973a), are summarized in Table 3. Because of lack of relevant figures, no data can be given on the labour intensity in the several industrial branches concerned.

8.3 *Hong Kong*

Hong Kong is the largest single exporter of manufactures from LDCs. International subcontracting has played, and is still playing, an important role in the development of her industrial activities. The textile industry formed the basis for the present industrialization: about 20% of the labour force is employed in this sector. The electronics industry employs 9% of the labour force, and its share in total exports amounts to almost 10%. The development of the electronics industry in Hong Kong was initiated by international subcontracting, *e.g.* the assembly of transistors. In more recent years, a shift from international subcontracting towards internal subcontracting can be noted. This means that industrial diversification has developed to such an extent that subcontracting occurs between firms inside Hong Kong. According to Riedel (1974), the interests of private foreign investors in Hong Kong are mainly concentrated in the electronics industry: about 30.5% of the book value of total foreign investment and 55% of the book value of total investments by multinational companies in Hong Kong. In other industrial sectors, the influence of foreign investors, expressed as such, is surprisingly much less. From the data which Riedel collected, one can deduce that the share of the number of labourers employed by foreign companies amounted to 12% of the total labour force employed in 1970. Porter (1972) mentioned a figure of 13%. Only part of the figures on export value given in Table 4 relate to international subcontracting; there were no data available to calculate its true proportion.

8.4 *Taiwan*

Industries which are orientated towards international subcontracting, such as those producing refrigerators, air-conditioning equipment, television sets, *etc.* can be established in Taiwan only if there is a guaranteed progressing share of locally manufactured parts or components in the manufactures concerned. This

TABLE 4 - EXPORT SECTORS, PARTLY INTERNATIONAL SUBCONTRACTING, IN HONG KONG, 1970

SITC number	Sector/commodity	Production value ¹	Value of exports ¹	% ²	Employment (number) ³	Share in % ⁴
656	Textile products	573	277	48	127	23
698	Metal ware n.e.s.	78	40	51	46	8
729	Electrical products	204	181	89	49	9
841	Clothing	780	714	92	111	20
851	Footwear	47	39	81	10	2
893	Articles of plastics ⁵	291	240	83	72	13
899	Wigs	121	112	92	n.a.*	n.a.*
	Total 7 sectors	2,094	1,603	77	415 ⁶	75 ⁶
	Total Industry	2,978	1,934	65	549 ⁷	100

1 In million US\$, partly subcontracting.

2 Export value as a percentage of total production value.

3 Times 1,000 employees.

4 Share in % of employed industrial labour force.

5 Mainly toys, flowers, etc.

6 Excluding wigs production.

7 Share of foreign investment in this figure: 11.7%. Average labour intensity in the overall Hong Kong industrial sector is 0.4807 (Riedel).

* n.a. = no data available.

Source: Riedel (1974).

enforcement of internal subcontracting by means of international subcontracting has to be welcomed if the stipulated speed is moderate; otherwise potential international subcontracting arrangements might be deterred. The creation of free-processing zones has served the promotion of exports. Well-known zones are those at Kaohsiung, Nantze and Taichung. Initially these zones did not fulfil their purpose. Recently, however, this seems to have changed in that more activities can be signalized. One of the settlement conditions in these zones implies that no export-orientated industries shall be established which compete with existing local exporting industries. Other conditions imply the not-being-saturated of the world market for the product planned for production,² and the value added should comprise at least 29% of the sales value. During the period from September 1966 through April 1968, 55 companies settled in the Kaohsiung

2 It is not known whether the market being saturated has to be measured against ruling prices or against prices to be offered after the firm concerned has been established in the free-processing zone.

export processing zone, investing almost 9 million US\$, offering employment to about 10,000 people. The labour intensity consequently amounted to about 1,111 on an average. Further data, comparable with those of other countries involved in international subcontracting, could not yet be gathered.

8.5 South Korea

The favourable development of the employment situation in this country – according to Watanabe (1972b) unemployment dropped from 8.1% in 1963 to 4.5% in 1970 – derives from an industrialization policy directed towards exports. Between 1962 and 1970, the share of manufactures in the total of exports boomed from 19.4% in 1962 to 77.4% in 1970. Up to April 1st, 1974 there were 931 foreign firms in South Korea. By the end of 1970, this figure amounted to 274; the firms invested 205 million US\$ and employed 34,674 labourers. The share of foreign owned companies in the total exports was 13.5% in 1970.

Also many indigenous firms are involved in international subcontracting. It has been said that the larger part of the textile and clothing industries exports are based on international subcontracting agreements. The Korean government stimulates international subcontracting, both in local industries and in free-processing zones, of which there are two, one in Masan and one at Iri. Watanabe mentions that ten firms were producing in the Masan zone, end 1970. It was expected that there would be 400 to 500 firms employing 70,000 to 80,000 employees by the end of 1975. This may cause international subcontracting to

TABLE 5 – INTERNATIONAL SUBCONTRACTING
IN SOUTH KOREA, 1969¹

SITC number	Sector/commodity	Value of ISC exports ²	Total exports value ²	Share of ISC in %
650	Textile fabrics	5,020	60,598	8
710	Electrical apparatus, parts	32,916	36,687	90
730	Transport equipment, parts	6,260	7,639	82
841	Clothing	77,739	160,771	48
899	Miscellaneous	8,753	356,821	3
	Total	130,688	622,516	21

1 After 1969, the ISC exports value is expected to be increased through the establishment of free-processing zones.

2 In 1,000 US\$.

Source: Watanabe (1972b).

acquire an even larger share in the total exports of South Korea than in 1969, *i.e.* before those free-processing zones were in operation, when it was 21%.

8.6 *International Subcontracting and the USA*

The US data on the growth of international trade resulting from subcontracting, indicate that this phenomenon is increasingly gaining importance, both for LDCs and industrialized countries. The data presented in Tables 1 to 5 show that international subcontracting constitutes an important, *i.e.* not neglectable, part of the exports of manufactures from the countries considered; sometimes up to about 37%, as was the case in Jamaica (this was equal to 3.2% of its total exports). However, the percentages calculated are a little underestimated because of the fact that the data on international subcontracting are less recent than the 1971 data on the exports of manufactures which were handled as reference material. Table 6 gives the share of international subcontracting in the exports of manufactures per country considered, and the share of one of the most important

TABLE 6 - SUMMARY OF INTERNATIONAL SUBCONTRACTING
PER COUNTRY, SHARE OF THE USA, 1969
(MILLION US DOLLARS)

Country	Exports of manufactures ¹	'Total' ISC	ISC exports to the USA ²	id. (1972) ²	% ³
Barbados	35 ⁵	3.3 ⁶	3.3 ⁸	n.a.*	9.4 ⁵
Haiti	22	8.3 ⁶	8.3 ⁸	n.a.	37.7
Hong Kong	1961	n.a.	91.4	135.6	6.9 ⁹
Jamaica	31	11.1 ⁶	11.1 ⁸	n.a.	35.8
Mexico	571	62.0 ⁴	150.0	426.4	10.9
South Korea	673	131	23.8	57.1	19.5
Taiwan	570	44 ⁷	68.7	214.3	7.7
Trinidad/Tobago	35	4.2 ⁶	4.2 ⁸	n.a.	12.0

Notes:

1 Source: UNCTAD (1974), data on 1971.

2 Source: Table 7.

3 ISC total, as a percentage of exports of manufactures.

4 Five sectors only, see Table 2, 1968.

5 Total exports, 1969.

6 1970.

7 Free-processing zones only.

8 Estimate for 1970

9 ISC exports to the USA as % of exports of manufactures in 1971.

* n.a. = no available data.

destinations of manufactures produced by means of subcontracting, *i.e.* the USA.

The USA's is thus the lion's share in the present international subcontracting activities within LDCs. The USA have special statistical headings (807.00 and 806.30) for this kind of imports. Table 7 shows that the volume of international subcontracting has rapidly increased from US\$ 953 million in 1966 to US\$ 3.4 billion in 1972. The share of the LDCs in this figure had risen from 6% in 1966 to 30% in 1972. This means an annual compound growth rate of about 60% in the period concerned. What are the causes of this spectacular growth?

The demand for international subcontracting can be considered as a 'derived' demand: it depends on the demand for final products in the rich countries and, also, on the character of production processes involved together with cost differences. In recent years, 'new' labour-intensive products, especially from the electronic sector, have been added to the 'old' labour-intensive product list, which included such products as clothing and shoes. The demand for international subcontracting is moreover stimulated by increasing wage differences, while, in certain industrial branches, the productivity of the subcontracting firms in the developing countries approaches or even surpasses that figure of the comparable sectors in the USA. International subcontracting has further been advanced by improved transport and communication systems, for instance by containerization. The stimulus of certain governmental measures with regard to free-processing zones has been mentioned earlier.

International subcontracting by firms in LDCs mainly relates to assembly of US products. A breakdown of the 1969 US imports from LDCs under statistical number 807.00 was as follows (Sharpston, 1974):

Semi-conductors	23.6%	Office machines	8.3%
TV receivers	10.8%	TV apparatus	8.3%
Electronic memories	10.2%	Toys, dolls	5.9%
Textile products	8.6%		

US firms have also stimulated international subcontracting in the so-called service sector activities such as repair of airplanes and ships (Singapore), punching of computer cards (Jamaica) and printing (Hong Kong). Table 7 summarizes data on US (re-)imports of subcontracted goods, especially from LDCs.

8.7 *International Subcontracting and the Netherlands*

The Dutch trade statistics also have a provision to record international subcontracting transactions. The latter are defined as that processing of temporarily exported (or imported) goods by a foreign subcontractor (or local subcon-

TABLE 7 - INTERNATIONAL SUBCONTRACTING
RE-IMPORTS IN THE USA
(IN MILLION US DOLLARS)

Country	1966	1967	1968	1969	1970	1971	1972	Average growth per year
Mexico	7.1	19.5	74.6	150.0	218.8	270.4	426.4	97%
% added value	48	37	32	35	37	39	40	
Taiwan	6.6	15.9	45.7	68.7	90.1	119.6	214.3	77%
% added value	50	54	59	65	68	70	76	
Hong Kong	41.4	51.4	65.4	91.4	124.4	106.0	135.6	22%
% added value	54	42	46	44	46	50	55	
Singapore	—	—	—	11.6	31.5	64.6	119.3	110%
% added value	—	—	—	67	49	51	56	
South Korea	—	0.3	12.9	23.8	27.4	35.0	57.1	45%
% added value	—	33	55	34	28	38	38	
Other developing countries	5.6	11.9	23.1	49.3	49.3	56.9	79.0	55%
% added value	43	44	40	49	46	46	45	
Total developing countries	60.7	99.0	221.7	394.8	541.5	652.5	1,031.7	60%
% added value	52	43	44	45	45	48	52	
All countries	953	1035	1576	1842	2213	2768	3409	24%
Share of developing countries	6%	10%	14%	21%	25%	24%	30%	

Sources: Sharpston (1974).
USTC (1970).

tractor) which increases the added value of the products concerned. Included too are repairs abroad because these can be considered as international subcontracting in the service sector. These statistics do not reveal the various countries, or industrial branches, in which international subcontracting is carried out. Geographic indications in the pertinent statistics are restricted to continents. So, no separation can be made between international subcontracting activities with industrialized countries and, on the other hand, with LDCs, since a breakdown according to continents is at variance with a breakdown according to LDCs. International subcontracting related to about 5% of total Dutch imports in 1969, of which 4.5% were from Western Europe and USA and, tentatively, about 0.5% from LDCs. Similar figures for the USA in 1969 were 6.5% and 1.5%.

Incidentally, more detailed figures could be gathered on the subcontracting between the Netherlands and Tunisia. On October 1st, 1974, there were eight Dutch firms in Tunisia which were exclusively producing for (re-)exports to the Netherlands. Of these firms, seven could be classified in the textile and clothing branch. The conditions imposed by the Tunisian government are for the most part similar to those which are in force in most free-export processing zones as has been discussed already. At the Dutch border, an 'ad valorem' import duty is levied on the value that has been added to these reimported manufactures abroad. Table 8 supplies some data on indigenous firms, joint ventures and foreign firms, all exporting their total production. The labour intensity of indigenous firms is higher, as might be expected, than that of joint ventures or local firms.

Striking, and up to now hardly explainable, is the fact that the labour intensity of the production process within foreign firms is higher on an average than it is in joint ventures (0.28 versus 0.09). It does not seem plausible that the difference can be explained solely from the rather crude classification of all different firms producing cloth. The export sector employed 12,174 labourers in 1973. As a reference could serve the total employment figure of the Tunisian industrial sector, which amounted to 55,600 employees in 1970.

TABLE 8 – EXPORT INDUSTRIES OF TUNISIA, MAINLY
INTERNATIONAL SUBCONTRACTING, END 1973

Sector	Local firms				Joint ventures				Foreign firms			
	N	I	E	LI	N	I	E	LI	N	I	E	LI
Clothing	21	1.6	1.6	0.99	14	7.7	2.4	0.31	19	6.7	3.6	0.54
of which Dutch	—	—	—	—	1	0.6	0.3	0.54	6	2.5	1.1	0.42
Others	10	4.6	1.1	0.23	7	39.5	1.9	0.05	12	11.8	1.6	0.13
of which Dutch	—	—	—	—	1	0.2	0.06	0.37	2	3.1	0.08	0.03
Total	31	6.2	2.6	0.43	21	47.2	4.3	0.09	31	18.5	5.2	0.28

N : Number of firms.

I : Investment outlay in million US\$.

E : Number of employees × 1000.

LI: Labour intensity (number of employees per US\$ 1,000 investment).

Source: BOTU, De Bildt, Netherlands, 1974.

9 COMPARISON OF LABOUR-INTENSITY FIGURES

Although there are major objections against cross-section comparisons of labour-intensities as elucidated in paragraph 5, especially on a twodigit sector level because of the degree of aggregation through which large differences on plant- and process level are flattened out, such a comparison has been made.

The comparison, presented in Table 9, reveals that globally speaking – globally because of the probably different industry composition of each sector, the heterogeneity of both capital and labour, *etc.* – the labour intensity of international subcontracting is about ten times higher than the labour intensity of export-orientated industries in comparable sectors in both developed and developing countries. This implies that considerable capital savings per labourer can be gained by starting production activities based on international subcontracting compared with the establishment of, one could say, integrated export-orientated industries. In view of the overall capital scarcity in most developing countries, this is a significant advantage of international subcontracting.

TABLE 9 – COMPARISON OF LABOUR INTENSITIES¹

	INTERNATIONAL SUBCONTRACTING			EXPORT-ORIENTATED INDUSTRIES			
	Mexico ²	Taiwan ³	Tunisia ⁴	A country of the: ⁶			
				Hong Kong ⁵	EFTA	EEC	Devel- oping
Food processing	0.9091	–	–	–	0.0819	0.1261	0.1295
Electrical equipment and machinery	0.9832	–	–	–	0.0569	0.0971	0.1210
Furniture	0.5419	–	–	–	–	–	–
Clothing	2.3879	–	0.5400	–	0.1341	0.1439	0.2219
Toys, sports goods	4.0927	–	–	–	–	–	–
Miscellaneous	0.9022	–	0.1300	–	–	–	–
total	1.1275	1.1111	n.a. ⁷	0.4807	0.0832	0.0825	0.1481

1 Labour intensity conceived as the number of labourers per US\$ 1,000 of capital outlay.

2 See Table 2.

3 See 8.4.

4 See Table 8.

5 See Table 4.

6 Calculated from data of the United Nations (1974). The specific country involved is not known.

7 n.a. = not available.

However, the growth and limits of international subcontracting are determined by the very number of opportunities for activities to be subcontracted and by the rising wage level in most LDCs.

10 CONCLUSIONS

Adam (1972) states that it could be better for the LDCs when the rich countries were to facilitate the imports of their manufactures without international subcontracting arrangements or the intervention of multinational companies. Better chances might then occur to gradually produce goods whose production calls for a higher technological level. This could avoid the LDCs being condemned for ever to produce goods with low technological and skill requirements, in that in the long run an enclave with again rigid and backward characteristics would result. Adam is, however, of the opinion that international subcontracting in LDCs will not remain a marginal affair. He gives the following reasons:

- more and more Western-European companies follow the US example;
- Japanese firms are not only operating within South East Asia but they appear even in South and Central America;
- numerous poor countries have expressed a wish to be involved in international subcontracting, emphasizing this point by planning and creation of free-processing zones;
- increasing environmental regulations in the rich countries stimulate a re-evaluation of the pertinent production processes of which parts might be subcontracted to LDCs because of ecological reasons.

The growth of international subcontracting, both realized and expectable, is considerable and deserves more attention in development economics and international economics.

One could conclude that international subcontracting seems at variance with a policy towards self-reliance, which is a policy that may be pursued in large LDCs. Small LDCs, however, especially those lacking primary agricultural and mineral resources, may use and do so, as has been demonstrated in this article, international subcontracting as a means to generate industrial employment, income and foreign currency. For these countries it provides a means of diversification without a need for large investments in infrastructure (Morrison, 1976). Additionally, it has to be stressed that the meaning of international subcontracting for a specific small developing country may be only temporary because of the fact that demand could move to other countries with still lower wages. The temporary character may be weakened by a gradual transition from low-skill to high-skill subcontracted work.

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Summary

INTERNATIONAL SUBCONTRACTING AND DEVELOPING COUNTRIES

This paper surveys international subcontracting between companies in developed and in developing countries. After a short description on of the nature of the subcontracting relationship, the types of subcontracting, and the perceptible advantages and disadvantages for the firms and countries involved, a survey is given of empirical data on the volume and growth of exports based on international subcontracting. A selection has been made of developing countries being considered important in this respect. Though this restricts the scope of the study, the relative importance of their international subcontracting is visualized appropriately.