This paper analyzes international sub-contracting by developing countries. It is argued that the most important factors affecting international sub-contracting demand are normally wage rates, political stability, and freight and "distance" costs. Distance costs include bureaucratic barriers to trade and to setting up a plant. Many of the fears expressed about international sub-contracting are probably exaggerated: it can have a limited usefulness as a source of employment and foreign exchange. International sub-contracting also has economic and political effects on the developed countries. Although sub-contracts given by producer firms have a different political impact from direct exports by developing countries, similar problems of structural economic adjustment are involved. The paper is being published in Oxford Economic Papers, in abridged form.

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International Sub-Contracting

Summary and Conclusions

A possible definition of international sub-contracting is "all export sales of articles which are ordered in advance, and where the giver of the order arranges the marketing." With this definition, the essential difference between international sub-contracting and direct exportation is that sub-contracting avoids the problems of marketing.

The manufacture of certain products or components is quite labor-intensive even in a developed country, especially if production runs are short. Also one particular process in the manufacture of a product may be labor-intensive (often the assembly or finishing stage). In either of these cases, low wage countries may be able to engage in international sub-contracting. International differences in labor productivity tend to be easily out-weighed by differences in wage rates. One must however take into account that "labor" is not homogenous, and that in some developing countries certain grades of skilled or supervisory labor are expensive or virtually unobtainable. As well as political stability, freight and "distance" costs are also most important factors: for this reason countries near to economically developed areas may be able to compete successfully for international sub-contracting with other countries that have much lower wage levels but which are further away. "Distance" includes both the logistical and communications difficulties of having a sub-contractor in a particular location, and also the bureaucratic barriers erected by governments, particularly those relating to importation and exportation, and to setting up a plant.

A wide variety of business relationships can exist between principal and sub-contractor. A full discussion of these leads into such hoary issues as foreign investment and the multinational corporation. Certainly there are particular problems for effective national control of the subsidiaries of multinational corporations engaged in international sub-contracting, because of the very substantial scope for manipulation of transfer prices. However, any form of international sub-contracting raises the issue of dependence upon foreigners, who have control of the markets.

Many of the fears expressed about the stability of international sub-contracting demand are probably exaggerated. It is however perhaps possible that developing countries will enter into ruinous competition with each other for sub-contracting work. Governments should be dissuaded from offering heavy subsidies which may create economic distortions, especially since removal of bureaucratic disincentives will probably prove a far more effective method of attracting international sub-contracting orders.
The "spread" effects of international sub-contracting will depend upon the technical type of sub-contracting involved, the institutional structure of the country concerned, and the inherent skills of the population. International sub-contracting is unlikely to prove the new panacea for economic development but it could nevertheless have a limited usefulness as a source of training, employment, and foreign exchange earnings. However, its effects on the regional balance of economic development within a country need to be considered carefully.

International sub-contracting also has economic and political effects on the developed countries. Consumers normally do benefit, but they are not a powerful political force. However, unlike in the case of direct exports by developing countries, with international sub-contracts given by producer firms only the unions will lobby seriously against imports - the firms will be benefitting from the trade themselves. There remains a real danger that international sub-contracting will increase income disparities within a developed country, or cause problems of structural unemployment, if effective adjustment assistance policies are not implemented. At the same time, it should also be considered that international sub-contracting is an economic, political, and social alternative to international labor migration: very likely a preferable one, for all the parties involved. However, it remains to be seen whether rich countries have the political will to maintain liberal import policies for manufactures from developing countries, and to establish the programs of trade adjustment assistance which are required.
INTERNATIONAL SUB-CONTRACTING

Introduction

1. Over the last ten years, there has been a rapidly increasing tendency for firms in developed countries to contract out to producers in developing countries the manufacture of certain products or components, and the performance of certain processes. Final sales are in developed country markets. The aim of this paper is to assess the current scope of this phenomenon, to analyse the reasons for its growth, and to consider its economic and political effects on both the developing and the developed countries.

2. There is no agreed definition for "international sub-contracting," The definition used here is: all export sales of articles which are ordered in advance, and where the giver of the order arranges the marketing. International sub-contracting can be divided in relation to the technical aspects of production as follows: (a) Sub-contracting processes (b) Sub-contracting components (c) Sub-contracting whole products. It can also be divided in relation to the type of firm giving the sub-contract: (a) Producer firms, i.e. overseas organizations which themselves produce similar products (e.g. the parent organizations of Motorola, Texas Instruments), (b) Retailing firms, which are primarily engaged in distribution (e.g. Sears Roebuck). Finally, a wide range of possibilities exist with regard to the business relationship between the principal and the sub-contractor. The sub-contract itself may be long-term, short-term, or for a single batch. The principal may own a minority, majority, or the whole of the equity of the sub-contractor. He may provide loan capital. He may also provide physical equipment for the sub-contractor, either for general use or - more commonly - specifically related to the sub-contract (e.g. dies, moulds). Furthermore, the principal may provide technical assistance to the sub-contractor, either general (e.g. improvement of cost-accounting, stock control) or specific (e.g. engineering

1/ Among those who have assisted me with parts of this work are F. Thoumi, J. Hansen, T. Hutcheson, and L. Keough (IBRD). I am especially grateful to G. Helleiner (University of Toronto) for introducing me to this subject, and to Cliff Pratten (Department of Applied Economics, Cambridge), Maurice Scott (Nuffield College, Oxford), Helen Hughes (IBRD), and Paul Streeten and Angus Hone (Queen Elizabeth House, Oxford) for their comments on earlier drafts of this paper. Officials of the U.S. Tariff Commission were also most helpful in supplying me with up-to-date statistics.

2/ The definition used here is, for example, different from that used by Susumu Watanabe in "International Sub-Contracting, Employment, and Skill Promotion", International Labor Review, May 1972. Watanabe would exclude sales by subsidiaries of multinational firms to their parent corporations, but would include sales to these subsidiaries, within a national frontier, by local firms. Thus it could be said that compared to the definition used here, Watanabe's definition puts more emphasis on corporate structures, and less on geo-political boundaries.
assistance in attaining product specifications set by the principal). There are many possible combinations of these various forms of business relationship, so that in practice a complex range of business relationships between principal and sub-contractor exists all the way from the sub-contractor being a wholly-owned subsidiary of the principal to single-batch sales at arms' length. Nevertheless, all forms of international sub-contracting have one important characteristic in common, which separates international sub-contracting from direct exportation. Essentially, sub-contracting avoids the problems of marketing: outlets, brand names, publicity, market research, design.

3. A typical example of the type of international sub-contracting which has arisen in recent years is that for semi-conductors: in 1971 the United States had imports from developing countries worth $107 million of semi-conductors with some American components. 1/ The wafer which is the heart of the semi-conductor is exceptionally light and typically smaller than a fingernail: it is fabricated in the United States. The wafer and other components are then flown to, say, Taiwan, where labor costs for assembly are about a tenth of American ones. Under magnification, the gold threads are soldered to the terminals, and the finished semi-conductor is flown back to the United States. Nearly 60 per cent of the gross value of the returned U.S. import is the value of the U.S. components, so that the value added in the developing countries would be $46 million of the $107 million (in this case freight charges would be minimal). In a recent study, not a single U.S. semi-conductor firm answering the questionnaire did not have off-shore assembly facilities, and European firms have been forced to follow suit or cease production.

Quantitative Data on the Current Scope of International Sub-Contracting

4. One source of quantitative data on international sub-contracting is Economic factors affecting the use of the items 807.00 and 806.30 of the Tariff Schedules of the United States (U.S. Tariff Commission) September 1970. Customs items 807.00 and 806.30 permit an importer, under certain restrictive conditions, 2/ to pay the normal duty for the product imported only on the value added abroad: no duty is paid on the value of the U.S. parts or materials incorporated. Evidently, not all products which involve international sub-contracting will necessarily qualify under these customs items; and equally, if one uses this study as a guide to products or processes suitable for international sub-contracting, there could well be a distortive effect from the particular provisions of U.S. Tariff law on these two items. As one example, American cloth cut in the United States but sewn abroad qualifies under 807.00, but American cloth cut and sewn abroad would not qualify. It is very likely that there are cases of international sub-contracting with cloth cut abroad (and hence not covered by this study). It is also likely that this provision of the U.S. Tariff code has artificially boosted the cutting of cloth before

1/ U. S. Tariff Commission, unpublished data on U. S. Customs Item 807.00.
2/ See Appendix 1.
export to developing countries. (One may note, however, that cutting is a skilled and capital-intensive process relative to the rest of garment-marking, although not relative to industry in general). The U.S. Tariff Commission report is not, of course, a study of world-wide international sub-contracting by developing countries: its purpose was to investigate the desirability, from a U.S. national point of view, of two items in the Tariff Schedules. It only deals with U.S. imports and it covers sub-contracting done for the United States by other developed countries, as well as by developing countries. Nevertheless, it is easily the most important source book so far available.

5. U.S. Tariff Commission data give some idea of the rapid growth of international sub-contracting:

Table 1: U.S. Imports under Tariff Items 806.30 and 807.00 (Value in million of dollars)

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</thead>
<tbody>
<tr>
<td>806.30</td>
<td>63.2</td>
<td>103.5</td>
<td>122.4</td>
<td>192.6</td>
<td>204.0</td>
<td>199.4</td>
<td>317.5</td>
</tr>
<tr>
<td>807.00</td>
<td>889.8</td>
<td>931.6</td>
<td>1,432.0</td>
<td>1,649.2</td>
<td>2,008.7</td>
<td>2,568.8</td>
<td>3,091.2</td>
</tr>
<tr>
<td>Total, 806.30 &amp; 807.00</td>
<td>953.0</td>
<td>1,035.1</td>
<td>1,554.4</td>
<td>1,841.8</td>
<td>2,212.7</td>
<td>2,768.2</td>
<td>3,408.7</td>
</tr>
<tr>
<td>Total, U.S.</td>
<td>16,022.7</td>
<td>16,528.8</td>
<td>20,724.9</td>
<td>22,808.7</td>
<td>25,890.4</td>
<td>30,263.6</td>
<td>36,370.5</td>
</tr>
</tbody>
</table>

Dutiable Imports:

/a Data on 806.30 for 1969 are estimated; they were compiled from an analysis of entry documents supplied by the Department of Commerce and responses to U.S. Tariff Commission questionnaires.


Note: Because of rounding, the figures may not add to the totals shown.

At the same time, the share of developing countries in U.S. imports under these two tariff items combined rose from 6.4% in 1966, to 21.4% in 1969, and 30.3% in 1972. Thus in 1969 U.S. sub-contracting in developing countries was well over 6 times the 1966 level, and in 1972 was 17 times the 1966 level: an annual compound growth rate of 60% for six years.

1/ Some imports under 807.00 may be the result of sub-contracting in the U.S. by foreign firms, rather than sub-contracting out overseas by American firms. Thus in 1972 the U.S. imported motor vehicles to the value of $1,287.3 m. Often such vehicles were essentially foreign-produced vehicles sold under foreign brand names whose manufacturers found it convenient: to use a few U.S. components and obtain duty-free entry for the components. However, it is unlikely that independent manufacturers in developing countries were in a position to operate in the same way, to any significant extent.
The table below gives U.S. imports from less developed countries under the two tariff items:

Table 2: U.S. Imports from Less Developed Countries under Tariff Items 806.30 and 807.00 (Values in million of Dollars)

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<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>806.30 Imports</td>
<td>0.2</td>
<td>0.8</td>
<td>5.8</td>
<td>26.7</td>
<td>39.3</td>
<td>54.8</td>
<td>108.2</td>
</tr>
<tr>
<td>807.00 Imports</td>
<td>60.5</td>
<td>98.2</td>
<td>215.9</td>
<td>368.1</td>
<td>502.2</td>
<td>597.7</td>
<td>923.5</td>
</tr>
</tbody>
</table>


The figures above are for the total value of the products imported, including the value of their component produced in the United States. A guide to value-added in the developing country would be the dutiable value. This value would include a freight element, but normally that would only cause a very minor distortion, because products internationally sub-contracted are usually very light and easy to transport. Rather more seriously, dutiable value could include parts produced in a third country (e.g. electronic components from Japan). At present, however, most sub-contracting systems set up in developing countries are not that complex, and there is probably little use of third country products. Accordingly, trends in dutiable value should be a reasonable indication of value-added in the developing countries:

Table 3: Dutiable Value of U.S. Imports from Less Developed Countries under Tariff Items 806.30 and 807.00 (Values in million of dollars)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>806.30 Imports</td>
<td>0.1</td>
<td>0.4</td>
<td>2.9</td>
<td>17.7</td>
<td>19.0</td>
<td>24.3</td>
<td>42.7</td>
</tr>
<tr>
<td>807.00 Imports</td>
<td>31.3</td>
<td>42.4</td>
<td>94.8</td>
<td>159.6</td>
<td>226.9</td>
<td>289.8</td>
<td>488.5</td>
</tr>
</tbody>
</table>

Source: U.S. Tariff Commission, published and unpublished data

7. Information on the amount of sub-contracting arranged by firms from other developed countries is rather fragmentary. However, the following table gives some idea of the sudden increase in Japan's use of international sub-contracting:
Table 4: Export Orientation of Japan's Investment in Taiwan

<table>
<thead>
<tr>
<th>Investments made during</th>
<th>Export Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>1953-1965</td>
<td>1</td>
</tr>
<tr>
<td>1966-1969</td>
<td>37</td>
</tr>
<tr>
<td>Total, 1953-1969</td>
<td>38</td>
</tr>
</tbody>
</table>

/\ The number of investments is the number of those Japanese affiliated companies which responded to a survey conducted by the Taipei office of Japan Chamber of Commerce in September, 1969.

Source: Japan Chamber of Commerce, Kaigai Kigyo to Gijitsu, Overseas Enterprise and Technology, No. 2, 1970, as quoted by Terutomo Ozawa in an unpublished paper.

Reasons for the Growth of International Sub-Contracting

8. Demand for international sub-contracting is a derived demand: it depends on the pattern of demand for final products in the developed world, their method of manufacture, and cost differentials. Among final products, in recent years new labor-intensive products in the electronics field have been added to the old labor-intensive manufactures (e.g. clothing, shoes). There has thus been buoyant demand for products which require labor-intensive manufacture, despite a trend to "design out" labor requirements for the manufacture of any given product. Within this structure of final demand, demand for international sub-contracting has principally been in response to the differential between labor costs in the developed and the developing countries: this differential has been rising and is likely to continue to do so. Even if U.S. wage rates go up by 5%, and Korean rates by 20%, the absolute differential between the rates becomes larger. Furthermore, for certain tasks, it has increasingly been found possible to obtain labor productivity in the developing countries close to, or exceeding, U.S. levels. At the same time, the logistics of an overseas sub-contracting operation have been becoming easier. There have been developments such as the increased availability of air freight facilities, and containerisation; and telecommunications have greatly improved between many developing countries and the major industrial nations. Thus for labor-intensive operations, international sub-contracting has been an increasingly attractive option for firms in the developed world.

9. Demand for international sub-contracting has also, to some extent, been encouraged by governmental regulations in developed countries. Several
developed countries have tariff regulations which permit low effective tariffs to be levied on the further processing abroad of semi-manufactures produced in the developed country.

10. Despite the undoubted importance of the factors already mentioned, it would probably be a mistake to see the enormous rise in international sub-contracting as having been solely due to an objectively ascertainable change in comparative costs. Attitudes also have changed; there has been an increasing willingness among firms now called "multinationals" to think in terms of worldwide production and marketing possibilities, rather than treating overseas operations as separate from, and subsidiary to, operations in the country where such firms have their headquarters. The move to international sub-contracting has been in the nature of an innovation in production systems: the pioneers in a particular industry have typically soon been copied by a wave of competitors, who often establish sub-contracting facilities in the same overseas countries as the pioneer firms. Similarly, American use of international sub-contracting has forced European and Japanese firms to follow suit.

11. On the supply side, developing countries have shown an increasing readiness to make themselves available for international sub-contracting operations. By the late fifties and early sixties, many countries had found import substitution an unsatisfactory method of industrialization, particularly for small countries where there were serious difficulties in obtaining adequate economies of scale: it is probably no coincidence that international sub-contracting has been most in evidence in countries such as Hong Kong, Singapore, Taiwan, and Korea, where the small size of the domestic market made open economic policies particularly desirable. At the same time, there was a growing emphasis among development economists on export- rather than import-substitution, 1/ and indeed this has now become the new orthodoxy, affecting government policy in quite a few developing countries. An increasing minority began to open up their economies, making importation and exportation easier, and often also providing certain direct or indirect subsidies to export industries. Within the field of exportation, international sub-contracting permitted access to developed country markets without the risks and problems connected with marketing. In many cases - for example, the supply of certain components of a product or the performing of certain processes - direct exportation was not in fact a feasible alternative to international sub-contracting. Again, through international sub-contracting, a developing country might obtain technical assistance and often also capital, without which the industrial operations involved might not have been possible.

12. Thus from the mid-sixties onwards, there was an increasingly favorable environment, on both the demand and the supply side, to the rapid growth of international sub-contracting. Let us now consider some of the major factors in more detail.

Labor Costs

13. It is possible to find cases of international sub-contracting which depend on the low cost of production inputs other than labor; for example, alumina is imported into Ghana for processing into aluminum and subsequent re-export, solely to take advantage of a very low rate for electric power. Nevertheless, labor-intensity of a product or process is the most typical reason for which international sub-contracting in developing countries occurs. However, labor cannot be regarded as a single, homogeneous, factor of production, and not all forms of labor are plentiful in all developing countries. Unskilled labor is indeed plentiful. Skilled labor often is not, and in many countries supervisory and management personnel are extremely scarce. The relative availability of different types of labor varies widely across the developing world, so that a production engineer in a multi-national corporation will think of a different set of possible profitable sub-contracting operations according to the exact labor situation in the developing country under discussion. 1/ In Morocco, for example, salary scales for Moroccan or locally recruited European supervisory personnel are as high as in Europe: if it is necessary specially to import expatriate senior staff, costs in Morocco are 25%-30% above the cost of equivalent grades in Europe. In many developing countries which are less developed than Morocco, and which offer expatriates lower "amenity" benefits, costs of supervisory personnel could be double those of Europe. On the other hand, in some Far Eastern countries, certain grades of skilled labor and supervisory personnel are now available at low wage rates relative to the rest of the world (developed or developing).

14. Despite the need to recognize differences between the various developing countries, international sub-contracting operations in developing countries tend to be intensive in their use of unskilled or semi-skilled labor, but not intensive in their use of skilled labor or professional manpower. Manual dexterity of a high order may be required, but the typical international sub-contracting job is one which can be learned in roughly six weeks, perhaps from the base of traditional skills. Thus in Morocco, in six weeks girls (who may not be literate) are taught the assembly under magnification of memory planes for computers - this is virtually darning with copper wire, and sewing is a traditional Moroccan skill. International sub-contracting operations (e.g. die-making) which are based on the use of more highly skilled labor do exist,

1/ Acknowledgements are due here to Mr. S.W. Herwald, of Westinghouse Electric Corp. Although not familiar with Morocco, when told over the telephone of its labor cost structure, he was able to mention specific sub-contracting operations as "likely bets" - production of items such as non-standard switchboard panels, and certain ranges of telecommunications equipment. His list corresponded at a very detailed level to profitable sub-contracting operations actually existing in Morocco, or to operations currently under active consideration by (other, non-U.S. based) multinational corporations.
but as yet only on a rather limited scale in a few developing countries. 1/
Thus of total 807.00 imports into the United States from developing countries,
in 1969 the major items were:

<table>
<thead>
<tr>
<th>Product</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Textile products</td>
<td>8.6</td>
</tr>
<tr>
<td>Office machines</td>
<td>8.3</td>
</tr>
<tr>
<td>TV receivers</td>
<td>10.8</td>
</tr>
<tr>
<td>TV apparatus</td>
<td>8.3</td>
</tr>
<tr>
<td>Semi-conductors</td>
<td>23.6</td>
</tr>
<tr>
<td>Electronic memories</td>
<td>10.2</td>
</tr>
<tr>
<td>Toys, dolls</td>
<td>5.9</td>
</tr>
</tbody>
</table>

For all these products the sub-contracting operation would typically have consisted principally of assembly work; and these items alone constituted over three-quarters of the gross value of all 807.00 imports, and over two-thirds of the dutiable value.

15. Because most developing countries lack an industrial tradition, it will 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 simpler) set of operations to perform 2/... However, physical output per manual worker may often be similar to that in developed countries, and in some cases higher, provided that - except for more supervision - conditions are similar to those in developed countries. "Similar conditions" implies the same length of production runs, use of the same machinery, including machinery for handling goods-in-process, and the same quality of management.

16. A study by the U.S. Tariff Commission, published in 1970, 3/ found the greatest difference between labor productivity in the United States and overseas in the case of garment-making in Mexico: labor productivity just

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1/ One of the most impressive cases of international sub-contracting in a developing country at a rather high skill level is the large Rollei-Werke operation in Singanore. This employs 4,000 workers, and many of the camera parts are now made in Singapore rather than only assembled there. To start the operation Rollei flew 500 workers to Germany for training, and these workers then helped train the rest of the labor force. See Thomas M. Rohan "Is home plant training for foreigners worth it?" Industry Week, August 13, 1973.


over 60% of the U.S. level. For electronic assembly, foreign labor productivity was about 92% of the U.S. level, and for other items the productivity differential was still smaller, even in some cases negative. More recent research 1/ indicates worker productivity in the Mexican Border Industrialization Program at 80%-140% of U.S. levels, and high labor productivity also in Korea. 2/ In Morocco in 1972, management in many plants estimated labor productivity under similar conditions to be 85%-90% of the European level. 3/

17. It is quite likely that labor productivity in some international sub-contracting operations is increasing rapidly over time, as the labor force gains in industrial experience. Labor turnover and absenteeism may also be lower than in a developed country. 4/ One must consider that jobs suitable for international sub-contracting are often low-grade, undesirable jobs in developed countries: in developing countries, however, the same jobs are often highly sought after. This is so for a variety of related reasons. First, in many developing countries, high urban unemployment makes any regular employment very desirable. Second, factory conditions will often be pleasant compared to working conditions in other jobs. Lastly, whereas in the developed country, the job will typically be a very ill-paid one relative to other jobs, in the

1/ See, for example, Donald W. Baerresen, op. cit.

2/ Gustav Ranis gives instances of labor productivity 30% or more above U.S. See Some Observations on the Economic Framework of Technology presented at Princeton, September, 1972, Working Seminar on Priorities for Research on Innovating and Adapting Technologies for Asian Development... Comparisons of labor productivity in developed and in sub-contracting countries may, in some cases, be distorted by the fact that the plant in the sub-contracting countries is more modern. On the other hand, factories in developed countries may be more mechanized than those elsewhere, because of deliberate substitution of labor for capital in the sub-contracting countries, to take advantage of lower wage rates. It is difficult to make a full adjustment in the crude data for such factors.

3/ Interviews by author.

4/ See, for example, Donald W. Baerresen, op. cit.
developing country the opposite is usually the case. The institutionally de-
termined minimum wage - the legal minimum wage or the minimum which union pre-
sures permit - is often well above that required to attract labor 1/ and indeed,
is also well above that actually paid in service trades and in backyard work-
shops. 2/

18. There is some evidence 3/ that a comparison of labor productivity in
developed and developing countries is most likely to be fairly favorable
to the developing country for machine-paced jobs. Presumably in such cases
the lack of prior industrial experience of the average industrial worker in a
developing country is less of a handicap. Also, in a developed country workers
dislike machine-paced jobs (and can afford to dislike them): hence such tasks
may be performed either by inherently low-calibre workers, or by workers who
insist on working at a leisurely pace.

1/ It can remain so for very long periods. In the Mexican Border area,
legal minimum wages rose at an average of about 7% per annum, during
the period 1968/69 to 1970/71. Yet unemployment at the end of the
period was one third, or more, of the total work-force in some border
cities. See Donald W. Baerresen, op. cit.

2/ In Morocco large-scale manufacturers complain bitterly of "travail
noir" - backyard workshops which can undercut them by evading taxation,
adopting labor-intensive techniques, and paying less than minimum legal
wages. "Travail noir" is probably particularly important for the shoe
industry. (In view of the unemployment problem, it is an interesting
question how hard the government should try to suppress "travail noir")...
In this same context, one may also note that the difference between the
"official" wage level and the price at which back-street business can
obtain labor, can lead to sub-subcontracting. Thus one clothing firm
in Morocco, which operated on contracts from France, itself contracted
out part of the work. Shirts were made on the firm's own premises; but
pyjamas - simpler to make, and hence with fewer quality control problems -
were contracted out to back-street firms, with the material supplied to
them, usually ready-cut. (As noted elsewhere, cutting is the most skill
and capital intensive part of garment-making.)

3/ See Donald W. Baerresen, op. cit. This is broadly confirmed by the
research data in J. Gouverneur, Productivity and Factor Proportions
in Less Developed Countries: The Case of Industrial Firms in the Congo,
Oxford Clarendon Press, 1971, (though this study refers to general
industry and mining in the Congo, not specifically to international sub-
contracting work). One may, however, note that, even for "machine-paced"
operations, in a developed country a typical worker, with his greater
industrial experience, may be able to mind more machines than his counter-
part in a developing country. (Of course, whatever the relative ability
of the two types of workers, the use of more workers to a given number
of machines may be economically justified in a developing country because
of the different ratio of capital/labor costs. A classic case in the
field of distribution is for truck drivers in low-wage countries to have
a companion, who rides along and helps with loading and unloading. This
procedure increases labor requirements, but cuts down turn-around time,
i.e., idle machine time.)
19. Even where labor productivity in a developing country is substantially below normal levels in the developed world, differences in wage-rates are so great that it may still pay a multinational corporation to do international sub-contracting. There are unfortunately serious problems of non-homogeneity of data involved in any comparison of international wage-rates, but Tables 5 and 6 may nevertheless give some idea of the wage differences that exist. The exchange rate used for conversion into foreign exchange is the one which matters to a multinational corporation engaged in international sub-contracting: the official national exchange rate for export of non-traditional goods. 1/ In Table 6, data are given separately for labor in the clothing industry, since this is an industry peculiarly suitable for international sub-contracting or direct exportation by developing countries: capital requirements are minimal, and it uses very large amounts of easily trained labor. 2/ Other miscellaneous data on wage rates, from a variety of sources, are given in Table 7.

20. Thus in 1967, U.S. wages in garment-making were about twenty times those in Korea (Table 7). Alternatively, to use a businessman's cost indicator rather than an economist's, in 1972 an hour's workshop labor by an electrical worker would be costed at $0.80 per hour in Morocco, as against $3.00-$3.50 per hour in France (all overhead costs included). 3/ Typically, labor productivity differentials in favour of the developed country - where they exist - have little effect in eliminating the vast differential in wages. Thus according to U.S. Tariff Commission data, the net Far East labor cost for electronic assembly would be only 8% that in the United States.

21. At first sight, it may seem difficult to reconcile such data on comparative labor costs with the fact that in very many cases, technical costs of production for the domestic market are far higher in a developing than in a developed country - not only non-labor costs, but labor costs as well. This is because the data given above on comparative labor costs and comparative labor productivity refer to a situation in which production conditions in the developed and developing country are essentially similar, (though possibly with some extra supervision of manual workers in the developing country). In production for the domestic market of a developing country, production runs are often far shorter than in a developed country, with a consequent need for frequent time-consuming and expensive re-tooling between runs. Often management is inferior, and indeed, for small-scale operations high-grade management would often be uneconomic in either a developed or developing country, as constituting too high an overhead. Equally, careful analysis of production flows and factory lay-out may also be uneconomic with short production runs. With international sub-contracting, however, production is for developed country markets, so the production runs and size of plant

1/ Some countries grant export subsidies in various ways. No allowance has been made for these, however, since the net benefit to a manufacturer may vary from product to product, and not necessarily in direct relation to labor costs.

2/ It takes six weeks to teach industrial garment-making to girls who already know how to sew.

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## Average Earnings in Manufacturing

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**M = Male Only, F = Female Only, # = New Series**

a/ at end of period exchange rates  
b/ New Series

c/ 1.55, 1.08, 0.60M, 0.41F  
d/ 2.48M, 1.96F  
e/ 1.77, 1.23F  
f/ 1.56M, 1.06F  
g/ 2.48M, 1.96F  
h/ 0.60M, 0.41F  
i/ Metropolitan Area  
j/ 1.56, 1.06F  
k/ Including mining

**Sources:**


### Table 6

**AVERAGE EARNINGS IN CLOTHING AND FOOTWEAR INDUSTRIES**

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**Notes:**

* Male only

**F** Female only

* Excluding footwear

* Not available

**a/** at end of period exchange rates

**5.** Massive devaluation late in year not counted.

**Sources:**

**Domestic Currency Earnings:** I.L.O. Yearbook of Labour Statistics, 1971, with minor modifications from I.L.O.

## INTERNATIONAL SUB-CONTRACTING

### Table 7

**MISCELLANEOUS COMPARISONS OF WAGES**

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<td></td>
</tr>
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<tr>
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<td>-</td>
<td>.28-.30</td>
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<tr>
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<td>1972</td>
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<td>.60 (.30-.60)</td>
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<td>Feb. 1972</td>
<td>-</td>
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**Footnotes:**

a/ Figures for all individual EEC countries, except Germany, are in this range.

b/ Unbaracketed figure is most typical wage overall. Bracketed figures show range over which wage varied from plant to plant.

c/ Range over which wage varied between individual EEC countries.

d/ Some charges excluded.

*\*: Job classifications are not quite uniform. If the same jobs had been performed in the U.S., estimated earnings in US$/hour (including supplementary compensation) would be:

1. **Office machine parts** (including electronic memories), Mexico - $2.97; Singapore - $3.36; Korea - $2.78; Hong Kong - $2.92. For Morocco, comparable US earnings in 1969 are not available.
2. **Semi-conductors**, Mexico - $2.56; Singapore - $1.26; Korea - $3.38; Hong Kong - $2.64.
3. **Consumer electronic products**, Mexico - $2.31; Hong Kong - $3.13; Taiwan - $2.56.

**Sources:**

2. For Morocco: interviewed by author.
3. For office machine parts: except in Morocco; for semi-conductors and for consumer electronic products: Economic factors affecting the use of the items 807.00 and 805.30 of the Tariff Schedules of the United States (US Tariff Commission), September 1970.
can be those found in developed countries. Multinational corporations can obtain management of similar quality. Machinery available can also be identical, although a multinational corporation moving production from a developed to a developing country may often be able to achieve an even greater fall in total (rather than labor) costs of production by some substitution of labor for capital (or labor for materials). 1/ Thus, for example, low labor costs may make it cheaper to use labor rather than machinery for certain packaging or assembly operations, or permit profitable processing of scrap where this was not an economically viable operation in the developed country. However, the fact that a product or process is labor-intensive in a developing country is in itself no guide to its suitability for international sub-contracting. Rather, a product or process must be labor-intensive in developed countries.

22. The feasibility of international sub-contracting of processes does not depend on the labor intensity of a sector, or even of the production of an entire product; and cannot be derived from data of this kind. Overall, the production of semi-conductors is both skill and capital intensive, but one particular phase in production - assembly - is very intensive in its use of easily trained labor, and accordingly, semi-conductors are an extremely common object of international sub-contracting. The labor-intensive production processes in manufacturing are those which for one reason or another have resisted the whole trend of technology in the developed countries, which has been to mechanise production wherever possible. Very often, these processes are assembly operations: occasionally, certain forms of finishing operation (e.g. certain cases of cleaning, buffing and polishing), particularly of complex shapes. 2/ A few other processes are also quite labor-intensive: investment casting, 3/ for example. Another case is sand-casting: this is typically 4/

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1/ See footnotes (b) and (c) to Chapter 8 of Donald W. Baerreson, The Border Industrialization Program of Mexico, Heath Lexington Books, 1971.

2/ For cleaning, dipping in a cleaning liquid is often possible - and this is easy to mechanise. However, dipping is only possible where this process will not harm the workpiece (as it may if, for example, adhesives have been used). Polishing of flat shapes, or along a straight line or simple curve, is not too difficult to mechanise. Crude finishing of small work-pieces is possible by a tumbling process - the work-pieces rub each other, or an abrasive is added. Automatic sand-blasting is also possible. However, manual cleaning achieves higher quality results than automatic cleaning processes - except for ultrasonic cleaning. And ultrasonic cleaning is only possible for small components and involves heavy capital costs.

3/ Investment casting is essentially the same "lost wax" process as was used in ancient civilizations. It is suitable for forming complex shapes with re-entrant surfaces, and permits higher casting temperatures than sand-casting. It is used for purposes as varied as making lucky charms, and making gas turbines.

4/ For a few industries, such as the motor industry, with very large production runs, a good deal of automation of the process is possible.
labor-intensive work of a hot, messy kind which workers in rich countries do not like (and can afford not to like). Indeed, even without international subcontracting, it is often performed within the developed country by the nationals of poorer countries. 1/

23. As a corollary to the trend of mechanising production processes wherever possible, there has been a tendency for those processes which resist mechanization to have a diminishing importance in production. Many products are being designed with fewer parts to assemble - not only because of the high labor costs associated with assembly, but also because it is particularly in the assembly stage that the problem of manufacturing rejects arises. At the same time in engineering industry, there is also a trend to less and less foundry work - instead, products are fabricated out of standard components. A good design engineer may not think of avoiding the need for labor-intensive production methods per se; but he will, for example, avoid re-entrant shapes which will require extensive machining for their manufacture - rather than simpler shapes which can be die-cast and then need little further processing. 2/

24. Perhaps the most important single operation which resists mechanization is sewing: industrial sewing of clothing really resembles quite closely, sewing with a domestic sewing machine. This makes garment-making an ideal operation for international sub-contracting, from the technical point of view. For the cutting, one can use laser beams, and computer-designed patterns to reduce waste: but 80% of the labor cost of clothing manufacture is in the sewing stage, and this is extraordinarily difficult to mechanise. Labels and perhaps pockets can be stuck on: and certain rather simple specialized machines are very commonly used, such as buttonhole-making machines, or machines which simultaneously do two rows of stitching. 3/ Nevertheless, the only really labor-saving solution is clothing of nontraditional, unwoven materials (paper or other), which can be moulded: and consumer resistance is likely to slow this trend. 4/ For a long time, garment-making is likely to remain labor-intensive; and a factory with quite advanced machinery

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1/ According to the purchasing department of one British car firm based in the Midlands, among their suppliers labor for sand-casting was perhaps 90% immigrant, and even for die-casting 50% immigrant. Many other European countries also use immigrant or "Gastarbeiter" labor extensively for foundry work.

2/ Die-casting is only possible for certain materials, e.g., aluminum alloys, but not iron and steel: (though processing costs themselves affect the choice of material). In many cases, parts can be die-cast sufficiently accurately so that virtually no subsequent machining or even trimming is required... If the part had a re-entrant shape, it would of course be difficult to get it out of the die.

3/ At the experimental stage are very sophisticated machines to sew following cloth-edge, or to knit whole garments.

(e.g. a travelling gantry to lay cloth for cutting 400 layers at a time, heat-welding of plastic inserts for collars, automatic ironing, conveyor belts ...) still only represents a fixed investment of around $2,000 per work place, of which the building itself is the largest part. Fixed investment per work place in a modern textile plant can be seven or eight times as large.

25. As noted earlier, there are equivalents to sewing in the electronics field: for example, the manufacture of electronic memories. The circuits made are of very complex forms, and in many cases their production would be most difficult to mechanize. In the electrical field, an equivalent of sewing is putting together wiring harnesses: the spaghetti of wires bundled together which one finds in a car electrical system, for example. The good old way of making wiring harnesses is a plywood board with some nails knocked into it. One then threads the wires around the nails - clearly not a very capital-intensive procedure: (although, recently, some progress has been made in mechanizing winding ups). There is also an equivalent of a kind to sewing in metal-working: soldering and welding. It should be noted, however, that not all forms of welding are very labor-intensive - simple seam welding, for example of pipes, can easily be mechanized. Also some forms of welding require labor with very considerable skill and experience; work of this type is less suitable for sub-contracting in developing countries (e.g. welding of aluminum alloys, or certain welding jobs where distortion must be minimized by welding skill). 1/

26. One particular situation in which most production-processes tend to be labor-intensive, is the production of any type of article at all in small production runs or non-standard sizes. Short production runs do not permit the amortisation of highly specialized and automated machinery, and to use less specialized equipment, with the tooling adjusted for each run, is relatively labor-intensive. In an enormous variety of industrial fields, practical discussion of international sub-contracting possibilities boils down to: "Where are the short production runs?" It applies for electric motors, electronics, vehicle parts, railway wagons, pharmaceuticals. Thus in the metal-working industries, drilling or bending are operations which are very frequently required. For both operations, a very wide range of technologies exists, in increasing order of sophistication, and many of them are used simultaneously in many countries at widely differing levels of development. In the U.S. or in Brazil, people can and do make holes in metal with drills (or press machines), a very simple machine-tool: or bend metal with a folding press. Equally, in both the United States and Brazil, extremely costly power presses are used to stamp car bodies. These machines are worth perhaps a hundred times as much. Fixed technical coefficients and capital-output ratios are an economist's invention, not an engineer's. The most crucial issue in the determination of the technology to be used is the size of the production run involved: (although obviously the

'break' point at which it becomes worthwhile to use a more sophisticated technology will be affected by the going wage rate). 1/ For a short production run, any country will have to use simple technology. 2/ Production will, therefore, be labor-intensive, and, as regards costs of production exclusive of the administrative costs associated with an order, developing countries may be particularly well placed for international sub-contracting. Indeed, firms in developed countries may not want small volume work: it disrupts large factories. In this way, a Moroccan firm recently won an international sub-contract to make refrigerators. Of course, small production runs by developed country standards may be still very large for a developing country, and the Morocco refrigerator firm in question will now triple its total annual production.

27. One particular industrial field where quite short production runs still predominate even in developed countries is machine tools: there is some mass-production of machine tools in Japan, but across the developed world mass-production is not the usual production technique. Accordingly, production of machine tools is quite labor-intensive. However, it also requires the ability to work to close tolerances, and a rather high level of industrial skills. It is therefore a possibility for some of the most advanced low-wage countries - Spain, for example, is building up a substantial export business in simple low-grade machine tools.

28. The length of the production run is not of course the only factor affecting the capital-intensity of the production technique chosen: in broad terms, automated production has the advantage of repeatability and precision, while labor-intensive production has the advantage of flexibility. Thus the aircraft industry commonly uses automated techniques, for reasons of precision; conversely an industry using a natural material which is expensive and non-uniform (e.g. leather), will keep to labor-intensive techniques, for reasons of flexibility - a man can adjust the cut he makes to the individual piece of material. The superior flexibility of labor-intensive techniques is also an advantage in a situation of very rapid technological change; it is not worthwhile designing machines for automated manufacture, when the product will soon be altered. This can for example be an important consideration in electronics.

29. While short production runs are often very well suited to international sub-contracting because of their labor-intensity, there are two associated factors which do increase the difficulty of internationally sub-contracting short production runs. First, short production runs often require

1/ In a low-wage country it may also be profitable to buy second-hand machinery, or in other ways to extend the working life of machinery used: this is a form of substitution of labor for capital, but one which typically requires extra skilled labor for maintenance - and this sort of labor is not readily or cheaply available in all developing countries.

2/ For certain purposes, numerically-controlled machine-tools do constitute an alternative (and highly capital-intensive) method of low volume production.
more skilled labor than long production runs - labor which can adjust equipment rather than simply mind machines. Second, the administrative overheads of ordering, and of checking specifications, are higher for short production runs, per unit of output; and international sub-contracting will tend to increase these costs, because of the distances involved.

30. Short production runs can be a very good way into international sub-contracting, although it would be wrong to suggest they are the only long-term international sub-contracting possibilities. In Taiwan and Singapore, electronics firms are now setting up plants for long production run manufacture of radios and television sets for the world market. With the multinational corporation, developing countries are no longer short of capital, if the corporation decides to bring it in: (in practice, the corporation may not want to, because of political fears). Electronics, however, is perhaps something of a special, extreme, case: the future focus of the world market in radios, especially, is seen to be the Far East, with its enormous populations. Philips intends to concentrate its world production there, and the Far East already has 50% of its world production of radios for the "free-trading" world market (i.e. excluding markets such as Brazil, which are effectively isolated). By contrast, the United States produces hardly any radios or tape recorders: imports of black and white television sets (often under domestic U.S. labels) also have a very large share of the total market.

31. To the extent that multinational companies transfer long production runs to developing countries, we may see a corresponding phenomenon to the Leontief paradox: developing countries exporting capital-intensive products to developed countries. Indeed, this is rather the growth path that Japan has followed during her rise to developed country economic status - notably in consumer electronic goods. Such a paradox can be explained in terms of the non-homogeneity of labor: for manufacturing, it is a dangerous oversimplification for the economist to base his analysis on only two factors of production, capital and labor. At the very least, one should consider three factors - capital, highly trained manpower, and low-skill manpower - to give three dimensional production functions. Mass-production is capital-intensive but also intensive in the use of low-skill labor (and, as has been noted, multinationals have easy access to capital at low interest rates if they wish to invest it in developing countries). Conversely, new high-technology products will often not yet be at the stage of mass-production, and are intensive in their use of skilled labor, and of research and development personnel 1/...

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1/ One interesting study which argues along these lines is in S. Hirsch, Location of Industry and International Competitiveness, Clarendon Press, Oxford, 1967. As a test of the theory of the product cycle, Hirsch analyses the balance of exports and imports in various sectors of the U.S. electronics industry. He finds the United States has a weak performance in consumer products, and a strong one in industrial products. (Industrial products are assumed to correspond roughly to those embodying the newest "high" technology, and they do in fact show the highest market growth rates, as one might expect of very new products).
In this context, it is interesting to consider how international sub-contracting relates to the theory of the product cycle: a theory developed partly to explain the Leontief paradox, and which states that products start in the United States, spread to other developed countries, finally come to be produced in developing countries - correspondingly, the United States moves from exporter to importer. 1/ Here the multinational corporation, with its international mobility of capital and technology, has done much to alter the picture; (also, of course, the United States no longer has the complete technical dominance of the fifties). The product cycle probably still occurs, but the time-lags have been drastically shortened: if a new process is intensive in the use of low-skilled labor, it may be moved to offshore factories soon after the prototype stage.

32. Labor-intensive international sub-contracting possibilities are not confined to non-agricultural products. Preparing food for processing often involves a good deal of hand-labor: taking off shells or husks, cleaning, and so on. As a result, the frozen strawberry industry is tending to move out of the Southern United States, into Mexico. Again, Hawaii's total pineapple output has been level since the late 1950's, and acreage is now being cut sharply. Labor costs account for half of production costs in the local pineapple industry - and wages are $2.80 an hour or more in Hawaii, as against about 15¢ in the Philippines. 2/ International sub-contracting is also possible for services: aircraft-servicing and ship-repair (e.g. in Singapore), card-punching of data for computers (e.g. in Jamaica), printing (e.g. in Hong Kong). One could in fact really regard package-deal tourism as the most notable example.

33. Labor-intensity and relatively low wages, but at a higher skill level, are often the main reason for international sub-contracting between developed countries. Examples for imports into the United States would be sewing machines (Japan), or gramophones (UK). Another factor - often operating in conjunction with the lower Japanese or European wages - is rationalization of international production by multinational corporations. Such corporations organize production of smaller cars, or smaller engines, in Europe. More generally, one can note that labor-intensity with some of the necessary processes 3/ at a high skill level, has led to imports taking nearly all the United States market for transformers.

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3/ More specifically, production of transformers is intensive in its use of skilled labor at the design and testing stage; and intensive in its use of lower-skill labor for fabrication.
34. Freight costs and other costs associated with distance are another major factor affecting the feasibility of an international sub-contracting operation, particularly for the sub-contracting of processes. In this latter case, a production system can only in effect be split up if the costs of double haulage - to the developing country and back to the developed country - are sufficiently small. (Separation of a process may also involve special extra costs, such as re-heating, wrapping, protective greasing of metal, etc.). Freight costs vary with many factors: for example, transport of delicate objects (china, glass) may entail a percentage of breakages, or high packaging costs. However, critical factors are typically weight and bulk. Because parts have a higher value to weight ratio, international sub-contracting is usually easier in electronics than for electrical goods, and easier for electrical goods than for most mechanical engineering products. Bulk can be a serious problem: most assembly operations (especially perhaps welding) are bulk-creating, and the ensuing freight costs may make an operation unsuitable for international sub-contracting, despite its labor-intensiveness. However, in some cases there may be ways of overcoming this problem. Thus electricity transmission towers or bases for cranes might seem most unsuitable for international sub-contracting on grounds of bulk: but the segments can be made to "nest" into each other, and both Egypt and India have exports of this kind. It should also be noted that freight charges actually made by shipping conferences or airlines do not necessarily correspond to real costs incurred by the carrier for that type of freight (rather than his estimate of what the traffic will bear). Accordingly, there may often be scope for commercial negotiation, with a view to securing rates more favorable for international sub-contracting: carriers may be willing to trade lower unit profits on certain items for a higher volume of traffic and higher total profits, and unit costs to the carrier may also fall with higher volumes.

35. One effect of freight costs is of particular interest. High freight costs act in favor of import-substitution, but against exporting. Thus sub-contracting possibilities for vehicles in the domestic market of a developing country are not at all the same as possibilities for the export market. A very early product for local sub-contracting in vehicle import-substitution is the gasoline tank, but its bulk makes it a most unlikely candidate for international sub-contracting ... The exception to the principle just outlined is international sub-contracting for other neighboring developing countries. Here high freight costs can make it easier for certain developing countries to engage in international sub-contracting. The more industrialized developing countries may be able to manufacture certain products or perform certain services which neighboring less advanced countries need: and their proximity and their low wage rates relative to the developed world may make them competitive. For example, Morocco repairs electric equipment for Algeria, and sells radiators for special purpose vehicles to Senegal. Another possibility is export sales of a variety of small production run, high transport cost items. (International companies have certainly used Singapore as a base for sales in South-East Asia). For this type of international sub-contracting, the transport costs involved in a bulk-creating process (e.g. assembly), could
be a favorable factor, since they create natural protection from competition by developed countries further away. 1/ International sub-contracting for other developing countries could also provide a training ground in which to gain exporting experience and improve quality standards.

36. In addition to freight costs as such, important costs are incurred in international sub-contracting simply because of the distances involved. The logistics of the operation are far more complex than for production within the plant of the principal, or even than for sub-contracting within the principal's own country (and for this reason, many smaller firms in developed countries may be unwilling to consider international sub-contracting). The "pipeline" is longer, with more points at which it can be interrupted: inventory might need to be one or two months production, rather than only a few days. There are also the costs and problems of communication, and the executive travel time involved. 2/

37. Also, with greater distance, modification of product specifications as a result of after-thoughts or in the light of experience becomes much more cumbersome, a particularly important consideration with "one-off" operations or short production runs. The combined impact of freight and "distance" costs is evident from the success of Mexico in international sub-contracting, despite its comparatively high wage-rates. As shown in Table 7, Mexican wage rates are substantially above those of the Far East, often roughly double. 3/ Yet Mexico does almost twice as much sub-contracting as its nearest rival, in terms of gross value. Even in terms of duties value (which can be used as a proxy for value-added), Mexico is just ahead of Taiwan, despite the latter's very low wage rates. Table 8 gives the five major sub-contracting countries for the U.S. (the next three are Jamaica, Philippines, and Haiti).

1/ If skilled labor is very difficult to obtain, a possible problem may be the need for post-assembly testing (Certain forms of testing facilities may also be capital-intensive).

2/ This is not necessarily a wholly negative factor, however. Corporation decision-making is influenced by executives' self-interest, as well as by the profit motive. Not all executives in Detroit, Birmingham, or Dusseldorf resent a trip expenses paid to Marrakesh, Mauritius or Samoa.

3/ As noted in footnote (b) of Table 7, the data in the table are not quite comparable between countries, because of differing job classifications. However, allowance for this factor would, in most cases, increase the real disparity between Mexican and Far Eastern wage rates. There are also very tentative grounds for believing that Far Eastern labor productivity is as high as that in Mexico, or arguably higher.
Table 8
Gross and Dutiable Value of Articles Imported into the United States under Items 806.30 or 807.00, Combined
(millions of U. S. Dollars)

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<tr>
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<td>99.0</td>
<td>221.7</td>
<td>394.8</td>
<td>540.5</td>
<td>652.5</td>
<td>1,031.7</td>
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<td>42.8</td>
<td>97.7</td>
<td>177.3</td>
<td>215.9</td>
<td>314.1</td>
<td>531.2</td>
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<td>44.1%</td>
<td>44.9%</td>
<td>45.4%</td>
<td>48.1%</td>
<td>51.5%</td>
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<td>19.5</td>
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<td>150.0</td>
<td>218.8</td>
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<td>7.1</td>
<td>24.1</td>
<td>52.1</td>
<td>80.5</td>
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<td>170.1</td>
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<td>32%</td>
<td>35%</td>
<td>37%</td>
<td>39%</td>
<td>40%</td>
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<td>59%</td>
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<td>68%</td>
<td>70%</td>
<td>76%</td>
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<td>11.6</td>
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<td>64.6</td>
<td>119.3</td>
</tr>
<tr>
<td>Dutiable value</td>
<td>7.8</td>
<td>15.5</td>
<td>33.1</td>
<td>66.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ratio</td>
<td>67%</td>
<td>49%</td>
<td>51%</td>
<td>56%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Korea</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Gross value</td>
<td>Negl.</td>
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<td>12.9</td>
<td>23.8</td>
<td>27.4</td>
<td>35.0</td>
<td>57.1</td>
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<tr>
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<td>8.0</td>
<td>7.8</td>
<td>13.2</td>
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<tr>
<td>Ratio</td>
<td>55%</td>
<td>34%</td>
<td>28%</td>
<td>38%</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ratio = Ratio of dutiable to gross value
Negl. = Negligible, less than $50,000
N.B.: Due to rounding errors in the summation of source material, for value of imports the decimal figures shown could be slightly inaccurate; i.e. +0.1. This may also have affected the calculation of the ratio of dutiable to gross value, especially in the case of small absolute figures.
Indeed, the analysis can be carried a stage further. If we consider the location of international sub-contracting operations within the Mexican border strip, the great majority of clothing factories are located in Economic Zone 1, although the 1970-71 minimum daily wage was US$ 4.31, whereas elsewhere in the border area minimum legal wages went as low as US$ 2.60. Indeed, a possibility existed of even lower labor costs. To both these rates must be added about 50% additional labor costs for compulsory fringe benefits. At the southern tip of the Baja California peninsula, however, there were free trade zone privileges, yet the minimum wage was only US$ 1.92 a day and no social security was required. The reason for clothing firms to choose such a comparatively expensive location as Economic Zone 1, is that it is close to Los Angeles ... For certain forms of sub-contracting, principals are unwilling to go abroad for sub-contractors, and indeed prefer sub-contractors in the same conurbation - the Birmingham area of England for example. Often in engineering the type of technology, and the labor-intensiveness of the operation, would certainly permit international sub-contracting by developing countries, were it not for the very high value attached to having one's sub-contractor "next door." Generally, it is difficult to over-estimate the importance of speed and reliability for most forms of sub-contracting: for example, one suggested benefit of the Channel Tunnel was that a faster and more reliable link with the Continent would facilitate sub-contracting between Britain and Germany.

An important, if intangible, form of "distance" is that imposed by cultural and language differences. For this reason, Ireland, Portugal, and Yugoslavia (as fellow European countries with rich Western Europe), are at an advantage in competing for international sub-contracting work. As a formerly dependent state, the Philippines has special links with the United States and for similar reasons, Japanese sub-contracting has been heavily concentrated in Taiwan and Korea. Nearly all Morocco's sub-contracting work is for France.

A point of the utmost practical importance is the way in which developing country governments can artificially increase effective "distance." Casablanca, the main industrial center in Morocco, is three hours by air from Paris, and three days by sea from Marseilles. However, importation of an article for processing and subsequent re-export will involve "importation en admission temporaire." To take the case of cloth for making up, this involves providing the authorities with samples of each material in each color, together with pro forma invoices. The application goes to the Ministry of Industry, which passes it on to the Ministry of Finance, which passes it back to the Ministry of Commerce. At the end of this process, the importer has a "certificat d'importation en admission temporaire." If the importer is a large firm in Casablanca or Rabat, with substantial experience of "admission temporaire" procedures and plenty of precedents for the products it wishes to import, and if the firm has a high-ranking employee who specializes in visiting the relevant Ministries, a good time for this circuit would be three weeks. For a new product, or in the case of a firm less conveniently sited for the Ministries, the delay could be months or even a year ... And the industrialist has hardly yet begun. He
still needs to get the "certificat" approved by Customs, which will take another week. Finally, he can arrange for the relevant goods to be shipped, and in due course they arrive. The goods imported under "admission temporaire" then follow the normal administrative channels for imports: calculation of the import duty which is being suspended, perhaps inspection by the "Commission des Valeurs" to ensure correct valuation. If there is no hitch, customs clearance takes ten to fourteen days: if anything goes wrong, it can take a couple of months. The distance from Europe to Morocco which is three hours by air or three days by sea, becomes an administrative distance of two to three months. 1/ Similarly, the Moroccans are anxious about flight of capital via the under-invoicing of exports, and impose various checks: this creates further delays and expense for a potential sub-contractor in Morocco, and may make him feel he is under suspicion. As against this, the countries well known for sub-contracting have relatively less severe barriers to the free movement of goods. Indeed, Mexico has an entire border strip with the United States as a free trade zone. 2/ Hong Kong and Singapore are essentially free ports.

The Influence of Governments on International Sub-Contracting

41. Thus the governments of developing countries, in many cases, impose such severe bureaucratic obstacles to international sub-contracting as to render it almost impossible. Usually, this is the actual effect, and not the aim of government policy: but it is probably no coincidence that so many developing countries have severe institutional barriers to international sub-contracting, and indeed more generally to exporting. Industry tends to be inward-looking, with a built-in tendency, often fostered by an over-valued exchange rate, to believe that it cannot be competitive on world markets. Industrial development behind high trade barriers will have encouraged fragmentation of production, and the diseconomies of very small-scale plant. Quality standards will be at the minimum level required in a heavily protected market of poor consumers. An over-valued exchange rate will of course be a direct disincentive to export: and heavy protection of the domestic market makes the home market a much more attractive outlet than foreign markets. The attitude of the government itself is likely to be equally defensive and inward-looking. Importing is not only subject to high tariffs or to quotas, but is also made very cumbersome by bureaucratic barriers. One specific administrative difficulty that can arise in connection with international sub-contracting illustrates this problem very well. Many developing countries ban or severely restrict imports where there is domestic production of a similar product: in administrative practice, importation of items coming under a particular customs number is blocked. Even for processing and subsequent re-export, importation of such items is often made very difficult and involves protracted negotiations with the bureaucracy. Yet, even apart from

1/ During the course of 1972, the Moroccan authorities made certain improvements upon the procedures described here.

2/ However, there are in fact some restrictions on imports, and the exact customs regime varies at different places along the border strip.
price considerations, the local product may not be a perfect substitute. 1/ As in the case of Morocco, fears of capital flight can create almost equally severe barriers to exporting. More generally, there is an atmosphere of "dirigisme"; Eastern Europe may have heard of planning via the market, but most developing countries are geared to planning via controls. Market forces, particularly international market forces, are viewed with deep suspicion. I.M.D. Little's aphorism, "Planners do not like exports," is barely an overstatement: the planning ideology does tend to foster autarky.

42. Bureaucratic barriers to the setting up of the actual sub-contracting plant can also be a very important disincentive to sub-contracting operations. Thus, the Moroccan Investment Code is quite generous in its provisions; but its application is highly un-automatic, being subject to endless discussions with myriad government agencies and Ministries. These discussions can and do take months or even years, and can well waste very high-level executive time of an international firm, to no final result. Such time is not only expensive, it is also scarce. There is no doubt that in Morocco these delays put off many potential investors. Those who persist in their intention to invest in Morocco may decide to forego all the benefits of the Code, as Siemens recently did, in order to avoid the bureaucratic delays. By contrast, Singapore has the Economic Development Board to assist potential investors, and is famous for its honest and efficient administration: consultation delays are very short, and the Economic Development Board provides technical data, arranges contacts with the government, and assists with factory sites and the recruitment of labor. (Elsewhere in the developing world, finding a factory site in a foreign country with complex land laws may be a difficult business for a potential investor). There is little doubt that the operations of the Economic Development Board have greatly assisted in the attraction of investors to Singapore; but it would probably be wrong to concentrate on the cash value of any actual subsidies. Rather, a major factor has been the cash and convenience value of disincentives avoided.

43. While many governments of developing countries still hinder international sub-contracting with severe bureaucratic obstacles, a few are now turning to export- rather than import-substitution, and providing substantial incentives to trade and exportation. A prominent example is Korea. Firms

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1/ It may be coarser material, have a different color or a different specification and, as such, simply not be acceptable for international sub-contracting purposes, since the final manufacture would be rejected by developed country consumers. This was frequently a problem in Morocco; and a similar situation sometimes arises in Mexico. For example, firms have difficulty importing zips, and locally made zips do not color-match clothing materials... Of course, a developing country may deliberately opt to pressurize firms engaged in international sub-contracting so that they increase their local inputs. The benefits of more use of local inputs have to be weighed against the possible loss of international sub-contracting business. Interestingly enough, in several developing countries controls often make it difficult for one firm engaged in international sub-contracting to use the products of another firm also engaged in international sub-contracting - in Mexico export and re-import may be necessary. This constitutes negative protection for the use of certain locally available inputs.
engaging in international sub-contracting get subsidised credit for their working capital. Allowances for materials wastage in processing are very generous and allow a hidden profit from sales on the home market. 1/ Direct or indirect export subsidies (including bonus exchange rates), can certainly increase the attractiveness of a country as a base for international sub-contracting. However, there is some evidence that tax holidays have relatively little effect on investment. 2/

44. A very crucial factor affecting international sub-contracting is the apparent political stability of the government of the sub-contracting country: not for the sake of ideology, but on a practical business level. The main concern of a principal is with security of supply; also the security of any possible investment. For example, at the moment the political factor rules out Algeria, as a sub-contracting country, but not Yugoslavia, or even Rumania and Hungary. If there is believed to be a serious danger of expropriation of foreign-owned factories (either under the current regime or under another which might plausibly supersede it), firms will avoid any operation with a pay-back period of more than two or three years: at present in Morocco investment for international sub-contracting is buoyant only for garment-making and a few special projects. Alternatively, principals will adopt a form of business relation with their sub-contractors which limits their own financial risks. 3/ In addition, because an interruption to supplies would affect the principal's own factories, it is common for firms to spread their sub-contracting business over a variety of countries, and to have "back-up" or "reserve" production capacity at home. Political instability is not the only potential danger to security of supply. Others include the possibility of strikes at the sub-contractor plant, or at the docks; and unpredictable and

1/ There are also export quotas which firms must fulfill if they are to continue to receive preferential treatment from the authorities. See Susumu Watanabe, "Exports and Employment: The Case of the Republic of Korea", International Labour Review, December, 1972.


3/ Where quality control is important, the firm giving the sub-contract will need to be assured of reasonable standards: but this does not necessarily imply ownership. Indeed, where there are doubts about political stability (as in Morocco), the ideal for a principal is probably a short-term contract with a totally separate firm run by Europeans (so as to give assurance on quality standards, and to avoid cultural problems in commercial relationships).
erratic customs clearance. 1/ In some cases, however, the security of supply factor may work to increase the amount of international sub-contracting, if firms in certain developed countries have domestic suppliers who are confronted with a very militant labor force. 2/

45. Governmental policies in the developed countries, particularly on tariff and non-tariff barriers to imports, can also affect the scope and direction of international sub-contracting. For example, certain developed countries have tariff schedules which accord special treatment to imports which contain work orginally exported from the developed country concerned. Thus Items 807.00 and 806.30 of the U.S. Tariff Schedule, under which 3/ normal duty for the product imported is payable only on the value added abroad, have the effect that foreign processing is subject only to the nominal and not to the effective tariff. The United Kingdom and Japan have similar provisions, but subject to far tighter restrictions on their use. 4/ West Germany, on the other hand, makes importers pay the effective tariff on the value added abroad ("Differenzverzollung"). Nominal rather than effective tariffs on value added abroad can easily halve the effective tariff protection of the equivalent domestic process: hence the protests of the American unions, which are worried by imports of manufactures from low wage countries in any case. 5/ For products where developed country protection is substantial -- notably many processed agricultural products, textiles, and clothing -- preferential access to a developed country market can weigh heavily in the choice of sub-contracting country. Thus Far Eastern textiles are largely shut out of the EEC by quota, but Associated States are exempt from both quotas and duty. In this way they have access to a heavily protected export market.

1/ One Moroccan garment firm had a contract to supply caftans to the United States by regular air shipments. One time the customs man did not appear, the goods could not be cleared for export, the plane left without them -- and the American principal cancelled the contract.

2/ As an example of this for international sub-contracting between developed countries, after the protracted Pilkingtons strike in England, one British car firm gave half its glass business to an Italian supplier.

3/ Subject to certain restrictive conditions. See APPENDIX 1.

4/ Japan's MITI only permits international sub-contracting very selectively for the Japanese home market, but does not normally restrict it where export to third countries is involved.

5/ It is however true that, by the same token, effective protection of those operations which could not be transferred abroad without loss of 807.00 or 806.30 privileges is substantially increased.
Benefits and Dangers of International Sub-Contracting
For the Developing Country

46. These, then, are the major factors which affect international
sub-contracting; on this basis one can attempt to analyse some of the benefits
and dangers of international sub-contracting from the point of view of the
developing country.

International Sub-Contracting vs. Direct Exports: the Marketing Function

47. For the developing countries, a possible alternative to international
sub-contracting is direct exportation. Here, the essential difference is that
sub-contracting avoids the problems of marketing: outlets, brand names, publicity, market research, design. It is worth noting that in many cases it is possible to buy most of these marketing services separately, and that for the seller this possibility can therefore constitute an alternative to becoming a sub-contractor. In principle, it is just a matter of making the necessary investment, and accepting the risks. However, for many products the scale of investment required in overseas marketing facilities may be far beyond the capabilities of most developing countries. This is particularly likely to be the case where successful product differentiation imposes a high initial sales campaign cost on potential new entrants to a market. It would be true for most consumer durables, where effective marketing implies the establishment of a network of after-sales servicing facilities (with the concomitant investment in stocks and warehousing for spare parts.) Also, locally based marketing organizations may benefit from large economies of scale in marketing (and in providing after-sales service), which are related to the total volume of their sales rather than the sales volume for the particular product under discussion - and these economies it would be very hard indeed for a developing country exporter to duplicate. Sears Roebuck in the United States, or Boots in the United Kingdom can sell a new product under their own label with very little additional cost, when compared to the costs which would be incurred by, say, a Singapore manufacturer starting sales in the United States or the United Kingdom under his own brand name.

48. Again, closeness to the market is a most important advantage of
local firms either for consumer fashion goods, or for industrial products
which require technical selling. To overcome its problem of distance from
the market, a foreign firm operating on its own may be forced to set up an
expensive local office, staffed with high-level personnel. Accordingly, while
the foreign firm may have lower costs purely for production, its total costs
for production and marketing combined might be above those of its locally-
based competitors. [1] International sub-contracting offers a solution to such

[1] Thus according to Hirsch, Israel would be competitive in the United States market for industrial crystals, if only production and freight costs are considered. However, after allowance for the costs of a special U.S. technical sales office (a cost not borne in that form by U.S. competitors), the Israeli advantage is eliminated. See S. Hirsch, Location of Industry and International Competiveness, Oxford: Clarendon Press, 1967.
difficulties. Accordingly, direct export sales of manufactures by developing countries tend to be mainly of items which are quasi-commodities - one might say, goods which can be traded by telex: processed agricultural products, plywood, items such as standard white polyester/cotton office shirts. (Conceivably, cheap "throw-away" pocket radios may also come into this category soon). Such quasi-commodities are often also internationally sub-contracted. On the other hand, international sub-contracting is frequently the exclusive method by which developing countries export product-differentiated consumer durables, 1/ or technologically complex industrial products.

49. In the case of international sub-contracting of components and of processes, direct exportation would often be quite impossible for a developing country, granted the product-differentiated, oligopolistic structure of many industries in developed countries. For example, the specifications for many components in a car are unique to a particular model produced by one particular manufacturer.

50. Thus one clear benefit of international sub-contracting is that it permits a developing country access to certain markets which would otherwise not be available. Furthermore, even in those cases where direct exportation is a feasible alternative, international sub-contracting may well enable the developing country to achieve a far faster growth in exports.

The Issues Involved in Different Types of Sub-Contracting Relationships: The Multinational Corporation

51. Granted that in certain cases international sub-contracting may be the best method of exportation open to a developing country, we can now consider some of the implications of the different types of sub-contracting relationships. Clearly, it would not be feasible to attempt in this paper a comprehensive coverage of such vast issues as foreign investment, and the multinational corporation. Rather, a few points of interest may be highlighted.

52. An issue much discussed is whether it would be better for developing countries if they could buy separately the items in the multinational corporation package - capital, management, technical know-how, marketing. In this context, international sub-contracting can certainly take a wide variety of forms: one-off orders (e.g. for clothing), long-term contracts, and then varying degrees of technical assistance and capital participation right up to the wholly-owned sub-contracting subsidiary of a large foreign firm. According to the type of product and the nationality of the firm giving the sub-contract, firms may have a stronger or weaker preference for wholly-owned subsidiaries.

1/ It is interesting that even for a developed country exporter, the costs of market penetration may be sufficiently daunting to make selling as a sub-contractor an attractive alternative. Thus Japanese televisions in the U.S. or Italian refrigerators in the U.K., are, to a large extent, sold under the brand names of local producers.
American and British firms seem to have a strong preference for wholly-owned subsidiaries; this is much less the case with European Continental, Japanese, or Australian firms. Prima facie, there would seem grounds for believing that there is more encouragement to local entrepreneurship if the sub-contracting relationship is of the contract rather than the subsidiary form. As against this, in one of the closer forms of business relationship, the principal is more likely to provide technical assistance. Also, the establishment of subsidiaries of multinational corporations can bring to a developing country resources of management skills and of risk capital which would not otherwise be available.

53. It is often argued that it is inherently risky for a country to be dependent on the subsidiaries of multinational corporations for production and exports: that bureaucrats at the remote corporate headquarters may suddenly decide to switch production and exports from a subsidiary based in one country to a subsidiary based in another. However, dependence — with all its risks that inevitably entails — may be as critical a problem with "arms length" contracts as with wholly-owned subsidiaries of multinational corporations. Just as a multinational corporation can switch its sub-contracting business from a Taiwanese to a Korean subsidiary, so also it can switch its "arms length" contracts — indeed, with "arms length" contracts the switch is easier, since the multinational corporation is not directly responsible for the people it throws out of work by the shift. In a volatile political situation, the principal may well prefer a contract relationship — less financial risk and commitment for the principal, but by the same token less assurance of future work for the sub-contracting country. Furthermore, one may well wonder how independent a sub-contractor with one or two dominant clients really is; in practice, the principal under such circumstances may be able effectively to control the sub-contracting firm, whether or not it has any share of the equity capital. With so many different situations possible, and so many considerations involved, there is very probably no form of business relationship which is always better, or always worse, than any other, from the point of view either of the developing country, or of the foreign firm giving the sub-contracting work.

54. Nevertheless, there is no doubt that there are particular problems for effective national control of the subsidiaries of multinational corporations engaged in international sub-contracting. There is very substantial scope for manipulating transfer prices: in the United States Tariff Commission study of Items 807.00 and 806.30, the United States Customs admits that it has to take the data provided by the firms involved virtually on trust — clearly the average developing country is not going to be any better placed. On the other hand, this uncertainty over transfer prices may not necessarily always work to the advantage of the multinational corporation, which can find itself squeezed by the Governments at both ends of the trade. Indeed, in one case an American firm found that U.S. Customs were demanding higher declared re-import prices, so as to increase the duty revenue, while at the same time the U.S. Internal Revenue Service was demanding lower re-import prices, so as to
increase declared profits and hence profits taxes. One must also consider
that use of totally artificial prices by a vertically integrated multinational
corporation causes problems for internal control. Artificial pricing can lead
to a reallocation of resources within the corporation, and inefficient opera-
tion of its world production system. Again, in one area even incompetent
executives will be able to chalk up bumper profits for the group, whereas in
another good executives may become disheartened, (and perhaps be by-passed
for promotion), because the operation they are running shows a steady loss.
The only fully satisfactory alternative is a complete double set of books
with a complex shadow-pricing system - not an accounting task to be undertaken
lightly. 1/ Nevertheless, effective means to tax the sub-contracting subsidi-
aries of multinational corporations do require further study. In the Mexican
Border Area, companies have apparently sometimes been able to manipulate the
calculation of turnover taxes, so that in effect they become more akin to a
tax on value added. The point here is not that one form of tax is better than
the other; but simply that a developing country should decide what taxes to
levy, and then somehow ensure that the actual level of taxation is indeed the
level which has been decided upon.

Dealing with the Multinational Corporation: The Case of the Vehicle Industry

55. One industry, vehicles, illustrates particularly well the problems
of a developing country in fostering industrialisation, engaging in inter-
national sub-contracting, and dealing with the multinationals. Sub-contract-
ing in this field seems to have an especial glamor: but it is probably one
of the most difficult areas in which to find possibilities for international
sub-contracting. Because of the economies of scale which arise, an attempt
to increase local content per car by import-substitution normally leads to a
steep rise in costs for technical production reasons: this is well-documented
for Latin America, the most remarkable example perhaps being Chile. 2/ Some
developing countries have a reasonable-sized vehicle market - Yugoslavia,
Brazil, Mexico, India: but for the average developing country low population
and low GNP per capita produce tiny markets. The entire Ghana market for ve-
hicles of all types is about 5,000-6,000 a year, about a third the production

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1/ There is an interesting parallel between the problems of a vertically
integrated large corporation using administratively determined transfer
prices between subsidiaries, and the problems of Eastern Bloc economies
where prices have also been fixed by administrative decision. In both
cases the price mechanism can become a very arbitrary allocator of
resources and the size of the surplus earned by a production unit
ceases to be much guide to its efficiency... It is of course quite
possible for a multinational corporation to run a complete shadow-
price system: at least one oil major works with at least three sets
of prices - prices for their official accounts in consumer countries,
"planning" prices, and posted prices.

2/ See Jack Baranson, Automotive Industries in Developing Countries,
level for a specialist car like the Jaguar E-Type. 1/ In such circumstances, 
 once one goes much beyond basic assembly, the technical diseconomies of 
 further import-substitution become very substantial. Thus the new orthodoxy 
 is to continue imports, but to export certain parts for the entire world 
 market of a particular model. Yugoslavia and Spain make certain parts for 
 the entire Fiat world market: Mexico and Iran will be doing the same for an 
 American firm. Examples certainly exist: but it is not easy to find suitable 
 parts. 2/ The problem, as so often, is to find small production runs: and 
 these are very hard to find in the car business. Thus the radiator firm in 
 Morocco, which makes radiators with simple tools on a workshop basis, could 
 compete in Europe for production runs below 50 a day - but these are few and 
 far between. Small production runs are more common with trucks than with 
 cars, but with the economic integration of Europe trucks will also start to 
 be made there by mass-production methods similar to cars, as they already are 
 in the United States. The best possibilities for international sub-contracting 
 in the vehicle industry are probably spare parts for obsolete models (which 
 Brazil has exported to the United States for some years), and tiny minor fix-
 tures - typically presswork - which the vehicle companies have always bought 
 in anyway. 3/

1/ And less than a fifth of the production rate for the V-12 engine 
 (which is also used in the Jaguar sedan).

2/ Some idea of the problem can be given by the following example. Purchasing 
 departments of vehicle companies probably require roughly a 10% price 
 differential before they will buy from an overseas rather than a domestic 
 sub-contractor: this is to cover both risk and the extra working capital 
 involved. For radiators, materials are about half total costs. Thus if 
 an overseas sub-contractor has access to materials at the same price 
 as his developed country competitor, he will have to have fabrication 
 costs which are 20% lower in order to win an order. Indeed, the 
 difference must be greater than this, in order to cover freight costs.

3/ However, one should note that there may be more possibility of using 
 offal - metal left over from other processes - in developed than in 
 developing countries, and this can affect comparative production costs. 
 Unfortunately, also, purchasing departments of vehicle firms may 
 concentrate on situations which offer the possibility of large absolute 
 cost savings, rather large cost savings as a proportion of the existing 
 cost of the item: and these minor items are only a small cost in the 
 total expenditure on bought-in materials and parts. Pressure from 
 developing countries may help to give such items a higher priority for 
 political reasons. Even where, on strict cost of production grounds, 
 international sub-contracting might seem to be economic, multinationals 
 may still hesitate with regard to two types of components in particular: 
 "status" items and "soul" items. A status item might be a wooden fascia 
 by which a particular make of car is product-differentiated: a soul 
 item would be the engine, where a firm will normally prefer to keep 
 production in-house, so as to facilitate research and development.
International sub-contracting by vehicle firms is certainly becoming more common. Berliet, Citroen, and even General Motors have recently sent buyer teams around potential sub-contractors in Morocco, partly in response to local pressure. Pressurising the multinational vehicle firms for international sub-contracting business may be a good enough strategy, but can be taken too far: at the extreme, a multinational corporation may be prepared to buy any part, at any price: and will simply weight the cost of the completely knocked down vehicle pack it sells to make up for any loss. The developing country is then in a barter situation, as with bilateral account trading. (And in fact, though the situation is a little different, the Yugoslav firm selling to Fiat may well be doing so at a loss, in order to earn - with the present Yugoslav exchange control system - the foreign exchange for CKD purchase). In the long run, it would not be at all surprising if vehicle production moved to the most developed of the low-wage countries: workers in rich countries do not like the job - unrest grows, and the wage bribe required becomes higher and higher. Meanwhile, the advanced developing countries, with sizeable domestic markets, are the ones most likely to obtain international sub-contracting work. Of course, a developing country can also (as was not done in Chile but has been done in Yugoslavia), try to achieve the maximum standardisation in local vehicle production: restricting the number of models, and forcing different manufacturers to use common radiators or other parts. (Manufacturers will tend to object - it needs skilled technical knowledge to know when such objections are justified). In this way, the maximum possible economies of scale will be obtained within a market of any given size.

Competition between Developing Countries for Sub-Contracting Work

With the multinational corporations able to "shop around" throughout the developing world, one danger which has provoked quite some discussion already, is that developing countries will compete between each other for international sub-contracting work to such an extent that even the winners in this competition obtain little net benefit. There is probably a certain element of justification for this view. Already there is some tendency among developing countries to compete over the length and scope of tax holidays, even though these are not a very effective means of attracting foreign investment. Indeed, the benefit may simply go direct to a developed country government.

In a rather similar way, American subsidiaries in Mexico have a very strong incentive to export parts to the United States, since this affects their import quotas.

Ford is currently proposing to build a major assembly plant in Spain, for heavy trucks. The aim would be to export a high proportion of total production to France and Italy. Ford's labor costs in Spain are said to be half of those in Germany. (Wall Street Journal, May 15, 1973). Indeed, plants in several developed European countries already depend heavily on immigrant labor. At Ford Motor's plant in Cologne, only 6,000 of the plant's 20,000 assembly-line workers are Germans (Wall Street Journal, September 19, 1973)....
if there is no tax-sparing agreement in force. There is also a trend to provide "ready-made" industrial estates, and often subsidized credit. These methods are probably rather more effective as means of attracting international sub-contracting work. The returns to the economy may justify the provision of a certain amount of infrastructure, both items such as power- and telephone-lines, and also perhaps technical training facilities. Morocco could probably earn a high social rate of return from the establishment of training institutions for the small number of skilled personnel which industrial garment-making requires (cutters, machine maintenance men, supervisory and quality control personnel). Subsidized credit is more difficult to defend: it is rather paradoxical for capital-scarce countries to be providing cheap capital to large corporations based in capital-rich countries. Furthermore, one of the great potential benefits of international sub-contracting work is the employment which it can offer: yet subsidizing capital encourages the use of capital-intensive, labor-saving production techniques.

58. More and more developing countries are also instituting export subsidies, or are contemplating doing so: bonus exchange rates are virtually equivalent. Export subsidies can no doubt have an effect in attracting international sub-contracting work, but do involve a variety of dangers. At the extreme, a country can find itself exporting at a foreign exchange loss: India may be doing so for some exports already. 1/ Even short of this, a flat subsidy on the gross value of exports leads to a situation in which the lower the degree of local processing, the higher the effective protection of exports. And a subsidy which varied with the degree of local processing, valued at world prices, would involve serious problems of administration. Export subsidies, and similar devices, are often adopted as a means of offsetting the effects of an over-valued exchange rate. To counter one distortion by means of another is even in the most favorable circumstances, a second-best policy; adjustment of the over-valued exchange rate is a preferable solution, coupled — if appropriate — with export taxes on a few commodities, for "optimum tariff" reasons. For "arms length" sub-contracting, by independent firms, a limited degree of assistance to export promotion may be justifiable, on the grounds that social benefits exceed private benefits; the "idea" of a certain developing country as a suitable base for sub-contracting operations is being fostered. More generally, the "infant industry" arguments used to justify protection of import-substitution can also be used to justify protection of export-substitution. However, substantial export subsidies may greatly strengthen protectionist political forces in the developed countries; "dumping" is a very easy target.

59. Just as over-protection of import-substitution is possible (and frequently practised), so also is over-protection of exporting possible. Korea, with its rapid export growth on the basis of concessional credit, may be getting into this type of difficulty. Excessive subsidies can also lead

to net social loss in the case of international sub-contracting not based primarily on labor costs: thus several economists believe that the energy-intensive processing of alumina in Ghana yields a net social loss.

60. The form that competition by developing countries for sub-contracting work is taking, is rather curious in the light of the main criteria by which a principal chooses his country for a particular sub-contracting job. First, there are comparative labor costs for different grades of labor in various developing countries, which have to be considered against the proportion of the different grades of labor required as inputs by a particular product or process. The cost of other factors of production has also to be taken into account, but would typically be a secondary consideration. Secondly, freight and distance costs have to be considered, including "distance" created by bureaucratic barriers to importation and exportation. Consideration of these two factors — labor costs, and freight and distance costs — probably yields two short lists of potential countries for sub-contracting; one list for those cases where proximity is of paramount importance, the other for cases where extremely low labor costs are the predominant factor. (Thus for the United States market List One would probably include Mexico, List Two, Korea: for Western Europe, Portugal in List One and Korea again in List Two.) The countries in the lists would vary according to the level of industrial development required for a particular type of sub-contracting; (on List Two, in one case Korea, in another, Hong Kong, in a third Japan). It is probable that for any particular sub-contracting job, there is quite a small short list of potential countries, with the right mix of labor costs, level of industrial development, and effective proximity. The list would be shorter than one might at first imagine, because in many developing countries bureaucratic barriers to importation and exportation render international sub-contracting, or international sub-contracting of certain types, virtually impossible. For example, Morocco has a successful international sub-contracting industry for "classic" men's office shirts: but international sub-contracting of fashion goods, with a European principal supplying the material and designs, simply does not exist — at present the delays involved in "importation en admission temporaire" simply rule it out. For certain products, preferential quota access to developed country markets would be an important factor. Finally, considerations of apparent political stability would shorten the list still further; several countries would be vetoed on this account. The result is that while it may seem to governments of developing countries, or to many academics, that multinational corporations have an almost unlimited choice of country for a particular sub-contracting task, to the management of the multinational corporation the effective choice appears much more limited. Incentives such as tax holidays will often be rather marginal considerations, and are unlikely to get a country which would otherwise not be considered onto the short list.

61. If this appraisal of the factors involved in the choice of a sub-contracting country is correct, the strategy of a developing country interested in attracting sub-contracting work should be very different from that which many aspirants are following at present. First of all, the country should
consider whether its labor costs and location make it a feasible candidate: many countries would probably find it most difficult to attract international sub-contracting whatever policies they pursued. If international sub-contracting does appear to be a real possibility, the country should avoid over-valuation of its currency, and a legal minimum wage greatly in excess of the scarcity value of labor, and should cultivate a reputation for "stability."
Above all, it should remove bureaucratic obstacles to importation, exportation, and setting up a factory. Cutting red tape may be much cheaper, and much more effective, than grandiose concessions available after two years' negotiation. Once disincentives have been eliminated, the country can examine how far it is necessary or desirable to offer positive incentives. It should then choose the most cost-effective package, and the one that creates the least economic distortions; this is unlikely for example to include long tax holidays or extensive subsidized credit. However, while there is perhaps something to be said for consultation between sub-contracting countries over privileges granted to multinational corporations, no OPEC-style cartel seems very feasible. The multinationals have the obvious option of continuing to produce in the developed countries, and in many cases -- because of freight and "distance" costs, risk, and inertia within corporate bureaucracies -- the elasticity of demand for sub-contracting in developing countries, rather than production in the developed world, may be rather high.

The Reliability of Sub-Contracting Demand

62. One of the most frequently mentioned fears about demand for international sub-contracting is that it will suddenly evaporate, causing distress and economic dislocation in the developing country. How justified this fear is probably depends on the situation.

63. If a sudden excess of demand in, say, Europe, has come up against limited capacity, then sub-contracting demand may indeed suddenly become large in Portugal or Morocco, but subsequently disappear as new capacity is installed nearer to the center of consumption. On the other hand, if there are more fundamental economic reasons for the sub-contracting demand -- for example labor-intensity of the production process -- then it is much less likely that demand for sub-contracting will appear and then later vanish: on the whole, it is all too likely that wage differentials, at least in absolute terms, will tend to increase between the developed and developing countries, so that the economic forces behind the move to international sub-contracting will become stronger. As against this, unions in developed countries may sometimes be successful in ensuring that, in a recession, the workers sacrificed are those in the developing country. However, General Instrument Corporations how has 12,000 workers in Taiwan, more than in all its American operations combined: 1/ they presumably would be unlikely to sacrifice their Taiwan operation for one in the United States. Again, one German shoe firm has stopped

all production of certain sports shoes in Germany, and transferred production, 
together with all the equipment, to Morocco - it would presumably be rather 
difficult for this firm to sacrifice Moroccan workers for German ones. Of 
course, not all firms giving sub-contracts are in the position of General 
Instrument Corporation, or the German firm just cited: but as time goes by 
more and more firms will come to have a substantial stake in sub-contracting 
production in developing countries, and accordingly one would expect them to 
be increasingly reluctant to jeopardize it.

64. In theory, it is true, sub-contracting demand could move on from one 
developing country to others with still lower wages. Over, say, twenty years, 
this may well actually occur, as wage rates rise: the original sub-contracting 
country will grade up in its international comparative advantage, as Hong Kong 
has done, producing and exporting increasingly skill-intensive products. This 
should cause no great difficulties - no worse than the usual structural pro-
blems of development. Indeed, a government may be positively anxious to speed 
the transition to higher-skill work: Singapore no longer encourages firms to 
set up plants for low-skill sub-contracting. 1/ Sudden disappearance of sub-
contracting demand as it shifts to another country is not on the whole very 
likely, because of the forces of inertia and the tangible and intangible 
investments involved. This is clearly so if a firm has a sub-contracting 
subsidiary -if it has made the necessary arrangements with the authorities, 
found land, built a factory; however, it is probably also substantially true 
where there is no visible investment. A sub-contractor has been found, quality 
control and delivery problems have been solved, a logistical network has been 
established - this represents a substantial investment in terms of executive 
time and travel costs, and executive ulcers. One should consider that an 
industry may be "foot-loose" or "run-away" as between the U.S. and a developing 
country, with a possible ratio in comparative wages of up to 20:1, but not 
as between two developing countries, where the possible wage differential is 
much smaller and the importance of the wage bill in total costs is in any 
case much reduced. The most obvious cases of sub-contracting demand moving 
suddenly elsewhere have been when, as in Ireland, tax and other concessions 
expired abruptly after a certain term of years. 2/

1/ For example, Hewlett-Packard Co. was not given tax incentives in 
connection with packaging integrated circuits, but did secure tax 
concessions for the production of electronic calculators. Other 
recent industrial developments in Singapore include the production 
of electric typewriters and of amplifiers, and the start of operations 
The analysis here assumes that wages rise as a result of market forces, 
i.e. that with economic development labor becomes genuinely more scarce. 
If political pressures produce a sudden rise in wages not related to 
the market scarcity of labor, then the shift elsewhere of demand for 
sub-contracting could indeed cause a serious hiatus.

2/ A similar problem arises with tax holidays and protection granted 
for a certain number of years to encourage import substitution: at 
the end of the period the factory either closes down or - more likely - 
political pressures force the government to extend the term of its 
special favors.
65. Probably a more serious danger to the stability of international sub-contracting demand is technical progress. For example, the weaving of electronic memories may disappear as ferrites are replaced by integrated circuits; and card-punching may disappear as data is fed directly into computers. A generalized answer to the effects of technical progress is impossible; it would vary from product to product. As we have seen, garment-making seems particularly safe from this point of view. Also, one should almost certainly not regard technical progress as an exogeneous factor: for example, if international sub-contracting permits some types of labor-intensive assembly-work to be done cheaply, there will be rather little incentive to devise automatic machinery (although some incentive still remains to eliminate international sub-contracting, for control and logistical reasons). Furthermore, automation for one particular product or process within a broader field would not necessarily cause anything but minor adjustment problems. For example, if an international electronics firm has found a successful sub-contracting partner (still more if it has its own sub-contracting subsidiary), it is unlikely to close down sub-contracting operations because of technical change in one process or product: instead it will try to switch workers on, say, electronic memories, to the assembly of other items - say micro-wave radio equipment, special assembly control panels, or non-standard switchboards. As a general principle, once the logistics network is established, there is a lower risk discount for establishing international sub-contracting of new products.

66. The issues involved in different types of sub-contracting relationship have already been discussed. Concentration on the type of business relation between principal and sub-contractor (especially its formal structure), may tend to divert our attention from the more basic issue involved in all international sub-contracting: dependence on foreigners, possibly on foreign investment, certainly on foreign demand. Elimination of U.S. Customs Item 807.00 would have a major impact on United States demand for the sub-contracting of processes, quite regardless of the business relationship between principal and sub-contractor ...

67. Let us then consider some of the possible dangers. Political relations between the government of the principal's country and that of the sub-contractor may deteriorate. However, short of that rare phenomenon, an effective trade embargo, this is unlikely to matter too much (unless preferential access has been a major factor in the original choice of sub-contracting country). Thus Japan's relations with Mainland China are now beginning to improve, and at the expense of those with Taiwan and Korea. Sub-contractors in the latter two countries certainly notice the difference, but have not had to confront any sudden crisis. Rather, the Japanese have been seeking a lower profile on their Taiwan and Korean business: selling out equity shares to their local partners, and possibly expanding their business less rapidly (rather than actually transferring existing business). Far more critical is the danger of a wave of protectionism in the developed countries: that possibility is discussed in a later section which deals with the political effects of international sub-contracting on the developed countries.
Effects of International Sub-Contracting on General Economic Development

68. It would be a mistake to concentrate only on the possible dangers of international sub-contracting, and ignore its most obvious potential benefits. International sub-contracting is a direct source of foreign exchange (shortage of which not so long ago many development economists regarded as the bottleneck to development). It also provides industrial employment at low capital cost per worker, and - unless the government is overgenerous in its concessions to the multinationals - much of the capital required comes from abroad, and would not otherwise be available. Lack of jobs is likely to be the largest single source of social and political disruption in the developing world in the next two or three decades, and may well force governments to divert potentially productive funds to unproductive uses (security forces, inflated bureaucracies, "work brigades" which all too often are rather useless). To the extent that the jobs available in international sub-contracting limit such tendencies, their assistance to the economic development of the host country may be far larger than would appear directly. 1/

69. As against this, it must be admitted that international sub-contracting may heighten the problems of regional imbalance in development. Sub-contracting will tend to concentrate in existing major industrial centers (e.g. Casablanca in Morocco), or possibly in a special Free Trade Zone. Creation of a Free Trade Zone in a backward region of the country, with the aim of achieving regional balance, may simply fail to attract clients - unless at the same time extremely good shipping and communications facilities are provided. Many Casablanca firms declared themselves unwilling to start operations in a Free Trade Zone in Tangiers, because of the increased overheads of two separate operations in Morocco, and because of the relative infrequency of air and sea connections. (The point about increased overheads would not apply to a firm new to Morocco, and indeed it is firms of this type which are most likely to use a Free Trade Zone in Tangiers). Especially if wages are fixed at a high level for political reasons, international sub-contracting operations could be a honeypot to attract labor off the land, and in this way create more unemployment than they eliminate. There is some danger that the Mexican border strip will have this effect. If, as is now proposed, manufacture in bond is extended to the rest of Mexico, that could greatly assist in avoiding this danger.

70. Perhaps the most interesting and difficult question of all, is how important are the "spread" effects of international sub-contracting. Here the effects are likely to vary according to the technical type of sub-contracting involved. On the whole, sub-contracting of single processes is likely to have

1/ It should, however, be noted that many jobs of the international sub-contracting type are done by women in developed countries, and often even in developing countries also. Thus the effect on male unemployment may be lessened: in exchange, there will be an effect on the status of women. (And hence perhaps on fertility? or particular social problems if women can get jobs and men cannot?).
the least "spread" effects: and certain operations of this type seem naturally
to be of an enclave nature. For example, the assembly of semi-conductors in a
developing country is rather unlikely to lead on to fabrication of the wafers,
by direct backward linkage. However, even here there can be indirect benefits.
Taiwan started off with semi-conductor assembly, and will soon be manufacturing
television sets for the world market (not just assembly). Also, there have in
fact been several cases of backward linkage in Taiwan: production of rayon
and polyester for textiles, plastic film for electronics. Whether or not inter-
national sub-contracting creates a small enclave in an undeveloped economy,
or leads to generalized development, probably depends not only on the type of
sub-contracting but also on the institutional structure of the country concerned,
and the inherent skills of the population. As already mentioned, once a multi-
national corporation has begun to sub-contract certain operations in a partic-
ular developing country, it is more likely to sub-contract other ones, as the
perceived risk diminishes. A country can slowly raise the skill level of the
labor-intensive operations which it performs, from sewing garments to the
production of scientific instruments or photographic equipment - making lenses
is particularly labor-intensive. (Sub-contracting in a developing country
may also offer the quality control advantage that 100% inspection and testing
become economically feasible). Even with the most "enclave" type of sub-
contracting, there are some benefits from the training of an industrial labor
force. With whole product sub-contracting, or even the sub-contracting of
components, international sub-contracting becomes very akin to direct export-
ing in its economic effects on development. (Obviously, the problems of
design and marketing are eliminated, and so are the chances to learn these
skills). Some forms of sub-contracting in the field of metal fabrication
could have very broad "spread" effects within the industrial sector. Overall,
there is some limited evidence that local value-added tends to rise in rela-
tion to gross value. As Table 8 shows, for the developing countries as a
whole, the ratio of dutiable value to gross value for U.S. Item 806.30 and
807.00 imports has risen in every year since 1967. In the five major sub-
contracting countries, it has risen every year since 1966 in Taiwan, and in
all five countries it has risen since 1970. Most of the exceptions to the
trend of rising proportionate value-added seem to have occurred when the
absolute value of sub-contracting was low. While dutiable value is only a
proxy for actual value-added in the developing country, and although other
explanations are possible, it would appear that either in individual sub-
contracting arrangements the degree of local processing or manufacture is
increasing, or alternatively that new operations are being undertaken in
which the element of local processing or manufacture is typically of more
significance than in older operations.

71. Nevertheless, except conceivably for a few small countries heavily
dependent on foreign trade, at best international sub-contracting is unlikely
to prove the new panacea for economic development. It is useful to get some
idea of the likely relative importance of international sub-contracting in the
economy. If one judges by present-day Mexico, Taiwan, and Korea, the countries
where international sub-contracting has the greatest importance, then the gross
value of international sub-contracting exports will rarely reach more than 20% of the total value of exports: 1/ because of the high import content of international sub-contracting exports, their share of exports by value-added would be usually very significantly smaller. Of course, international sub-contracting on a large scale only dates from about 1965, and is growing fast, so that it is quite possible that in some countries in the future international sub-contracting will exceed its present importance relative to the total economy in Mexico, Taiwan and Korea.

Economic & Political Effects of International Sub-contracting within the Developed Countries

72. The economic and political effects of international sub-contracting are certainly not confined to the developing countries.

73. There have been lurid accounts in the American union press of the enormous profits made by companies which have started up off-shore operations; and no doubt some of the first companies to adopt this particular production innovation did do extremely well. However, unless a particular market is very tightly cartelised, this must be a disequilibrium situation. As the use of off-shore facilities becomes generalized, prices either come down, or fail to go up with inflation: this has clearly happened in the case of integrated electronic circuits (where the price for one common type of circuit fell from US 70¢ to US 14¢ in a year). 2/ Thus on the whole the consumers in the developed countries do stand to benefit from international sub-contracting. However, consumers do not usually constitute a powerful political lobby in most developed countries: they are typically much weaker politically, much less well informed, and much less organized than the producers, be they employers or employed. The United States might seem to be an exception, and to a small extent it is: but most of the consumer lobbying has been for safer products, or less pollution, rather than for lower prices. It is true that importer associations and large retailing chains can also constitute something of a consumer lobby. Nevertheless, there is no doubt that producers normally have far more political "pull" than consumers.

1/ Mexico is very possibly the country in the world for which international sub-contracting is most important. The gross value of US imports from Mexico in 1972 under Items 806.30 and 807.00 was US$426.4 m., i.e., 26% of total Mexican exports which were worth US$1,665 m. However, the dutiable value of US 806.30 and 807.00 imports was only US$170.1 m. Mexico's sub-contracting exports for markets other than the U.S. would be relatively insignificant.

74. It is here that one finds one of the most important political differences between international sub-contracting by producer firms and direct exportation of manufactures by developing countries. With direct exporting, both firms and unions in the developed country will lobby against the imports. However, with international sub-contracting by producer firms, only the unions will lobby seriously against imports, for the obvious reason that the firms will be benefitting from the trade themselves. 1/ This no doubt goes to explain why (despite political resistance), it has been possible for imports to take over nearly all the United States market for many consumer electronic products, whereas much more limited penetration of the United States textiles market (less than 15% of consumption of cotton textiles) led to quotas, 2/ on cotton textiles and increasingly on all textiles. Another reason, probably, is that the textile industry is more concentrated in certain regions which are poor and which lack alternative industries. 3/ 4/ (Significantly, perhaps the

1/ A few firms, e.g. Zenith in the U.S. electronics industry, may resist the move to do international sub-contracting, and hence clamor for protection. However, in this case although some firms will be demanding protection, the industry will speak with a divided voice. And sooner or later the "patriotic" firms may decide to join the rush to give sub-contracts abroad: some television sets from Taiwan now carry a Zenith label.

2/ Also "voluntary" restriction of exports to the United States by the exporting countries. These restrictions would generally have been in response to rather heavy hints from the United States. Britain and several other developed countries have adopted similar techniques, although Britain has permitted imports from developing countries to take a much higher proportion of her market for textiles than most other developed countries have done.

3/ In most countries, the clothing industry is less concentrated regionally than textiles. In the EEC, for example, the clothing industry is scattered all over the Community; though with some clustering of plants in the Paris region, and with Italy the principal exporter in intra-community trade (see "Les industries de la confection dans les CEE, Capelin Associates Ltd. July 1970). However, it is often argued that, if the domestic clothing industry contracts in the face of foreign competition, the textile industry will lose its domestic market: "if the clothing industry goes, the textile industry goes."

4/ One very interesting matter for discussion is why agriculture and textiles should be the two industries which are heavily protected by nearly all developed countries. Possibly the answer is along these lines:
(a) They are both very large industries in nearly all developed countries, as compared to other individual industries.
(b) They employ many workers in the poorer regions.
(c) Production is often as much on a family, or "feudal" basis, as a modern capitalist one. The entrepreneurs concerned are emotionally attached to their present production units, and cannot or will not relocate in another country, or switch to another industry.
only case where direct export of manufactures from developing countries has been allowed to dominate the U.S. market is the case of hard fiber products, such as twine. The competing American industry lacked a firm political base because there was no one area of the United States where it was of major economic significance.)

75. Whereas for firms in a developed country, international sub-contracting may offer a way in which they can avoid losing a market altogether (in the absence of heavy protection), the effects of international sub-contracting on labor may be unfortunate. To begin with a static analysis, it is clear that in their role as producers the workers will tend to lose from international sub-contracting, which in effect diminishes the labor-scarcity of the rich countries. It has also been shown 1/ that under certain restrictive assumptions the gain to labor as a consumer will be outweighed by the loss to labor as a producer: the marginal product of labor falls in terms of the wage-good. In fact, of course, "labor" is far from homogeneous. Probably the higher-skilled workers (if they are not put out of a job), benefit overall from international sub-contracting, since what they lose as producers they gain back as consumers. However, it is quite possible that low-skilled workers suffer a net loss, even without the problems of unemployment: unless compensatory measures are undertaken, it is quite possible that international sub-contracting will to some extent increase income disparities within the rich countries. 2/ Gainers could indeed compensate losers, and still obtain a net benefit: but with the absence in most countries of effective adjustment assistance measures, it is a fact of economic life that compensation does not generally occur, and that accordingly the unskilled worker is liable to experience a net loss from international sub-contracting...

1/ Wolfgang E. Stolper and Paul A. Samuelson. "Protection and Real Wages" in Readings in International Trade, Philadelphia, Blakiston, 1949. One of the necessary assumptions is that a given product is labor-intensive in both the exporting and the importing country, or capital-intensive in both countries. However, work by K.J. Arrow, H.B. Chenery, B.S. Minhas and R.M. Solow, "Capital-Labor Substitution and Economic Efficiency" in Review of Economics and Statistics, August 1961, does not really support such a hypothesis fully. Apparel is found to be labor-intensive in both the US and Japan, power and petroleum products capital-intensive in both: but metal-mining is quite capital-intensive in the US, and quite labor-intensive in Japan. While the hypothesis does not therefore have a universal validity, most tasks which are internationally subcontracted at present are highly labor-intensive in both the exporting and importing countries, so that for these purposes the hypothesis would be empirically justified.

2/ A list of US manufacturing industries with the lowest average wages, or the highest proportion of women workers, matches very well with a list of those industries threatened by competition from low-wage countries.
If now we attempt to bring in dynamic factors, the position can change. Unskilled workers can be transmuted into skilled workers by training (although experience with adjustment assistance suggests that this process may not be straightforward). Also, viewed in a wider economic and political context, international sub-contracting may be seen as an alternative to legal or illegal immigration of workers from poor countries. In 1964, the Bracero Program ended, to be replaced by large-scale illegal immigration of "wetbacks" — and also by the Mexican Border Industrialization Program, which was particularly intended to cope with the abnormally high unemployment in the border cities which the end of the Bracero Program had created. 1/ Western Europe, of course, has also had a substantial influx of immigrant labor: Germany's "Gastarbeiter," (now 10% of Germany's labor force), France's Africans, Britain's Indians and Pakistanis. Some plants are run on 50% immigrant labor, others even on 90% immigrant labor. Labor immigration helps cause a whole range of social problems: racial tensions, poor housing conditions (the notorious French "bidonvilles"), educational difficulties, family dislocation and venereal disease, other health problems, social disorganization and crime... A number of Europeans are beginning to wonder whether it is not more efficient, in economic, social, political, and indeed human terms, to bring the factories to the worker rather than to import the workers for the factories.

Although international sub-contracting may have the effect of increasing income disparities in the developed countries, it is unemployment which is the key to labor's political reaction against imports of manufactures from developing countries, whether such imports are the result of international sub-contracting, or of direct exporting. In times of generalized, Keynesian, unemployment, protectionism always grows in political strength (as the British decision during the recent recession to have quotas as well as tariffs on cotton textiles shows): and indeed, there is an economic rationale to this. Full employment with protectionism may well be a second-best solution, yielding a higher level of economic activity and welfare than unemployment and free trade. In the same way, protectionism is also likely to flourish in a country with an over-valued exchange rate and may indeed be a second-best solution. Even aside from this, manufactures from developing countries create difficulties of structural unemployment. 2/ Not coincidentally, there are often regional implications, with the poorest, least developed areas of the rich country being the worst affected. The labor-intensity which makes the product

1/ See Forward by Fulton Freeman, and Chapter 1 of main text in Donald W. Baerresen, The Border Industrialization Program of Mexico, Heath Lexington Books, 1971.

2/ It should, however, be noted that if an upsurge of protectionism in the developed world forced labor-intensive operations back to these countries, more jobs would be lost in the low-wage countries than gained in the high-wage ones. Manufacturers would adopt a more capital-intensive technology. They might also leave it to the final consumer to do some of the assembly work; (even now, bicycles in the United States are commonly sold to the general public in partly unassembled form).
a viable export from developing to developed countries, also often makes it
an export from the underdeveloped to the developed regions within a rich
country.

78. Where international sub-contracting is done in the developing
countries to the order of retailing houses (Sears, Roebuck etc.), the eco-

demic and political effects differ little from those of direct exporting.
The retail houses provide a little political support: but otherwise the two
situations are very comparable. International sub-contracting organized by
retailing houses is, in fact, substantially different in its political
aspects from that organized by producer firms: with international sub-con-
tracting organized by retailing interests, the producer firms remain a
hostile political force. Indeed, one can usefully ask oneself why in some
industries (e.g. electronics) the producer firms themselves organize sub-
contracting, whereas in others (e.g. garment-making), there is mainly sub-
contracting organized by retail interests, or direct exporting. An approximate
answer might be that industries of recent origin, with rapid technological
change, often attract the most innovative management personnel: older in-
dustries, with less technical progress and an "old-fashioned" image, are less
inclined to do so. (It is interesting and significant that many of the
technical innovations in American garment-making have come from firms not
traditionally based in this field: improved cutting techniques from Hughes
Aircraft, use of lasers from General Electric.) Another factor is obviously
firm size - many garment-making firms are too small for them to be able easily
to arrange international sub-contracting: (on the other hand, quite small
Japanese and American electronic firms do so). Equally, direct exportation
is a more feasible alternative for the seller in markets such as garments
where most domestic producers are small firms, not vertically integrated.
All this suggests that international sub-contracting by retailing interests,
or direct exports of manufactures by the developing countries, are likely to
pose the most difficult economic and political problems within the rich coun-
tries: the inevitable labor problems of structural readjustment are compounded
by those of small, backward, firms, with tradition-minded management, which
have neither the financial resources nor the management temperament which
would facilitate adjustment. 1/

79. As has already been noted, in theory gainers could compensate losers:
but in fact this does not tend to happen. In many countries government
assistance to threatened firms and workers comes late, and often in the form of
protection by categorized quotas, which delays the adjustment process, and
often seems to focus the attention of management on political lobbying rather
than on management as such. The British Government recently specifically
refused to plan in advance for structural readjustment in industries liable
to be affected by import competition from developing countries. In the United
States, apparently quite substantial provisions for trade adjustment assistance
have until very recently been almost nullified by over-restrictive inter-

1/ In this context it is interesting to note that the Japanese government
gives assistance to small firms in threatened industries to relocate
abroad.
pretation of the rules for applicability. 1/ There has been, it is true, the move to grant preferences to developing countries: but this has been hedged around with many restrictions, particularly by the EEC, and the United States has yet actually to implement its offer. Such initiatives may well fail to survive grass-roots pressure by threatened industries as soon as imports become significant; and there is in fact some tendency for quotas or "voluntary" export restrictions to cover a widening range of manufactured exports from developing countries. There are thus conflicting trends in rich country policy on imports of manufactures from developing countries, and the whole issue remains very much in the balance.

M. J. Sharpston

1/ "Assistance to firms and workers in adjusting to an injurious impact from import competition was first provided in the Trade Expansion Act of 1962. Since the Act was passed, the Tariff Commission has received 30 petitions for a determination of eligibility for assistance (10 from firms and 20 from groups of workers). An affirmative determination was not made by the Commission until November 1969 on the 16th petition received...." Committee on Ways and Means U.S. House of Representatives. Written statements and other materials submitted by Administration witnesses during hearings on the subject of Foreign Trade and Tariffs. May 1970... The main problem in obtaining assistance under the 1962 Act was that "In considering adjustment assistance petitions under present law, the Commission must first determine that an increase in imports occurred 'as a result in major part' of tariff concessions." It can be argued that the 1962 Act's schedule of benefits looks less impressive today than it did in 1962, because the level of state and federal benefits for other types of unemployment has risen in the interim. Also, even since 1969 there have been severe problems in the implementation of trade adjustment assistance. See Stanley D. Metzger, "Adjustment Assistance" and Marvin M. Fooks, "Trade Adjustment Assistance" in United States International Economic Policy in an Interdependent World. Papers submitted to the Commission on International Trade and Investment Policy and published in conjunction with the Commission's Report to the President. July 1971, Washington, D.C.
Key Items in the United States Tariff Schedules Which Relate to International Sub-Contracting

Metal Processing

Item 806.30. Any article of metal (except precious metal) manufactured in the United States or subjected to a process of manufacture in the United States, if exported for further processing, and if the exported article as processed outside the United States, or the article which results from the processing outside the United States, is returned to the United States for further processing... (there shall be levied)... A duty upon the value of such processing outside the United States.

Assembly

Item 807.00. Articles assembled abroad in whole or in part of fabricated components, the product of the United States, which (a) were exported in condition ready for assembly without further fabrication, (b) have not lost their physical identity in such articles by change in form, shape, or otherwise, and (c) have not been advanced in value or improved in condition abroad except by being assembled and except by operations incidental to the assembly process such as cleaning, lubricating, and painting... (there shall be levied)... A duty upon the full value of the imported article, less the cost or value of such products of the United States.

APPENDIX 2

Bibliography


