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Note: The Spanish edition of CEPAL Review No. 13 contained, in addition to the above articles, an article by Mr. Sidney Dell. This was of a preliminary character, however, and it is planned to publish an abridged new version of it in English in the near future.

CEPAL REVIEW
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Some aspects of the international distribution of industrial activity

*Alfredo Eric Calcagno and Jean-Michel Jakobowicz**

This article examines some of the recent changes in the industrial structure at the international level. First, it attempts to determine the actual extent of relocation in order to establish whether this is an almost unfulfilled possibility or rather a process in full implementation. It goes on to describe various kinds of industrialization in developing countries and then raises the problem of the 'industrial redeployment' of the developed countries, considering the contradiction that exists between the current problem of unemployment and the probable labour shortage which could occur between 1985 and the year 2000, one solution to which could be industrial relocation (others would be an increase in productivity or an influx of foreign workers). The authors also consider the comparative advantages which may induce transnational corporations to establish themselves in developing countries, and they analyse in greater detail the question of wage differences as weighted by productivity. Finally, policy alternatives are proposed for developing countries, comparing the characteristics and effects of 'open' industrialization based on comparative advantages —which would fit in with the industrial 'redeployment' of the developed countries— with the characteristics and effects of a form of industrialization which tends to affirm national autonomy (as for example in the production of capital goods) and to supply the majority of the population.

*Director of the International Trade and Development Division of CEPAL, and Consultant on various occasions to the Economic Commission for Europe, respectively.

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I

The real extent of the new international distribution of industrial activity

The concept of the international redistribution of industrial activity is not new, and during the past 20 years it has provoked many theoretical discussions; but it has never arisen in industrialized countries in such precise and concrete terms as since the beginning of the 1974-1975 crisis. In the past, the analysis has usually set forth a dichotomy between protectionism and international specialization; however, from a practical point of view, the situation is much more complex. It is not common for a country, no matter how powerful, to be willing to give up an industrial activity for the benefit of other countries and thus become more dependent on the outside for its supplies. On the other hand, permanent maintenance of tariff barriers to protect an internationally non-competitive industry is not a solution either. The difference between the interests of the transnational corporations and those of national States complicates the question even further.[1]

Before tackling the problem of the distribution of industrial activity, we should determine, beyond theoretical discussions, if there really is a relocation of industrial production at the international level, and if so to what extent. We must first keep in mind the interaction between production and trade. For example, the main process of industrial relocation, which took the form of import substitution in many developing countries —in particular, in Latin America— meant a drastic change in the composition of their international trade; even if they increased in total value, the new imports fitted in with the desired process of internal development. In addition, with few excep-

[1]For example, in the case of Volkswagen, which builds automobiles in Brazil, some of which it later exports in the form of separate parts to Germany, it is the German automobile industry which would be hurt in the medium term. It seems hard to imagine a government raising tariff barriers against the imports of one of its own firms. At the same time, however, given the labour restrictions that this country might have in the future, a relocation of this type would be logical.

tions, only a part —and not the major part— of industrial production is exported (44% in developed countries and 23% in developing countries). What is now called industrial 'redeployment' or 'relocation' refers to the importation from developing countries, on the part of some industrial countries, of certain manufactures which were previously made locally, and to what this means for the production and foreign trade of the developing countries concerned.

At first sight, it seems evident that a growing percentage of the textiles, clothing, electrical appliances, etc., consumed in the developed countries is coming from the 'newly industrializing countries' (NICs);[2] but in reality, at the international level, only a very small part of industrial production has moved from the North to the South (see table 1). During the past 15 years, only 3.3% of industrial production moved from the developed to the developing countries:[3] 2.5% to the newly industrializing countries and 0.8% to the other developing countries. At this rate of transfer, the objectives of the Lima Conference would be reached around the year 2050.[4]

Of more particular concern now is the problem of the industrial production of developing countries intended for export to developed countries, the latter, for various reasons, having apparently decided not to be totally self-sufficient in these sectors. In this regard, there is a general impression that the developing countries have greatly increased their participation in the international trade in manufactures over the past few years. But this is not true. As may be seen from table 2, the developed countries have not only remained in their dominant position, they have even consolidated it. Thus, in 1976, 83.5% of world exports of manufactured products came from these countries, as compared with 82.6% in 1963. Although the newly industrializing countries have been able to increase their participation in the world market by 3.45%, this was achieved at the expense of a corresponding decrease in the shares of the other developing countries and the countries of the East.[5]

Table 1

STRUCTURE OF WORLD PRODUCTION AND EXPORTS OF MANUFACTURES
(World total = 100)

	Production[a]			Exports		
	1963	1973	1976	1963	1973	1976
Developed countries[b]	88.1	86.0	84.8	82.4	83.3	83.8
Developing countries	11.9	14.0	15.2	4.3	6.6	6.6
Far Eastern NICs[c]	0.4	0.9	1.5	1.4	3.3	4.1
Far Eastern NICs plus Latin America[d]	3.0	4.3	5.4	1.6	4.3	5.0
Socialist countries	-	-	-	13.3	10.0	9.6

Source: GATT and OECD.
[a]Excluding the socialist countries.
[b]Comprises the OECD countries, Spain, Portugal and Greece.
[c]Hong Kong, South Korea, Taiwan and Singapore.
[d]Countries included in [c] plus Brazil and Mexico.

[2]According to OECD, there are ten of these countries: Spain, Portugal, Greece, Yugoslavia, Brazil, Mexico, Hong Kong, South Korea, Taiwan and Singapore. The European Community includes Turkey on this list. See OECD, *L'incidence des nouveaux pays industriels*, Paris, 1979; and Commission of the European Communities, *Evolution des structures sectorielles des économies européennes depuis la crise du pétrole*, 1973-1978.

[3]United Nations Industrial Development Organization, *World Industry since 1960: Progress and Prospects*, New York, 1979.

[4]The UNIDO Conference held in March 1975 in Lima fixed the objective that at least 25% of the production of manufactured goods should be carried out in developing countries by the year 2000. This percentage was 6.9% in 1960 and 8.6% in 1976.

[5]Of the newly industrializing countries, those of southeast Asia had the most intense growth in their foreign trade: if we contrast this fact with the world production structure described above, we may conclude that the increase in the production of these newly industrializing countries of the Far East was largely absorbed by their foreign trade, while in Brazil and Mexico this extra production was directed towards their internal market.

Table 2

IMPORTS OF MANUFACTURES BY THE INDUSTRIALIZED COUNTRIES, CLASSIFIED BY REGION OF ORIGIN
(Total imports of manufactures = 100)

Origin	Imports of manufactures by the developed countries		
	1963	1973	1978
Developed countries[a]	94.4	91.1	89.5
Developing countries	3.8	6.8	8.2
Far Eastern NICs[b]	1.2	3.8	4.8
Far Eastern NICs plus Latin America[c]	1.5	4.7	5.8
Socialist countries	1.8	2.1	2.3

Source: GATT and OECD.

[a]OECD countries plus Spain, Portugal and Greece.
[b]Hong Kong, South Korea, Taiwan and Singapore.
[c]Countries included in [b] plus Brazil and Mexico.

As shown in table 2, almost all imports of manufactured products by the developed countries, in both 1963 and 1978, came from other developed countries; only 5.8% came from the newly industrializing countries and 4.0% from the rest of the developing countries and the Eastern bloc. Moreover, one of the patterns of sub-development continues to appear: although the newly industrializing countries markedly increased their exports of manufactures to the developed countries, the latter export more to the newly industrializing countries than they import from there. In 1977 the balance was 18.2 billion dollars in favour of the OECD countries; Japan had a positive balance of 10.6 billion dollars, and only the United States showed a deficit (2.6 billion).

The only areas in which the newly industrializing countries have been successful in their search for a market in the developed countries are clothing and footwear, textiles and electrical appliances. This group of products, however, represents only 4.5% of the total imports of OECD countries and barely 2% of their total consumption of manufactured goods[6] (see table 3).

The context of capital and skilled labour in products is a determining factor in these exchanges. Thus, 56% of the goods imported from the newly industrializing countries by the advanced industrialized countries have a very small content of skilled labour, and 68% have a very small, and sometimes negligible content of capital, whereas half of the goods exchanged among industrialized countries have a very high capital content (see table A of the appendix).

In turn, studies of the consumption behaviour of families in developed countries (see table 4), reflect relative saturation with respect to certain basic necessities. The demand for clothing and footwear, food products, furniture, and more recently household appliances, has grown much less rapidly than total consumption, the most active sectors of which have been health, leisure activities, housing and transport.[7] If these products (except household appliances) are considered from the point of view of their manufacture, they are seen to be industrial products which require little capital (in the case of clothing and footwear, 63.5% less than the average for manufacturing industries) and unskilled labour, and in which there have been practically no innovations of any importance in recent years.

To sump up, then, the vast majority of industries transferred[8] to developing countries have low capital and research content, use technology 'behind' that of the developed countries, and have a high content of unskilled labour. These industries have either a stagnant or sluggishly growing market in the developed

[6]Speech given at the meeting of the United Nations Conference on Trade and Development by Robert S. McNamara, President of the World Bank, Manila, 10 may 1979.

[7]See France, Commissariat Général du Plan, *La spécialisation internationale des industries à l'horizon 1985*, Paris, 1978.

[8]The term 'transfer' may give rise to some misunderstanding. The headquarters of a corporation does not necessarily open a branch in a developing country —as often occurred in the process of import substitution— or transfer the whole firm, but rather the government of the developed country adopts internal political measures, such as termination of subsidies or lowering of tariffs, with the result that resort is had to imports rather than domestic production or that a transnational corporation reorganizes its production chain by subcontracting labour-intensive stages to developing countries.

Table 3

PERCENTAGE OF OECD IMPORTS COMING FROM NICs, BY PRODUCTS, 1963 AND 1977

SITC division	Percentage from NICs[a] 1963	Share of each division in total OECD imports Total imports = 100 1963	Percentage from NICs[a] 1977	Share of each division in total OECD imports Total imports = 100 1977
Clothing (84)	15.3	3.3	31.2	4.9
Leather and footwear (61, 83, 85)	3.8	2.2	21.6	2.4
Electrical machinery (72)	0.5	8.3	10.6	10.3
Textiles (65)	2.8	8.9	6.5	5.3
Other[b]	0.4	66.9	1.6	65.0
Total	*1.3*	*89.6*	*5.1*	*87.9*

Source: OECD, *L'incidence..., op. cit.*, p. 27.

[a]NICs: Brazil, Mexico, Taiwan, Hong Kong, Singapore and South Korea.
[b]SITC divisions 62, 69, 66, 67, 73, 71, 5, 64.

Table 4

EUROPE: CHANGES IN PRIVATE CONSUMPTION, BY FUNCTION, AT 1970 PRICES
(1970 = 100)

	1953	1960	1973	1977
Food	58.0	74.2	107.7	108.4
Clothing	47.0	64.2	111.1	112.9
Housing and heating	46.0	61.8	115.3	136.6
Furniture	41.2	61.4	122.0	126.2
Health	31.0	48.6	127.0	181.3
Transport	27.5	46.6	121.4	141.0
Entertainment	46.0	63.0	120.8	146.1
Other services	43.6	61.2	116.5	150.4
Total	*46.8*	*63.9*	*115.0*	*128.0*

Source: *National accounts of the OECD countries, 1960-1977*, Vol. II, Paris, 1979.

countries, with prices increasing less than those of other products. This article deals with this type of 'redeployment', which constitutes only a minor part of the changes occurring in industrial location in the world, the most important part, as already noted, being made up of the new industries intended to supply internal markets. The article will go on to discuss how this fits in with the industrial development considered desirable for the developing countries and the reasons which could motivate the developed countries to import these products from the developing countries in the future.

II

Types of industrialization in developing countries

Faced with this panorama of concentration in the central countries, the peripheral countries in general, and the Latin American countries in particular, must take the problems of how to develop their economies, especially their industry. In this respect, such questions arise as: What type of industrial structure should Latin American countries seek? What should be the interrelationship between the domestic market and exportation? How much leeway is allowed by the developed countries' policies, and how could most advantage be taken of the margin for manoeuvring which exists?

(a) *Different types of industrialization*

To answer the first question we must first of all characterize the different types of industrialization which the developing countries could adopt.

Historically, Adam Smith considered industry as a complex of manufacturing and productive activities, giving it an institutional meaning extending beyond the connotation of ability, perseverance and diligence which it has when used in respect of persons.[9] In other words, "industry means the relationship between man and nature, through work effected by means of a machine".[10] In fact, he is describing the British industrialization system, because in it there was a simultaneous reorganization of agriculture and increase in agricultural productivity which enabled agricultural labour to emigrate to the cities; a first phase of consumer goods industries, especially textiles; and a subsequent iron and steel phase accompanied by an intense supply of capital on the domestic and international markets.[11] In the Soviet system, for its part, a rapid process of industrialization coincided with the collectivization for agriculture and was essentially oriented towards capital goods.[12]

Later, many different processes of industrialization developed which adopted to a greater or lesser extent the elements of these two models. Table 5 summarizes various types of industrialization, showing the degree to which they are autonomous or dependent, popular or elitist. It is a basic outline which only proposes to show the great variety of possible processes of industrialization. The categories of analysis refer to the type of goods produced (capital, intermediate or consumer); for whom (internal market or export; high or low income groups); how (simple or complex technology, integrated into the national economy or transnational corporations, high or low value retained in the producing country); and by whom (high or low wages, with or without union rights, State enterprises or national or foreign private industries).

From this typology, basic differences can be seen among the various types of industrialization. A glance at the extreme cases shows that there is very little in common, on the one hand, between an autonomous form of industrialization, which manufactures capital goods for the internal market, is integrated into the national economy, retains a high value in the developing country, pays high salaries and is carried out by domestic or State firms, and, on the other hand, a form of industrialization which manufactures consumer goods for export, uses complex technology, is integrated into a transnational corporation, retains little value in the underdeveloped country, pays low wages and is carried out by a transnational corporation.

In considering 'types of industrialization' it should be kept in mind that in countries with a mixed economy, like those in Latin America, various combinations of 'types of industrial-

[9] See Ruggiero Romano, *Industria: storia e problemi*, Turin, Giulio Einaudi, Editore, 1976.

[10] *Ibid.*, p. 3.

[11] *Ibid.*, p. 31.

[12] See Maurice Dobb, *Studies in the Development of Capitalism*, London, 1946.

Table 5

BASIC CHARACTERISTICS OF VARIOUS TYPES OF INDUSTRIALIZATION*

	Autonomous	Dependent	Popular	Elitist
Type of goods				
Capital	XXX	X	XXX	XX
Intermediate	XXX	XX	XXX	XX
Consumer	XX	XXX	XXX	XXX
Production destination				
Domestic market	XXX	XX	XXX	XX
Export	XX	XXX	XX	XXX
Destination by social groups				
High income	XX	XXX	X	XXX
Low income	XXX	XX	XXX	X
Technology				
Simple	XXX	X	XXX	X
Complex	XX	XXX	X	XXX
Degree of integration				
Integration into national economy	XXX	X	XXX	XX
Integrated with transnational corporations	X	XXX	XX	XXX
Value retained in producing country				
High	XXX	X	XXX	XX
Low	X	XXX	X	XX
Labour				
High wages and union rights	XXX	X	XXX	X
Low wages without union rights	X	XXX	X	XXX
Type of enterprise				
State	XXX	X	XXX	X
National private	XX	XX	XX	XXX
Foreign	X	XXX	X	XXX

*Weightings (X, XX and XXX) signify zero or little, medium or high importance.

ization' coexist in different branches and firms. What is important is what prevails in the economic situation as a whole. Thus, our preference for an autonomous and popular industrialization is obvious, for reasons of political philosophy which go beyond the microeconomic perspective (which also has no reason to disfavour this option).

(b) *The internal market and exportation*

The controversy contrasting import substitution industrialization with the export of manufactures appeared to have been settled 20 years ago; however, since it has arisen again, it seems advisable to recall the basic arguments in favour of the preponderance of the domestic market and the complementary and supportive role of exports manufactures. In a recent analysis[13] it was shown that "the historico-structural form of Latin America, at present and in the foreseeable future, means that its development

[13]See Aníbal Pinto, *Centro-periferia e industrialización* (mimeographed), Santiago, Chile, december 1980.

depends *primarily* on the use of its human and material resources in activities oriented towards the internal market. The present coefficients of openness and the future prospects bear clear witness to show this reality". The same study indicates the important supportive role of manufactured exports in acquiring foreign currency and in complementing the internal demand with the exterior, thus, in certain cases permitting suitable levels of productivity and costs to be reached. In sum, this is not an exclusive alternative but rather a complementary one in which the main function is production for the domestic market.

(c) *External insertion*

The third question asked at the beginning of this section referred to the leeway left by the industrial policy of the developed countries and the opportunities for developing countries to take advantage of it. This subject is related to 'industrial redeployment' and will be discussed in the following section.

III

The 'industrial redeployment' of the developed countries

This chapter considers the situation of the developed countries and the motives they may have to adopt a policy of 'industrial redeployment'. The first question considered is the labour force, and the short-term problem of unemployment is clearly distinguished from the medium- and long-term problems related to the decrease in the active population due to the decline in the birth rate. The second aspect is that of the possible comparative advantages of the developing countries, especially the wage differential, endowment of natural resources, saving of energy, absence of anti-pollution expenses and fiscal advantages.

1. *Unemployment, the active population and industrial 'redeployment'*

One of the most important problems facing the industrialized countries since 1975 has to do with the direct and indirect effects of a relative decrease in the population in general (see table 6) and of the active population in particular. This phenomenon manifests itself already at the demand level (closing of primary schools for lack of pupils, for example), but it appears completely unrealistic if it is looked at from the point of view of the supply of labour, since it is well known that in 1980 there were more than 6 930 000 persons seeking employment in the European Community and more than 6 000 000 in the United States. However, the statement that the economic growth of the industrialized countries could be slowed down by a lack of labour is based on two facts: on the one hand, the decrease in the active population during the second half of the 1980s, and on the other, the decrease in productivity of the labour force.

It is thus necessary to draw a clear distinction between the short-term effects of relocation on employment and its possible rela-

Table 6

DISTRIBUTION OF WORLD POPULATION, 1950, 1975 AND 2000
(Percentage of total)

	1950	1975	2000
Western Europe	12.4	9.7	7.2
Eastern European countries	11.3	9.5	7.4
United States	6.0	5.3	4.2
Japan	3.3	2.8	2.1
Developed countries	34.0	28.2	21.8
Latin America	6.5	8.0	9.8
Africa	8.7	10.0	13.3
Asia	50.7	53.6	55.0
India	16.4	15.4	16.7
China	22.2	22.2	19.2
Developing countries	66.0	71.8	78.2
Total	100.0	100.0	100.0

Source: United Nations, *World Population Trends and Policies, 1977, Monitoring Report*, New York, 1979.

tionship with the decrease in the active population in the long term.

(a) *The short term: employment*

In the short term, the main argument used by the developed countries against industrial redeployment is the decrease in jobs it would cause. In the face of this situation, the reaction of governments has been a defensive one and has taken the form of subsidies or protectionism, usually at the request of trade unions and regional pressure groups. However, many studies show that although there may be unemployment at the level of the companies affected, the effects on global, regional or sectoral employment are minimal; furthermore, in the medium term the developed countries may acquire additional markets in the countries which are industrializing, since the reciprocal exchanges and exports thus generated will create jobs.

In France, employment losses due to imports from developing countries affected 73 400 persons in 1970 and 93 200 in 1976, that is, on the average less than 0.4% of the active population.[14] Between 1976 and 1985 these imports could cause 153 000 to 343 000 persons (between 2.8% and 6.3% of the labour force employed in industry) to lose their jobs, depending on whether there is 'limited protection' of the French economy or 'increased competition'. These figures, however, only show one aspect of the process, for if the employment which is linked to exports to developing countries is taken into account, the tally is either markedly positive or at least relatively well balanced for the future, depending on the scenarios adopted. This balance between losses and gains in employment due to exports from newly industrializing countries has been studied a great deal.[15] In the Federal Republic of Germany, "100 million marks' worth of imported manufactured products from developing countries would cause approximately 2 250 workers to be laid off. But on the other hand, the export of an equal value of manufactured products from Germany to the developing countries would create approximately 2 160 jobs".[16,17] Thus, the net effect on employment of a balanced increase in trade between Germany and developing countries would be practically nil; the only change would be in the structure of employment: some of the workers affected by the growth of imports from developing countries would have to change branches of industry to meet the demand for exports.

In Great Britain, the annual decrease in available jobs between 1970 and 1975 was 6.1% in textile yarns, 4.5% in the footwear and cotton industries and 2.4% in clothing. After an analysis of the causes of the job losses, the conclusion was reached that only a very small part of them was due to imports from developing countries: 0.05% for textile yarns, 0.4% for footwear, 0.8% for cotton and 1.07% for clothing.[18]

In the United States, for industry as a whole —except the textile industry, which has non-tariff barriers— the impact on employment of a 50% overall reduction in existing customs duties, distributed over ten years, would cause the loss of only 15 000 jobs. The elimination of non-tariff barriers would mean an increase in agricultural exports of 320 million dollars and an increase in net imports of textile products of 965 million dollars. This would lead to the creation of 1 000 jobs in agriculture and the loss of 88 000 in the textile sector.[19]

[14]France, Commissariat Général du Plan, *Le défi économique du tiers-monde*, report of the working group headed by Ives Berthelot and Gérard Tardy, Paris, La documentation francaise, 1978.

[15]Abstracts of these studies may be found in OECD, *L'incidence..., op. cit.*, annex 2; and in International Labour Organisation, *Restructuring of Industrial Economies and Trade with Developing Countries*, by Santrah Mukherjee and Charlotte Feller, Geneva, 1978.

[16]Deutsches Institut für Wirtschaftsforschung, *Economic Bulletin*, vol. 14, No. 5, Berlin, 1977. Cited in ILO, *Restructuring..., op. cit.*

[17]D. Schumacher, "Beschäftigungwirkungen von Importen aus Entwicklungsländern nicht dramatisieren", *DIW Wochenbericht*, No. 1, January 1978, cited in OECD, *L'incidence..., op. cit.*

[18]Overseas Development Institute, *ODI Review*, London, No. 2, 1977.

[19]"Not only are aggregate effects of a significant tariff-cutting exercise small, but the effects on individual industries, on various occupational groups, and on employment in different states are minimal in most cases. ... normal industry growth can handle any adverse employment impact,

In the OECD countries, a reduction of 50% in the customs duties of all countries for all products —except agricultural, textile and petroleum products— would at worst bring about a decrease of 0.9% in the supply of jobs and at best an increase of 1.22%.[20]

This information indicates that the effects of industrial relocation on employment in developed countries are very slight or insignificant in the medium term, while in the long term, this relocation, which has been discussed at such length at the national and international levels, could become a necessity.

(b) *The long term: the active population*

Most persons who will be of working age in the year 2000 were born before 1980; it is thus possible to determine their number almost exactly. If we consider the growth in the European population, for example, we see that this growth reached its high point during the years 1960 to 1965 (leaving aside the post-war 'baby-boom' (see table 6); the young people born during this period began to reach the labour market in 1978, and the last effects of this substantial growth in the birth rate will be felt around 1985.

On the other hand, since 1965 the growth in the population has been increasingly slow, sinking almost to zero in recent years. In the Federal Republic of Germany the population decreased by 1.2% in absolute figures between 1974 and 1978. This implies that from 1975 until at least the year 2000, the active population will decrease in European countries and in North America. On the contrary, the developing countries have rates of population growth which are 2.8% higher than those of the industrialized countries; although it is true that the gross birth rate decreased by 13.5% between 1960 and 1980, the mortality rate went down by 45% in the same period, which explains why the population in this area has doubled in 30 years. It now represents 72% of the world's population and will reach more than 78% in the year 2000 (see table 7). To sum up, on the one hand we have today's industrialized countries, with a population which is growing at a very low rate or even decreasing, and with the same situation about to occur in the labour force after 1985; on the other hand, we have the developing countries, with a population which is growing increasingly rapidly, and with a very large unemployed labour force. If the industrialized countries want to increase their standard of living at the same rate as from 1950 to 1980, they have three possibilities: to increase the productivity of their labour force (produce more with relatively less labour), to import foreign labour, or to subcontract part of their production.

Table 7

GROWTH OF WORLD POPULATION 1950-1975 AND 1975-2000
(Per cent per year)

	1950-1975	1975-2000
Europe	0.93	0.55
Eastern European countries	1.17	0.75
United States	1.38	0.77
Japan	1.91	1.15
Developed countries	1.15	0.68
Developing countries	2.25	2.09
World	1.91	1.73

Source: United Nations, *Statistical Yearbook, 1979.*

The first solution, to increase labour productivity, seems to be losing impetus today, for since the beginning of the 1970s and more specifically during recent years, productivity has tended to grow less rapidly than in the past, and even to decrease in some countries (see table 8). This problem, which is being closely

in all but 20 industries... Employment changes both by skill group and by state are insignificant, especially if the cuts are staged over a ten-year period." (See R.E. Baldwin, "Trade and Employment Effects in the United States of Multilateral Tariff Reductions", in American Economic Review, May 1976. Cited in ILO, *Restructuring ..., op. cit.*, p. 24.)

[20] According to the study made by A.B. Deardoff, R.M. Stern and C.F. Baum, "A Multi-country Simulation of the Employment and Exchange-rate Effects of Post Kennedy Round Tariff Reduction", in N. Akrasanee, S. Naya and V. Vichit-Vadakan (eds.), *Trade and Employment in Asia and the Pacific*, Honolulu, The University of Hawaii Press, 1977. Cited in OECD, *L'incidence ..., op. cit.*

Table 8

GROWTH OF LABOUR PRODUCTIVITY IN SELECTED DEVELOPED COUNTRIES (1957-1973 AND 1973-1978)
(Per cent per year)

	1957-1973	1973-1978
United States	2.08	0.8
Japan	8.91	3.04
France	4.79	2.93
Federal Republic of Germany	4.56	3.11
Italy	5.99	0.02[a]
Netherlands	3.96	2.82[a]
Sweden	2.93	−0.50[a]
Great Britain	3.0	0.7[a]

Source: OECD, *Annuaires statistiques*, Paris, 1957-1978; ILO, *Annuaires statistiques*, Geneva, 1957-1978.

[a] 1973-1977.

studied, particularly in the United States, has up to now proved insoluble. *A priori* it can easily be seen that there are factors such as investment in machinery, degree of skill of the labour force and technological discoveries which have an impact on the growth of productivity; but it is difficult to measure exactly what their impact is. Attempts to estimate this have been made without much success, and much of this phenomenon remains unexplained.

There is a mathematical function linking economic growth, growth of productivity and growth of the active and employed population.[21] This function determines what the growth in productivity from now until the year 2000 should be in order to maintain an economic growth rate similar to that of the past, taking into account labour restrictions. The answer is that for the majority of industrialized countries the rate of growth of labour productivity would have to be 50 to 200% higher in the next 20 years than at present, if these countries want to achieve the same economic growth as from 1957 to 1973 (see table 9). In the present context, these increases seem very improbable, since most technological and financial efforts in the next few years will be devoted to perfecting procedures for production and conservation of energy to replace oil, which is increasingly expensive and relatively scarce. These procedures will not be directly related to the production of an additional good, but rather to the gradual replacement of a good that already exists, and they will thus have only a very small impact on the overall growth of productivity.

Since it seems very improbable that productivity can be substantially increased,[22] there remains the possibility of incorporating foreign labour, as happened after the Second World War and particularly since the end of the 1960s in Western Europe.

If we start from the empirical relationship between the increase in productivity and economic growth, we can determine the labour needed at every level of economic growth, and the maximum rate of growth in relation to the available labour in the year 2000[23] (see table 10).

[21] This relationship may be explained in the following way:

$$EP_0 = AP_0 (1-UR_0)$$

$$PR_0 = VA_0/EP_0$$

$$EP = \frac{VA}{PR} = \frac{VA(1+x)^t}{PR_0(1+pr)^t} = AP(1-UR) = AP_0(1+ap)^t(1-UR)$$

$$EP_0 \times (1+ap)^t \quad \frac{(1-UR)}{(1-UR_0)} = \frac{VA_0}{PR_0} \quad \frac{(1+x)^t}{(1+pr)^t}$$

$$(1+x)^t = (1+ap)^t \times (1+pr)^t \quad \frac{1-UR}{1-UR_0}$$

where EP = Employed Population
AP = Active Population
UR = Unemployment Rate
PR = Labour Productivity
VA = Value Added
x = Annual growth rate of value added, and pr and ap are the annual growth rates of productivity and the active population.

[22] See table 8.

[23] The simple least squares method gives the following results for the period 1958-1978:

United States: pr = 0.50x (7.14) R^2 = 0.65 D.W. = 2.65 (value of T)
France: pr = 0.83x R^2 = 0.89 D.W. = 1.60
Germany: pr = 0.88x (15.2) R^2 = 0.62 D.W. = 0.82
Great Britain: pr = 0.89x (13.4) R^2 = 0.87 D.W. = 1.89

Table 9

GROWTH OF PRODUCTIVITY NECESSARY FOR A GIVEN RATE OF ECONOMIC GROWTH

	(1) GNP growth 1980-2000 (% per year)	(2) Growth in productivity 1973-1977	(3) Growth in productivity 1980-2000	(3)/(2) (%)
United States	3.76	0.83	2.56	+208
France	5.35	2.93	4.57	+56
Federal Republic of Germany	4.91	3.11	5.01	+61
Great Britain	3.11	1.15	2.69	+133

Source: Calculated on the basis of United Nations, *World Population Trends, op. cit.*, New York, 1979; World Bank, *World Development Report, 1979*, Washington, August 1979, and sources of table 8.

Table 10

UNEMPLOYMENT RATE (XX) AND FOREIGN POPULATION REQUIRED (X) IN PROPORTION TO ACTIVE POPULATION ACCORDING TO ECONOMIC GROWTH FROM 1980 TO 2000

	Growth in gross national product			Growth rate of past 20 years
	2% per year	3% per year	4% per year	
Federal Republic of Germany	x 3.00	x 5.38	x 7.78	x 8.53
France	xx 7.71	xx 4.67	xx 1.57	x 1.06
Great Britain	xx 3.22	xx 0.40	x 6.72	xx 1.45
United States	xx 5.24	x 4.33	x 14.73	x 9.24

Source: Same as table 9.

Thus, France will have to maintain a strong rate of growth in order to ensure, if not full employment, at least a limited rate of unemployment. The United States, on the contrary, will be unable to ensure a growth of rate of 2.4% without resorting to foreign labour. The situation of the Federal Republic of Germany is, from this point of view, serious: if the growth of productivity continues to be related to economic growth in the same way as during the past 20 years, it will be necessary to accept from 1.7 to 3.0 million foreign workers to maintain production growth rates of 2 to 4% annually. If we take into account the fact that there are currently already 4 million foreigners in Germany, of whom 1.8 million are workers (i.e., 100 active workers to 115 inactive persons), this country would have between 7.6 and 10.3 million foreigners in the year 2000, that is to say, between 12% and 16% of its population compared with

where: pr = rate of growth of productivity
x = rate of growth of gross national product.

This relationship between the growth of productivity and the growth of production - or "Verdoorn's Law" has been studied since the 1940s. See Solomon Fabricant, *Employment in Manufacturing, 1889 to 1939*, NBER, 1942; and P.J. Verdoorn, "Fattori che regulono lo sviluppo della produttivitá del lavoro" in *L'Industria*, 1949.

6.5% in 1978.[24] Only Great Britain appears to be able to maintain its 1960s' growth rate without any great structural change.[25]

The question thus arises as to whether it is advisable for a developed country to receive a foreign population which represents 12% to 16% of its own population. The difficulties met by the immigrant workers, particularly in France, where in 1975 they only represented 6.5% of the French population, may raise some doubts in this respect; however, in the absence of such legislation as that of Switzerland, it may be very difficult in a crisis to dismiss these potentially unemployed workers and send them back to their countries of origin. In the future it is quite probable that governments may wish to avoid the unfortunate experience of subsidies for going back to the country of origin, such as those given in France; the alternative then, will be to produce less (see table 11) or to concentrate more on the production of capital-intensive goods and technology and more labour-intensive production to developing countries.

2. *The comparative advantages of industrial relocation for the developed countries*

It is not our intention to debate the theoretical problem of comparative advantages or their general application to the distribution of investment between the centre and periphery of the world economy. We will discuss only the concrete case of the most obvious advantages of location in the periphery for enterprises of the central countries. We are particularly interested in elucidating the problem of how much the difference in wages between developing and developed countries is counterbalanced by the differences in productivity. We are not discussing the problem of 'comparative disadvantages', because we would have to analyse them at the microeconomic level, case by case; we could not generalize about the existence or non-existence of infrastructure, skilled labour, basic services, communications, transport, education and health services and the rest of the external economies, or the political risks involved. Up to now, these latter considerations have prevailed; but it is probable that the importance of the 'advantages' will increase in the future.

Table 11

POTENTIAL ECONOMIC GROWTH,[a] 1980-2000
(Per cent per year)

	1957-1973	1980-2000
Federal Republic of Germany	4.90	0.60
France	5.35	4.18
Great Britain	3.11	2.7
United States	3.76	2.35

Source: Same as table 8.

[a]Using labour elasticity in relation to the gross national product and data on the active population (see footnotes 21 and 23).

(a) *Wages*

A priori, the difference between the wages paid to workers in developing countries and those in developed countries is one of the most comparative advantages for transnational companies. These firms usually justify the low wages paid in developing countries by citing the low labour productivity in these countries. Thus, according to them, each unit produced contains the same wage proportion in the two regions. It is precisely this theoretical problem, which has long been a part of the rhetoric regarding redeployment, which we are going to study from the quantitative point of view in the following paragraphs.

The essential point is to establish a relationship between labour productivities, both at the national level (between activity sectors) and at the international level. If labour productivity is expressed in homogeneous physical units of production per worker (see table B of the appendix), it is possible to compare it between countries. In most cases, however, the same sector produces a heterogeneous group of goods, which makes it very difficult to estimate an internationally comparable rate of produc-

[24]The data concerning foreign population were extracted from Eurostast, *Emploi et chômage 1972-1978*, Luxembourg, July 1979.

[25]This entire argument presupposes stability of the relationship between growth of productivity and growth of the economy.

tivity. At the same time, it is impossible to determine the proportion of wages per physical unit produced.

There are various ways this question can be approached. Below, we will summarize four of them and use them to estimate the relative share of wages among sectors and at the international level. In order to do this, a sample was taken consisting of 18 countries,[26] 4 industries and the manufactured products sector as a whole in 1973.[27] Special consideration will be given to the cases of transnational corporations located in developed and developing countries.

(i) *Nominal wages*

Analysis of the data shows that there is a wide gap between the average nominal wages paid to industrial employees and workers in developed and developing countries (see table 12). In the latter group of countries, the average wages do not exceed 10% of those paid in the United States, while in turn, European wages are 20% lower than United States wages. In 1980, the evolution of wages and exchange rates tended to emphasize even more the difference between developed and developing countries, since European and United States wages have practically become equal.

This comparison seeks only to determine the wage costs for the transnational corporation, and thus the money equivalents are calculated according to the exchange rate. If the purpose were to compare the standard of living of the wage earners, we would have used a parity exchange rate based on the prices of a basket of goods.

A comparison of the average wages within each sector shows the same tendency in the different groups of countries: in the manufacturing sector, workers in the textile industry are the most poorly paid, while the best wages are those earned in the mineral and metal industries. However —as another consequence of structural heterogeneity— the difference between the highest and lowest wages is greater in the developing countries (80%) than in the developed countries (50%, excluding Japan) (see table C of the appendix).

Wages in the textile industry are closer to the average wage in the developing countries than in the developed countries, due to the relative importance of this sector in the first group of countries. In the developing countries, only 3.9% of the employed active population works in the manufacturing sector —compared with 20% in the developed countries— and within this 3.9%, 21% is in the textile industry, compared with 6% to 7% in the developed countries (see table D of the appendix).

(ii) *Wages weighted by productivity, by industrial sectors*

If productivity is measured by the quantity of homogeneous goods produced by each employee and worker —in the iron and steel industry, for example— then to produce 1 000 tons of steel, 3.5 man-years would be needed in the United States, 9.2 in Great Britain and 15.7 in Brazil.[28] If wages in Brazil are one-tenth of those in the United States, however, the cost of labour contained in each ton of steel will be 2.2 times greater in the United States than in Brazil.

Another way of approaching the problem consists of analysing the labour cost per unit of value added. This relationship, which also represents the distribution of value added between remuneration of capital and labour, is on average twice as much in the developed countries as in the other countries, with Japan coming somewhere between the two extremes (see table E of the appendix).

Another method used to estimate interna-

[26]The developing countries are India, Indonesia, Kenya, Nigeria, Philippines, Mozambique, South Korea, Colombia, Malaysia, Brazil, Mexico, Hong Kong and Singapore, while the developed countries are Japan, Belgium, the Federal Republic of Germany, Sweden and the United States.

[27]The industries are: textiles (ISIC 321), iron and steel (ISIC 371), non-ferrous metals (ISIC 372), metals (ISIC 381), and the manufacturing sector (ISIC 3).

[28]This difference between productivities is not only due to the skill of the labour force: among other causes may be mentioned (i) the age of the machines; (ii) the technological level; (iii) sub-contracting: in the United States, for example, many jobs are done by outside enterprises and are thus counted as services, while in the developing countries these same jobs are done by employees of the steel works.

Table 12

AVERAGE WAGE PER PERSON EMPLOYED
(United States = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metal-lurgy	Manu-factures
Developing countries[a]	10.0	9.1	11.2	10.2	8.0
Developed countries[a]	78.2	76.2	80.1	78.6	79.0
Developed countries except Japan	94.4	83.6	90.5	90.9	91.5

Source: United Nations, *Yearbook of Industrial Statistics, 1975*, New York, 1977; International Labour Organisation, *Yearbook of Labour Statistics, 1977*, Geneva, 1978; United Nations, *Monthly Bulletin of Statistics*, New York.

[a]These countries are listed in footnote 26.

tional productivity by industrial sector is to deflate the value of the goods produced, using a price index, in order to obtain comparable amounts. The amounts thus obtained, divided by the number of employees and workers, yield a new measure of productivity.[29] Table F of the appendix shows the results obtained using a 'basket of goods' as a price deflator.[30] To increase the precision of such estimates, it would be necessary to use a deflator for each sector and not one with a single price per country. The results obtained by this method show that the wages paid by firms in the developing countries are from 10% to 25% of those paid in the United States for the same quantity of goods produced.

The last estimation method we will mention is based on a study by the International Labour Organisation,[31] which links the level of development and productivity. A series of regressions based on a group of 18 countries allows us to determine the elasticity of this productivity in relation to the per capita gross national product. This elasticity reflects the effect on the productivity of the industry concerned of a one-unit increase in the productivity of the whole economy. According to the results, the most productive sectors are iron and steel and non-ferrous metals, while the least productive is the textile industry. The labour cost per unit of value added is from 45% to 70% lower in the developing countries (see tables G and H of the appendix).

The results obtained are summarized in tables 13 and 14 and show that the differences in wages continue to be substantial even when they are weighted by productivity.

(iii) *Wages in branches of transnational corporations*

The calculations made above concern the whole of given productive sectors; but in the particular type of enterprise represented by the branches of transnational firms in the developing countries the productivity of workers is usually not much below that of the parent firms in the developed countries.

Two facts confirm this supposition: first, the transnational corporations use technology in the developing country which is not very far

[29]Productivity Pij of sector i for country j may be expressed thus:

$$Pij = \frac{Oij}{Pj \times Eij}$$

where Oij is the value of production, Pj is the price deflator and Eij the number of employees in sector i of country j.

The expenditure on wages per unit produced would be:

$$SEij = \frac{Sij}{Eij \times Pij} = \frac{Sij \times Pj}{Pij}$$

where Sij represents the wages paid in sector i.

[30]See I. B. Kravis, Z. Kennessey and others, *A System of International Comparison of Gross Product and Purchasing Power*, Johns Hopkins University Press, 1975.

[31]See M.F. Lydall, *Commerce et emploi*, International Labour Organisation, Geneva, 1976.

Cuadro 13

SUMMARY OF NOMINAL WAGES AND UNIT COSTS OF PRODUCTION
(United States = 100)

	Average nominal wage	Share of wages in value added	Wages weighted by productivity		Wage costs per unit produced[a]
Developing countries	8.0	47.3	17.3	39.3	45[b]
Developed countries	79.0	94.5	-	73.6	-
Japan	47.0	77.3	44.3	64.3	-
Federal Republic of Germany	-	-	99.8	-	-

Source: Same as table 12.

[a]Only for steel.
[b]Brazil.

Table 14

DEVELOPING COUNTRIES: SUMMARY OF DIFFERENT MEASUREMENTS OF NOMINAL WAGES AND UNIT COSTS OF PRODUCTION, BY BRANCHES OF INDUSTRY
(United States = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metal-lurgy	Total manufac-tures
Share of wages in value added	59.8	52.7	50.7	60.5	47.3
Average nominal wage	10.0	9.1	11.2	10.2	8.0
Wage weighted by productivity					
Price deflator method	21.3	9.7	23.0	20.0	17.3
Degree of development method	58.8	37.3	34.4	53.9	39.3
Wage cost per unit produced	...	45[a]	...	...	...

Source: Same as table 12.

[a]Brazil.

behind that of the developed country; second, this technology is usually quite standardized and automated, which means that the differences in labour skills between one country and another do not have a significant repercussion on labour productivity.

Various studies of concrete cases confirm this general evaluation. The United States Tariff Commission, in its report to the President in September 1970,[32] notes that the productivity of workers in foreign branches of United States corporations engaged in the assembly or processing of products originating in the United States "is generally similar to that of

[32]See U.S. Tariff Commission, *Economic Factors Affecting the Use of Items 807.00 amd 806.30 of the Tariff Schedules of the U.S.*, Washington, September 1970.

workers doing the same jobs in the United States". Donald W. Baerresen arrives at similar conclusions in his analysis of the border industrialization programme in Mexico; he states that, in certain cases —electronics and clothing, for example— the productivity of workers in Mexico is actually higher than that of workers in the United States engaged on similar operations.[33] Otto Kreye, in his study on world-market-oriented industrialization of developing countries and free production zones,[34] shows that the productivity per worker in the textile, electronics and clothing factories in Malaysia is analogous to that of the United States and the Federal Republic of Germany. Y.S. Chang, in his study of the semiconductor industry,[35] states that after a learning period the productivity on the assembly lines in Hong Kong, Taiwan, South Korea and Singapore is greater than that prevailing in the United States. This is due, among other things, to the fact that in the United States the workers who accept these jobs are unskilled, marginal work ers who change jobs frequently. Referring to another type of industry, Celso Furtado states that the physical productivity of labour in the production of Mercedes Benz trucks in Brazil is 10% higher than in Germany.[36]

(b) *Other comparative advantages*

The low wages in the developing countries are only one of the advantages that transnational corporations can get from relocating their production. Lower costs of production due to a greater supply of natural resources; energy savings in the cases of industries which consume a high proportion of energy; absence of antipollution regulations, and fiscal advantages are major additional reasons for moving to developing countries. In addition, these corporations usually dominate the markets easily and thus ensure the long-term success of their business.

The ample supply of natural resources may mean lower costs of production. It will obviously be cheaper to exploit an 'open pit' mine than to extract from a deep one; for example, in two concrete cases of iron ore exploitation, the cost per ton of unrefined mineral delivered by rail from an underground mine was 3.3 times greater than that of ore from a strip mine.[37] Similarly, agricultural exploitation in rich soil which dispenses with the need for fertilizers and artificial irrigation, will be significantly cheaper than another case where these elements are needed; in the case of beef, the prices to the producer in dollars per kg of live weight were in 1976, as an annual average, 0.34 in Argentina, 0.62 in Australia and 0.75 in the United States; while at the other end of the scale they were 1.35 in the Federal Republic of Germany, 1.49 in France and 1.61 in Japan.[38]

The possibility of saving energy is another comparative advantage that may motivate some industries to relocate. Since the oil crisis, the developed countries have attempted to manage their own resources carefully and avoid overloading their balance of payments with unnecessary oil imports. As a result, in response to this situation, some industries which consume large amounts of energy might move to developing countries with abundant energy resources. Thus, the production of gas linked to the extraction of oil could be used advantageously in local industrial facilities such as metallurgy, iron and steel and chemicals which have high energy requirements. Agreements of this sort may be made which would benefit the entire international community: in this way the developed countries would avoid increasing their balance-of-payments deficits, the developing countries would benefit from a rare resource which would otherwise be wasted, and the

[33]See Donald W. Baerresen, *The Border Industrialization Program of Mexico*, Lexington Books, Mass., 1971.

[34]See Otto Kreye, *World Market Oriented Industrialization of Developing Countries: Free Production Zones and World Market Factories*, Max Planck Institute, Federal Republic of Germany, 1977 (mimeographed).

[35]See Y.S. Chang, *The Transfer of Technology: Economics of Offshore Assembly. The Case of the Semiconductor Industry*, UNITAR, research report No. 11, New York, 1971.

[36]See Celso Furtado, *Revue Tiers Monde*, Paris, April-June 1978.

[37]See United Nations, *The World Market for Iron Ore*, ST/ECE/Steel/24, pp. 90 and 91.

[38]See UNCTAD, *Consideration of International Measures on Meat, Element of an International Arrangement on Beef and Veal*, Report of the UNCTAD secretariat, TD/B/IPC/Meat/2, Geneva, January 1978, p. 14.

transnational corporations would increase their profits.

Relocation is much less beneficial for developing countries when the reason for moving is pollution. In most developed countries, governments have established regulations against pollution, which mean an increase in production costs of the enterprises affected, and the transfer of polluting industries to developing countries where no such regulations exist is a substantial comparative advantage in these circumstances. From 2% to 3% of the total sales of enterprises producing non-ferrous metals, iron and steel and foodstuffs are used to cover the costs of the fight against pollution in the developed countries. In the period 1973-1979, 6% of investments in the industrial sector were aimed at combating pollution.[39]

Enterprises which produce in developing countries, however, avoid such expenditures at the expense of polluting the environment of these countries.

Finally, the fiscal advantages granted by almost all developing countries are a major attraction for transnational corporations, especially in comparison with the high taxes they must pay in the developed countries for the same activities or on their overall profits.

(c) *Some policy conclusions*

The results of quantitative analysis show that the significant wage differences between developing and developed countries are not matched by analogous differences in productivity. Whatever method is used, the results are the same: the wage costs of a transnational corporation are from 60% to 80% lower in the entire industrial manufacturing sector of the developing countries in question than in the United States (see tables 13 and 14). Explanation of the reasons for this is beyond the capabilities and intentions of this article. We will merely make a brief reference to what is significant in the field of economic policy.

Wage levels vary from one country to another depending on the capital available per active person for the country as a whole[40] and on the power of negotiation of unionized workers in the income distribution struggle. In the developing countries, where average productivity and wages are low, if an industry is introduced which has greater productivity, the wages distributed will be in line, sometimes with a slight rise, with the national average and will be lower than the growth of productivity in this industry. Thus, in different countries there may be large differences in wages between workers who produce similar goods and even between those on an identical production line. One of the results of this seems to be the tendency to lower the highest wages in the developed countries without at the same time increasing the lowest ones in the developing countries. This may happen because in developed countries access to cheaper products from developing countries may lead to the closing down of industries which are labour intensive and therefore not competitive, with resultant unemployment and weakening of the workers' power of negotiation. At the same time, in the developing countries, the higher export prices obtained from manufactured products (or the greater volume exported) do not have a direct impact on the general wage level. Besides, in the case of the transnational corporations in the developing countries which produce for export, there is no correspondence between labour costs and the purchasing power of the consumers of the goods produced, since these consumers are foreigners.[41]

In short, we have demonstrated that in the cases considered there is a big difference in wages so that the transnational corporations are extracting surpluses from the low wages paid in underdeveloped countries. The solution to the problem cannot be the simplistic one of increasing wages, with no relation to average national levels. This option would not be feasible, and even if it were, the establishment of enclaves of high wages would not benefit the developing country. The advisable policy

[39]This percentage was 22% for non-ferrous metals, 17% for primary metals, 14% for steel and 16% for paper (see U.S. Department of Commerce, *Survey of Current Business*, June 1978).

[40]See Celso Furtado, *Prefácio a nova economia política*, Paz e Terra, Rio de Janeiro, 1976, p. 119.

[41]*Ibid.*, p. 187.

would be to divert this surplus towards expenditures related to national development, by means of government appropriation[42] either through export taxes[43] or direct State export; this would have to be done in such a way that the comparative advantages allowing access to the international market were not lost, but were reduced to a minimum: in other words, the prices would be the highest that international competition would allow.

IV

Policy alternatives

In the preceding sections we considered the types of industrialization in developing countries and the policy of industrial redeployment of the developed countries. It is now time to analyse possible and desirable policies for meeting the needs of the Latin American countries and the realities of the international economy. We shall refer to 'open' industrialization based on comparative advantages which is compatible with the policies of the developed countries, and 'autonomous and popular' industrialization, which we believe to be suitable to the requirements of the developing countries. In each case, these are not exclusive models but predominant ones: in the case of the predominance of open industrialization there will also be, complementarily, a certain amount of autonomous and popular subordinate industrialization, and vice versa.

1. *'Open' industrialization based on comparative advantages*

(a) General characteristics

'Open' industrialization based on comparative adantages has recently been proposed as a desirable model for developing countries. The premise is that each country should produce the goods with which it can compete internationally, whether in mining, agriculture or industry. The industrial sector is not assigned any leadership role in development; rather, this role is taken by 'competitive' activities or those outside the international market (construction, commerce, financial services, tourism, etc.). The financial intermediation sector, which transfers resources between the productive sectors and links the internal market with the international one, has a prominent place in all this.[44] The comparative advantages here are the lower costs of natural resources and labour. That is, these advantages are based on the exploitation of resources which in many cases are not renewable and on the low standard of living of the population; in other words these are advantages that the developed countries can extract from underdevelopment.

In support of this model, the example of Japan is cited, although in our opinion it serves precisely to support the opposite case.

In Japan, industrialization was based on sectors which do not appear to have compar-

[42] "The heart of the matter is that the opposing claims of the labour force and of the owners-entrepreneurs must be harmonized with the social appropriation and use of some of the value created: a process which in all known capitalist and socialist systems takes place through the State (all the more so, obviously, in the case of State-owned or controlled entreprises)." Anîbal Pinto, "The opening-up of Latin America to the exterior", *CEPAL Review*, Santiago, Chile, No. 11, August 1980, p. 51.

[43] "Even a substantial increase in the price of this labour (measured in terms of what it produces for the international market) will not prevent it from still being cheap for transnationals which have access to the markets of the central countries, where wage rates for the same work are presently from 5 to 10 times higher. The countries with cheaper labour could introduce a tax on the export of manufactures in order to cover, totally or partially, the difference between their wage rates and those of other peripheral countries competing on the same markets. It would not be surprising if the periphery moved towards a co-ordinated fiscal policy for the purpose of retaining a part of the surplus which the transnationals derive from exploiting cheap labour." Celso Furtado, *Criatividade e dependência na civilização industrial*, Paz e Terra, Rio de Janeiro, 1978, p. 122.

[44] See Fernando Fajnzylber, *Dinámica industrial en las economías avanzadas y en los países semindustrializados*, Mexico City, June 1980, p. 76 (mimeo).

ative advantages. "The Ministry of International Trade and Industry (MITI) decided to establish industries in Japan which would require the intensive use of capital and technology: industries which, considering the comparative costs of production, would be extremely inappropriate for Japan —steel, oil refining, petrochemicals, automobiles, aeronautics, industrial machinery of all kinds, and electronics, including electronic computers. From a static and short-term point of view, the encouragement of such industries would seem to be in conflict with economic rationality. But taking a more long-term view, these are precisely the industries in which income demand elasticity is greatest, technological progress most rapid, and labour productivity rises fastest. It was clear that without these industries —solely with light industry— it would be difficult to employ a population of 100 million and raise its standard of living to equal that of Europe and the United States; one way or another, Japan must have a chemical industry and heavy industry".[45]

At the same time, Japan closed its doors to foreign capital, established a powerful corporate base linked to the State and, on the basis of its protected internal market, broke into the international markets. This is an example of protection and specialization in activities which are most advantageous for economic development and national independence, in line with the views of the ruling political and managerial groups.

(b) *The newly industrializing countries*

The case of the newly industrializing countries is cited as an example of 'open industrialization'. To analyse it, we must distinguish at least two different points: first, the heterogeneity of these countries, and second the fact that in some of them the essential features attributed to this type of industrialization are of secondary importance in their overall development process.

[45]Statement by Vice-Minister of Industry Ojimi, cited by Fernando Fajnzylber, *op. cit.*, pp. 54 and 55.

In the first place, there is not just one single type of 'newly industrializing countries'. There are basic differences, for example, between Brazil and Mexico, Singapore and Hong Kong, and South Korea and Taiwan, to give three examples. Table 15 shows some of these differences, not only as regards size —in some cases these countries are very large nations and in others, city-States— but also as regards economic structure.

This type of industrialization has been described as having two characteristic features: a growth policy oriented towards the exterior and greater exploitation of comparative advantages. However, the fulfilling of these two requirements depends on the particular circumstances of each country —especially its size, supply of natural resources and existence of an internal market— rather than on the application of a specific theoretical model; thus, these conditions fully exist in Hong Kong and Singapore, but they apply only to a certain extent in South Korea, and they are lacking in Brazil and Mexico. It is obvious that city-States, without natural resources and with a very small internal market, have no other alternative but the external market, for which purpose they must exploit their comparative advantages. In the case of Singapore, one of the advantages, is its geographical location, which facilitated the installation of large oil refineries, while in that of Hong Kong, the advantages are the proximity to China, cheap labour and the international communications network.

The case of Korea is similar to the Japanese example: an autonomous development model, with little foreign capital and with specialization arising from a policy structured by the government and national management. Thus, in 1975 exports amounted to 13.5% of the gross national product, and 74.6% of them consisted of manufactures, but only 21.0% of total production of manufactures was exported. In the same year the production of goods and services was 1.8 times greater than in 1970 and 1.2 times that of 1973 at constant prices. "This expansion of production was primarily achieved by the rapid growth in the manufacturing sector, led by heavy industry and chemicals, which re-

Table 15

SOME STRUCTURAL CHARACTERISTICS OF FOUR "NEWLY INDUSTRIALIZING COUNTRIES"

	Population (millions of inhabitants in 1976)	Per capita GNP (1976 dollars)	Percentage share of industry in GNP (1976)	Exports as percentage of GNP (1977)	Percentage of manufactures in total exports (1977)	Exports as percentage of manufacturing production (1974)	Percentage of foreign capital in industry (1970)	Total external debt servicing expenditure (1977)
Brazil	110.0	1 140	39	8	23	4.7	49	41.2
Mexico	62.0	1 090	35	9	27	5.0	36	45.5
South Korea	36.0	670	34	13.5[a]	75[a]	21.0[a]	5	8.8
Singapore	2.3	2 700	35	111[b]	41	77.2	...	2.4

Source: OECD, *L'incidence..., op. cit.*, Paris, 1979; UNCTAD, *Handbook of International Trade and Development Statistics*, New York, 1979; Fernando Fajnzylber, *op. cit.*; Bank of Korea, *Quaterly Economic Review*, March 1978.

[a] 1975.
[b] 1976.

quire more intermediate goods than other industries".[46]

The situation in Brazil and Mexico is different, since the export coefficient in relation to the product is lower than 9%, and less than 5% of manufactured production is exported. These are typical examples of industrialization by import substitution, with the complementary export of a minor part of industrial production. In the case of Mexico, the border activity specifically devoted to international subcontracting —'maquila'— amounts to only 2.3% of national industrial production.

In these cases, we can see that international subcontracting based on cheap labour is only one element in the industrial activity of these 'newly industrializing countries' and that only in the city-States —which lack natural resources and an internal market— is it the most important element.

(c) *Some effects of predomination of the 'open' export-oriented model*

A general assessment shows the advisability of this type of industrialization in countries with a small internal market and scarce natural resources where there is no other alternative: but it cannot serve as a model for countries with other possibilities, where it would take only minor, complementary forms. In principle, the firms which practice this model may be more closely tied to the economy of the developed country than to the rest of the economy of the developing country, since they are usually linked in the production chain of transnational corporations. In many cases they are enclaves, importing raw material or parts, incorporating cheap labour and re-exporting these same elements in a more processed form, all under the control of the transnational corporation.

From the economic point of view, this a very unstable activity, since it implies very low investment of fixed capital and, if labour or fiscal problems arise, it is easy and not very costly to move these activities to another more favourable country. It is estimated that the average amount of fixed capital needed for each unit of work in the export processing zone of Kaohsiung (Taiwan) is about US$ 1 500, while in Mexico, en 1974, the average for subcontracting firms was US$ 840 per worker employed.[47] To appreciate the insignificance of

[46] See Keuch Soo Kim, "Interindustry Analysis of the Korean Economy in 1975", in Bank of Korea, *Quarterly Economic Review*, March 1978, p. 23.

[47] See Constatine V. Vaitsos, *Employment Problems and Transnational Enterprises in Developing Countries: Distortions and Inequality*, ILO, World Employment Programme, Geneva, 1976. The figures cited in Vaitsos' work are taken from the Asian Development Bank, *South East Asia's Economy in the 1970s*, Longman, 1971, pp. 306 *et seq.*, and refer to Taiwan. For Mexico, see Víctor Manuel Bernal Sahagún, *El impacto de las empresas multinacionales en el empleo y los ingresos: el caso de México*, ILO, World Employment Programme, Geneva, 1976.

these figures, we may compare them with the US$ 31 000 in capital invested per manual and non-manual worker on average in manufacturing in the United States. An extreme example of this system, which correctly illustrates its nature, is the notice which appeared in the international press early in 1979, announcing the construction in Japan of a floating factory which would anchor where labour was cheapest, with the intention of setting sail again when it learned of another more favourable location.

Another serious problem affecting these activities is that they depend entirely on the access they have to the markets of the developed countries. A resurgence of protectionist policies would eliminate this type of industry and that might very well happen, given the unemployment situation in the developed countries, although in the OECD study cited it was considered improbable, since it would provoke a reduction in imports by the 'newly industrializing countries' and would also prevent them from paying their foreign debt service, both of which situations would be harmful to the developed countries.[48]

From another point of view, it does not seem right to consider very low wages as a comparative advantage to be exploited, rather than as a defect of underdevelopment which should be eliminated. Giving the title of 'industrialized country' to a nation where the type of activity just described predominates (which is more akin to the sale of cheap labour.than to industrial production) would be like calling a country which has no oil but refines it an 'oil producer', or using the term 'maritime country' to describe one which has no national fleet but grants a flag of convenience.

On the political level, the maintenance of low wages and poor working conditions (long working hours, little protection against accidents, no social security, etc.), implies that there are no trade unions and that there is an authoritarian government, or that there is exploitation of foreign immigrants willing to work under the worst conditions.

[48]See OECD, *op. cit.*, pp. 18 and 19.

2. *Autonomous and popular industrialization*

(a) *Capital goods*

In underdeveloped countries, industrialization is the basic aspect of their economic development. It is not a question of using it as a source of external resources —the balance of payments is generally unfavourable— but of increasing the productive capacity of the country, creating external economies, training the labour force and applying technologies which will increase productivity. This is an indispensable requirement in order for the country to have the physical possibility of being autonomous. In this type of industrialization, the capital goods industry is essential,[49] since it is the foundation of the industrial structure, of the conditions under which capital is accumulated, and of the international competitivity of the developed countries, but it is still weak in the underdeveloped countries. In particular, the capital goods industry is the basis for the accumulation of capital and the principal vehicle of technical progress, which in turn has a direct impact on labour productivity and investment. Likewise, it sustains autonomous industrial development, since it generates the equipment necessary to install other sectors of production.[50] In addition, it requires a substantially

[49]The capital goods sector may be divided into three parts: "(1) the section for producing producer goods (machine tools, the corresponding automation equipment, and data processing systems in the broad sense); (2) the section which produces intermediate goods, heavy machinery, heavy electrical equipment, control and monitoring apparatus, miscellaneous general equipment (pumps, compressors, valves), and electrical equipment, and (3) the section producing plant for the manufacture of consumer goods (textile machinery, plastic processing machines, machines for agriculture and the food industry, various kinds of electrical equipment)". (See France, Ministry of Industry and Research, *La division internationale du travail*, Paris, La Documentation Française, 1976, vol. I, p. 105.)

[50]National control of the development of the engineering industries —a goal which has absolute priority, both from the point of view of the imperative need for national independence and from that of maintaining dominance over the 'peripheral countries' (understood from the perspective of the developed countries)— is dependent on mastery of these technologies and the development of the necessary innovations (see France, Commissariat Général du Plan, *La spécialisation internationale des industries à l'horizon 1985*, Paris, La Documentation Française, 1978, p. 239.)

lower capital intensity than that of the average for manufacturing industry. In the cases of the Federal Republic of Germany and the United Kingdom —which differ substantially in the age of their capital equipment— if the average for manufacturing industry is taken as being equal to 100, the relationship between the stock of capital and the cost of labour is 54, 72 and 77 for metal products, non-electrical and electrical machinery in Germany, while in the United Kingdom this ratio was 60 for instruments, mechanical and electrical equipment.[51] At the same time, the wages paid in these industries are higher than the average: 106 in non-electrical machinery, 121 in transport equipment and 115 in electrical machinery.[52] The proportion of research in the same countries and branches was 385, 108 and 94. In 1968-1970, employment in these branches came to 38.5% of total employment in manufacturing.[53]

In the international trade in capital goods, 87.5% of world exports originated in capitalist developed countries, 10% in socialist countries and only 2.5% in developing countries in 1977. If we consider the external trade balance, between 1969 and 1976 the capitalist developed countries dropped from a surplus of 1.3 billion dollars to a deficit of 27.1 billion dollars on total goods, but in the capital goods sector the surplus rose during this period from 16.8 to 77.3 billion dollars. Thus we can rightly say that "the capital goods sector is the central nucleus of the competitivity of the advanced industrial economies with respect to the rest of the world, and this situation is proved by Europe, the United States and Japan".[54]

It is clear from the above that the developing countries must advance in this branch of industry as an indispensable requirement for improving their whole productive system and strengthening their national autonomy. Moreover, generally speaking the investment requirements are not high, the technology is well-known and the internal market of the developing countries is potentially very large. Imports of capital goods by the developing countries, which might —under the right set of circumstances— be largely replaced, amounted to 93.2 billion dollars in 1977; the first move should be to change the policy of these countries, which at present favour the import of capital goods. In addition, specialization could take place which might lead to the establishment of extensive trade in parts and components within these sectors among underdeveloped countries.

(b) *Mass-consumption*

The other industrial sector which should have priority, along with that of production of capital goods, is the sector related to the supply of popular consumer goods. Here, the beneficiary of the development process is the general population, so that when selecting the types of goods to be produced, priority should be given to those needed by the majority, who in the underdeveloped countries have low and medium incomes. A similar strategy has been advocated recently by some international organizations. Thus, the 'endogenous' industrialization strategy proposed by UNIDO for the developing countries is aimed at satisfying the needs of the general population and involves the adjustment of industrial production to the manufacture of the products needed for this purpose. The impulse for this model would arise within the country itself and its purpose would be to satisfy the basic needs for food, clothing, housing, medical services, education and transport. It would be a 'low-key' type of industrialization aimed at meeting the basic requirements with a low capital/labour ratio, taking maximum advantage of local resources and the action of small and medium-sized enterprises.[55]

[51] See United Nations, Secretariat of the Economic Commission for Europe, *Structure and Change in European Industry*, New York, 1977, p. 44.

[52] This refers to the weighted average for Belgium, Finland, France, the Federal Republic of Germany, Italy, the Netherlands, Norway, Sweden and the United Kingdom, with the total for manufacturing equalling 100. See *Structure and Change..., op. cit.*, p. 66.

[53] *Ibid.*, p. 104.

[54] See Fernando Fajnzylber, *Dinámica industrial..., op. cit.*

[55] See Héctor Soza, "The industrialization debate in Latin America", *herein*.

This strategy has received the support of representatives of developed countries as a means of cutting back even more on scarce international aid; but they forget to point out that this type of industry must form part of a general process of industrialization based on the capital goods industries. In other words, they accept an industrialization which is 'popular' from the point of view of its beneficiaries, but not one which serves as a basis for national economic independence.

Some conclusions

(a) Industrial 'redeployment' is more a subject of discussion than a significant reality. During recent years the developed countries have further consolidated their position in world exports of manufactures (82.6% in 1963 and 83.5% in 1976). Moreover, they export to the whole group of newly industrializing countries more than they import from them.

(b) In the short term, the developed countries might suffer from a decrease in the number of jobs as a result of the transfer of industries, which would increase current unemployment; but in the medium term the increase in exports to developing countries would more than compensate for the loss of jobs. In the long run (from 1985 until at least the year 2000), the low growth rate or actual decrease in the active population will reduce the growth rate of their economies, unless productivity is increased, foreign labour is brought in or some labour-intensive activities are subcontrated outside. The difficulties involved in the first two solutions may lead to relocation.

(c) For the transnational corporations, the most important comparative advantage is the wage differential between developed and developing countries. Average salaries in industry in the latter countries are 12.5 times lower than in the United States; and even if this figure is weighted for differences in productivity, we may conclude that the transnational corporation will have to pay only some 20% to 40% of the corresponding United States wage costs. Moreover, the productivity of branches of transnational corporations in developing countries is normally similar to that of the parent companies.

(d) In the developing countries, industrialization is the basic factor in economic development. The capital goods industry, as an indispensable element for placing national autonomy on a solid foundation, forms the basis of this process. At the same time, these countries must give priority to industries which produce mass-consumption goods, as complementary to industrial development but not as its main focus.

(e) There is not a mutual exclusiveness but rather a complementarity between industrial production for the internal market and for export. The basic market is the internal one, but exports of manufactures are a strong support because they bring in foreign currency and, in some cases, because they enable a country to reach the necessary scale of production. The relative importance of the external market increases in small countries.

(f) The 'open' industrialization model based on present comparative advantages tries to promote the low cost of labour and natural resources (often non-renewable), does not contribute to consolidating national autonomy or providing the people with goods, and may lead to the veritable cultivation of underdevelopment. It may be a solution for countries with scarce natural resources and a tight internal market, or it may aid development in a more complex system of industrialization, but it cannot in itself be a model for developing countries.

(g) The type of development attributed to the newly industrializing countries cannot be presented as a model for all developing countries, due to their heterogeneity and because the features attributed to this model —external openness and industrialization based on comparative advantages— are actually either non-existent or of secondary importance in most of these countries (Japan and South Korea, which are the most successful examples, did not at the beginning have comparative advantages in the activities which are at the basis of their in-

dustrial development and are not open to the exterior, while as for Brazil and Mexico, they export less than 5% of their production of manufactures).

(h) A model based on 'labour discipline' and low wages is very difficult to maintain without strong political authoritarianism, the suppression or control of labour unions, or the exploitation of foreign workers.

Appendix

Table A

COMPARATIVE STRUCTURE OF IMPORTS OF ADVANCED INDUSTRIALIZED COUNTRIES ACCORDING TO SKILLED LABOUR AND CAPITAL CONTENT

(As percentage of imports of all manufactured products)

	Imports from NICs[a] 1977	Imports from Eastern countries[b] 1977	Exchange among developed countries[c] 1977
Skilled labour content: H			
H very low	56	41	22
H low	14	28	32
H medium	15	11	21
H high	15	20	25
TOTAL	100	100	100
Capital content: P			
P very low	34	19	6
P low	34	29	36
P medium	9	7	8
P high	23	45	50
TOTAL	100	100	100
Combination of the two criteria:			
(1) H and P high	5	14	11
(2) H high, P low or medium	10	5	14
(3) H medium, P high	5	5	9
(4) H medium, P low or medium	10	6	31
(5) H low or very low, P high	12	26	12
(6) H low, P low or medium	5	7	6
(7) H very low, P low or medium	19	19	11
(8) H and P very low	24	18	6
TOTAL	100	100	100

Source: Commission of the European Communities, *Evolution des structures sectorielles, op. cit.*, p. 41.

[a]Spain, Portugal, Greece, Turkey, Yugoslavia, Hong Kong, Taiwan, Singapore, Korea, Philippines, Malaysia, Brazil, Mexico, Venezuela, Argentina, Chile.
[b]USSR, Poland, Hungary, Romania, Czechoslovakia, German Democratic Republic.
[c]OECD countries except Spain, Portugal, Greece, Turkey and Yugoslavia.

Table B

PRODUCTIVITY, NOMINAL WAGES AND WAGE COSTS PER UNIT PRODUCED IN THE STEEL INDUSTRY
(United States = 100)

	Labour required per unit produced	Nominal wage per employee	Wage costs per unit of production
Brazil	447	10	45
United Kingdom	262	38	99

Source: United Nations, *Yearbook of Industrial Statistics, 1975*, New York, 1977; International Labour Organisation, *Yearbook of Labour Statistics*, Geneva, 1977; United Nations, *Monthly Bulletin of Statistics;* Commodities Research Unit Ltd., *Study on the degree and scope for increased processing of primary commodities in developing countries, prepared for UNCTAD*, New York, September 1975.

Table C

AVERAGE WAGE PER EMPLOYEE
(Manufacturing = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metallurgy	Total manufactures
Developing countries[a]	88.0	144.9	157.0	129.0	100.0
Developed countries[a]	70.3	123.6	113.9	101.7	100.0
Developed countries except Japan	73.2	116.9	111.2	101.5	100.0
United States	71.0	128.1	112.2	102.0	100.0

Source: United Nations, *Yearbook of Industrial Statistics, 1975*, New York, 1977; International Labour Organization, *Yearbook of Labour Statistics, 1977;* Geneva, 1978; United Nations, *Monthly Bulletin of Statistics*, New York.

[a]These countries are listed in footnote 26.

Table D

DISTRIBUTION OF LABOUR IN THE MANUFACTURING SECTOR, AND LABOUR EMPLOYED IN THE MANUFACTURING SECTOR AS A PERCENTAGE OF THE ENTIRE EMPLOYED ACTIVE POPULATION
(Percentages)

	Textiles	Iron and steel	Non-ferrous metals	Metal-lurgy	Total manufactures	Manufactures / Active population
Developing countries[a]	21.2	6.8	3.4	6.5	100.0	3.9
Developed countries[a]	7.0	5.4	1.5	5.0	100.0	22.3
Developed countries except Japan	6.1	5.7	1.6	8.1	100.0	24.3
United States	6.3	4.5	1.6	8.2	100.0	22.3

Source: Same as for table C.
[a]These countries are listed in footnote 26.

Table E

SHARE OF WAGES IN VALUE ADDED
(Percentages)

	Textiles	Iron and steel	Non-ferrous metals	Metallurgy	Total manufactures
Developing countries[a]	26.3	23.2	22.3	26.6	20.8
Developed countries[a]	45.8	44.9	38.0	46.4	41.6
Developed countries except Japan	36.0	29.0	26.7	38.4	34.0
United States	50.0	53.0	43.0	45.2	44.0

Source: Same as for table C.

[a]These countries are listed in footnote 26.

Table F

WAGES IN DEVELOPING AND DEVELOPED COUNTRIES, BY BRANCHES OF INDUSTRY [a]
(United States = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metallurgy	Total manufactures
Developing countries[b]	21.3	9.7	23.0	20.0	17.3
Japan	45.5	29.1	41.0	44.4	44.3
Federal Republic of Germany	94.8	83.3	114.2	100.7	99.8

Source: Same as table C, plus I.B. Kravis, Z. Kennessey *et al.*, *A System of International Comparisons of Gross Product and Purchasing*, Johns Hopkins University Press, 1975.

[a]For method used, see footnote 29.
[b]For the list of countries, see footnote 26.

Table G

COMPARISON OF WAGE COSTS PER UNIT PRODUCED[a]
(United States = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metallurgy	Total manufactures
Developing countries[b]	58.8	37.3	34.4	53.9	39.3
Developed countries[b]	89.0	83.3	86.7	84.4	73.6
Japan	71.0	70.5	66.9	65.0	64.3

Source: Same as table C.

[a]The method of determination of productivity used is that described in the ILO study cited in footnote 31.
[b]For the list of countries, see footnote 26.

Table H

COMPARISON OF WAGE COSTS PER UNIT PRODUCED
(Manufacturing = 100)

	Textiles	Iron and steel	Non-ferrous metals	Metallurgy	Total manufactures
Developing countries[a]	106.2	121.5	98.4	140.3	100.0
Developed countries[a]	85.9	145.1	132.3	117.3	100.0
Japan	78.4	140.4	117.0	103.3	100.0
United States	71.0	128.1	112.4	102.2	100.0

Source: Same as table C.

[a]For the list of countries, see footnote 26.