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Review

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Notes and explanation of symbols

The following symbols are used in tables in the *Review*:

Three dots (...) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A blank space in a table means that the item in question is not applicable.

A minus sign (-) indicates a deficit or decrease, unless otherwise specified.

A point (.) is used to indicate decimals.

A slash (/) indicates a crop year or fiscal year, e.g., 1970/1971.

Use of a hyphen (-) between years, e.g., 1971-1973, indicates reference to the complete number of calendar years involved, including the beginning and end years.

Reference to "tons" mean metric tons, and to "dollars", United States dollars, unless otherwise stated.

Unless otherwise stated, references to annual rates of growth or variation signify compound annual rates.

Individual figures and percentages in tables do not necessarily add up to corresponding totals, because of rounding.

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International competitiveness: agreed goal, hard task

*Fernando Fajnzylber**

The topic of industrial restructuring and incorporation of technological progress is one with which both industrialized and developing countries are preoccupied, whether their economies are of the market or of the planned type.

The approach of the industrialized nations to this process is radically different from the one prevailing in Latin America. In the industrialized countries, industrial restructuring is intended to secure improved competitiveness, understood as a country's capacity to expose itself to the external market and to maintain or raise its people's living standards. In Latin America, in contrast, the basic aim, with a few recent exceptions, is to generate a sufficient trade surplus to service the enormous foreign debt; this does not necessarily lead to improved competitiveness and it often lowers the precarious standard of living of large sections of the population. This is the difference between competitiveness based on technological progress, which is what the industrialized nations seek, and competitiveness based on reduction of incomes.

There is a broad range of theories about the factors which initiated this process in the industrialized countries and about its consequences in the economic, social, political and cultural fields. Associated with this broad range of theories there is a similar variety of policy recommendations.

In this article the author seeks to outline the main features of the situation in the advanced countries. He examines the various factors which explain the process, with emphasis on the topic of international competitiveness. He also draws attention to the experience of some of these countries which may be useful in the regional debate.

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I

Underlying reasons for industrial restructuring

The various explanations of this process offered in the past decade differ in their identification of its main determinants, the links between them, and the way in which they affect the situation.

The following are some of the factors which are hard to ignore in a theory which seeks to embrace the topic of industrial restructuring in all its complexity: i) the dizzying rise in the price of oil in the past decade and its erratic subsequent movements; ii) the financial disorder and explosive increase in liquidity; iii) the saturation of the consumption pattern prevailing since mid-century; iv) the shift towards a new technological model based on "information technology" (IT); v) the dramatic improvement in the trade competitiveness of Japan and the new industrialized countries (NICs) of Asia in relation to the rest of the world; and vi) the exacerbation of the fiscal and external imbalances of the United States, the pivot and basic point of reference of the world's economic expansion in the post-war period.

Although of different kinds, these factors are interrelated and they have been subject to changing priorities in recent years. From 1973 attention was focused on the oil price hike and the uncontrolled expansion of liquidity, factors linked to each other through the recycling of the revenues of the oil-producing countries. Towards the end of the 1970s, when people became aware of the structural origins of the world economy's loss of vigour, the other factors were given greater attention. These factors were interrelated because the protagonists —Japan and the Asian NICs— had succeeded in the task of incorporating new internationally tradeable consumer goods and the plants and processes required for their production —the IT devised and developed by engineers in activities associated mainly with the United States space and military programme.

By the middle of the current decade the imbalances in the United States economy had reached unprecedented proportions. This underlined the precariousness of that country's growth

since 1983 which had served as the locomotive of the world economy.

There are several hypotheses on offer with respect to the causal relations between the factors described above. It cannot be denied that all of them must be taken into account in the formulation of policies for industrial restructuring. It must be recognized, however, that in the industrialized countries the question of competitiveness dominates the academic and political debate and the rest of the topic is organized around it. Industrial restructuring is understood in these countries basically as the need to adapt to the challenge of competition.

The school of thinking which focuses its analysis on technological change¹ maintains that the world will not emerge from the present cycle, characterized by an overall loss of vigour, without the introduction in the economic, social and political spheres of innovations which will incorporate and make full use of the new "technical economic paradigm". Some of its main consequences will be: i) reduced importance of economies of scale based on mass production using capital-intensive techniques; ii) greater integration within a company of the functions of design, production, purchasing, and research and development; iii) the capacity rapidly to change products and processes; iv) co-ordination of integrated networks of suppliers of parts and components, assembly plants, distributors and research and development laboratories, with major saving of capital; and v) emergence of new service activities associated with production (software, design, technical information) which can be carried out by small companies.

This line of argument calls for comment. Of course, the debate about the validity of the "welfare State" in the industrialized countries—and to some extent in the planned-economy countries—is a response to the "threat" of the increased international competitiveness of Japan and its Asian disciples. IT requires institutional changes and makes them viable, but there is clear awareness of the danger of increasing inability to compete in international markets.

¹See Schumpeter (1950), Mensch (1979), Freeman and Soete (1982, 1985), and Freeman (1987). A fundamental questioning of the validity of "long waves" will be found in Rosenberg and Frischak (1984), pp. 7-24.

Japan's astonishing assault on the world economy—specifically on the United States market—is due both to external and to internal factors. The most decisive external factor is the scale, vigour and openness of the United States economy in spite of the various protectionist pressures brought to bear at the sectoral level. The internal factors which explain the exceptional efficiency and speed with which Japan has incorporated IT in products and processes include: i) the capacity, at the national and company level, to identify areas of technology of strategic importance in the medium and long term; ii) the existence of institutional machinery capable of channeling to these areas enormous resources for investment and technological development; iii) the flexibility of the industrial structure, based in particular on the links between leading conglomerates and small and medium-sized industries; and iv) the systematic approach to the design of products and processes and the co-ordination of planning and manufacturing activities.

It is also true that the peculiar international financial system has a great impact on institutions—in addition to its direct influence on the real economy—for it even casts doubt on the independence of national States in determining their economic policies.

It could be argued that IT plays a cardinal role both in Japan and in the functioning of the international system, but this should not prevent recognition of the importance and specific nature of each of these phenomena. In turn, the subsequent development of the United States economy and its competitiveness in relation to Japan and the Federal Republic of Germany will have a great influence on the other factors. The "institutional" solutions adopted by the United States will determine to some extent the performance of the financial system, the nature of the restructuring which Japan and the Federal Republic have to undertake, the intensity and modalities of the mass extension of the use of IT, the management of a whole new consumption pattern, and, to a lesser extent, the movement of the oil market.

There now follows a brief comparison of the international engagement of these three countries, designed to establish a frame of reference for the subsequent discussion.

II

The international engagement of the leading industrial countries

The population of the three countries in question—the United States, Japan and the Federal Republic of Germany—accounts for about 9% of the world's population and is similar in size to Latin America's. However, their economic weight is very impressive, for they generate 40% of the world product, and their productivity is four times the world average. Furthermore, they account for one-half and about 75% respectively of the resources which the international community and OECD spend on research and development; their per capita expenditure under these headings is five times the world average.

For these reasons, the performance of these countries shapes the profile of the world industrial system and is representative of its main features. Leaving aside the current trade tensions, there is no doubt that the type of product and the manufacturing processes and methods prevailing in the world economy are the fruit of the interaction between these three countries, as are the institutional agreements and the access which other countries can have to the future evolution of knowledge in the various industrial sectors.

There are important differences between the United States on the one hand and Japan and the Federal Republic on the other (table 1). The United States possesses a much broader scientific production base. The ratio of its scientific writers to the population at large is seven times the world average, while in the Federal Republic it is four times and in Japan only twice that average. In clear contrast, the manufacturing output of these latter two countries, taken together, is already nearly 20% higher than the United States output, although their population is one-fifth smaller. The imbalance in the United States seems to be attributable to some degree to the volume of resources which it spends for military purposes, purposes for which Japan and the Federal Republic spend insignificant amounts, in compliance with the obligations imposed on them at the end of the Second World War.

Table 1

ECONOMIC AND TECHNOLOGICAL WEIGHT OF THE UNITED STATES, JAPAN AND THE FEDERAL REPUBLIC OF GERMANY IN ABOUT 1980

(Percentages of world total)

	United States	Japan	Federal Republic
1. Population	5.0	2.5	1.3
2. Gross domestic product	27.0	9.4	5.8
3. Manufacturing product	18.0	11.7	9.4
4. Capital goods	14.7	11.1	9.6
5. Engineers and scientists	17.4	12.8	3.4
6. Resources spent on research and technological development	30.1	10.2	6.7
7. Scientific writers	35.0	4.9	5.4

Source: ECLAC/UNIDO Joint Division, on the basis of data of the United Nations, UNIDO and UNESCO. *International Science and Technology Data*. Updated 1986, National Science Foundation and Current Bibliographical Directory.

It is worth noting that the ratio of engineers and scientists in Japan is five times the world average, while in the United States and the Federal Republic it is only three times that average, in very approximate terms. When it comes to numbers of lawyers, in contrast, first place belongs to the United States (279 per 100 000 inhabitants, as against 77 in the Federal Republic and 11 in Japan).²

Lack of natural resources is a structural datum in the cases of Japan and the Federal Republic, but the United States is generously endowed and has a territory of continental dimensions (table 2). Accordingly, the first two countries are obliged to secure a solid share of international trade in manufactures, which the United States views, in contrast, as a strictly supplementary and marginal factor, and it does not take very much interest in the allocation of sectoral priorities either. The people of the Uni-

²See *The Economist*, 22 August 1987.

ted States still hold the view, bolstered by the economic hegemony which their country exercised for 40 years, that their main market is the domestic one and that, although the relative importance of the various sectors may change over time, the system as a whole appeared, at least up to the end of the 1970s, little short of invulnerable. Several analysts confirm the dominance in economic, political and academic circles of an outlook focused on domestic problems (Branson and others, 1980; Lodge, 1986; Zysman and Tyson, 1983; Oxford Analytica, 1986; Lodge and Vogel, 1987).

The 1973 oil price hike placed an additional heavy burden on the three countries. However, in the cases of Japan and the Federal Republic, the higher energy bill was offset by growth in the

manufacturing sector's surplus. On the other hand, the United States energy deficit was aggravated by a considerable erosion — about US\$8 000 million between 1975 and 1981 — of its manufacturing surplus. Industrial performance was markedly better in Japan and the Federal Republic because these two countries had created a support base which enabled them to react flexibly and promptly to the signals of the forthcoming demise of the era of cheap energy.

The differences in the performance of the manufacturing sector were accentuated from the mid-1970s. Accordingly, by the middle of the current decade Japan and the Federal Republic had a joint trade surplus already close to US\$200 000 million in the manufacturing sec-

Table 2

UNITED STATES, JAPAN AND THE FEDERAL REPUBLIC OF GERMANY: TRADE BALANCES BY SECTOR OF ECONOMIC ACTIVITY

(Millions of dollars)

	1970	1975	1981	1982	1983	1984	1985
Agriculture:							
United States	631	12 069	25 344	19 728	16 518	13 307	3 659
Japan	-5 292	-13 931	-24 929	-23 508	-23 301	-25 776	...
Federal Republic of Germany	-5 774	-10 145	-13 441	-12 852	-12 868	-15 568	...
Manufacturing industry:^a							
United States	4 154	21 196	13 369	-3 942	-28 925	-82 377	-107 566
Japan	13 180	42 393	119 152	107 197	113 403	131 689	...
Federal Republic of Germany	14 424	39 338	62 317	68 174	59 013	60 235	...
Energy:							
United States	-1 480	-21 922	-73 974	-54 665	-50 349	-53 814	-45 759
Japan	-3 858	-25 432	-72 091	-65 306	-58 636	-59 989	...
Federal Republic of Germany	-1 616	-10 286	-32 723	-29 694	-26 694	-25 545	...
Mining:							
United States	-863	-1 295	-5 183	-3 426	-5 298	-6 424	1 302
Japan	-3 698	-5 734	-11 223	-10 388	-10 055	-10 554	...
Federal Republic of Germany	-2 343	-2 662	-3 835	-3 651	-3 231	-571	...
Other sectors:							
United States	196	640	758	-280	-1 268	188	-245
Japan	105	594	-2 168	-1 095	-877	-1 758	...
Federal Republic of Germany	-318	-431	-176	-712	375	171	...
Totals:							
United States	2 638	10 688	-39 686	-42 585	-69 322	-129 120	-148 609
Japan	437	-2 110	8 741	6 900	20 534	33 611	...
Federal Republic of Germany	4 375	15 814	12 142	21 092	16 595	18 722	...

Source: ECLAC/UNIDO Joint Division, on the basis of United Nations figures. *International Trade Statistics Yearbook*, 1970-1971, 1977, 1983 and 1984, and *Commodity Trade Statistics*, 1985.

^aManufactures includes SITC sections 5 to 8, except for division 68.

tor, while the United States had a deficit of over US\$80 000 million. The first two countries were the most important source of the world manufacturing surplus; but the United States was the country with the clearest manufacturing deficit.

In the early 1970s, the three countries had fairly modest surpluses of comparable orders of magnitude, although they were bigger in Japan and the Federal Republic. In barely 15 years, then, the relative position has been turned around. The United States, which at the end of the Second World War generated 60% of the world's industrial output, now finds itself in the mid-1980s in a subordinate position to the very two countries which stood in ruins at the end of that conflict.

At the beginning of the 1980s the international engagement of the United States was very similar to that of most of the Latin American countries. It was based on the farming sector, in which there was a considerable surplus. Under all the other headings the United States economy was in deficit, especially in the manufacturing sector, so that changes in the terms of trade became a matter of vital importance for the United States.

There are no reasons to suppose that the historical trend of the erosion of the terms of trade of the farm sector in relation to the industrial sector will come to an end. If the export and import volumes of agricultural and industrial goods remain constant, the United States will experience a growing deterioration associated with the evolution of the terms of trade at the world level. Thus, the preoccupation with this variable—until a few years ago considered part of Latin American folklore—is now affecting the country which leads the world economy.

There is broad agreement on the existence of a strong link between competitiveness, incorporation of technological advances, industrial vigour and increased productivity. Increased competitiveness is an inescapable necessity in a period of transition between two technological models and it is a decisive factor in the medium- and long-term changes in the relative position of countries in the international economy. This is why the efforts being made by the developed countries to improve their competitiveness in the industrial sector warrant from their respective governments a degree of priority similar to

that assigned to the most crucial political problems, a situation found in the past only in time of war. This is borne out by the importance which Europe attaches to its various regional programmes of scientific or technical co-operation.

There is less agreement about how to measure competitiveness and still less about how to increase it. There is agreement that the erosion of productivity which began two decades ago and which has been accelerating since the second half of the 1970s, especially in the United States, is fraught with serious potential consequences. However, there is wide disagreement about the reason for this decline and therefore about the most efficient means of reversing it.

The relative position of the three countries is the same in all seven of the alternative indicators of competitiveness considered in this article: Japan first, the Federal Republic second, and the United States last (table 3).

The research and development effort for civilian purposes is significantly greater in Japan and the Federal Republic, and several studies mention this fact as a possible reason for the different growth rates of competitiveness in the three countries. On the other hand, the dynamism of Japan's industrial exports has been overwhelming in the last few decades; their growth rate is double that of the overseas sales of the other two countries. Japan also leads the way in the share of products with the largest technological content in total exports of manufactures. It is no surprise, therefore, that in 1983 the Federal Republic's share in world sales of these products was the same as 20 years earlier, the United States share was equivalent to only 74%, and Japan's share had increased almost fivefold.

The next indicator used in this exercise relates more specifically to the competitiveness of the goods called engineering products, which are those with a high content of modern technology, as pointed out earlier. The exports/imports ratio for this kind of goods was nearly 4:1 in 1963 in the United States and West German economies but it was much lower in both countries in 1983, although more so in the United States. In Japan, in contrast, the ratio increased almost fivefold in the period.

The rate of increase of productivity, a decisive factor in the long-term evolution of competitiveness has weakened from the mid-1970s.

This phenomenon has been more intense in the United States, where the improvement had been slower in the previous period. The productivity growth rate in the two subperiods considered here is higher in Japan, followed by the Federal Republic, maintaining the constant situation observed in all the indicators (table 3).

This order applies not only to the level but also to the path of competitiveness, as can be seen from a comparison of the exports/imports ratio of manufactures in the three-year period 1979-1981. It is five for Japan, less than two for the Federal Republic, and barely one for the United States.

III

Determinants of international competitiveness

In the medium and long term, competitiveness is a country's capacity to sustain and expand its share of international markets and at the same time to improve its people's standard of living. This requires increased productivity and therefore the incorporation of technological advances.

International experience teaches that there is no "other way" to secure a solid improvement

in a country's competitiveness. It is true that in the short term devaluation of a country's currency improves the relative position of its business sector. However, this resort is of limited effectiveness because it does not in itself increase productivity or encourage the incorporation of technological advances. On the other hand, it tends to erode social cohesion, and this subse-

Table 3

INTERNATIONAL COMPETITIVENESS: VARIOUS INDICATORS

	United States	Japan	Federal Republic of Germany
R & D expenditure/GDP (1983-1984)	1.8 (3)	2.5 (1)	2.4 (2)
Percentage increase export manufactures (1983-1963)	7.9 (3)	18.4 (1)	9.3 (2)
Exports capital goods/total exports manufactures (1983) (percentage)	44 (3)	58 (1)	46 (2)
Exports capital goods/world exports capital goods (1983-1963) (percentage)	74 (3)	475 (1)	100 (2)
Exports capital goods/imports capital goods (percentage)			
1983	100	950	267
1963	383 (3)	200 (1)	380 (2)
Growth manufacturing productivity (percentage)			
1975-1981	1.7	8.7	3.2
1965-1973	2.8 (3)	11.0 (1)	4.2 (2)
Exports manufactures/imports manufactures 1979-1981	1.0 (3)	5.0 (1)	1.8 (2)

Source: ECLAC/UNIDO Joint Division, *Global Competition*, p. 100; United Nations, *Bulletin of Statistics on World Trade in Engineering Products*, 1983; *World Bank Report*, Productivity in industry, OECD, 1986.

quently works against the viability of more effective international engagement. It is natural that countries should endeavour to increase their international competitiveness by making use of the available cheap manpower and of subsidized lines of credit and to offset the small or even negative margins in the external market with high profits obtained in the protected domestic market, or to use specific tax exemptions, etc. They may achieve satisfactory profits in this way, but these profits will have little to do with an increase in the country's competitiveness, taken in the broad sense, even though the trade balance and the exports coefficient may also show improvements.

From a narrow perspective, it can be argued that Latin America has made great progress in its international competitiveness during the 1980s. But this progress appears spurious when a more integrated approach is taken, for there has been a decline in per capita income, a fall in investment coefficients, smaller expenditure on technological research and development and education, and erosion of real wages.

This is not to neglect the fact that in recent years some countries or sectors have achieved "genuine" increases in competitiveness—in contrast to what would be a "false" increase—based on improved productivity resulting from the incorporation of technological advances. Such a development is an important prelude to the accomplishment of effective modernization of the production apparatus.

The considerable increase in the trade surpluses of many of the region's countries has been achieved for the sole purpose of sustaining the large transfer of financial resources required by service of the external debt, and it has thus not satisfied any of the essential requirements of genuine modernization. It should not be confused therefore with the auspicious beginning of a process of sustained and solid improvement of the competitiveness of the Latin American production apparatus.

It has already been pointed out that in the short term the only policy tool which can affect a country's competitiveness quickly and substantially is the exchange rate. However, an analysis of the medium term will reveal divergent trends in the relative positions of the industrialized nations in international trade in manufactured goods.

What happened in the 1980s, with the erratic fluctuations in the dollar—sharp rise to 1985 and subsequent fall—demonstrates that, despite the marked variations in trade flows, the long-term trends persist, i.e., erosion of the industrial competitiveness of the United States, steady rise of Japan, and slight improvement of the Federal Republic. It must be concluded therefore that the differences in international engagement are due to a large extent to structural factors which also affect the modalities and results of the national strategies and the use which each country makes of specific tools of economic and industrial policy.

There now follows an attempt to identify some of the factors which explain the countries' different competitiveness in the industrial sector.

1. *The rate of investment*

The investment coefficient goes far to explain increased productivity (Denison, 1980). Countries with sluggish investment rates experience a decline in their productivity growth rate and therefore in their competitiveness, as demonstrated by the experience of Japan, the United States and the United Kingdom in the past three decades. Japan and the nine industrialized countries of Asia demonstrate that increases in the investment rate translate into considerable improvements in competitiveness.

2. *Allocation of investment resources*

Industrial restructuring implies the movement between sectors of large volumes of investment resources, a process involving companies, the financial system and the public sector, and one which has different characteristics in each country, depending on the relative importance of the various actors and their mutual relationships (Zysman, 1984).

In the United States and the United Kingdom the level of corporate debt to the financial system is substantially lower than in Japan, the Federal Republic and France (table 4). In the first two countries, the capital market determines the destination of savings, including those generated in the companies themselves, which may be used for investment, financial specula-

Table 4

**DEBT COEFFICIENT/COMMERCIAL VALUE OF THE ASSETS OF THE
NON-FINANCIAL BUSINESS SECTOR**

(Percentages)

Country	1966- 1973	1974- 1979	1980	1981	1982	1983	1984	1985
United States	0.54	0.96	0.77	0.92	0.87	0.78	0.90	0.83
Japan	3.08	3.31	3.14	2.91	2.92	2.68	2.11	1.82 ^a
Federal Republic of Germany ^b	2.38	3.36	3.85	4.13	4.11	3.48	3.42	2.39
France	1.17 ^c	1.33	1.23	1.40	1.55	1.56
United Kingdom	0.67	1.38	1.13	1.23	1.03	0.87	0.74	0.70 ^a

Source: ECLAC/UNIDO Joint Division, on the basis of Bank for International Settlements, *Fifty-Sixth Annual Report, April 1985-March 1986*.

^a Estimates.

^b All businesses, except for housing sector.

^c 1970-1973.

tion or personal consumer loans. In the other countries, in contrast, a specific percentage of investment resources (large projects) is allocated in accordance with sectoral priorities determined institutionally by the banking system or the public sector, i.e., regardless of who has generated the savings (table 5).

*3. The labour market
and the "welfare State"*

Industrial restructuring implies relocations which inevitably involve high human and economic costs. This invests with great importance the question of the "rigidities in the labour market", which has led to the questioning of the "welfare State" (Pfaller, 1987; Daudestadt, 1987).

The decades of growth and prosperity created an institutional system which complemented and reduced the effects of the free play of market forces. Through the establishment of minimum wages, the introduction of wage indexing, the payment of unemployment and other social-security benefits, the implementation of training programmes, and the granting of regional subsidies, this institutional system provided protection and support for the relatively disadvantaged social groups, production sectors and geographical areas. The constant expansion of this system, which was funded partly by business, has seriously undermined

microeconomic-social efficiency, rendering it incompatible with the demands of international competitiveness.

The problem is that this "welfare State" also provided benefits of the macroeconomic-social kind, which acquire special importance in the times of structural change. They include the social legitimacy of the institutions, which promotes social cohesion, and the existence of an advanced education system and therefore of a highly qualified labour force. It may be added that it is difficult to perceive through aggregate indicators the true nature and dimensions of the "welfare State". More important than the quantitative weight of the public institutions is the

Table 5

**TYPOLGY OF FINANCIAL-INDUSTRIAL
SYSTEMS**

Country	Industrial financial system
Japan, France	Regulated lending with controlled prices
Federal Republic of Germany	Regulated lending by the banking system
United States, United Kingdom	Capital market

Source: J. Zysman, *Governments, Markets and Growth: Financial Systems and the Politics of Industrial Change*, Cornell University Press, 1983.

kind of relationship established between them and the business and labour sectors. Furthermore, despite the revival of "pre-Keynesian" rhetoric the quantitative weight of the public sector and of social security in industrialized countries has not declined (tables 6, 7 and 8).

The most substantial differences are between Japan and the United States, even though in both these countries the economic weight of the public sector is relatively small in comparison with the situation in European countries. These differences are due to the opposite methods of integration between the public and private sectors, which manifest themselves in sharp differences in the use of policy tools by the Japanese and United States authorities.

The European labour market has acquired considerable flexibility during the 1980s. Wage indexing has been adjusted (Italy, Belgium and France) or abolished (Denmark); part-time work has been encouraged (France and Federal Republic); unemployment benefits have declined in relation to average wages (Denmark and United Kingdom), as have social-security contributions (France, Denmark, Belgium and United Kingdom). Furthermore, part-day working and early retirement are encouraged (Netherlands, Belgium and Federal Republic) and attempts are made to erode administratively (United Kingdom) the role of trade unions in wage negotiations (BIS, 1986). However, the aggregate effect of this process of gradual "flexibilization" has not been, contrary to expectations, to reduce the importance of the public sector in the economy.

4. *Industrial relations*

There is increasing agreement concerning the effect on productivity of management-labour industrial relations at the level of the plant and the industrial sector, as well as at the national level. Despite the differences in institutional modalities, it can be systematically demonstrated that a lower level of conflict in these relations promotes increased productivity. This is demonstrated by the experience of Japan and of the Western European countries in general, in contrast to the experience of the United States and the United Kingdom, where industrial relations are more contentious.

This question acquires greater importance in a period of industrial restructuring when a new technological model is coming into being which requires the constructive co-operation of the various economic, social and political actors in order to "absorb" and distribute the cost of the structural adjustment (Piore, 1986; Brown and Bennett, 1986).

5. *Business organization*

The intensification of international competition, the emergence of a new technological model, and the rapid changes in market preferences are the reasons for the clear trend towards innovation both within the organizational structure of business and in relations between companies. In both cases, vertical hierarchical relations are being replaced by relations of horizontal co-operation. The basic criterion is the achievement of the flexibility which makes it possible to incorporate technological innovations at the right time and to adapt to the changing conditions of demand, in a context of increasing international competition.

The initial premise is that co-operation and compromise amongst people working at the various levels of a company are a decisive factor in securing productivity increases. This applies from the design to the quality-control phase (Arnold and Ken, 1987; Drucker, 1987a and 1987b). From the standpoint of the organizational plan, it means reducing the number of vertical levels and strengthening the horizontal integration at every level.

Co-operation between companies, which takes very diverse forms, has tended to intensify in a context of increasing unification of the international market with respect to supply, demand and technological assets. Some of the more interesting manifestations of this phenomenon are described below.

i) Networks of companies. Assemblers, suppliers, marketers and technological research centres are linked, under flexible agreements, with central co-ordinating offices dealing with finance, advertising and corporate strategy.

ii) Research and development co-operation arrangements between European companies and governments (EUREKA programme).

Table 6

**EMPLOYMENT IN THE PUBLIC ADMINISTRATION AS A PERCENTAGE OF
TOTAL EMPLOYMENT**

Country	1960	1975	1980	1985	Average				
					1960- 1967	1968- 1973	1974- 1979	1980- 1985	1960- 1985
United States	15.7	17.8	16.5	15.8	16.7	17.8	17.0	16.2	19.9
Japan	...	6.5	6.7	6.4	6.5	6.6	...
Federal Republic of Germany	8.0	13.9	14.9	16.0	9.4	11.6	14.2	15.6	12.4
France	13.1	14.3	15.6	17.8	12.9	13.4	14.7	16.7	14.3
United Kingdom	14.8	20.8	21.1	21.8	15.5	18.5	20.9	21.9	18.9
Italy	8.7	14.0	15.0	15.8	9.9	12.3	14.5	15.5	12.8

Source: ECLAC/UNIDO Joint Division, on the basis of OECD, *Economic Outlook, Historical Statistics 1960-1985*.

Table 7

TOTAL PUBLIC EXPENDITURE AS A PERCENTAGE OF GDP

Country	1960	1975	1980	1985	Average				
					1960- 1967	1968- 1973	1974- 1979	1980- 1985	1960- 1985
United States	27.0	34.6	33.7	36.7	28.3	31.0	32.6	35.6	31.6
Japan	...	27.3	32.6	32.7	...	20.2	28.4	33.3	26.1
Federal Republic of Germany	32.4	48.9	48.3	47.2	35.7	39.8	47.5	48.4	42.3
France	34.6	43.5	46.4	52.4	37.4	39.0	43.7	50.6	42.3
United Kingdom	32.3	46.3	45.1	47.8 ^a	34.7	39.9	44.4	47.0 ^a	40.8
Italy	30.1	43.2	46.1	58.4	31.9	36.0	42.9	54.2	40.5

Source: ECLAC/UNIDO Joint Division, on the basis of OECD, *Economic Outlook, Historical Statistics 1960-1985*.

^a1984.

Table 8

SOCIAL SECURITY EXPENDITURE AS A PERCENTAGE OF GDP

Country	1960	1975	1980	1985	Average				
					1960- 1967	1968- 1973	1974- 1979	1980- 1985	1960- 1985
United States	5.0	11.1	10.9	11.0	5.4	7.7	10.3	11.3	8.4
Japan	3.8	7.7	10.1	11.0	4.1	4.8	8.4	10.8	6.8
Federal Republic of Germany	12.0	17.6	16.5	16.1	12.4	13.2	26.7	16.8	14.6
France	13.5	20.4	23.2	26.4	15.5	17.2	21.0	25.4	19.4
United Kingdom	6.8	9.9	11.5	14.0 ^a	7.3	8.8	10.5	13.2 ^a	9.6
Italy	9.8	15.6	15.8	19.5	11.1	13.0	15.4	18.5	14.2

Source: ECLAC/UNIDO Joint Division, on the basis of OECD, *Economic Outlook, Historical Statistics 1960-1985*.

^a1984.

iii) Co-operative efforts in research and development and co-production between companies in the automotive sector of the United States, Japan and Europe.

iv) Co-operative research and development arrangements between semiconductor manufacturers in the United States, with emphasis on production engineering. Agreements of this kind have long been common in Japan, led by MITI; perhaps the most significant development has been the 20-year programme to tackle the "IBM challenge".

v) In the sectors most vulnerable to "fashion", there are arrangements under which competition at the model-exhibition stage coexists with co-operation at the production stage, once the market has determined the "winners".

In turn, the proliferation of co-operation arrangements among multinational corporations is due in part to the increasing cost of product and process development, and to the need to adapt to sudden shifts in exchange-rate parities. The multinationals seem to have realized that at the present time technological know-how and occupational skills are distributed fairly evenly among the industrialized countries; accordingly, any stage of the production process can be carried out in any place. They therefore find it convenient to build plants or sign agreements with companies in other countries of the various regions, a procedure which also helps to overcome any protectionist barriers.

6. The infrastructure of education, research and development

There is unanimous agreement that this aspect is a vital requirement and component of any industrial restructuring which incorporates suitable technological advances. This is the reason for the increase since the end of the 1970s in the volume of resources allocated to research and development in the industrialized countries, and for the awareness that it is essential to adapt the education system to the new requirements.

One interesting difference between the countries is the volume of research and development resources allocated to the military industry and the evaluation of its impact on competitiveness. The debate about the collateral effect of

these investments on the whole of the industrial sector is far from exhausted. Coexistence would seem possible, at least for specific periods, between low levels of activities having radically different challenges, processes, time-frames and organizational forms. In military matters priority is given to the determination of objectives and targets rather than time-frames, and economic constraints play an obviously smaller role. The possibility of long-term programming is very far from established in the industrial and trade world, where the main theme is flexibility and the capacity for rapid adaptation to the changing trends of international trade. Furthermore, competition is less intense and time-frames are longer in the military sphere. The replacement of successive generations of "products" and "differentiation" within each generation are not determined, unfortunately, by their actual performance in use. The military complex has the ability to attract the most outstanding scientific and technological talents, for it can provide them, in addition to high pay, with a secure and calm environment in which they are not under pressure to produce results in the short term.

This is why the group of developed countries which has channeled significant resources to the military has low levels of industrial competitiveness with respect to conventional products; the highly industrialized group of countries which allocates hardly any resources to defence leads the way in international industrial competitiveness in these products.

In the mid-1980s the manufacturing surplus of Japan, the Federal Republic and Italy, the three losers in the last world war, was close to US\$220 000 million. On the other hand, the three victorious Powers had a deficit of around US\$120 000 million, 75% of which belonged to the United States. In general terms, the countries which suffered military defeat in that war are fuelling the deficit both of the victorious countries and of the rest of the world, and primarily of the developing nations.

There is an uneven inverse relationship between the volume of expenditure on defence as part of GDP and the degree of international competitiveness, measured in terms of the size of the manufacturing surplus or deficit in relation to the manufacturing product (figure 1).

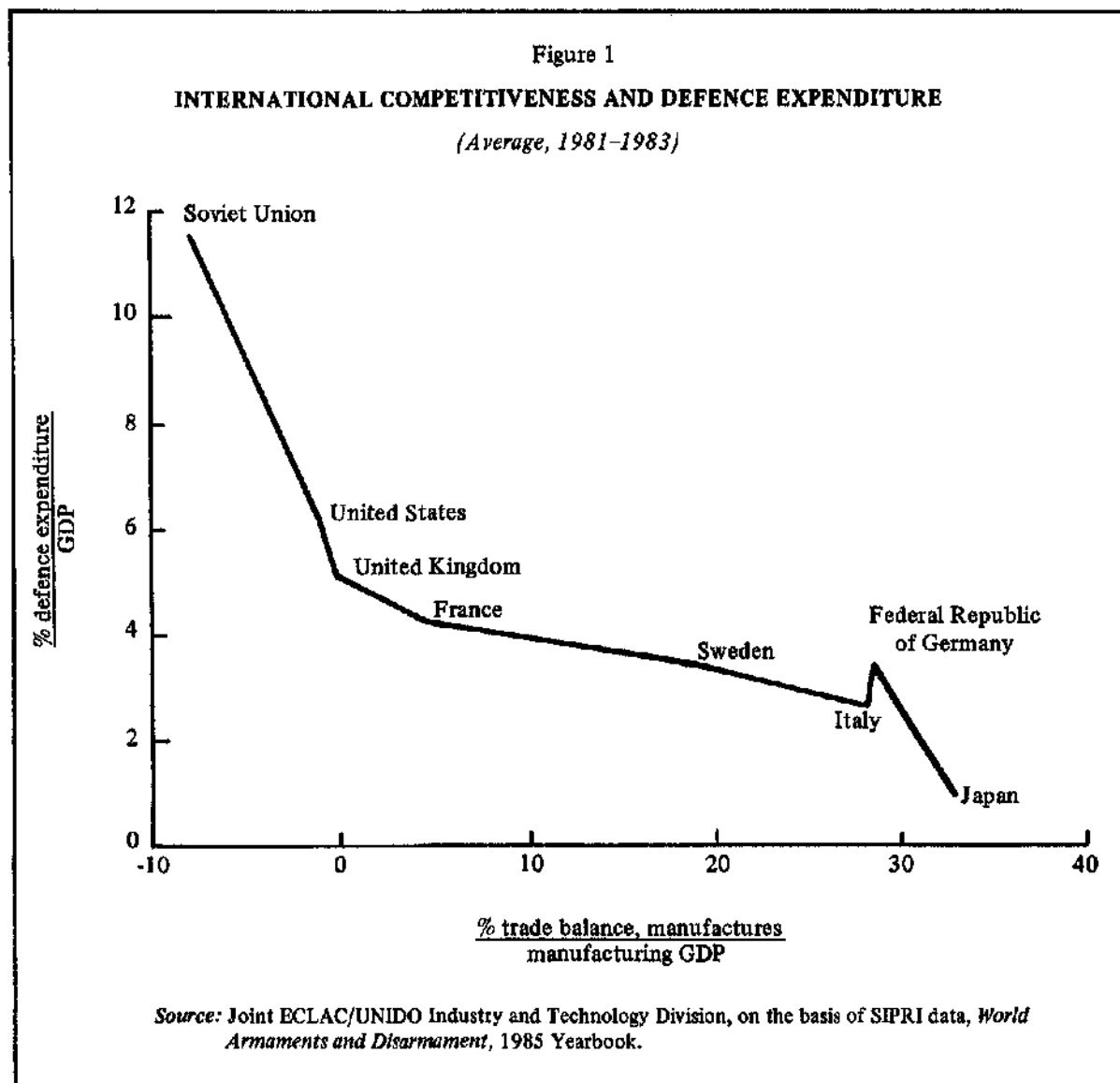
The Soviet Union and the United States are at one extreme and the Federal Republic and Japan are at the other, leaving the United Kingdom, France, Sweden and Italy in the middle. The multiplier effect of defence expenditure on international industrial competitiveness appears to be negative, despite what conventional wisdom says.

A disarmament agreement between the United States and the Soviet Union would free a large part of the resources used for military purposes. And if figure 1 describes the trend for each country correctly, these two countries will retrace the curve towards increased industrial competitiveness — a key factor in tackling their

respective external deficits. Such an agreement, therefore, would not only have a beneficial impact on the gloomy collective perception of mankind's future, but would also encourage the restoration of balances in trade and financial flows.

*7. The sectoral structure
and the incorporation of
technological advances*

There is a surprising positive correlation between lack of natural resources and level of competitiveness in the industrial sector. Those countries which lack the "easy" source of foreign



exchange offered by natural resources have no other alternative than to opt for the "building" of comparative advantages in the manufacturing sector. The experience of Japan, the Federal Republic and Italy is instructive in this respect. It contrasts with the experience of the United States, the Soviet Union and the United Kingdom, countries which are well endowed with natural resources or which ensured low-cost supplies from their colonies.

The Nordic countries are a special case combining a generous supply of natural resources and high competitiveness due to high levels of specialization in equipment and processes for the extraction, processing and finishing of such resources (agriculture, forestry, fisheries and energy, in the case of Norway). These are small countries for which specialization is a necessity and in which the "welfare State" coexists with an extremely open foreign-trade policy. Furthermore, they take the view that the quest for full employment does not necessarily undermine competitiveness, the maintenance of which is in turn a requirement for sustaining the levels of prosperity. The unemployment rate is maintained at around 3% in Sweden, Finland and Norway, whereas the average for Western Europe as a whole is about 10%.

Italy offers a special example of industrial restructuring, for it does not follow the prevailing model—based on the electronics and chemical axes—imposed by the United States, Japan, and the Federal Republic. In addition to making significant progress in these areas of intensive technology, Italy manages to maintain its international position by increasing its standards of excellence in sectors which, both from the "common sense" standpoint and from the academic standpoint—which rarely coincide—seemed condemned to be "losers" owing to the increasing competition from the Asian NICs (Piore and Sabel, 1983 and 1984). Accordingly, the textiles, clothing and footwear branches, which have been practically dismantled in the other industrialized countries, remain vigorous in Italy and achieve high productivity which enables them to consolidate their positions not only in the European Common Market but also in the United States (Piore and Sabel, 1983 and 1984; Ribeiro and others, 1987).

Small and medium-scale industry plays a more important quantitative role in Italy than in the other European countries considered here, in particular the Federal Republic, Sweden, the United Kingdom and France. Of greater significance is the average increase in this sector's productivity from the 1970s, a variable which in a fairly broad range of industrial groupings seems to resemble that of big business. This contradicts the conventional view that there are structural differences between the two sectors, i.e., insuperable differences, with respect to productivity, which are associated with economies of scale and technological rigidities. This phenomenon enabled Italy to achieve a very respectable position in areas such as textiles, clothing, footwear, wooden furniture and certain types of machinery—particularly for specific uses and notably for foodstuffs—in which economies of scale are not significant.

The modernization of traditional sectors, whose disappearance was supposed to be inevitable, and the large increase in productivity in small and medium-sized businesses in a broad range of sectors are features which invest the Italian example with particular importance with respect to the options available to the Latin American countries; this of course does not mean setting them up as paradigms.

Italy's dramatic restructuring in the past decade has been due only partially to the need to counteract the pressure from labour organizations, which take as their reference point the prevailing wage levels in the most capital-intensive sectors (automobiles, chemicals and iron and steel). Accordingly, the increased productivity is not only compatible with wage pressures but also, up to a point, caused by them. This is a concrete example of the approach which combines increased competitiveness with higher productivity and technological progress (Antonelli, 1987).

France, whose industrial growth during the period has been only slightly lower than that of the Federal Republic and Italy, is undergoing changes in its industrial production profile which also differ from the classic cases of the three biggest countries. The electrical machinery and electronics sector leads the way. At the same time other groupings, some of them making

intensive use of manpower, others of natural resources or capital goods — non-metallic minerals, iron and steel, non-ferrous minerals, metal products, textiles, leather and wood— are undergoing what has become called deindustrialization. The overall result is accelerated growth of manufacturing industries, intensive structural change, and specialization in electrical and electronic equipment — nuclear energy, aeronautics, railway equipment, telecommunications and armaments— a process which receives vigorous support from the use of the purchasing power of the public sector. (Boyer, 1983a and 1983b; Boyer and Mistral, 1983; Lodge and Vogel, 1987; Messine, 1984 and 1985; McCormick, 1987.)

8. The use of policy tools and the institutional dimension

In order to illustrate the importance of the different national approaches to the design and use of policy tools which affect the industrial sector, there now follows a brief comparative analysis of Japan and the United States.

Like the rest of the world, Japan takes as its reference point the consumption pattern prevailing in the United States. It does this for the fundamental purpose of producing the goods which that country demands, but on more favourable terms with respect to cost and quality. The United States has thus become the main target of Japan's production and export strategy. However, the Japanese have adopted a number of domestic safeguards to ensure that the spread of this model (in any event gradual) does not impede the attainment of Japan's fundamental growth targets. "Modernity" is reproduced but its rate of absorption is restrained, in order to keep it in line with the strategic objective of domestic growth and therefore of improved competitiveness.

Automobiles and housing play a crucial role, in both quantitative and qualitative terms, in the United States consumption pattern. It is no surprise that the importance of these items of personal consumption has been steadily increasing over time, in step with rising incomes. The Japanese authorities have been taking action to impede or delay the reproduction of this consumption pattern in their domestic market. For this purpose they use a policy designed systemat-

ically to restrain consumption and stimulate saving, with respect both to housing and to the purchase of consumer goods, mainly durables. Whereas in the United States interest on savings accounts is taxed and interest on consumer loans is exempt from tax, exactly the opposite is the case in Japan. With respect specifically to housing, United States lending institutions are able to offer a lower interest rate than the banking system, in addition to the fact that interest on home mortgages is exempt from tax, even in the case of the second or third family home. In Japan, housing loans are severely restricted, and people have to make a systematic and prolonged effort to save; until their savings reach the required amount, the funds are available for investment.

The saving habit is also encouraged by the method by which businesses pay their employees, which includes sizeable quarterly bonuses which can represent up to a quarter or a third of actual earnings. Furthermore, the pensions system is based on the contribution of a single large lump-sum, another factor which encourages the saving habit. The poor cover provided by the Japanese social-security system prompts families to set aside large sums for old age or health contingencies (McGraw, 1986). In addition, deposits to individual or family accounts can be made at all post offices. The willingness of the Japanese to save is not therefore due to cultural factors, at least not entirely. It is encouraged by mechanisms which guarantee that these savings are channeled into investment. The financial intermediation system, although privately owned, is regulated directly by the Bank of Japan and the Finance Ministry. They require specific percentages of available resources to be channeled to the sectors of high capital intensity, to which the country has decided to give priority. Until quite recently, the control system severely restricted the exit of capital from the country. In other words, the savings remained in Japan and were channeled, at least in specific proportions, to priority sectors. This policy has been applied under successive sectoral programmes whose main goal is to consolidate the virtuous circle of growth with competitiveness.

Factors which are completely absent from the experience of the United States play a significant role in the establishment of a highly com-

petitive industrial system in Japan. These include all the measures designed to promote the acquisition of foreign technology by means of co-operation between different companies and co-ordination of their efforts in accordance with the sectoral priorities established by MITI. The keystone of this strategy is the so-called "reverse engineering", which means the purchase of technologically advanced goods with a view to dismantling, reconstructing and improving them within the country.

In addition, and unlike the other advanced countries and the countries of Latin America, the Japanese authorities adopted an extraordinarily restrictive policy with respect to foreign investment and manufacturing activities, for they considered that the domestic market was the principal learning base for the country's industry. To hand it over to foreign companies would represent a serious threat to the capacity of domestic companies to acquire the necessary know-how and subsequently to invade external markets. Furthermore, the familiar Japanese policy of import controls encouraged domestic competition among Japanese companies, although within the framework of a captive market.

Another relevant factor is the sectoral component of fiscal policy, which dates from long ago in the case of Japan. Since the Meiji era, the public sector has performed with great realism the function not only of ensuring macroeconomic balances but also of allocating specific roles to specific areas—shipbuilding, railways, mining and silk textiles—to which priority had been assigned. This is fundamentally different from the concept of macroeconomic policy prevailing in the other industrialized countries. They, and particularly the United States, adhere to the principle of intersectoral neutrality, arguing that priorities must be determined by the market.

The priority which the Japanese State accords to the industrial sector also emerges clearly in taxation policy. Within the industrial sector, moreover, priority is given to the areas which demonstrate the highest level of technological change or the potential to boost the domestic or international market. In 1981 the taxes-sales ratio for all economic activities in Japan stood slightly higher than in the United

States (1.9% versus 1.1%). In the United States the taxes-sales coefficient in the chemical and heavy machinery industries was three times the overall ratio; in Japan, the respective coefficients were 1.5 and 1.8. In contrast, in the United States the financial sector bore a tax burden of 1.4%, while in Japan the figure was 2.3%. In other words, the overall tax rate was slightly higher in Japan, but significantly lower in areas of industry with a high technological content, and higher in the financial sector.

As a result, and without disparaging the cultural or religious factors, it can be asserted that everyday economic life is affected by factors which explain Japan's peculiar industrialization profile and much of its success in reconciling growth with equity. The frequent references to Confucius in explanation of the "success" of South-East Asia are hard to reconcile with the fact that until quite recently attempts were made to explain China's backwardness by alluding to that same personage.

Where equity is concerned, it is worth noting that the greatest advances were achieved during the occupation of Japanese territory by United States troops. During that period the power of the big conglomerates weakened and the ownership of agricultural land and big urban properties were redistributed (Mizoguchi, 1985).

It is interesting to note that these crucial differences between specific tools of economic policy have come about despite the fact that the relative size of Japan's public sector is similar to that of the United States. In both economies the importance of public expenditure and the role of public enterprises in industrial production are more modest than in any of the European industrialized countries, particularly the Federal Republic of Germany. This apparent institutional similarity conceals fundamental differences of approach in the use of public sector instruments. Moreover, the Japanese industrialization model has several elements in common with that of the Federal Republic. However, the relative weight of the public sector, both in the gross domestic product and in industrial sector companies, is considerably higher in the Federal Republic.

Aggregate volumes are therefore a very inadequate datum for the purposes of acquiring a better understanding of the role of the State in a

country's industrialization. The almost symbiotic relationship between the State and the big business groups in Japan renders unnecessary any larger direct presence of the public sector in production activities. The low quantitative importance of the Japanese State has little to do with the phenomenon, at first sight a similar one, observed in the United States economy, where there is virtually no interaction between the public and private sectors (Lodge and Vogel, 1987). In contrast, the relationship between the public sector, financial intermediation and the

industrial sector in the Federal Republic is much more like the Japanese situation, although the impact of the State on the economy is substantially smaller in the Asian giant (Zysman, 1984).

The public deficit has represented about 5% of the product in recent years both in the United States and in Japan. But, while in the United States the deficit is equivalent to total net private savings, in Japan the ratio is barely 35%. The weight of the public sector and the relative size of its deficit are therefore similar, but their effects are very different (McGraw, 1986).

IV

Competitiveness and post-Keynesian policies

It is clear from the foregoing that it is not only companies which compete in the international market. It is also a field of confrontation between production systems, institutional structures and social organs, in which business is an important element but one integrated in a network of relations with the education system, the technological infrastructure, management-labour relations, the public and private institutional apparatus, the financial system, etc.

In the industrialized countries the debate about improved competitiveness takes place within a framework of institutions whose legitimacy no one questions. Moreover, the level of social cohesion is fairly high. The consumption pattern and the stock of technological knowledge have been dispersed and homogenized. Their international engagement is based on the manufacturing sector.

In order to increase their competitiveness, the governments of these countries promote programmes to support the advanced technology sectors and adapt and invigorate the system of education, research and development, implementing preferential programmes to support small and medium-scale industry, creating favourable conditions for co-operation between companies and between companies and the pub-

lic sector, encouraging the reform of the system of industrial relations, and studying public investment programmes for improvement of the infrastructure, with emphasis on telecommunications. The business sector, in turn, explores new forms of organization and of association with the academic sector and with venture capital, and it tests various modalities of industrial relations, with a view to motivating the workers and encouraging their co-operation; businesses also develop the most varied forms of co-operation among themselves and with governments and regional groupings, especially in research and development.

We are thus witnessing the creation of strategies which can be described as post-Keynesian (Freeman, 1987). This phenomenon, which is far from exhaustion, coexists with a rhetoric and practice of an aggressive pre-Keynesian type. The institutional structure of the advanced countries—which guarantees the various social and political actors the right to participate actively in the defence of their positions—ensures that pre-Keynesian policies do not impede the rise of post-Keynesian ones.

In the light of our analysis, the most likely development is that the post-Keynesian strategy will shape the framework for economic developments in the coming decades.

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