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# Transnational corporations *and structural changes in* industry in Argentina, *Brazil, Chile and Mexico*

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The central focus of this article is on the role played by transnational corporations in the industrial realignment of Argentina, Brazil, Chile and Mexico between the end of the import substitution stage and the early 1990s. Based on recently published studies dealing with the sweeping changes occurring in Latin America's manufacturing sector following the region's economic crisis and liberalization process, a computer programme developed by the ECLAC Division of Production, Productivity and Management has been used to examine the changes that have taken place in the sector's production structure (sectoral composition and efficiency) and its linkages with the global economy. In order to bring out the influence of the role played by transnational corporations in these processes, manufacturing activities have been classified and analysed on the basis of whether these corporations have played a "leading", "supporting" or "marginal" part in those processes. Using this classification of industrial sectors, the authors were able to demonstrate that the transnational corporations' reactions and the industrial realignment process exhibited quite different modalities in each of the countries studied. These modalities or "styles" have been shaped by a combination of three groups of factors which are specific to each country: structural aspects, macroeconomic variables and institutional elements.

## I

## Introduction

This article examines the role played by transnational corporations (TNCs) in the structural realignment of the manufacturing sector in Argentina since 1978, in Brazil since 1981, in Chile since 1973 and in Mexico since 1982. The different years given for these countries correspond to the first year following the stagnation of industrial activity in each country under the import substitution "model".<sup>1</sup>

Almost all the big TNCs currently in operation in the region's manufacturing sector were founded during the import substitution stage. The presence of foreign capital on a very large scale in the course of that process facilitates a combined analysis of the structural changes occurring in the region's industries and the part played by TNCs in bringing about those changes. The cases of adjustment or retooling within the context of crisis situations and trade liberalization processes coincide with the broader history of the realignment of these countries' manufacturing systems. Indeed, they actually define many of the central features of that realignment.<sup>2</sup>

The article is based on five fully complementary premises:

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<sup>1</sup> This article was written prior to the crisis that swept over Mexico in December 1994, and it therefore analyses the trends observed in the economies in question only up to 1993. This consideration also applies in the case of Brazil, since the article does not cover the possible influence of the Cardoso Plan (July 1994) on the manufacturing sector's international competitiveness, particularly as regards the effects of trends in the exchange rate.

<sup>2</sup> From an analytical standpoint, TNCs stand apart from other Latin American industrial firms primarily because of two characteristics. The first of these is their sectoral placement (in the more technologically intensive branches that enjoy the most rapid growth in the world economy); the second is the readiness with which they tend to respond to abrupt changes in the macro-economic and institutional environment by abandoning or cutting back on their production activities, moving back into those activities or changing their production functions.

*First:* These four countries' realignment processes exhibited very different modalities or styles. Their main differences lie in what happened to their capital goods and consumer durables industries, which are precisely the sectors in which foreign capital has predominated. In very broad terms, the argument made here is that Chile underwent a process of de-industrialization together with an intense, outward-oriented re-specialization effort (skyrocketing imports and exports); Argentina embarked upon a rationalization and re-specialization process entailing the "de-sophistication" of its manufacturing complex and a steep rise in imports (all this also led to de-industrialization, of course: the term "de-sophistication" will be used here to differentiate the Argentine case from that of Chile, in view of the greater size and complexity of the surviving industrial complex in Argentina); Mexico's realignment took the form of a radical "northward" integration of its manufacturing sector; while Brazil's adjustment has thus far been of a rather "defensive" nature, with the tendency being for it to preserve the production matrix left over from the import substitution model (although with some loss of technological density).

*Second:* Transnational corporations have played a leading role, in all four of the countries examined, in bringing about many of the changes that have shaped the manufacturing sectors' four different styles of realignment following the crisis of the import substitution model. They behaved differently in each of these four countries, and this is what determined the countries' different styles of industrial realignment.

*Third:* The relative importance of TNCs can be determined in each case by looking at their sectoral placement. They played a major role in shaping these styles through the actions they took in the sectors in which they were most heavily involved during the period of import-substitution industrialization (ISI) (capital goods, "modern" consumer durables, chemicals/pharmaceuticals), whose adaptation to the changing times generated sweeping –though not always favourable– transformations. They played a supporting role in reinforcing major changes in the food industry

and in branches producing intermediate commodities (basic chemicals/petrochemicals, metallurgy/iron and steel, paper and pulp), most of which have expanded very swiftly. Their involvement in the (often adverse) changes experienced by traditional sectors (construction materials, textiles, wearing apparel, wood and furniture), however, was almost always of a marginal nature.

*Fourth:* The more general aspects of the ways in which TNCs have influenced these four national styles can be gleaned from an examination of the extent to which they continued their production activities in each country and the ways in which they did so. In broad outline, the four cases may be summarized as follows: in Chile, TNCs abandoned most of their former production activities in the metal products and machinery and the electrical equipment and electronics industries; Argentina also witnessed a reduction in TNC production activities in these areas, either because they were abandoned or because their import coefficients rose steeply; in Mexico, TNCs served as key agents for the country's integration with the United States by expanding or reducing the size of these branches of industry as needed and boosting their import and export levels sharply; and in Brazil, TNCs took a basic strategic decision to carry out an adjustment that would allow them to maintain their production units' strong presence in those branches' large local markets, thus opening up the economy to a lesser extent than in the other cases.

Important differences between countries are also to be observed in those sectors where the TNCs have played a "supporting" role. One such difference has to do with the intensities and degrees of sectoral diversification of the chemicals and petrochemicals, wood pulp, iron and steel, basic metallurgy and non-traditional food sectors in each country; another relates to the differing extents to which TNCs have taken part in the development of these branches of production in each country.

*Fifth:* The mode (or style) of response of TNCs in each country and each style of industrial realignment are the result of a combination of three groups of factors within each country: structural aspects, macroeconomic variables and institutional elements.

It is important to make the point, from the very start, that the premise of four different styles does not mean overlooking another central element in the recent changes seen in Latin America's manufacturing sector as a whole, namely, the existence of a number

of basic traits that are shared by the principal countries of the region, i.e., relative weakening of the industrial complexes in the metal products and machinery, electrical and electronics, and textile sectors together with a relative strengthening of natural resource-based branches of industry (Katz, 1994); a low level of physical investment and intensive streamlining of production activities; and a sharp rise in export and import coefficients. All these similarities notwithstanding, the specific ways in which the above trends have unfolded in each country have been so distinct in terms of their intensity, timing, speed, future prospects and determinants that these four cases can justifiably be described as clearly differentiated "styles" of adjustment.

The fact that more than twelve years have passed since the end of the import substitution-based stage of growth provides us with an opportunity to adopt a structuralist approach in analysing the changes that have occurred in each country since that time. Within this structuralist framework, in this article we will place priority on the analysis of processes of change in the composition and degree of modernity of the various production systems as well as in their styles of linkage with the global economy.

Certainly, the time is ripe for such an analysis. First, over the last 15 or 20 years there has been no lack of major changes in Latin America in the economic dimensions on which the structuralist approach focuses. These changes have given rise to a thoroughgoing reorientation of these economies' modes of behaviour and of the development modalities characterizing their manufacturing systems. Second, it is not difficult to identify historical determinants of this reorientation, since this was a time of persistent macroeconomic disturbances during which the regulatory framework of the region's economies underwent a veritable revolution. A third set of ingredients present during this period which acted as a catalyst for change was added by the world economy, i.e., the swift pace of world technical progress and the general trends towards regionalization and globalization.

This article draws upon two types of sources. First, it takes advantage of the fact that, unlike the situation just a few years ago, individual research papers are becoming available in a number of Latin American countries that provide an overall picture of the radical changes occurring in the manufacturing sector in the wake of the economic crisis and the move towards liberalization. In some cases, this new

body of knowledge covers the role of transnational corporations quite well.<sup>3</sup>

Second, for the first time ever, the PADI computer programme for the analysis of industrial dynamics –software written by the ECLAC Division of Production, Productivity and Management– has been used here to analyse Latin American industry. Given the scarcity of region-wide data, PADI represents an important new tool for analysing structural changes in Latin America's manufacturing sector.

The present article is divided into four sections. The first describes the analytical tools that were used. The second gives a comparative overview of the four different adjustment paths taken by the countries, based on a series of indicators of changes in the structure and in the international linkages of their manufacturing sectors. The third section presents an analysis of these sectors in the four countries selected for this study. The fourth and concluding section offers an overall picture of the changes that have taken place.

At this point, three introductory observations are called for:

First, the period on which this article focuses was obviously a difficult one for the manufacturing sector in these four countries. After decades of rapid growth, manufacturing activities in these four countries lapsed into a long recession (starting in the 1970s in Argentina and Chile and in the early 1980s in Brazil and Mexico). Furthermore, except in Chile, the sector's subsequent recovery will only have brought output up to about where it was in absolute terms before the crisis. If the last year of growth prior to the crisis is used as the base year for each country (Chile: 1972 = 100; Argentina: 1977 = 100; Brazil: 1980 = 100; and Mexico: 1981 = 100), then the physical output indexes as of 1993 were 140 for Chile, 96 for Argentina, 100 for Brazil and 114 for Mexico.

<sup>3</sup> At the individual country level, the recent literature on the manufacturing sector as a whole and on transnational corporations in that sector, in particular, includes the following: Argentina: the compilation of texts made by Kosacoff (1993), especially chapters I and V; Aspiazu (in press); Katz (1994); ECLAC (1993c); Chudnovski, López and Porta (1993 and 1994); and Beccaria and Kosacoff (1994). Brazil: the final report of a project on the competitive status of Brazilian industry, organized by IEI/UNICAMP (1993); Fritsch and Franco (1991); ECLAC (1993a and 1993b); Erber and Vermulm (1992); Barros (1993); Coutinho and Ferraz (1994); and Suzigan (1991). Chile: Rozas (1992); Díaz (1994); Agacino, Rivas and Román (1992); Castillo, Dini and Maggi (1994); Calderón (1994b); and Aguilera and Becar (1991). Mexico: Casar and others (1989); Casar (1993 and 1994); ECLAC (1991); CTC (1992); Peres (1990); Unger, Saldaña, Jasso and Durand (1992); Dussel Peters (1993); and Ros (1991).

Second, the article concentrates on the behaviour of foreign subsidiaries founded during the import substitution phase, i.e., enterprises that were already in operation before the economic crisis hit the region. It is important to recall that during the 1980s, direct foreign capital flows into the manufacturing sector were primarily associated with these firms; in other words, they were related to the continuation and expansion of these companies' activities in the region. Foreign investment channeled into the region through wholly new business enterprises during that period was heavily concentrated in the natural resources and services sectors, and was the result of a decision to open up these sectors to foreign capital; in almost all cases, these types of liberalization initiatives were buttressed by privatization processes.<sup>4</sup>

Third, in addition to the fact that foreign direct investment (non-financial FDI) was primarily being channeled into natural resources and services, the following circumstances –which will be presented in outline form only– have constituted significant features of the four countries' FDI inflows since the early 1980s (see table 1):

- Taken together, the countries' share of world FDI flows has shrunk, especially during the sharp upturn in such flows in 1985-1990; since 1991, however, their share has begun to expand once again.
- Mexico and Chile are set apart from Argentina and Brazil by their ability to attract increasing amounts of foreign direct investment (FDI). Interestingly enough, Mexico is the only country that managed to attract FDI during times of crisis (the mid-1980s), since when Chile has done so it has been experiencing a full-blown recovery. Argentina has only recently regained its ability to attract investment (chiefly to services sectors via privatizations), also during an economic recovery phase.
- A decreasing portion of investment has gone to the manufacturing sector (unfortunately, no statistics on this subject are available for Argentina). In absolute terms, however, the sums channeled into this sector in Mexico mounted sharply in the second half of the 1980s and remained high during the early 1990s.

<sup>4</sup> Research on this subject is being conducted in a number of countries under a project set up by the Inter-American Development Bank and coordinated by Manuel Agosin of the University of Chile.

TABLE 1

## Foreign direct investment flows, 1977-1992

	(1) FDI flows (millions of 1992 dollars; annual averages)	(2) FDI flows in the manufacturing sector (millions of 1992 dollars; annual averages)	(3) (2)/(1) in %	(4) (1) as a % of FDI worldwide
<b>Argentina <sup>a</sup></b>				
1977-1980	537	...	...	0.72
1981-1985	565	...	...	0.98
1986-1989	966	...	...	0.58
1990-1992	3 316	...	...	2.11
<b>Brazil</b>				
1976-1980	3 354	2 474	73.7	5.18
1981-1985	1 899	1 430	75.3	3.31
1986-1990	2 508	1 446	57.7	1.51
1991-1992	1 420	78	(5.5)	0.91
<b>Chile</b>				
1976-1980	257	80	31.3	0.40
1981-1985	344	79	23.0	0.60
1986-1990	839	70	8.3	0.51
1991-1992	973	153	15.8	0.62
<b>Mexico</b>				
1976-1980	1 202	945	78.6	1.86
1981-1985	1 428	1 116	78.1	2.49
1986-1990	3 416	1 666	48.8	2.06
1991-1992	6 382	1 448	22.7	4.07
<b>Total</b>				
1976-1980	5 530	...	...	8.26
1981-1985	4 236	...	...	7.38
1986-1990	7 729	...	...	4.65
1991-1992	2 091	...	...	7.72

Source: Joint ECLAC/UNCTAD Unit on Transnational Corporations, based on country sources.

<sup>a</sup> Based on figures compiled by the International Monetary Fund (IMF).

## II

### Methodology

In this section we will present the sectoral classifications used in the analysis, along with a brief overview of the analytical scheme used to describe the processes of structural change in each country's manufacturing sector.

#### 1. The presence of TNCs: leading, supporting or marginal roles in industry groups

We have divided the manufacturing sector into three industry groups, according to whether the role played by TNCs has been of a leading, supporting or marginal

character. This breakdown is particularly functional in terms of the analysis to be presented here, for two reasons. The first is that, in addition to focusing on the role played by transnationals, it provides a direct means of differentiating among groups of industries on the basis of another three criteria: industrial organization, technical progress and use categories. The second is that it provides us with a picture of the general profile of the structural changes taking place, since the group of industries in which TNCs have played a supporting role expanded in all of the countries; the group in which TNCs have played a

leading role exhibited differing trends from one country to the next; and the group in which TNC involvement has been minimal experienced, for the most part, a contraction.

*a) Industry groups in which TNCs have played a leading role*

These industries are included in the groups of the International Standard Industrial Classification of All Economic Activities (ISIC) that are shown in parentheses:

- Mechanical capital goods (382)
- Electrical and electronic equipment/scientific instruments (383/385)
- Transport equipment (384)
- Fine chemicals and pharmaceuticals (352)
- Rubber (355)
- Tobacco (314)
- Glass (362)

Transnational corporations predominate in these industries in almost all the countries in the world. In Latin America, the presence of foreign capital is particularly great in most of the countries, as is evidenced by the fact that its share of total sales is above 50% in almost all cases. This group includes industries that generate and/or disseminate technical progress (capital goods/electronics/fine chemicals and pharmaceuticals) as well as highly technology-intensive oligopolistic groups undergoing a rapid process of product differentiation (consumer electronics and motor vehicles). These industries are also the ones whose production processes are undergoing the most intense globalization process. Here, the TNCs possess a unique asset (Hymer, 1976; Dunning, 1973) in their technological expertise (associated with economies of scale and international specialization) that places them at a huge advantage over local firms and thereby assures them of a leadership position. The two exceptions in this regard within the above group are rubber products (tyres) and tobacco, both of which are highly concentrated international oligopolies.

*b) Industries in which TNCs have played a supporting role*

These industries belong to the ISIC groups shown in parentheses.

- Food and beverages (311-313)
- Pulp and paper (341)
- Basic chemicals/petrochemicals, except fuels (351, 354, 356)
- Iron and steel/basic metal products (371/372)

These industries are essentially producers of intermediate goods that can be described as widely-used industrial commodities. The term "supporting" has two meanings here, in that it indicates that transnational corporations have played an important but not dominant role in local markets and also that they have frequently been associated with locally-owned firms.

The extent of the presence maintained by transnational corporations in the food and beverages sector has varied a great deal. There is one group of industries in which the participation of TNCs has ranged from a marginal to a supporting role (precisely in that of commodities, i.e., traditional, semi-processed foods) and another in which their participation has fluctuated between a supporting and a leadership role (processed foods, with some product differentiation, which are generally intended for sale in supermarket chains).

*c) Industries in which TNCs have played a marginal role*

These industries belong to the ISIC groups shown in parentheses.

- Textiles/wearing apparel/leather and footwear (321-327)
- Wood and furniture (331/332)
- Printing (342)
- Non-metallic minerals, except glass (361/369)
- Metal products (381)
- Other manufactures (390)

Foreign firms have not played a significant role in these industries' production processes or technological performance. These competitive oligopolies are consumers of technology, and price competition is a very important element. They vary greatly in terms of size and technological capabilities, and often include a few leading firms (locally owned, for the most part) along with many small and medium-sized companies.

## 2. The analytical scheme: the changes to be examined and their determinants

Figure 1 shows the scheme used for this analysis. The objective was to examine the changes which took place in the industrial structure and international linkages between the end of the import substitution phase and the early 1990s.

The analysis consists of three parts. First, the structural changes that have occurred are identified.

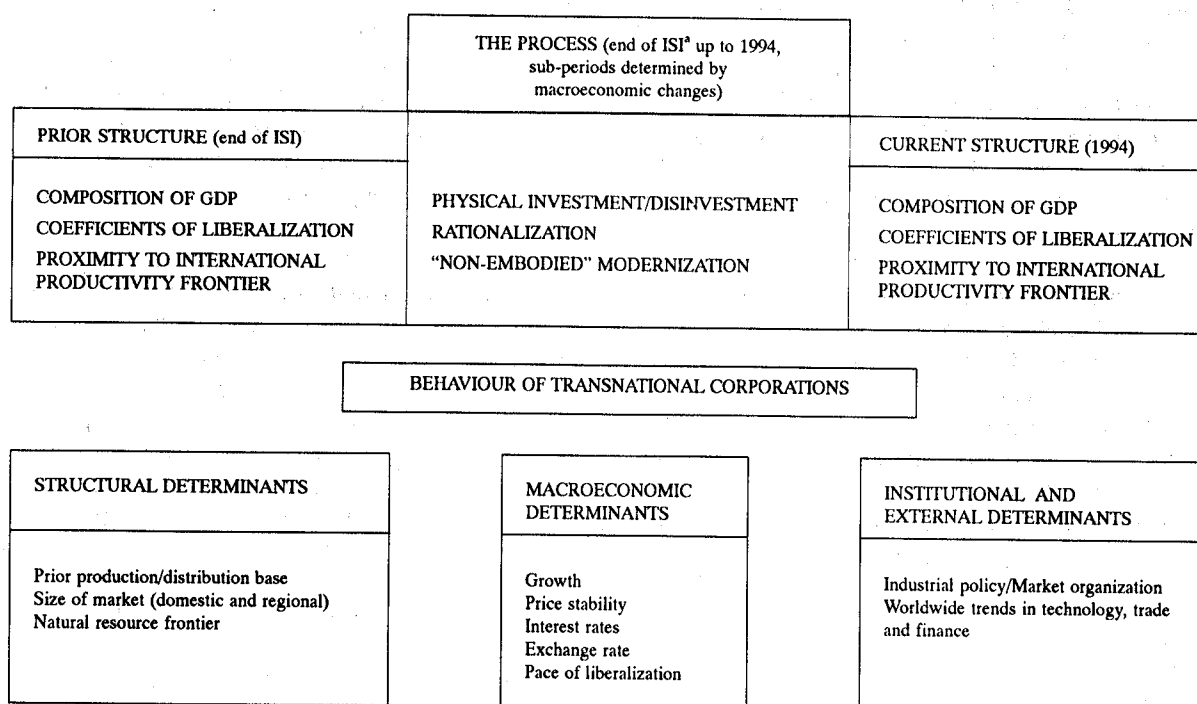
These changes are measured on the basis of three sets of indicators: sectoral composition, international linkages, and trends in labour productivity.

The second step is to look at the mechanisms governing changes in the composition of output and productivity. These mechanisms can be broken down into physical investment/disinvestment, rationalization pure and simple, and rationalization accomplished through the introduction of non-embodied technologies. This raises some problems. One difficulty is that no statistics on fixed capital formation are available, either for the different industries and branches of activity or for the manufacturing sector as a whole. Another is that the available information on rationali-

zation processes is not very consistent, except in a very few instances, and even then only partially.

The third step in the analysis deals with the determinants of changes in industrial structure. Three main sets of factors are of interest in this regard: macroeconomic variables (growth rates, price stability, interest rates and exchange rates), structural factors (the size of the domestic market, the metal products and machinery industry's level of development prior to the debt crisis, the relative significance of the regional market, and the frontier of exportable natural resources in the medium term), and institutional elements (changes in the regulatory system, the competitive framework and industrial policy).

FIGURE 1

**Analytical scheme**

<sup>a</sup> ISI = Import-substitution industrialization.

### III

## Indicators of structural change

In this section we will discuss some of the principal indicators of major structural changes in the relevant countries: the level and composition of value added, trends in labour productivity, and changes occurring in international linkages.<sup>5</sup>

### 1. Level and composition of value added

Table 2 provides a summary view of our findings regarding the level and composition of value added. The first set of results illustrates the trend observed in sectors in which transnational corporations have played a leading role ("L") in the four countries.

In the case of Chile, the relative importance of these "L" sectors in the overall industrial structure was sharply reduced (from 30.7% in 1972 to 22.5% in 1992); it also declined in Argentina, although less steeply. In contrast, the importance of these "L" industries increased in Mexico and, to a lesser extent, in Brazil.

If we now take a closer look at this same group of industries, we see that capital goods industries were downsized in all the countries, especially Chile and Argentina, and that Brazil continues to stand apart from the other three countries because of its greater size (17.3% of total regional industry, compared with 8.8% in Mexico, 7.7% in Argentina and 5.1% in Chile). We also see that the automotive industry shrank a great deal in Chile, but expanded in the other countries, particularly in Argentina and Mexico.

<sup>5</sup> The data used for this purpose raise a number of problems (which we have attempted to solve, at least in part) in connection with the conversion (a necessary operation for the construction of some of the indicators) of values denominated in local currencies into dollars and the determination of real values for the variables used. In the first case we have used the "rf" exchange rates calculated by the International Monetary Fund, i.e., annual average exchange rates; however, any overvaluations/undervaluations of local currencies that may have been present during the years in question have not been corrected. This means that there may be some distortions (primarily in the case of Argentina) in export and import coefficients, although they in no way alter the trends to be analysed here. The second problem has been resolved by using industrial deflators to convert current figures on the amount of value added (and, hence, productivity) into constant figures.

The second point of interest regarding changes in industrial structure is the increased importance of the sectors in which TNCs have played a "supporting" role ("S"). This group includes industrial commodities (intermediate goods) and foodstuffs.<sup>6</sup> The expansion of this group's share of total industrial output was especially great in Chile (from 35.7% in 1972 to 49.1% in 1992); in Argentina the increase was also notable but less intense than in Chile and more heavily concentrated in food products,<sup>7</sup> while in Mexico and Brazil it was less heavily concentrated in commodities. In contrast, the share of output provided by industries in which TNCs have played a marginal role declined in every case.

Another frequently used method of comparing the intensity of changes in different countries' industrial structures is to construct a "structural change index" (SCI). Here, we have used the structural change index developed by UNIDO, which measures the intensity of variations in the composition of the value added by industry (SCI, in table 2). It is important to note that a high index does not necessarily denote a change in direction towards more intensive industrialization (recent cases of this include those of the Republic of Korea and Taiwan) but may instead reflect a reversion to natural resource-intensive and less technologically intensive branches of activity. This is precisely the reason, among the four cases examined here, for the higher coefficient for Chile and the lower one for Brazil.

Table 2 also illustrates the size of the gap separating the OECD countries' industrial structures from those of the four countries analysed here. If we use the average value for those developed countries as a benchmark for a well-articulated, competitive indus-

<sup>6</sup> Despite the heterogeneity of ISIC group 311, it includes a number of products (e.g., fishmeal and vegetable oils) that are clearly intermediate inputs.

<sup>7</sup> Actually, the 1992 data for commodities in Argentina are skewed by the fact that one of the country's major steel producers, SOMISA, temporarily shut down its operations during that year. Therefore, the (as yet unavailable) data for 1993 would move Argentina closer to Chile than to the other two countries as regards the increase in the relative significance of intermediate goods.

TABLE 2

**Chile, Argentina, Mexico, Brazil and OECD:  
Level and composition of value added  
(Percentages)**

COMPOSITION OF VALUE ADDED	Chile		Argentina		Mexico		Brazil		OECD	
	1972	1992	1977	1992	1981	1992	1980	1993	1975	1992
Sectors where TNCs play a leading role <sup>a</sup>										
Metal products and machinery/electrical and electronic goods	9.7	5.1	13.6	7.7	10.4	8.8	18.7	17.3	22.8	25.3
Transport equipment	8.0	2.4	10.8	12.5	7.9	9.6	7.8	8.3	10.7	11.5
Other	13.0	15.9	9.8	9.6	10.3	13.3	8.5	11.1	7.9	9.7
Subtotal	30.7	22.5	34.2	29.8	28.6	31.7	35.1	36.6	41.4	46.5
Sectors where TNCs play a supporting role <sup>a</sup>										
Food and beverages	21.3	28.4	18.4	25.7	23.2	23.1	13.6	14.9	11.5	11.1
Commodities	14.4	20.7	14.1	15.0	16.7	20.1	19.9	23.6	18.9	17.4
Subtotal	35.7	49.1	32.5	40.7	39.9	43.2	33.5	38.5	30.4	28.5
Sectors where TNCs play a marginal role <sup>a</sup>	33.6	27.4	33.4	29.5	31.6	25.2	31.4	24.9	28.4	25.0
Total	100	100	100	100	100	100	100	100	100	100
Variation in value added SCI <sup>b</sup>	100	141	100	95	100	115	100	100	100	
		0.41		0.33		0.28		0.20		0.16

Source: PADI computer programme and original compilations.

<sup>a</sup> For a description of these sectors, see section II, "Methodology", of this article.

<sup>b</sup> Structural Change Index.

trial structure, then we can easily see that, in the case of the four countries of special concern to us here, the gap is not only sizeable but is also tending to widen. Here, too, however, it should be emphasized that both the actual size of the gap and the speed at which it is widening differ from country to country, with the two variables being greatest in the case of Chile and smallest in that of Brazil, with Argentina and Mexico somewhere in between the two extremes.

## 2. Labour productivity

An analysis of the data on labour productivity <sup>8</sup> (see table 3) reveals the existence of quite dissimilar situations:

<sup>8</sup> Labour productivity has been calculated as the value added per employed person.

- In the case of Chile, against the background of a rising level of value added, the increase in productivity has been quite small (only 11% in 20 years), though the growth rates for this variable registered by the different groups of industries are very uneven. The gain in productivity recorded for commodities is particularly noteworthy (76%).
- The situation has been quite different in Argentina, where, as manufacturing output slumped, productivity has climbed sharply (74.8% in 15 years, which works out to an average annual rate of 3.8%). Differences between sectors are quite marked, although less so than in Chile.
- Mexico and Brazil have similar productivity growth rates (39.8% in one case and 36.5% in the other). These similar rates have occurred

TABLE 3

**Chile, Argentina, Mexico and Brazil: Labour productivity**  
(Percentages)

	Chile		Argentina		Mexico		Brazil	
VARIATION IN PRODUCTIVITY	1972	1992	1977	1992	1981	1992	1980	1993
Sectors where TNCs play a leading role <sup>a</sup>								
Metal products and machinery/electrical and electronic goods	100	103.7	100	170.5	100	118.9	100	139.3
Transport equipment	100	88.0	100	225.5	100	151.1	100	133.7
Other	100	145.3	100	188.4	100	156.4	100	152.4
Subtotal	100	136.4	100	198.4	100	144.1	100	143.7
Sectors where TNCs play a supporting role <sup>a</sup>								
Food and beverages	100	82.4	100	194.3	100	137.1	100	129.0
Commodities	100	176.0	100	149.0	100	171.2	100	147.5
Subtotal	100	106.5	100	174.7	100	150.7	100	138.5
Sectors where TNCs play a marginal role <sup>a</sup>								
	100	97.0	100	156.2	100	117.1	100	116.5
<i>Total</i>	<i>100</i>	<i>110.8</i>	<i>100</i>	<i>174.8</i>	<i>100</i>	<i>139.8</i>	<i>100</i>	<i>136.5</i>
Variation in value added	100	141	100	95	100	115	100	100

Source: PADI computer programme and original compilations.

<sup>a</sup> For a description of these sectors, see section II, "Methodology", of this article.

within different contexts, however, since in Mexico output has risen (moderately) and the rationalization of production has been coupled with heavy investment in some sectors, whereas in Brazil the value added by industry has remained virtually unchanged and rationalization processes have been much more intense than investment.

### 3. Changes in international linkages

The changes seen in the four countries' linkages with the international economy are summarized in tables 4 and 5; here, too, we see that they are similar in some respects but very different in others.

#### a) Export and import coefficients

Generally speaking, an increase is to be observed in all four countries' export coefficients (i.e., the ratio between exports and the gross value of out-

put) and import coefficients (the ratio between imports and the gross value of output).

The largest increase in export coefficients was in Chile, whose coefficient jumped from 4.3% in 1970 to 17.1% in 1992; Mexico's coefficient also rose steeply (from 3.1% to 10.9%). Much smaller changes were seen in the cases of Brazil and, especially, Argentina.<sup>9</sup>

Differences are also to be observed in the direction of this increase in exports.

In Chile, food and commodities exhibit the highest export coefficients. This is particularly so in the case of food products, whose coefficient soared from 4.3% in 1972 to 21.7% in 1992. In Argentina, food exports registered the highest coefficient, but the

<sup>9</sup> As noted earlier, Argentina's coefficient has probably been underestimated as a consequence of the overvaluation of its currency in 1992.

steepest increase was noted in commodities. In contrast, the growth leader for the expansion of Mexico's exports has been the automotive industry. In this case, the coefficient for the "L" sectors shot up from only 3.3% in 1980 to 21.8% in 1992; the increase in this coefficient for ISIC group 384 (transport equipment) was particularly steep (from 4.92% in 1980 to 35.91% in 1992).

In Brazil, the largest change was in commodities, whose export coefficient climbed from 5.5% to 22.1% during the period.

The increase in export coefficients was accompanied by a rise in import coefficients as well, but here again, major differences among the four countries are to be observed.

In this regard, first place is held by Argentina, which witnessed a particularly sharp increase in this indicator<sup>10</sup> (from 6.3% in 1978 to 16.7% in 1992). It is followed by Mexico, where the rise in the indicator was smaller but its final level was higher (28.6% in 1992). Import coefficients in Chile and Brazil showed smaller increases. Chile's coefficient was the highest of the four countries in 1970, and had climbed to still higher levels by 1992. Brazil has the lowest values for this indicator, but since it has only recently begun to open up its economy, it is reasonable to expect a major increase in its import coefficients after 1992.

In summary, in two of the countries—Chile and Mexico—export coefficients have risen sharply, but they have also been accompanied by high import coefficients. Argentina registered no more than a small increase in its export coefficients, but its import coefficients have risen substantially. Brazil has followed a different path: a small increase in its import coefficients has been coupled with a rise in export coefficients which, although not as spectacular as in Chile and Mexico, is at all events much greater than the increase seen in Argentina.

<sup>10</sup> What was said in reference to export coefficients is applicable in this case as well; thus, if a correction had been made for the overvaluation of Argentina's currency, its coefficient would probably have been even higher.

#### b) *The trade balance*

These differing situations are also reflected in the countries' trade balances. All the countries except Brazil experienced a deterioration in these balances (see table 4): Chile's deficit widened from US\$641 million in 1970 to US\$4.718 billion in 1992; Argentina went from a US\$624 million surplus in 1978 to a deficit of US\$6.412 billion in 1992; and Mexico's deficit deepened from US\$13.508 billion in 1980 to US\$26.625 billion in 1992.

As may readily be seen from table 4, in every case the trade deficit is concentrated in the "L" sectors. Brazil, on the other hand, was able to improve its trade balance, boosting its surplus from US\$2.857 billion in 1980 to US\$11.822 billion in 1992. Moreover, in 1992 it marked up a surplus in the two categories in which it had run a deficit in 1980: "L" industries and commodities.

#### c) *The composition of exports and imports*

An analysis of the countries' trade mix (see table 5) enables us to see the elements detected thus far from a different angle.

With regard to exports, the most salient event in the case of Chile was the clear shift in the export mix towards food products. In Argentina, although foodstuffs remained a very significant component, the share of commodities expanded steadily. In Mexico, on the other hand, "L" industries were the main source of manufactured exports, although it is worth noting once again that this shift in the export mix was largely accounted for by the spectacular growth of the automotive industry. The relative share of food products, in contrast, contracted sharply. In Brazil, the export mix shifted towards commodities and, to a lesser extent, towards "L" industries, while the relative share of food products shrank considerably.

The most notable features of the countries' import trends were the heavy imports made by the "L" industries (at the start and, even more, at the end of the periods in question) and a tendency towards import substitution (except in Chile) within the category of commodities.

TABLE 4

## Chile, Argentina, Mexico and Brazil: External-sector indicators

	Chile		Argentina		Mexico		Brazil	
	1970	1992	1978	1992	1980	1992	1980	1992
<b>EXPORT COEFFICIENTS (%)</b>								
Sectors where TNCs play a leading role <sup>a</sup>	1.7	7.6	4.4	4.9	3.3	21.8	7.9	15.0
Food	4.3	21.7	15.5	18.4	2.0	1.8	22.1	19.7
Commodities	13.9	28.7	6.2	10.4	6.2	13.0	5.5	22.1
Sectors where TNCs play a marginal role <sup>a</sup>	2.4	10.4	2.2	4.2	1.9	6.2	5.2	10.2
<i>Total</i>	4.3	17.1	7.5	9.0	3.1	10.9	9.2	16.2
<b>IMPORT COEFFICIENTS (%)</b>								
Sectors where TNCs play a leading role <sup>a</sup>	61.8	122.3	12.0	33.6	37.0	59.2	11.6	14.0
Food	10.0	5.9	1.2	2.9	4.5	7.4	1.9	5.2
Commodities	39.5	46.6	13.9	25.4	25.5	27.6	12.9	11.6
Sectors where TNCs play a marginal role <sup>a</sup>	11.4	24.2	1.8	7.3	4.9	16.1	1.3	4.2
<i>Total</i>	29.7	43.2	6.3	16.7	16.8	28.6	7.4	9.5
<b>TRADE BALANCE (millions of dollars)</b>								
Sectors where TNCs play a leading role <sup>a</sup>	-439	-4 359	-1 095	-7 067	-8 484	-16 506	-1 834	613
Food	-36	942	1 787	3 295	-716	-2 420	5 949	4 038
Commodities	-93	-641	-537	-1 863	-3 482	-4 522	-2 925	4 472
Sectors where TNCs play a marginal role <sup>a</sup>	-73	-659	468	-777	-826	-3 177	1 668	2 699
<i>Total</i>	-641	-4 718	624	-6 412	-13 508	-26 625	2 857	11 822

Source: PADI computer programme and original compilations.

<sup>a</sup> For a description of these sectors, see section II, "Methodology", of this article.

TABLE 5

Chile, Argentina, Mexico and Brazil: Composition of exports and imports  
(Percentages)

	Chile		Argentina		Mexico		Brazil		OECD	
	1970	1992	1978	1992	1980	1992	1980	1992	1980	1992
<b>COMPOSITION OF EXPORTS</b>										
Sectors where TNCs play a leading role <sup>a</sup>	11.3	9.3	16.6	16.6	27.7	58.5	26.1	31.7	48.6	58.9
Food	25.0	41.6	51.5	52.5	18.7	4.8	44.1	19.2	7.1	6.0
Commodities	46.3	33.0	11.7	17.4	37.0	24.4	14.7	33.0	25.6	19.7
Sectors where TNCs play a marginal role <sup>a</sup>	17.4	16.1	20.3	13.6	16.6	12.3	15.1	16.1	18.7	15.3
<i>Total</i>	100	100	100	100	100	100	100	100	100	100
<b>COMPOSITION OF IMPORTS</b>										
Sectors where TNCs play a leading role <sup>a</sup>	60.3	59.4	54.9	59.8	56.4	60.7	47.8	50.5	40.4	52.4
Food	8.4	4.5	4.6	4.5	7.7	7.5	4.8	8.7	8.0	6.6
Commodities	19.1	21.3	31.2	22.8	27.8	19.8	42.8	29.5	28.8	21.7
Sectors where TNCs play a marginal role <sup>a</sup>	12.2	14.8	9.3	12.9	8.0	12.1	4.7	11.3	22.8	19.3
<i>Total</i>	100	100	100	100	100	100	100	100	100	100

Source: PADI computer programme and original compilations.

<sup>a</sup> For a description of these sectors, see section II, "Methodology", of this article.

## IV

### The role of TNCs in the four different styles of industrial realignment

In this section we will undertake a general analysis of the role played by TNCs in the different realignment processes experienced by the four countries' manufacturing sectors since the end of the import substitution stage of industrialization.

The four cases will be explored on the basis of the hypotheses and methodologies described in earlier sections. It is worth repeating the main points in the organizational scheme of the analysis that follows:

- The transnational corporations reacted differently in Chile, Argentina, Mexico and Brazil to the specific environments in which they were operating and played a decisive role in generating four different realignment styles.
- These reactions and styles were the outcome of a combination of structural, macroeconomic and institutional factors specific to each country.
- Not only did the relevant factors differ from country to country; the timing of the structural, macroeconomic and institutional changes that occurred differed as well. These differences have been respected in the following analysis. Thus, the examination of each country begins at a different time, since the starting date corresponds to the end of the import substitution process in each country: 1973 for Chile, 1978 for Argentina, 1982 for Mexico and 1981 for Brazil. Economic reforms, the process of opening up the economy, and macroeconomic stabilization all occurred at different times from one country to the next as well. As a result of all these factors, these processes of change are at different stages in each country at any given time.
- The specific nature of the TNCs' actions and their influence on the countries' realignment styles can be deduced from an examination of two items: their sectoral placement, and the readiness with which they withdrew (partially or completely) from or entered into production activities in each country.

#### 1. Chile

The main features of the Chilean manufacturing system's realignment have been the TNC-led de-industrialization process of the 1970s and the subsequent changeover to an outward orientation via investments in natural resource-intensive branches of activity, where the TNCs have participated as supporting actors.

##### a) *Trend analysis*

Of all the Latin American economies that were hurt by the debt crisis, Chile was the first to resolve its macroeconomic difficulties. After a decade of slow growth that culminated in the deep crisis of the early 1980s, Chile found its way back to a stable growth path. Between 1984 and 1993, its GDP climbed by 7% per year and its industrial output by 7.4%.

i) *1973-1983.* Transnational manufacturing firms played a pivotal role in the contraction of Chile's industrial system during this period. The sectors in which they predominated registered a steep reduction in their shares of manufacturing output, which then remained relatively small and recovered very little during the subsequent phase of rapid growth.

The most striking cases were the firms that quickly abandoned their local production activities in the 1970s and turned to the domestic sale of imported goods from their headquarters or other affiliates within their international network. In these cases, "retooling" essentially took the form of the development of subsidiary activities such as distribution, marketing and technical assistance. The companies specializing in motor vehicle assembly and consumer electronics provide classic examples of this course of action. Corporations that abandoned or cut back sharply on their local production activities included Fiat, Peugeot, Renault, Citroën, General Motors, Ford, Philips and General Electric.

In other cases, retooling was a slower and more piecemeal process, but it still involved a sharp drop

in the amount of value added domestically, due to a steep rise in import coefficients which, in most cases, was not counterbalanced by an increase in exports.

Despite this and the social cost it entailed, a number of experts on Chile's industrial economy acknowledge that the manufacturing firms which survived this phase were in one way or another strengthened by it. Thus, in a sense, the period from 1973 to 1983 may be described as a time during which the production apparatus underwent a rationalization process involving not only a de-verticalization of production but also a reorganization of labour—involving large-scale layoffs and heavy social costs—and of the technical and organizational foundations of these enterprises (Díaz, 1994; Agacino, Díaz and Román, 1992; Castillo, Dini and Maggi, 1994).

ii) *1984-1992*. Starting in the mid-1980s, with the advent of macroeconomic stability and rapid growth, Chile experienced what could be called a "positive" phase. Following the deep recession of 1981-1983, those segments of the manufacturing sector that had survived the earlier de-industrialization process began to experience a strong recovery and expansion.

Based on the behaviour of these firms in terms of expansion and modernization, the past 10 years can be divided into two phases: a recovery lasting up to the end of the 1980s and, since then, a phase of growth.

The *recovery phase* appears to have had two basic characteristics.

*First*, in the majority of Chilean manufacturing activities, firms do not appear to have retooled their plants with a view to exports or to have integrated local plants into global production networks. There was a steep rise in employment during this period, leading to a drop in average labour productivity.

All this would appear to indicate that in Chile the manufacturing enterprises which survived the crisis did not undergo any major realignment during the 1980s. Most such firms seem to have relied primarily on the use of production capacity that had lain idle during the preceding stage. This is also true of foreign corporations. There is no indication that the basic approach used by such corporations (Nestlé, Goodyear, Ciba-Geigy, Roche, Dow Chemical, etc.) differed from that of local companies in terms of investment and modernization, and they, too, adopted a very passive stance.

This behaviour is somewhat surprising, since rapid growth usually boosts productivity (Verdoorn's Law). The subject is a controversial one and remains open to further research. Doubts in this respect are founded, for example, on evidence that the industrial system's adjustment was continued during this phase by means of such mechanisms as specialization via the outsourcing of raw materials and parts and the externalization of business support services (Díaz, 1994).

*Second*, productivity trends in the various sectors have been very uneven. In the case of the commodity-producing sectors (especially wood pulp and some foods) there was a marked increase in productivity, associated with intensive investment activity strongly backed up by debt-equity swaps (Rozas, 1992).

In the new production profile taken on by the manufacturing sector over the past 20 years, the processing plants turning out wood pulp, fishmeal, tinned foods, frozen foods, etc. are the ones which have made the greatest contribution to the "Chilean export model".

Foreign enterprises have played a supporting or marginal role in this process. In the wood pulp industry, the Shell/Scott Paper joint venture, the Swiss company Attisholz and Simpson Paper (a minority shareholder in the locally-owned company CMPC) have played a supporting role. In the food industry, foreign firms' involvement has been much more limited, and local capital has led the export-oriented production drive (the area of the food industry in which TNCs have been the most active is in production for the domestic market; examples include Nestlé and Coca-Cola). The low level of TNC investment in manufacturing contrasts with their heavy investment in other sectors, especially in copper and telecommunications—the "stars" of the Chilean privatization and external debt conversion process. Between 1986 and 1992, a scant US\$223 million of the US\$1.8 billion inflow of foreign direct investment went to the manufacturing sector.

With regard to the *current stage*, it is possible that physical investment in the manufacturing sector as a whole may be rising gradually. As a share of GDP, investment in machinery and equipment climbed from under 5% to over 9% between 1988 and 1992, which may mean that investments are being made in modernization and expansion of production in the manufacturing sector.

This new stage may also bring major changes in production functions. The most recent research on

the subject (e.g., Castillo, Dini and Maggi, 1994) has detected some positive signs in this direction. One such study, conducted under the aegis of ECLAC, found that a large group of transnational corporations were engaged in the introduction of new organizational techniques designed to boost both productivity and quality (Calderón, 1994b).

#### b) *Determinants*

The main determinants of trends in Chilean industry and in the behaviour of TNCs were already mentioned in earlier paragraphs.

The first point to note is that the industrial system was severely hurt between the mid-1970s and mid-1980s by the combined effect of adverse macroeconomic factors and a radical economic liberalization programme. Between 1974 and 1980, in addition to the fact that the economy was growing at only a modest (and, still worse, unstable) pace, the manufacturing sector was battered by the combined effect of a radical trade liberalization policy and increasing appreciation of the currency. From then until 1983, it also suffered the serious consequences of a severe financial crisis and recession, which did not abate until the currency was devalued and higher tariffs were temporarily reintroduced.

Second, there are the structural factors. Chile has a relatively small domestic market and is geographically remote from the world's main import markets. In the past, this has prevented its manufacturing sector from progressing towards a high degree of complexity. Even so, under the protectionist conditions that prevailed during the import substitution process (which was interrupted in the early 1970s), Chile had managed to establish a metal products and machinery industry of some importance. In comparison to those of the other countries examined here, however, Chile's manufacturing sector may be said to have been the most vulnerable to the effects of liberalization. In the face of so many negative macroeconomic factors, it proved impossible for it to retool without incurring significant losses in terms of value added.

In the absence of policies aimed at strengthening any dynamic comparative advantages it might have, and given the structural elements existing at that time in Chile, the manufacturing sector's only opportunities for success were provided by the static advantages deriving from its wealth of natural resources and the competitive conditions typical of traditional industries in the domestic market (protec-

tion afforded by such considerations as transport costs, perishability of goods, distribution systems, consumer preferences, etc.).

Finally, it should be noted that, in contrast to what is commonly thought, one of the reasons for the strong performance of some of the natural resource-based industries that have had the greatest success as exporters—such as wood pulp, wood products and some foods—is the existence of a series of government subsidies. For example, the reforestation which made the expansion of wood and wood pulp production viable has been promoted by specially targeted incentives for planters, and investments in wood pulp and food products have enjoyed the benefit of generous external debt conversion schemes. These subsidies provide a stark and by no means insignificant contrast to the overall “non-interventionist” approach supposedly pursued by Chile since 1973.

## 2. Argentina

In Argentina, as in the other countries analysed in this article, a look at the behaviour of transnational corporations will help us form a picture of the reorientation of the manufacturing system following the end of the import substitution phase of industrialization. This reorientation has had two main features: the weakening of the dynamic elements at the heart of the “substitution model”, and the strengthening of natural resource-intensive branches of activity. TNCs have been the principal actors in the first of these changes as they have taken the lead in downsizing the country's metal products and machinery and electrical/electronics complexes, whether by pulling out of the country or by radically shifting their production functions towards high import coefficients. Their involvement in the second change has been that of a supporting actor working in partnership with local capital.

#### a) *Trend analysis*<sup>11</sup>

i) *1978-1990.* The sequence of economic events in Argentina is well known to all. In the late 1970s the manufacturing sector was dealt a heavy blow by the macroeconomic policy of Minister Martínez de

<sup>11</sup> A number of the points made here are presented in a paper by Kosacoff and Bezchinski (1993) based on research covering approximately 60 transnational corporations in Argentina's manufacturing sector.

Hoz (1978-1981). This shock was generated by the combination of rapid trade liberalization, sharp appreciation of the currency, and a deep recession.

This was the first time that the relative weaknesses in the international competitive position of the more sophisticated branches of Argentina's manufacturing complex –metal products and machinery and electrical/electronic equipment– had been so clearly revealed. During the import substitution process, an industrial complex had been built up whose degrees of complexity and verticalization were quite high in relation to the size of Argentina's economy. The achievements of this complex, and especially of the TNCs within it, are well known, particularly as regards the adaptation of operations to small scales of production, thanks to the technological efforts of the local engineering industry. Nevertheless, as it turned out, these advances were not enough to surmount the problems that began to pile up in the late 1970s (Katz, 1974 and 1994).

The country's protracted economic crisis, which lasted from the mid-1970s until 1990, interrupted FDI flows to Argentina and prompted the closure of a number of major plants, along with the withdrawal or downsizing of major manufacturing TNCs. In the metal products and machinery industry, for example, the corporations that left the country included General Motors, Citroën, Fiat, Peugeot, DKW, MSD, Olivetti and Chrysler, while many of the remaining firms cut back on their operations, including Massey-Ferguson, John Deere, Torri, General Electric and Brown Boveri. The traditional consumer electronics industry, which had been dominated by local firms, virtually disappeared, and in its place an assembly enclave that included such major TNCs as Hitachi, Sony, Sanyo and Grundig was set up in a special processing zone located in Tierra del Fuego. A number of TNCs also pulled out of the pharmaceuticals sector (e.g., Squibb, Lilly, SKF, Upjohn and Abbott).

During the initial stage of this phase, an adjustment was made via the rationalization of production based primarily on mass lay-offs, and substantial gains in labour productivity were achieved (30% between 1975 and 1980). After 1981, in response to its external debt problems, Argentina reintroduced a number of import controls, which gave the less competitive sectors some chance of survival. Although physical investment levels were still very depressed and FDI levels were low, a rationalization-based adjustment continued to be made, albeit more gradually, during the 1980s; this adjustment went beyond

the mere elimination of overmanning and included adjustments in production lines along with the introduction of modern non-embodied technologies.

However, the manufacturing sector continued to suffer the consequences of extremely adverse macro-economic trends throughout the entire decade. Thus, the necessary conditions simply did not exist for companies to make the radical changes involved in moving towards more modern production practices in line with the demands of international competitiveness. The idiosyncracies of Argentine industry (small scales of production and a lack of specialization at the company level) and the fact that the adjustment had been made without sufficient replacement of outdated equipment proved to be insurmountable barriers to the gains in competitiveness demanded by the new model of participation in the international economy, and this led to a sizeable contraction in the more technology-intensive sectors, especially those occupied by the transnational corporations.

Not all branches of industry fared so badly, however. As in other Latin American countries, Argentina began to draw more heavily on its abundant stocks of natural resources as a basis for expanding its production of intermediate commodities. Although they occupied a subsidiary position with respect to the large local conglomerates, transnational corporations increased their activities in areas where they could utilize the advantages afforded by the country's wealth of natural resources. By opening up new frontiers in the primary sector, TNCs have stepped up their activities and expanded their investments, especially in petrochemicals and agribusiness. The gas/petroleum sector discovered large deposits of oil and natural gas, and a whole new array of partnerships was formed between local groups and major TNCs such as Dupont, Bayer, Hoechst and Dow Chemical.

ii) 1991-1993. The year 1991 marked the start of a new phase in which rapid economic growth (an average annual GDP growth rate of about 7%) was combined with two highly problematic factors which, once again, occurred simultaneously: the fast-paced liberalization of trade and the sharp appreciation of the currency (both of which were envisaged in the rationale for the Cavallo Plan). Within this new environment, the following trends have been observed:

- TNCs are regaining their former level of involvement in Argentine industry. There are signs that foreign investment is gradually increasing in the

- manufacturing sector, especially in the food and automotive industries. In the food industry, a number of major international firms (Nabisco, Parmalat, Cadbury, etc.) have recently arrived in the country and are seeking to wrest a share of the domestic market from other international giants that never left it in the first place (CPC, Nestlé, Swift, Cargill, Dreyfuss) and from the Argentine transnational Bunge & Born. In the automotive industry, Autolatina (Ford and Volkswagen) is making investments (although thus far of only moderate size); GM and Chrysler are coming back; Toyota is entering the market; and foreign (including Brazilian) manufacturers of motor vehicle parts are setting up business in the country.
- The foregoing has thus far been accomplished through the reactivation and adaptation of existing installed capacity, rather than through any major physical investments. The largest flows of FDI have been directed towards the services sector (banking, commerce, telecommunications, airlines) and the petroleum industry (Calderón, 1994a).
  - A large part of the manufacturing activities undertaken by foreign investors have come to be governed by a new type of behaviour pattern. Unlike what occurred during the import substitution phase, this time investments and the realignment process have been shaped by strategies that are based on the concept of economic liberalization and the imperative of forging a competitive position within the world economy. One of the implications of this new pattern is the sharp increase in import and export coefficients (the rise being steeper for imports) occasioned by a trade matrix in which intra-firm flows are particularly large.

According to Kosacoff (1993), since the liberalization drive of 1991 most firms have been adopting a "tripartite" production and marketing model. First, there is in-house production, which is being cut back; second, there is a higher coefficient of imports of inputs and parts; and third, the share of total corporate sales represented by imports has grown, at the expense of locally-produced goods. This scheme suggests that TNCs are playing a more active part in the downsizing of local production than domestic firms are, since many of their imports take the form of intra-firm flows, with all the advantages which may thereby accrue to the corporation at the world level.

On this basis, four different categories of TNCs can be identified according to the sectors of activity in which they are involved and the strategies they are using (Kosacoff and Bezchinski, 1993).

First, there are the TNCs that moved into the services sectors mentioned earlier (in partnership with local capital, and taking advantage of business opportunities opened up by the privatization process). This category has been by far the most important source of new FDI in Argentina in recent years.<sup>12</sup> Second, TNCs continue to serve as important supporting actors in natural resource-intensive manufacturing activities, which grew so rapidly during the preceding decade. Third, in the main sectors in which TNCs have historically played a leading role, firms are becoming globalized, in particular through their integration into their corporations' international production and distribution networks. Fourth, there are the remaining TNCs, whose strategies are not aimed at globalization (or have that goal in only a very partial sense) but which are none the less moving towards a new production function involving a rising import coefficient and increased marketing of imported goods to local buyers.

#### b) *Determinants*

As was seen in the above analysis, Argentina's industrial realignment was dictated by an adverse combination of macroeconomic and structural factors. Among the *macroeconomic* factors, mention has already been made of the combinations of recession and liberalization experienced from 1978 to 1981 and of recession and de-liberalization from then until 1990 which caused manufacturing output to plunge by 25%. A further factor has been the recent phase of growth, stabilization, liberalization and currency appreciation.

The appreciation of the local currency in conjunction with a strong economic recovery is resulting in a swift rise in imports and large deficits on the balance of payments, especially in the metal products and machinery industry and the branches producing electrical and electronic goods.

<sup>12</sup> Although these are not industrial activities, this trend raises a number of questions as to what kind of effect the privatization process may have on industrial productivity in the future, first, by bringing about changes in the quality and price of services and, second, by spurring the development of networks of suppliers and subcontractors within the local manufacturing sector.

An examination of the *structural factors* involved leaves no doubt that the "negative" aspect of Argentina's realignment and of the behaviour of the TNCs –i.e., the de-industrialization of the dynamic core units of import substitution-based industry– is largely a consequence of insufficient scales of production and the obsolescence of the industrial complex set up during the import substitution phase. MERCOSUR represents a new structural factor which may have positive effects on the metal products and machinery industry (especially the automotive industry), thereby blunting the de-industrialization process to some extent. A promising new division of labour seems to be taking shape which may enable TNCs to reduce the loss of their enormous sunk costs thanks to the economies of scale now favoured by preferential access to the Brazilian market.

Among the factors exerting a positive influence on Argentina's industrial realignment, there is, as we know, an increase in natural resource use by the petroleum/gas industry, the soybean industry, packing plants, fruit juice processors, etc. This demonstrates once again the excellence achieved by Argentina in terms of its long-standing ability to use its abundant natural resources in a highly competitive manner.

Finally, among the institutional changes which have occurred, the most significant has undoubtedly been the country's radical trade, production and financial liberalization process, first in the late 1970s and now again since the start of the 1990s. Nevertheless, in each of these two periods there has been at least one major episode of interventionism that may have left a deep mark on the make-up of Argentina's manufacturing sector in the mid-1990s. First, large subsidies were given to commodities during the time when liberal policies were in full swing, and now the automotive sector remains heavily protected.

### 3. Mexico <sup>13</sup>

Of the four countries examined in this article, Mexico is perhaps the one in which the importance of TNCs in the realignment of the manufacturing sector is most immediately apparent. TNCs have been the central agents of Mexican industry's retooling with a view to integration with the United States, and they have taken the lead in trade between the two countries, largely through intra-firm transactions.

<sup>13</sup> It should be recalled that this section was written before the December 1994 crisis.

The realignment of the Mexican manufacturing sector has a number of features that set it apart from the other cases examined here. One is the fact that this realignment constitutes one component of a radical "outward-looking" retooling process. This is a result of the drastic nature of the adjustment which the country had to make in order to deal with the external debt crisis.

#### a) *Trend analysis*

Mexico's macroeconomic adjustment was carried out in two phases –1982-1987 and 1987-1992– which correspond to two stages in the manufacturing system's realignment.

During the first phase (1982-1987), the adjustment initially involved a major depreciation of the currency, considerable wage cuts and a deep recession. Up to 1985, it also entailed quantitative controls on all imports. Later, between 1985 and 1987, these controls were gradually relaxed: the potentially negative short-term impact of this step on the balance of payments was counteracted by the further depreciation of the currency brought about by the 1985-1986 slump in oil prices. This combination of macroeconomic factors led to a spectacular increase in the export coefficient of the manufacturing sector, which burst upon the external market at a speed never before seen in the history of the world economy. In support of this movement, the industrial policy applied to various sectors –the automotive industry, petrochemicals, computers, in-bond assembly plants (*maquilas*)– focused on external trade as its key element. As a result, between 1981 and 1987 the manufacturing sector's trade deficit fell from US\$17 billion to US\$1.4 billion.

During the second phase (1987-1992), a major change was seen in policies relating to the acquisition of foreign exchange as their emphasis shifted away from the achievement of trade surpluses and towards the attraction of financial resources. In 1987, largely as a result of the currency depreciation, the Mexican economy displayed high levels of inflation. The conclusion of the Stabilization Pact in December 1987 made it possible to lower inflation sharply in 1988 (and halt a wave of capital flight). This achievement was partly due to appreciation of the exchange rate, which has been on the rise ever since and has helped to keep prices stable. All of this set the scene for a second liberalization drive, which caused the trade balance to deteriorate markedly. The country's wide-

ning deficit was financed with reserves in 1988, by privatizations in 1989 and 1990, and since then with the huge sums of capital flowing into the country in response to the prospects opened up by NAFTA and, later, to the reduction of interest rates in the United States.

Thanks to the stabilization of prices, the economy began to recover in 1988, which gave the manufacturing sector more strength and ability to withstand the effects of the trade liberalization programme, implemented at the same time that the value of the currency was climbing. The end result of all this differed greatly from sector to sector, however. As a consequence of the differences in the various sectors' ability to face up to international competition on the domestic market, along with the fact that the export capacity exhibited during the first phase of the adjustment –and reaffirmed during the second– also differed markedly from one sector to the next, the make-up of the Mexican manufacturing system as of the early 1990s was quite different from what it had been before the crisis. Foreign capital played a pivotal role in all these changes.

Mexico's adjustment process strengthened a number of branches of activity and weakened others. The main industries in the first group are the six "stars" of the Mexican manufacturing sector, which are very active in international trade: motor vehicles, telecommunications and computers, petrochemicals, cement, glass and the *maquila* industry.

National capital, in the shape of the Vitro company, predominates in only one of those industries (the glass industry), and even in this case, the above company has recently undergone a notable "transnationalization" process.

In another two of these industries, the leadership of TNCs is absolute. These are the automotive industry (General Motors, Ford, Chrysler, Volkswagen and Nissan) and the telecommunications and computer equipment sector (Ericsson, ATT, NEC, Panasonic, Alcatel, IBM, Hewlett Packard, Motorola, etc.).

TNCs are also heavily involved in the remaining sectors. TNCs operating in the chemicals/petrochemicals industry include Dupont, Bayer, Hoechst and Monsanto; the cement industry is a duopoly formed by CEMEX (a Mexican firm), which controls about 65% of the market, and Cemento Apases (a transnational corporation), which has the other 35%; about half of the *maquila* industry's 2 142 enterprises are United States firms and another 10% are foreign companies of various other nationalities.

Some of the industries which have been growing within the *maquila* sector (e.g., consumer electronics and household appliances) have suffered a sharp contraction in the rest of Mexico, where, as in the *maquila* zones, they tend to take the form of assembly industries. The new TNCs which have set up operations in the country have done so primarily in the *maquila* zones (General Electric, Zenith, Sony, Hitachi), whereas pre-existing firms (both national and foreign) have either disappeared or converted what were once primarily local production operations into assembly activities via a sharp increase in their import coefficients. This has undoubtedly played a part in lowering Mexican industry's degree of complexity and vertical integration. From this standpoint, these industries can hardly be described as "winners".

Most of the activities that are definitely "losers" are carried out by local firms (textiles, footwear, food, wood pulp, metallurgy). The capital goods sector, in which TNCs maintain a vigorous presence at the international level, has never been very strong in Mexico, and those TNCs that did move into the country during the import substitution phase either cut back on their production activities or simply abandoned their local production operations altogether.

These differences in behaviour stem from the combined effects of the two phases of the macroeconomic adjustment process. During the phase in which industry was buffeted by the recession and stimulated by favourable conditions for "spurious competitiveness" (a very high exchange/wage ratio and import protection), the "winning" sectors modernized and reinforced their integration with the North by rationalizing and further modernizing their operations, whereas the other sectors remained bogged down in the conditions created by the crisis. In the succeeding period, when the economy was rapidly opening up to external markets, the "winners" were already on their way towards improving their productivity and the quality of their products, and this was enough to enable them to continue exporting and to take advantage of the improvement of the local market, even though the exchange rate was becoming increasingly disadvantageous. The "losers", on the other hand, were hard hit by the economy's greater openness in conjunction with an appreciating currency, despite the improvement in the domestic market.

Although external investors suffered failures in some industries, the overall performance of TNCs in

the manufacturing sector has been a positive one from the standpoint of modernization and the formation of international linkages. It is noteworthy that the performance of those industries in which TNCs have maintained a major presence, taken as a whole, has been far better than the overall performance of the industries in which TNCs have not been heavily involved.

Since the sectors in which a great deal of foreign capital has been invested are also the ones exhibiting the highest growth rates, strongest international linkages and fastest pace of technical progress, it may be concluded that Mexico's industrial system has moved in a positive direction and that TNCs have played a crucial role in that movement.

This bright picture cannot be presented without some qualifications, however. The first has to do with the relative weakness of the capital goods sector (Casar and others, 1989). Although the performance of the various industries within this sector has differed—for example, the telecommunications equipment industry has done well (Peres, 1990) but the machine-tools industry has fared badly (Unger, Saldaña, Jasso and Durand, 1992)—it is clear that Mexico's industrial realignment has done nothing to strengthen the capital goods sector's relatively limited production capacity.

The second qualification relates to that portion of the intermediate goods industry which is very active in international trade. Here, too, trends have been quite uneven. On the one hand, the petrochemicals industry has done very well; on the other, most of the other natural resource-intensive branches of activity have met with much less success and have thus generated large trade deficits.

The chief concern regarding Mexico's industrial retooling process is the lack of an adequate response to the trade deficits prompted by the country's adjustment. In fact, today's external deficits are even greater than those initially triggered by the adjustment. In 1991, 1992 and 1993, the manufacturing sector once again ran up enormous trade deficits (US\$26 billion in 1993, which was twice as big as the 1980 deficit). The turnaround in economic policy seen in 1987, when price stabilization was assigned a higher priority than previous objectives, yielded excellent results in the areas of inflation and capital inflows and satisfactory results in terms of the resumption of growth, but it also increased the economy's vulnerability to external variables.

#### b) *Determinants*

In addition to the macroeconomic determinants discussed earlier, structural factors also helped to shape the Mexican style of realignment. Some of the basic elements in this respect are the fairly sizeable domestic market and the country's shared border with the United States, which has allowed Mexican industry to achieve a high and increasing degree of integration with that vast market. Moreover, the fairly well developed production structure which Mexico possessed at the onset of the debt crisis gave the manufacturing sector some ability to deal with the recession and trade liberalization without suffering the degree of de-industrialization observed in other Latin American countries. A final characteristic that appears to set Mexico apart from the other three countries considered in this article is that its agricultural frontiers are more limited. Generally speaking, in comparison with the other countries examined here, the production and exportation of natural resource-intensive goods (with the exception of petrochemicals) have expanded somewhat less in Mexico.

Finally, mention should be made of the "institutional" determinants. The case of Mexico is often cited because of the success of its reforms, which revolved around the country's economic liberalization and reduction of State regulation. It is still not clear exactly how much of that success was the result of the opening up of trade and other liberalization measures, however, because no detailed analysis has been undertaken of how liberalization and deregulation affected the manufacturing sector. Nevertheless, the general feeling is that the most successful adjustments took place precisely in those sectors in which there was State intervention and clear-cut industrial policies: the automotive, computer, petrochemical and *maquila* industries.

#### 4. Brazil

In comparison with the other three cases analysed here, Brazil's manufacturing sector is notable for the fact that much more of the industrial complex put together during the import substitution process was still in place after that phase ended. The sector retained much more of its pre-existing matrix than in Chile and Argentina, and its "outward-looking" reorientation was carried out on a much smaller scale than in the case of Mexico.

The behaviour of the TNCs was decisive in this regard. In essence, what the TNCs tried to do was to maintain the important positions they occupied in the local market and protect the large-scale physical investments they had already made. In contrast to their actions in Chile and Argentina, in Brazil they abandoned no more than a minimal portion of their local production activities, and almost all of the large TNCs that were at the forefront of local production at the end of the substitution process were still in that position in the early 1990s. Moreover, unlike the course of action followed in Mexico, in Brazil the TNCs' decision-making processes continued to be based primarily on their involvement in the domestic market.<sup>14</sup>

a) *Trend analysis*

In the 1980s, TNCs contributed not only to the adverse trends observed in the country –low investment levels and relative technological backwardness– but also to the positive ones, especially those associated with the expansion of exports. In the 1990s, TNCs are taking a very active part in the adjustment process and are thereby reinforcing a trend that appears to be leading to the preservation and modernization of Brazil's industrial complex.

During the 1980s, when the approach taken was a fairly "passive" one, three basic factors were particularly notable:

- The increase in the proportion of total output, and especially of exports of manufactures, accounted for by the intermediate goods sectors was largely the result of a series of investments that were originally intended for the domestic market. These investments formed part of an investment cycle which had begun in the mid-1970s and matured in the early 1980s. Foreign capital was a very active partner in these investments and played a leading role in the aluminium industry (Alcan, Alcoa, Billington/Shell) and a supporting one in petrochemicals (Rhone-Poulenc,

Dow Chemical, Dupont, Bayer, Hoechst), wood pulp (Champion, Aracruz/British Tobacco, Cenibra/Mitsubishi) and iron and steel (Mannesman and Belgo-Mineira, with Japanese investors in Tubarao and in Usiminas).

- The rest of the industrial system –most of which had either just been set up or had modernized during the 1970s– remained relatively intact during the 1980s.

The recession, low investment levels and the rapid de-liberalization of the economy were the main factors behind this mode of behaviour. The decade was marked by the absence of major changes in either the composition of production capacity or the modernization of that capacity. The TNCs adopted a fairly passive stance during that decade, despite the fact that, along with Brazilian firms, they sharply increased their exports (ECLAC, 1993a). A good example of that passivity is provided by the figures on trends in labour productivity, which showed almost no change at all between 1980 and 1990, even in sectors where foreign capital was heavily involved.

The same TNCs that were at the forefront of local production at the end of the substitution process held on to those leading positions throughout the 1980s. With few exceptions, they maintained a "wait and see" attitude. The list of companies that led the market in 1980 and are still on the leading edge in the 1990s includes many of the world's major corporations in the metal products and machinery and electrical/electronics industries, together with big corporations in the fine chemicals and pharmaceuticals industry, which took a somewhat less passive stance.

Leading firms in the automotive industry include General Motors, Fiat, Ford, Volkswagen, Mercedes Benz, Volvo, Cummins, TRW, Bosch, Krupp, etc.; agricultural and cargo handling equipment are produced by Valmet, Massey-Ferguson, Ford, Caterpillar, etc; the electrical equipment industry includes such leading firms as Siemens, Asea and Brown Boveri; and telecommunications systems are produced by Ericsson, Equitel/Siemens, Alcatel and NEC.

In other heavy equipment industries, leading firms are Ishikawagima, Voith and CBC; Philips, Philco, Toshiba, Mitsubishi and Brastemp/Whirlpool are major operators in the field of household appliances and consumer electronics; Unisys and Xerox are present in the computer industry; and leading firms in

<sup>14</sup> This section is based on reports and studies that pre-date the Cardoso Plan (the stabilization plan which entered into effect in July 1994). When this essay was first circulated in November 1994, we had not considered the possibility that existing trends might be reversed as a result of the probable continuation of the sharp appreciation of the currency that followed the implementation of the Plan.

the fine chemicals and pharmaceuticals sector include Roche, Ciba-Geigy, Bayer, Sandoz, and others.

- The value of food exports dropped steeply owing to a downturn in world trade (European protectionism). The prices of major semi-processed food products such as coffee, soybeans and sugar went down substantially; in fact, the decline would have been even greater if it had not been for the strong expansion of non-traditional exports, especially orange juice. The part played by TNCs (with the exception of corporations such as Cargill and Bunge & Born) in this price slump was quite marginal. The large foreign companies in this sector in Brazil (Nestlé, Sanbra/Bunge & Born, Coca-Cola) were mainly producing food intended for sale in the modern segment of the domestic market, and no significant physical investments or technological changes appear to have been made in these product categories.

The fairly passive attitude taken in the 1980s stands in contrast to the major changes taking place in the 1990s. The Brazilian manufacturing sector is undergoing a substantial adjustment in which TNCs are intensely involved (ECLAC, 1993a and 1993b). The chief features of this adjustment may be summarized as follows:

i) This process is quite urgent for the companies involved in view of the worsening macroeconomic crisis and, as a complementary circumstance, the swift liberalization of the economy that is occurring at the same time. According to a number of studies being conducted in Brazil, this change in direction is also being made by national firms (see, for example, IEI/UNICAMP, 1993).

ii) The production process is being streamlined with a view to cutting costs and improving quality; this effort has entailed the use of a variety of mechanisms, including de-verticalization, specialization, the use of more flexible procedures and the introduction of new management techniques such as total quality management (TQM) procedures, ISO 9000 compliance, just-in-time systems, etc. The novel feature of this situation is not the fact that these changes are being made—similar processes have been under way in Mexico and Argentina since the mid-1980s—but rather the speed and intensity with which they are taking place.

iii) The adjustment in which TNCs in Brazil's manufacturing sector have been involved since 1990

is having a significant and positive influence on their competitive position. Although the recession has prevented the adjustment from including large investments in new equipment—as a consequence of which little headway has been made in the area of industrial automation—substantial improvements in productivity (which jumped by 30% in 1991-1993) and quality appear to be in the pipeline.

iv) The indications are that the adjustment is helping Brazilian firms to survive under the existing conditions of domestic contraction and external openness. It appears that, for the most part, the production apparatus set up during the import substitution-based phase of industrialization is being preserved and overhauled.

v) It is nevertheless important to take special note of two aspects of this supposed ability to prevent the opening of the economy from leading to de-industrialization. First of all, this liberalization process is as yet too recent to permit an adequate evaluation of its effects, and second, the absence of fixed capital investments indicates that productivity levels will soon stop rising. The conclusion would appear to be that, in order for Brazilian industry to remain competitive, it will have to resume its growth and investment on a sustainable basis; and in order for it to do this, inflation must be controlled.

vi) Since the economy has started to open up, branches of activity in which the pace of technical progress is very fast at the international level and in which TNCs are heavily involved have begun to weaken; such branches include pharmaceuticals, electronic components and computers. Mass-produced capital goods—a sector in which TNCs in Brazil have played a supporting role—appears to be another industry that is downsizing.

#### b) *Determinants*

Just as in all the other cases examined, Brazil has a number of special features that set it apart from the rest; these are the result of macroeconomic, structural and institutional factors which are highly specific to the country, and it is worth describing them through a comparison with the other cases studied here.

Let us start by considering the relevant macroeconomic factors. First, unlike Argentina and Mexico, Brazil did not have to deal—at least until its recent monetary reforms (the Cardoso Plan of July

1994)— with the difficult combination of trade liberalization and an appreciating currency.<sup>15</sup> It is clear that the future performance of foreign-owned and national companies alike will depend on the behaviour of the exchange rate. Second, but no less importantly, Brazil is the only one of the four countries which had still not achieved price stability as of mid-1994. This is why, unlike what has occurred in Mexico, the major microeconomic adjustment made by business enterprises in the country—including TNCs— has not been accompanied by significant levels of fixed investment. The obvious implication is that, in the long run, these firms' competitive position will continue to be jeopardized by the glaring lack of physical investment.

Third, the debt crisis had much less of an impact on firms in Brazil than in the other countries. The country's financial adjustment was made soon after the crisis had broken out and without causing bankruptcies (1981-1983), and its companies were able to consolidate their financial position thanks to three good business years (1984-1986). Fourth, Brazil's balance-of-payments problems have been much less serious than those of Mexico, Argentina and Chile; this became clear very early on—as early as the second half of 1983— when the country began to record large trade balances. Thus (unlike Mexico, for example) Brazil was not faced with the macroeconomic imperative of carrying out a drastic reorientation of its production system towards the external market in the 1980s.

With regard to structural factors, Brazil differs in two basic ways from Chile and Argentina—and, in a sense, from Mexico as well. The first is that Brazil's industrial realignment had a more complex and integrated (and therefore probably more solid) manufacturing base as its starting point.

The second is that Brazil has a large domestic market. According to internal surveys conducted in conjunction with TNCs, the strategy of these corporations has been to protect the heavy investments they made during the import substitution phase and to maintain or increase their share in that market, whose

potential size makes it equally attractive (ECLAC, 1993a).

Mention should also be made of the fact that when the time came for the TNCs in Brazil to take important strategic decisions regarding the adjustment, the country had just been given a strong boost by the expansion of trade within the framework of MERCOSUR. This integration scheme made it viable to increase production scales and bolstered transnational corporations' resolve to maintain a solid production base on the São Paulo- Buenos Aires corridor.

Finally, there are the institutional determinants. In contrast to the situation in the 1980s, when the basic regulatory system of the import substitution period was still in place, sweeping institutional changes have been made in recent years. These changes include trade liberalization, the discontinuation of most incentives and subsidies for industry and exports, and the privatization of enterprises in the manufacturing sector. These changes have clearly been an important determinant of the adjustments made by business enterprises since 1990, in addition to the crisis.

Nevertheless, in view of the fact that the liberalization of the economy is a very recent process, care must be taken in analysing the realignment of Brazil's manufacturing sector. As we know, it takes quite some time to see the results of trade liberalization initiatives, especially in as complex an economy as Brazil's. It is not outside the realm of possibility that the extent of de-industrialization that will occur in the next few years may be greater than what would be desirable from the standpoint of the economy's ability to achieve a dynamic form of competitiveness. The chances of this happening may increase if the macroeconomic crisis continues and if the exchange rate is allowed to rise as part of the Government's efforts to lower inflation.<sup>16</sup>

<sup>15</sup> See footnote 14.

<sup>16</sup> As stated in footnote 14, in the introduction to this sub-section on Brazil, the analysis presented here pre-dates the appreciation of the currency that followed the implementation of the Cardoso Plan. Depending on how the exchange rate behaves, this analysis may seem over-optimistic in the future.

# V

## Conclusion

This article focuses on the realignment of the manufacturing sector in Chile since 1973, in Argentina since 1978, in Mexico since 1982 and in Brazil since 1981. The different years given for each country correspond to the first year after the discontinuation of the import-substitution growth "model".

The comparative study of these four cases is founded upon three arguments: *first*, that the four countries followed very different paths or styles; *second*, that these differences were largely a result of the ways in which TNCs acted in each country, i.e., their reaction to crisis situations and to measures aimed at opening up the economy to external markets; and *third*, that both the manufacturing sector's realignment and the reactions of the TNCs were determined by the combined effect of three sets of factors that are specific to each country: structural aspects, macroeconomic variables and institutional elements.

For reasons of space, we will not recapitulate here the analysis presented in this article regarding the changes that have occurred in the composition of the four countries' GDP, in their linkages with the international economy or in labour productivity.

Accordingly, we will turn directly to the most disquieting and controversial aspect of this situation, i.e., the role played by foreign capital in Latin America's industrial realignment in response to the crisis and trade liberalization or, more specifically, the way in which it affected the metal products and machinery and electrical/electronics complexes in these countries. Generally speaking, despite the clear differences observed between the countries (and excluding the automotive industry and a few minor branches of activity), the changes occurring in the industrial sector marked a reversal of its long-standing tendency to become increasingly similar to the industrial profiles of the developed countries.

At this point, in order to sum up what happened in these industries, it may be helpful to turn back to the analytical scheme used in the article to account for the differences in the behaviour of the TNCs from one country to the next. This scheme (see figure 1) was designed to carry the analysis somewhat beyond the generic, tautological explanation that, once a

trade liberalization programme was launched, the TNCs were eventually hurt by a lack of competitiveness stemming from the flaws of the import substitution model, insufficient production scales and a shortage of systemic resources. It was sought to add another dimension to this analysis through the classification of the structural, macroeconomic and institutional factors that gave rise to the specific features of these processes in the different countries.

In the case of the metal products and machinery and electrical/electronics sectors, it is clear that when, as a result of the liberalization process, transnational corporations had to choose between downsizing their operations or investing in the modernization of those operations so that they might compete in the international marketplace, they often chose the first of these two options. Nevertheless, inasmuch as the behavioural differences evidenced by TNCs in the four countries were quite marked, we can talk about four very different paths or styles of industrial realignment.

*Chile's* industrial realignment style has been defined in this article as one of "de-industrialization combined with an outward-looking reorientation". Its relatively simple production structure, in conjunction with a fast-paced liberalization process and a low exchange rate, led to drastic downsizing of the metal products and machinery and electrical/electronics complex in the 1970s; this contraction was led by a number of TNCs which opted to halt their production operations in the country. The domestic market was too small to permit the metal products and machinery industry to regain the size it had reached in the early 1970s. However, the existence of favourable macroeconomic conditions and the fact that a rapid growth rate has been sustained for an entire decade have laid the foundations for some sort of a recovery in technologically less sophisticated activities oriented towards the domestic market.

We have described *Argentina's* style of realignment as one of "import-led de-sophistication", with reference to the combination of a contraction in the metal products and machinery and electrical/electronics industries and a sharp increase in the imports of

those same manufactures. In this case, too, a number of TNCs left the country, while others cut back on their operations, primarily in the metal products and machinery industry. When the import substitution process came to an end, the country had a medium-sized, somewhat diversified metal products and machinery industry. The macroeconomic crisis of the 1980s was so severe that it led to the continuation of the de-industrialization process that had been triggered by the crisis and the economic policy of the second half of the 1970s, in which a recession and trade liberalization were combined with appreciation of the currency. During the current economic reactivation, the household appliance and automotive industries have made a very strong recovery; in the case of the automotive industry, the sectoral agreement signed within the framework of MERCOSUR has been a powerful stimulus in this direction. A number of the TNCs that had pulled out of the country are now returning. However, for the most part the TNCs have sharply raised the import coefficients of their production activities, and in the household appliance and consumer electronics sectors, production activities have been cut to the point where they amount to little more than the assembly industries located in Tierra del Fuego.

The realignment path followed by *Mexico* differs very considerably from the others examined in this article; this style is defined by the country's integration with the United States economy under the leadership of the TNCs. A fairly large production structure and domestic market, investments in production for the United States market and the maintenance of a high exchange rate during the initial stage of the trade liberalization process offset the highly negative influence of the country's severe macroeconomic crisis in the 1980s in some major branches of activity (e.g., the automotive and *maquila* industries). The industries most strongly affected by this crisis included several segments of the capital goods sector; as a result, there was a reversal of what had seemed like a move towards the formation of a heavy machinery subsector in the country. In addition, as a consequence of the country's fast-paced trade liberalization process and the sharp rise in the currency's value (both of which began in 1988), many segments of the capital goods and non-durable consumer goods industries, which had begun to weaken as a result of the crisis of the 1980s, have continued to do so during the recent economic recovery.

*Brazil's* style of industrial realignment has been described as "defensive" because of its tendency to preserve a greater portion of the production structure inherited from the import substitution phase. In large part, this tendency is due to the TNCs' strategy of seeking to protect their large pre-existing investments and their heavy involvement in the domestic market. The relative complexity exhibited by the metal products and machinery and electrical/electronics industries by the end of the import-substituting phase of industrialization, the large size of the domestic market and the de-liberalization of the economy allowed heavy industry to survive the 1980s despite its stagnation and technological passivity. Likewise, the economy's relative structural solidity and a fairly high, stable exchange rate made it possible to obviate (up to the first half of 1994) any serious form of de-industrialization in the difficult conditions created by liberalization and the macroeconomic crisis.

At present the automotive industry is making a strong comeback and is receiving some major investments. The recent liberalization drive has led to the downsizing of some technology-intensive industries, however, such as computers, electronic components and some mass-produced capital goods. The present crisis and the low rates of investment make it difficult to gauge how competitive the capital goods sectors currently are.

In summary, our analysis of the realignment of the manufacturing sector in the four countries studied here reveals a deterioration in the complexity of these industrial systems which distances them from the structure of the OECD countries. The intensity of this process was not the same in all the countries, with Brazil being notable for its greater ability to conserve its pre-existing structure, which was more sophisticated than those of the other countries. Mexico constitutes a special case because this deterioration occurred in parallel with the strengthening of some sectors that have exhibited a high degree of dynamism in the areas of trade and technology, particularly the automotive industry. The performances of Argentina and Chile clearly failed to measure up to those of Brazil and Mexico in terms of changes in the manufacturing sector's production matrix and export mix.

The actions of the transnational corporations have played a pivotal role in shaping these four production structures—through very different "styles" of behaviour, as we have seen. It may be concluded that those actions have had a more favourable—or at least

less unfavourable— influence on the prospects for future industrial development in Mexico and Brazil than in Chile and Argentina.

The foregoing leads to one basic conclusion. The shift away from the more developed countries' industrial profiles, together with some degree of de-industrialization in the metal products and machinery and electrical/electronics complexes, may have negative implications for the Latin American countries' future economic development. In every case, these sectors have the greatest capacity to serve as growth leaders, as well as being the most technologically dynamic industries and the ones most able to spread technical progress to the rest of the economy. They are also sectors in which demand is expanding rapidly, especially in developing countries, and this may spark a trend that could have serious ramifications in terms of the balance of payments.

In closing, an observation may be made regarding policies designed to attract foreign capital: the question as to whether or not a manufacturing sector will be able to attract foreign capital hinges upon the existence of favourable conditions for the sector's chief activities, which are generally technology-intensive and heavily involved in international trade. If a Latin American government were to decide that its country's industrial system should not continue to incorporate such activities and delivers a "shock treatment" (by, for example, implementing a swiftly-paced trade liberalization programme in conjunction with appreciation of the currency) which furthers that approach, it would implicitly be choosing to reject the continuation of local production activities by transnational corporations and to reduce the potential contribution they could make in absorbing and disseminating technology and promoting exports.

(Original: Spanish)

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