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E C L A C  
Economic Commission for Latin America and the Caribbean

## A NEW INTERNATIONAL INDUSTRIAL ORDER \*/

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## Chapter I

### INCREASED INTERNATIONAL COMPETITION IN A TRANSNATIONAL CORPORATION-CENTRIC WORLD

The twentieth century has witnessed some of the more dramatic and traumatic upheavals in world history, yet toward the end of that century a broad consensus was taking shape with regard to central features of the contemporary political economy. On an economic plane, it became apparent that 'the market' was deemed the appropriate instrument to broker competing interests. On the political plane, representative democracy was considered the appropriate means to choose between different political orientations. On the social plane, things were not as clear, however, it was evident that self-help was displacing governmental schemes of social welfare. Common to all these elements of the growing consensus was the central fact that competition, in general, was being both heightened in intensity and channelled through mechanisms designed to reduce violent outcomes.

This new consensus was partly the result of the new power relations taking form. In terms of international relations, the East-West and North-South dimensions of conflict had been resolved through abandonment due to the implosion of the Soviet bloc and the apparent dissolution of the Southern one. The new key issues in international relations were ones involving the new Triad of power, that is, the United States, the European Economic Community and Japan. Those countries accounted for 2/3 of world GDP, 4/5 of outward stocks of foreign direct investment and over 2/3 of world trade. 1/ At the national level, the new power relations affected the private and public sectors leaving a clear sensation that business had increased its share of power and that the public sector's influence had declined. The nature of the business/government relation was central, in distinct ways, to the dynamic of each Triad member. 2/

A central part of this new consensus has been transmitted to the rest of the world in the form of the "Washington consensus" or the "Bank/Fund orthodoxy" named after the evolving influence of the World Bank and the International Monetary Fund. 3/ The principal aspects of that orthodoxy concerned non-inflationary macroeconomic policy based on modest budget deficits and prudent monetary policy; greater openness to trade and foreign investment; and greater reliance on market forces as allocators of resources, especially in industry and agriculture.

An important phenomenon which made itself evident towards the end of the twentieth century was the transnational corporation (TNC)-centric nature of the changes taking place. The transnationalization process <sup>4/</sup> was manifest in the growing role of 'global' TNCs <sup>5/</sup> in most aspects of the contemporary international political economy. Just 600 TNCs, each with 1985 sales greater than U\$1 billion, were responsible for 1/5 of total (non-socialist bloc) industrial and agricultural value added. Their primary lines of business (as measured by sales) were concentrated in the petroleum (24.6%), machinery and equipment (24.5%), chemical (13.5%) and motor vehicle (12.6%) industries. More to the point, 10 of these TNCs controlled 66.2% of the world semiconductors market, 9 others accounted for 89% of the world telecommunications market and 10 others took care of an unspecified but majority share of the world computer market. <sup>6/</sup>

TNCs increasingly dominate international trade and investment flows and an increasing proportion of such flows are becoming essentially internal operations of expanding global networks. Effectively, the "most recent decade was marked by increasing economic interdependence and globalization of markets through a rapid acceleration of trade and investment flows, the creation and diffusion of new technologies, the explosive growth of capital markets and financial market integration, and the conduct of business operations on a world-wide basis. ...The prime actors in this globalization process obviously are multinational firms, through their waves of investment and corporate linkages, which allow them to operate on a world-wide basis." <sup>7/</sup> As well as provoking greater inter-TNC rivalry, the high expenditure necessary to keep a TNC on the leading edge of technology paradoxically is fomenting a kind of strategic alliance formation referred to as 'technoglobalism', that is, new forms of international networking among TNCs dealing with research and development and technological matters. <sup>8/</sup>

The common denominator to all these changes has been heightened competition and an increased concern for the rules of the game. The new competition has not affected all countries, industries or firms equally. In somewhat oversimplified terms a handful of innovating Japanese-based firms operating in the automotive, semiconductor/computer, consumer electronics, office equipment, machine tools and other sectors have shocked their US- and European-based counterparts by overwhelming their world market positions and/or savagely penetrating their home markets. The home governments of the European-based TNCs seemed less reticent about attempting to stifle import competition by way of blatant trade restrictions. The US-based ones had a more difficult time reacting. They were shaken out of their comfortable post-war oligopoly positions without recourse to the same level of government assistance as the European TNCs. Once the TNCs under attack

understood that their situation was not to be remedied through permanent governmental assistance or by throwing capital resources at possible new scientific or technological breakthroughs, they began to face up to the task of improving their capacity to compete internationally. In this sense, the new era of international competition is based at its source on a few thousand large and innovative TNCs in head-on competition over a dozen high-technology and/or trade-intensive industries serving three huge markets: the US, Europe and Japan. That lay the basis for what has become known as 'industrial restructuring', which is central to the new international industrial order.

As Kaplinsky <sup>9/</sup> has shown, industrial restructuring as a concept has at least four distinct interpretations. According to the French Regulationist school, industrial restructuring is the means by which a sustainable path of accumulation-- based on a regime of accumulation (which balances consumption, savings and investment) and a mode of regulation (institutional forms and social patterns of behavior which underwrite the regime of accumulation)--is arrived at. <sup>10/</sup> The neo-Schumpeterian structuralists view it in terms of 50 year long-wave cycles of fundamental (or, 'heartland') technological breakthroughs that sustain growth. To previous industrial growth cycles based on textiles, steel, railroads and the internal combustion engine, they now add the current one based on microelectronics. <sup>11/</sup> Another interpretation regards the current transition in terms of the exhaustion of the mass production paradigm, that is, the production of standardized commodities through the use of special purpose machinery and a rigid division of labor and its replacement by way of a new flexible specialization paradigm based on smaller batches of differentiated products made with general-use flexible machinery and new forms of work organization. <sup>12/</sup> Finally, another vision interprets the present situation in terms of a transition from 'machinofacture' to 'systemofacture', that is, a new organizational practice in which the integration of the productive units via automation technology, new interfirm relations and integral work practices supersedes individualist orientations. <sup>13/</sup> Each of these interpretations captures some element of the essence of the new international industrial order taking form toward the end of the twentieth century.

In the rest of this document the topic of increased international competitiveness in the form of globalization, specialization and regionalism will be examined. The preponderant role of transnational corporations in the field of industrial restructuring is highlighted, especially with regard to the two principal areas where the increased international competition has been most evident, that is, trade and foreign direct investment.

## A. TRENDS TOWARD INCREASED INTERNATIONAL COMPETITION: GLOBALIZATION, SPECIALIZATION AND REGIONALISM

In order to better comprehend the significance of the increased international competitiveness it is pertinent initially to refer to the very nature of the evolution of capitalism and the modern industrial enterprise. <sup>14/</sup> The birth of the capitalist system of production coincided with the industrial revolution in Europe, particularly in England. As a result, personal capitalism in Britain or the personal management of the family enterprise became the epitome of the first phase of capitalist development based primarily on activities in the brewing, textiles, publishing and printing, shipbuilding, chemical and light machinery industries.

In the last half of the nineteenth century a new form of capitalism appeared principally in the United States and the rest of Europe: **managerial capitalism**. Managerial capitalism was based on the recruitment of professional managers whom undertook longer term investments and implemented new organizational practices to gain market share. As Chandler explains it took two primary forms, competitive managerial capitalism most evident in the United States and cooperative managerial capitalism in Germany. In the United States managerial capitalism was considered competitive because, after a convoluted struggle between government and business in which trust-busting was implemented to break up expanding private industrial empires, unabashed competition among principally independent industrial entities became the norm for the expansion of manufacturing activities which carried that economy to world class stature. At its core the competitive advantage of American competitive managerial capitalism was manifest in innovation and a productive process based on exploiting economies of scale by way of heavy capital investment in long lines of production for standardized products, coupled with complementary investment in marketing and the development of strategies of global expansion. Its success during the twentieth century was symbolized by the mass production of the automobile as well as by the concern of others with 'the American challenge'.<sup>15/</sup> Managerial capitalism eventually gave birth to the transnational corporation.

In general the system of managerial capitalism which blossomed in Germany was similar to that in the United States; however, there were three very important differences.<sup>16/</sup> One was that the German variant was more centered on intermediate and capital goods (to the exclusion of consumer goods), most notably in the chemical and heavy machinery industries. Secondly, and related to the first, Germany's competitive advantage as often as not related to economies of scope as those of scale. Thirdly, and by far the most important, German capitalism was grounded on a cooperative

approach to interfirm (with suppliers and competitors) and intrafirm (with labor) relationships. Central to this cooperative approach is the concentration of capital or coordinated business operations by groups. The ten top banks, especially Deutsche Bank, possess important holdings of the shares of the 100 largest manufacturing firms. These characteristics were particularly suited to the European situation and assisted Germany in both developing into the strongest industrial economy of Europe and facing up to the American challenge at home and abroad; however, cooperative managerial capitalism reached its fullest expression in Japan later in the twentieth century.

The Japanese version of cooperative managerial capitalism has been steamrolling international competitors in many strategic industries over the last decade or so. Their 'system', as well as dominating limited variety, large-lot mass production manufacturing, is achieving what was considered the impossible in the sense that it combines multi-variety, small-lot and more flexible lines of production with cost reductions as well as improved quality.<sup>17/</sup> Japanese industrial success seems to rest on a host of factors of which two can be highlighted. First, they have demonstrated a long term strategic commitment to industrial innovation and upgrading, something Harvard Business School's Professor Michael Porter considers the essence of competitive advantage. <sup>18/</sup> Secondly, cooperation is taken to new lengths. In terms of labor relations, that translates into salaries which to a certain extent reflect not the productive task that the laborer performs but the ones that he is capable of performing. Most important of all, in terms of relations with other firms, it translates into the formation of keiretsu, or strategic business alliances, among the principal enterprises such that most internationally competitive companies are organized into just 6 or so central business groupings <sup>19/</sup>, as is shown in Table 1, which operate with a good deal of governmental assistance in targeting their next prey. Instead of producing stagnant cartels, as the free market entrepreneurship argument runs, it produces global winners. <sup>20/</sup> A burgeoning literature of the variety of "Why Japan Keeps On Winning" <sup>21/</sup> and "The Battle For Europe: Japan muscles in on the West and a shakeout begins" <sup>22/</sup> clearly suggests as much.

While it has been maintained that the fountainhead of international competitiveness is the capitalist mode of production as manifest in specific national variants, it can also be reduced to certain 'market model' considerations. <sup>23/</sup> Ostry distinguishes the US pluralist market economy from the continental European social market economies and the Japanese managerial market economy highlighting differences in terms of the role of government, market failure, time horizons, the government/business interface, etc. The point of the matter is that the Japanese managerial model has been savagely penetrating the US pluralist market economy and apparently is beginning to do the same with the continental European social market economy.

Table 1

THE MAIN MOVERS IN JAPAN'S BIGGEST BUSINESS GROUPS  
Includes only companies represented  
at monthly council meetings

A. INDUSTRY	Mitsubishi	Mitsui	Sumitomo	Fuyo	DKB	Sanwa
Cars	Mitsubishi Motors 69	Toyota Motor 6/ 6		Nissan Motor 20	Isuzu Motors 127	Daihatsu Motor 262
Computers, Electronics & Electrical Equipment	Mitsubishi Electric 49	Toshiba 29	NEC 40	Oki Electric Industry Yokogawa Electric Hitachi 8/ 12	Fujitsu 63 Fuji Electric 259 Yaskawa Electric Mfg. Nippon Columbia Hitachi 8/	Iwatsu Electric Sharp 134 Nitto Denko Kyocera 434 Hitachi 8/ 12
Metals	Mitsubishi Steel Mfg 250 Mitsubishi Materials Mitsubishi Cable Industries	Japan Steel Works Mitsui Mining & Smelting 457	Sumitomo Metal Industries 98 Sumitomo Metal Mining 327 Sumitomo Electric Industries 190 Sumitomo Light Metal Industries	NKK 130	Kawasaki Steel 152 Kobe Steel 8/ 143 Japan Metals & Chemicals 340 Nippon Light Metal Furukawa Hitachi Cable 256	Kobe Steel 8/ 143 Wakayama Steel Works Hitachi Metals Misshin Steel 409 Hitachi Cable
Industrial Equipment	Mitsubishi Heavy Industries 70 Mitsubishi Kakoki	Mitsui Engineering & Shipbuilding	Sumitomo Heavy Industries 432	Kubota 237 Nippon Seiko 485	Niigata Engineering Iseki Ebara Kawasaki Heavy Industries Ishikawajima-Harima Heavy Industries 241	NTN Hitachi Zosen Shin Meiwa Industry
Rubber & Glass	Asahi Glass 151		Nippon Sheet Glass		Yokohama Rubber 449	Toyo Tire & Rubber



Chemicals	Mitsubishi Kase 161 Mitsubishi Petrochemical 412 Mitsubishi Gas Chemical Mitsubishi Plastics Industries Mitsubishi Kase Polytec	Mitsui Toatsu 366 Chemicals Mitsui Petrochemical Industries	Sumitomo Chemical 182 Sumitomo Bakelite	Showa Denko 314 Nippon Oil & Fats Kureha Chemical Industry	Kyowa Hakko Kogyo Denki Kagaku Kogyo Nippon Zeon Asahi Denka Kogyo Sankyo 438 Shiseido 410 Lion	Ube Industries 317 Tokuyama Soda Hitachi Chemical Sekisui Chemical 276 Kansai Paint Tanaka Seiyaku Fujisawa Pharmaceuticals
Fibers & Textiles	Mitsubishi Rayon	Toray Industries 231		Nishinbo Industries Toho Rayon	Asahi Chemical Industry 158	Unitika Teijin 336
Pulp & Paper	Mitsubishi Paper Mills	Oji Paper 306		Sanyo-Kokusaku Pulp 405	Honshu Paper 422	
Cameras & Optics	Nikon			Canon 104	Asahi Optical	Hoya
Cement		Onoda Cement 446	Sumitomo Cement	Nihon Cement	Chichibu Cement	Osaka Cement
Oil & Coal	Mitsubishi Oil 325			Tonen 246	Showa Shell Sekiyu 139	Cosmo Oil 155
Food & Beverages	Kiron Brewery 239	Kippon Flour Mills		Nisshin Flour Milling Sapporo Breweries Nichirei 399		Itoham Foods 421 Suntory
B. SERVICES						
Financial services	Mitsubishi Bank Mitsubishi Trust & Banking Meiji Mutual Life Tokio Marine & Fire	Mitsui Taiyo kobe Bank Mitsui Trust & Banking Mitsui Mutual Life Taisho Marine & Fire	Sumitomo Bank Sumitomo Trust & Banking Sumitomo Life Sumitomo Marine & Fire	Fuji Bank Yasuda Trust & Banking Yasuda Mutual Life Yasuda Fire & Marine	Dai-ichi Kangyo Bank Asahi Mutual Life Taisho Fire & Marine Fukoku Mutual Life Nissan Fire & Marine Kankaku Securities Orient	Sanwa Bank Toyo Trust & Banking Nippon Life Ori-X
Trading & Retailing	Mitsubishi	Mitsui Mitsukoshi	Sumitomo	Marubeni	C. Itoh Nissho Iwai g/ Kanematsu Kawasho Seibu Department Stores	Nissho Iwai g/ Nichimen Iwatani International Takashimaya

Construction	Mitsubishi Construction	Mitsui Construction Sanki Engineering	Sumitomo Construction	Taisei	Shimizu	Toyo Construction Obayashi Sekisui House Zenitaka
Real Estate	Mitsubishi Estate	Mitsui Real Estate Development	Sumitomo Realty & Development	Tokyo Tatemono	Tokyo Dome	
Mining & Forestry		Mitsui Mining Hokkaido Colliery & Steamship	Sumitomo Forestry Sumitomo Coal Mining			
Shipping & Transportation	Nippon Yusen Mitsubishi Warehouse & Transportation	Mitsui OSK Lines Mitsui Warehouse	Sumitomo Warehouse	Showa Line Keihin Electric Express Railway Tobu Railway	Kawasaki Kisen Shibusawa Warehouse Nippon Express g/	Naivix Line Hankyu Nippon Expressa/

Source: Fortune, 15 July 1991.

a/ Companies affiliated with more than one group.  
The numbers beside some companies represents their rank by sales among the world's 500 largest industrial companies.

Porter's 'stages theory of competitive development,' as refined by Ozawa 24/, is quite relevant here. Porter defines the competitive development of national economies in terms of four stages, which he summarizes according to their central and sequential competitive feature: i) factor-driven, ii) investment-driven, iii) innovation-driven and iv) wealth-driven. According to him, the first three stages involve successive upgrading of a nation's competitive advantages and will normally be associated with progressively rising economic prosperity, whereas the fourth stage is usually characterized as one of drift and ultimately decline.

Natural resource-based activities and/or labour-intensive manufacturing are central to competitive advantages in the first stage, whereas the investment-driven stage is based on the manufacture of intermediate and capital goods (heavy and chemical industrialization) and infrastructure (housing, transportation, communications and public works construction). The innovation-driven stage rests on research and development successes deriving from the abundant use of human capital. It would appear that while most developing countries are found in the factor-driven and, less evidently, in the investment-driven stages, most so-called developed countries are found in the more advanced phases of the investment-driven stage or in the earlier phases of the innovation-driven stage of competitive development. One might speculate that the United States has entered the wealth-driven stage characterized by drift and ultimately decline.

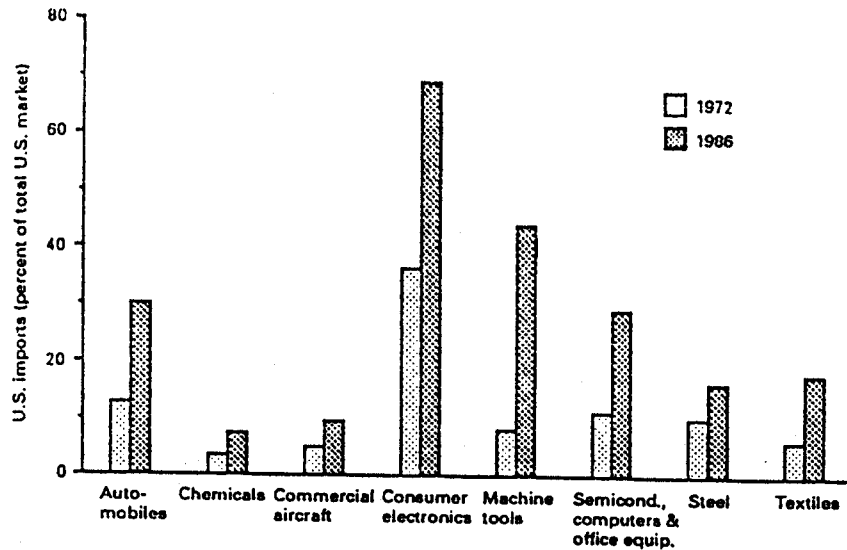
Ozawa has given life to this scheme by demonstrating how the Japanese experience delineates the close inter-relatedness among structural upgrading, dynamic comparative advantage and foreign direct investment, along the paths of its physical/human capital-intensive factor endowment and technological progress. In this way, he clarifies how a particular stage of competitive development is associated with a particular pattern of export competitiveness: the first stage is characterized by factor-based trade advantages in either primary commodities or labour-intensive goods, the investment-driven stage produces scale-based advantages in large-scale, capital-intensive goods, and the innovation-driven stage results in R & D based advantages manifest in exports of more technologically-sophisticated products. In this sense, economic growth and transformation is accompanied by the changing patterns of dynamic comparative advantage. It should be mentioned that these changes are not simply one-shot transformations rather they result from progressive transitions characterized by the simultaneous rise and fall of particular economic activities and can be conceptualized as the shift in the center of gravity of the economy as a whole.

Ozawa has also indicated how the nature and direction (inward and outward) of foreign direct investment changes in step with the structural transformation of the economy. The factor-driven stage

results in inward FDI characterized as resource- or labour- seeking. The second stage, the investment-driven one, produces inward FDI in the capital and intermediate goods industries while simultaneously generating outward FDI in labour-intensive manufacturing in lower wage countries and in resource extraction abroad for natural resource-scarce countries. In similar fashion, the transition to the innovation-driven stage brings about simultaneous inward FDI in technology-intensive industries and outward FDI in the intermediate goods industries. Based on this scheme and utilizing the example of the explosive transformation of the Japanese economy during the twentieth century, Ozawa relates trade and foreign direct investment developments to Porter's stages theory of competitive development. It can also be thought of as providing the framework for some of the major alterations taking place in global trade and investment flows.

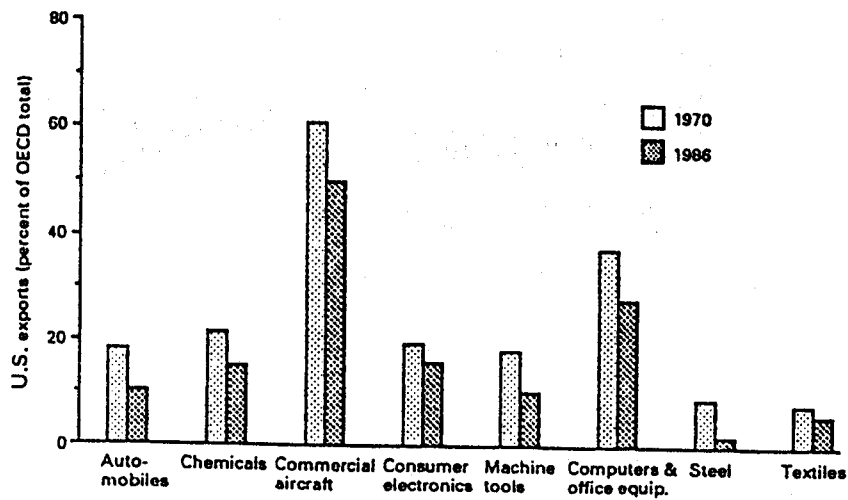
If one conceives of the international trade system to consist of four essential ingredients--investment changes in step with the structural transformation of the economy. The factor-driven results in inward FDI characterized as resource- or labour- seeking. The second stage, the driven one, produces inward FDI in the capital and intermediate goods industries simultaneously generating outward FDI in labour-intensive manufacturing in lower wage and in resource extraction abroad for natural resource-scarce countries. In similar fashion, transition to the innovation-driven stage brings about simultaneous inward FDI in intensive industries and outward FDI in the intermediate goods industries. Based on this scheme utilizing the example of the explosive transformation of the Japanese economy during the century, Ozawa relates trade and foreign direct investment developments to Porter's stages of competitive development. It can also be thought of as providing the framework for some of major alterations taking place in global trade and investment flows. the theory twentieth and technology the countries while investment stage North America, the European Community, Asia/Pacific and the rest of the world--the major imbalances registered in international trade flows in the last decade or so concern the surpluses registered by Asia/Pacific with North America and, to a lesser extent, the European Community.<sup>25/</sup> Some indication of the magnitude of the changes taking place is captured by Figures 1 through 3 which deal with the import penetration, export performance and foreign trade balance of eight major US manufacturing industries, most of which are considered "strategic industries", <sup>26/</sup> between 1970 and 1986. The message is clear: imports to the US are up appreciably, US exports to the OECD countries are down notably and the trade balance has worsened significantly. Since then US exports have picked up due to the depreciation of the dollar. In spite of this favorable development, even a casual glance at the 1991 sales and profit figures of the Fortune 500 largest US industrial corporations shows that 30 of

Figure 1 and Figure 2



#### U.S. imports in industries studied

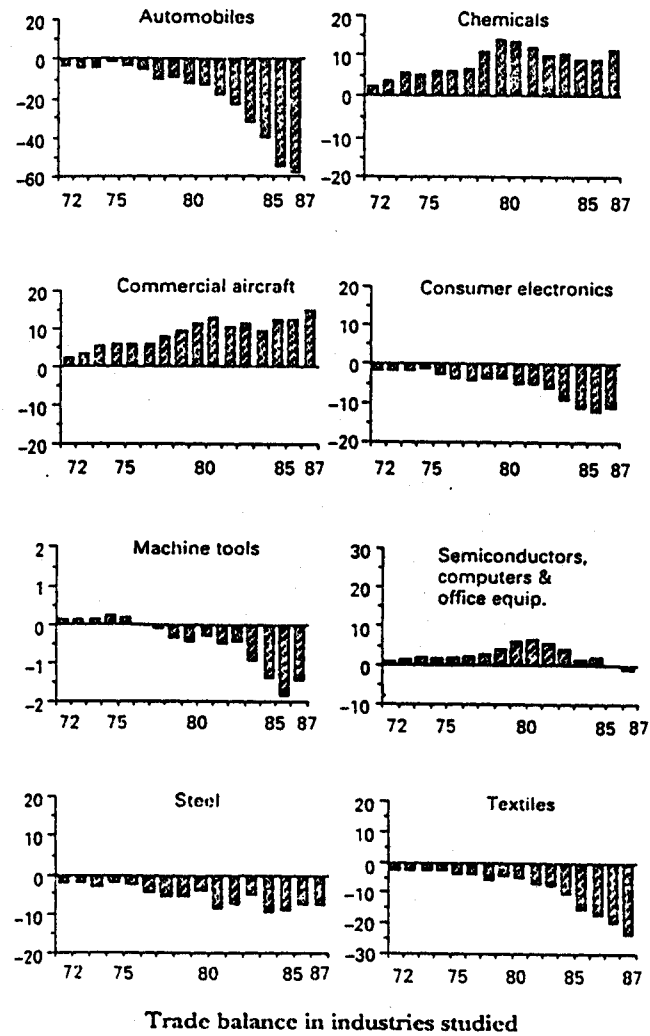
Sources: Based on data made available by the U.S. Department of Commerce, International Trade Administration, Office of Trade Information and Analysis, supplemented by data presented in U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook, 1988* (Washington, D.C.: U.S. Government Printing Office, 1988); and Organization for Economic Cooperation and Development, COMTAP Database.



#### U.S. exports in industries studied

Sources: Based on data made available by the U.S. Department of Commerce, International Trade Administration, Office of Trade Information and Analysis, supplemented by data presented in U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook, 1988* (Washington, D.C.: U.S. Government Printing Office, 1988); and Organization for Economic Cooperation and Development, COMTAP Database.

Figure 3



Trade balances are in terms of billions of current U.S. dollars. Source: Data made available by the U.S. Department of Commerce, International Trade Administration, Office of Trade Information and Analysis.

the largest 60 corporations suffered a decline in sales compared to 1990 and 31 withstood a decline in profits compared with the same year. The largest of the 500 companies in important industries such as motor vehicles and parts (\$7.5 billion), computers/office equipment (\$2.8 billion) and industrial and farm equipment (\$661 million) together suffered severe losses.<sup>27/</sup> Even if one considers the post-war years to be aberrant <sup>28/</sup>, there is no hiding the pain for a humbled America. American concerns for 'Made in USA' are clearly justified. <sup>29/</sup> American industry, even high-technology industry, has lost ground in world markets and is suffering increased competition at home. Moreover, an increasing share of US domestic production is foreign-owned. <sup>30/</sup> The trade situation is caused primarily by Japanese TNCs which in 1990 were running a trade surplus with the US of \$22.3 billion in computers and telecommunications equipment, \$20.5 billion in cars and trucks and \$9 billions in industrial equipment, three principal high technology and/or trade intensive industries. The increase in foreign investment in US production had to do more with European than Japanese TNCs; however, both were very active. None the less, it was with Japan that the US felt most uncomfortable and a serious rift was opened. <sup>31/</sup>

It makes sense to place the US-Japan rift in the broader context of changes in international trade and its 'neglected twin', foreign direct investment. <sup>32/</sup> The globalization and specialization tendencies of trade will be dealt with first; followed by the globalization and regionalization tendencies in the field of foreign direct investment.

#### 1. Tendencies in International Trade: globalization and specialization

The principal alterations in the international trading system over the last few decades have been its notable expansion; the upsurge of major new exporters (Japan and the Asean NICs); the opening up of the United States market and, to a much lesser extent, the European Economic Community to increased import flows; and, the increase in system tension or conflict associated with these alterations.

An interesting industrial taxonomy has been developed to succinctly capture the global changes in terms of country trade specialization. <sup>33/</sup> As well as confirming the principal winners (Asean NICs, Japan) and losers (European Economic Community, USA) in world trade over the 1970-89 period, this analysis offers insight into the trade specialization taking place on the part of the EEC, Japan and US. The following two paragraphs rest largely on Guerrieri's work. In general, as Table 2 indicates, Japan and the US underwent significant trade specialization during the 1970-89 period, whereas the EEC did not. Of the major countries, Japan had the best trade performance over the last two decades and, as Table 3 demonstrates, that success was manifest in a doubling of market

Table 2

SECTORAL DISTRIBUTION OF TOTAL JAPANESE, US AND EEC EXPORTS OF MANUFACTURES TO THE OECD, 1970-1973 AND 1986-1989

(In percent)

	Japan		United States		European Community a/	
	1970-73	1986-89	1970-73	1986-89	1970-73	1986-89
Science-based	11.3	27.3	19.0	30.5	11.0	16.6
Specialized suppliers	10.4	15.3	15.9	10.5	15.2	12.9
Scale intensive	53.8	46.4	23.4	21.4	31.2	30.7
Resource intensive	2.0	2.0	5.5	5.6	6.8	6.4
Traditional	17.6	6.8	7.8	7.3	18.6	17.0
Food industries	1.7	0.5	4.7	4.6	7.7	7.8
Food items and agricultural raw materials	1.0	0.3	16.0	9.7	4.6	3.9
All other	2.2	1.4	7.7	10.4	4.9	4.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: Guerrieri, P., Technological and trade competition: a comparative analysis of the United States, Japan and the European Community", mimeo, July 1991.

a/ Nine members.



Table 3  
 MARKET SHARE OF EXPORTS OF JAPAN, UNITED STATES AND THE EUROPEAN COMMUNITY  
 IN WORLD EXPORTS OF MANUFACTURES BY SECTOR, 1970-1973 AND 1988-1989  
 (In percentage)

	Japan		United States		European Community g/	
	1970-73	1988-89	change	1970-73	1988-89	change
Science based	8.5	16.4	7.9	27.1	46.4	-7.0
(R&D intensive electronics) b/	(9.4)	(21.5)	(12.1)	(28.5)	(45.0)	(-9.0)
Specialized suppliers	7.0	15.7	8.7	20.3	57.2	-7.6
Scale intensive	15.4	16.7	1.3	12.8	51.7	-3.1
Traditional	8.2	3.9	-4.3	6.9	50.4	-1.5
TOTAL	9.0	11.6	2.6	13.5	48.6	-2.2
					44.0	-4.7

Source: Guerrieri, P., "Technological and trade competition: a comparative analysis of the United States, Japan and the European Community", mimeo, July 1991.

a/ 12 member countries.

b/ Subsector of science based which includes data processing equipment, electronic components and telecommunication equipment.

shares in science-based sectors (fine chemicals, electronic components and telecommunications) that is, areas characterized by innovative activities directly linked to high research and development expenditures, that generate broad spillover effects on the whole economic system, and which serve as intermediate and capital inputs to a large number of other sectors, and considerable gains in specialized suppliers industries (investment goods based on mechanical and instrument engineering, such as machine tools), that is, activities characterized by a high diversification of supply that serves mainly as inputs into the scale-intensive and supplier-dominated sectors, and with significant economies of scope. Japanese trade specialization was particularly strong in the research and development-intensive electronic sectors (such as data processing systems, electronic components and telecommunications) and they moved decisively out of traditional sectors.

The flip side of the Japanese advance in world trade shares of manufactures was represented by the US decline. It was precisely where the Japanese TNCs made the greatest inroads-- electronics, and specialized suppliers industries-- that the most negative results for US firms were registered. Table 2 indicates that while US enterprises have succeeded in very much furthering specialization in the science-based sectors, except electronics; they experienced increasing difficulties in transforming high-level scientific and research capability into innovative activities and products with significant commercial value in the other manufacturing sectors.<sup>34/</sup> Table 3 shows how market shares in dynamic sectors crumbled. They suffered a kind of de-specialization in specialized suppliers and scale-intensive sectors (automobiles, consumer electronics and consumer durables, as well as the rubber and steel industries), the latter being areas characterized by oligopolistic industries with high capital intensity, wide economies of scale, high technical and managerial complexity and significant in-house engineering activities. Furthermore, US firms were not very successful in moving out of traditional sectors.

Another way of defining winners and losers with regard to foreign trade over the last decade or so is that carried out by Mandeng. <sup>35/</sup> Considering that economic growth has become more trade-intensive and that the dynamic elements are centered on large firms producing technologically complex manufactures for imperfectly competitive global markets, and that certain new players (Japan and the Asean NICs) are rapidly improving their trade performance <sup>36/</sup>, it makes sense to focus on the changes taking place in OECD overall imports.

Fajnzylber <sup>37/</sup>, based on Mandeng, defines not only the 'winners' that increased market share between 1979 and 1988, he analyzes gains according to the principal products involved, in the sense that he distinguishes products enjoying increased global market shares from those that do not.

In other words, 'winner' countries can increase market shares with 'dynamic' products (the optimal situation of 'rising stars') or 'declining' ones (a situation of vulnerability ascribed to 'declining stars'). Conversely, 'loser' countries might lose market shares with either 'dynamic' products (a situation defined as 'lost opportunities') or 'declining' ones (a situation called 'retreat'). Naturally, the mix of products for virtually all countries contains examples of both kinds. The overall situation is, none the less, revealing, as is suggested by Table 4. It is another useful indicator.

Among the principal OECD countries, Japan clearly has enjoyed the most important market gains and, more importantly, 80 percent of their exports enjoy the optimal situation and virtually all are non-natural resource-based manufactures. With few exceptions (Netherlands and the UK), the European Community members generally made minor market gains, however, with the exception of Portugal, the 'winners' faced many lost opportunities in their export performance even though they exported mostly non-natural resource-based manufactures. Bad off were Australia and New Zealand whose natural resource or natural resource-based manufactures were characterized by situations of vulnerability or retreat. The United States lost market share, even fewer of its products were in an optimal situation and even more were in one of lost opportunities than the Europeans. A similar proportion of export products were in retreat, faced with the onslaught of the Japanese. In this manner, Table 4 ratifies and clarifies central aspects of the trade situation for the OECD countries.

This dramatic shift in foreign trade performance by OECD countries naturally provoked discontent on the part of the losers. The Europeans reacted positively by way of accelerated integration in the form of the Europe 1992 initiative and negatively with a policy of applying anti-dumping duties to the avalanche of finished products landing on their doorstep, supplemented by fixed quantitative import restrictions in certain sectors, such as automobiles. New initiatives in the field of merger and takeover policy are also worth noting. <sup>38/</sup> Some of the principal effects are, first, to promote local assembly facilities by way of foreign direct investment and, second, to slowly raise the levels of local content in those facilities. <sup>39/</sup> Overall and in general, through bureaucratic procedures and trade restrictions the EEC members were made less penetrable and given more time to adjust.

Table 4  
EXPORT MARKET DYNAMICS FOR PRINCIPAL OECD COUNTRIES, 1979 AND 1988

Exporting Country	Share of OECD imports		Export classification (%)				Structure of exports (%)			
	1979	1988	Percentage change	Optimal a/	Vulnerable b/	Lost opportunities c/	Retreat d/	Natural resource based	Energy	Manufactures
I. "Winners"										
Japan	4.63	8.15	76	80	4	11	5	-	-	4 96
Portugal	0.27	0.52	93	75	12	10	3	5	2	23 71
Canada	4.48	4.91	10	43	15	27	15	9	9	29 52
Italy	4.35	5.01	15	35	13	46	6	4	2	13 81
Greece	0.29	0.33	14	29	26	27	17	22	7	19 52
F. R. Germany	10.66	12.54	18	29	8	55	7	2	1	15 81
France	5.93	6.41	8	23	11	54	12	9	1	21 68
II. "Losers"										
New Zealand	0.32	0.31	-3	31	25	10	34	45	2	34 18
Netherlands	4.54	4.49	-1	24	14	41	19	14	11	27 49
United Kingdom	5.25	5.24	...	20	17	51	12	7	11	16 66
Australia	1.15	1.06	-8	18	57	6	18	38	19	27 14
United States	10.23	10.07	-2	11	8	66	15	12	3	13 71

Source: Derived from F. Fajnzylber, "International insertion and institutional renewal", CEPAL Review, No. 44, August 1991, Table 2, pp. 142-143.

a/ Favorable competitive position of products and a high relative efficiency of country. b/ An unfavorable competitive position of products and a high relative efficiency of country. c/ A favorable competitive position of products and a low relative efficiency of country. d/ An unfavorable competitive position of products and a low relative efficiency of country.

The US economy was more penetrable, however, the reaction of the United States was rather more combative, as it increasingly relied on unilateral strong-arm tactics 40/ as manifest in the US Omnibus Trade and Competitiveness Act of 23 August 1988. This legislation allows the US Government to determine unilaterally what it defines as unfair trade practices and thereby bring to bear heavy pressures on trade partners. Although it is formally stated to be unrelated to the Trade Act, it was shortly after Japan was identified under Section 301 of that Act that the Structural Impediments Initiative began with that government, that is US-Japanese conversations to overcome conflictive aspects of their trade relations. Thus, it results in a quid pro quo approach to bilateral negotiations which undermines the multilateral process. It has also resulted in the growth of product-specific protection in the US market. The Trade Act also reconfirmed an active private sector role in multilateral trade negotiations as well as specific trade remedy laws which flow from the 'bottom-up' process dealing with anti-dumping concerns. 41/

The example of the industrial adjustment of consumer electronics industry, which took place previous to the 1988 Trade Act, demonstrated that the US battery of trade management instruments which included bilateral orderly marketing agreements and simple export quotas was not then sufficient to save the industry. 42/ The Trade Act captured the new perspective growing among US TNCs facing import competition, that is, 'strategic' trade policy demanding not simply protection but 'contingent' trade barriers for the home market if foreign markets are protected. 43/ It represents a new kind of rearguard action on the trade front by US TNCs in respect of the US-Japan rift and the exigency for industrial restructuring. The US is no longer the world's most enthusiastic champion of free trade and it readily implements regional trade deals, bilateral arrangements, antidumping and countervailing duties and Section 301 actions in its trade relations. 44/ None the less, it became clear that if US and European TNCs are to become or remain competitive, it will be by conscious industrial restructuring to improve international competitiveness not by home country trade restrictions or more managed trade in the motor vehicle and parts, semiconductor and machine tools industries or other strategic industries. 45/

## 2. Tendencies in Foreign Direct Investment: globalization and regionalism

It is clear that important changes were also taking place in terms of foreign direct investment. Global integration via trade flows was heavily reinforced in the 1980s by foreign direct investment flows. The dynamism of FDI flows was superior to that of international trade and became a new engine of growth. As mentioned, trade restrictions on imports often led to foreign direct investments on the part of the 'aggressor'. The process of transnationalization has produced simultaneous tendencies in terms of globalization and regionalism. It should also be kept in mind that over half of the trade flows of the US and Japan are related to foreign direct investment, that is, they are intra-firm TNC operations. <sup>46/</sup> One can conceptualize these tendencies in terms of global strategies on the part of the TNCs, on the one hand, and regional supply or sales networks, on the other. System tension or conflict has also risen due to the changes taking place in terms of global FDI flows.

During the 1980s, the principal developments in terms of foreign direct investments include the following: <sup>47/</sup>

- the stock of world foreign direct investment triples to \$1,500 billion up from \$500 billion in 1980.
- the European Economic Community becomes the most important source of foreign investment flows: US\$39 billion annually during 1985-89.
- the US becomes the most important host country for foreign investment: US\$329 billion in 1988.
- the foreign investment of Japan increases six-fold: to US\$111 billion.
- about 80 percent of world investment flows is concentrated in the US, the EEC and Japan.

These characteristics of the foreign investment situation gave rise to the concept of the Triad which first was used to capture the sense of concentration (67%) of world trade in the US, EEC and Japan <sup>48/</sup> and now is found to be even more applicable to the concentration (80%) of the outward stocks of world foreign investment in those countries.

According to the UNCTC, World Investment Report, 1991, there is a movement toward parity within the Triad. In the early 1980s, it would have been difficult to characterize the United States, the EEC and Japan as forming a Triad which dominated global foreign direct investment stocks and flows; the role of Japan was then relatively small, and the EEC was too fragmented, more a collection of 12 countries than an integrated regional economy. At that time, the United States was alone the single most important home and host country for foreign direct investment in the world

economy. By the end of the 1980s, a Triad has indeed emerged, at least in terms of flow data. Behind this emergence of a tri-polar structure are the rapid growth of outward investment from Japan and the integration of the EEC, such that the latter now may properly be considered a single Triad member. While by 1990 it appears that the United States and the EEC are jointly the most important Triad members, if current trends continue, the EEC could eventually surpass the importance of the United States as the most important home and host region and Japan could, within the next decade, surpass the importance of United States as a home country, also in terms of stock.

From a strategy point of view, the convergence of intra-Triad foreign direct investment relationships points to the growing importance given to the Triad by TNCs. This strategy, often referred to as "globalization", means that TNCs are increasingly regarding their non-domestic Triad activities to be as important as their home-country operations. The recent strategy of Japanese TNCs to become "regional insiders" in each leg of the Triad is motivated by both efficiency reasons (country specialization and regional economies of scale), as well as by policy considerations (extra-regional tariff and non-tariff barriers). If this strategy, which can be summarized as an obsession with markets rather than profits <sup>49/</sup> proves successful, then the question arises as to whether EEC and US TNCs, in order to ensure competitive survival, will also have to adopt a three-legged strategy in each member of the Triad. The incentive to do so will be greater if regional trade blocs are strengthened in Europe, North America and Asia such that achieving "insider" status would be an important competitive advantage to gaining access to those markets.

Against such a scenario, the low level of foreign direct investment into Japan stands out as a striking imbalance. This situation might eventually lead to increased policy pressures on Japan to open its economy to more inward foreign investment from the other two Triad members. It would also be likely that the EEC and, in particular, the United States, would respond to this potential competitive threat to their TNCs by utilizing strategic trade and foreign-direct-investment policy tools, in an attempt to attain a 'level playing field' in bilateral foreign-direct-investment relationships with Japan. <sup>50/</sup>

The regional tendencies which have accompanied the global one refer to two distinct phenomena. First, the perspective within the globalizing 'one world' view that its principal components are three--the US, Europe and Japan--and that they require regional considerations. Secondly, the nature of the various supplier and marketing networks that have emerged around each Triad member.

The importance of the regional tendency, in the first sense, is triple. In the first place, globalizing TNCs must develop and implement specific strategies for each major Triad market with regard to product design, marketing, distribution, supply networks, finance, trade and foreign investment. Aside from dealing with market considerations concerning distinct consumer tastes and with differing Triad regulations on essentially technical topics such as product safety, entrant or expanding non-resident TNCs must deal with potentially conflictive relations with host government rules on finance, trade and foreign investment. <sup>51/</sup> As Agosin and Tussie have noted, hitherto unnoticed differences in institutional practices and relatively small shifts in relative competitiveness can have significant effects on international trade and investment flows. In an era of man-made comparative advantages, locational competition between countries or among regions has emerged as a new and increasingly more contentious form of competition. <sup>52/</sup>

In second place, the high technology industries which have become the focus of international competition are not evenly distributed across the Triad or the globe. This means that, in an international context of increased competition within the private sector, Governments inevitably attempt to 'boost' their national or regional champions and make life difficult for their competitors.<sup>53/</sup> These measures can range from wholesale government-assisted 'targeting' of other Triad markets (as the Japanese Ministry of International Trade and Industry has done) to simpler government-assisted research and development programs in specific areas (such as the European Strategic Programme for Research in Information Technology--ESPRIT, or the US initiative for semiconductor technology--Sematech). Thus, at an industrial level the business-government interface is an important element in intra-Triad relations.

In third place, the three Triad members have the strongest voices in the definition of the rules of the game with respect to the multilateral system, be that by way of the General Agreement on Trade and Tariffs (GATT), the Organization of Economic Cooperation and Development (OECD), the Bank for International Settlements (BIS) or the United Nations system. Increasingly, national or regional policies on exchange rates, interest rates, import protection, competition, external financing, etc. have tended to converge to a certain degree and were the subject of periodic discussions by the Group of Seven industrialized countries (US, Canada, Germany, France, UK, Italy and Japan). Policy changes by Triad members in these areas could be very disruptive of the existing international macroeconomic situation--witness the decline of the dollar versus the Deutschmark and the Yen since 1985--and TNCs must have the ear of their national governments.



The relevance of the regional tendency within the Triad is that it highlights the importance and differential nature of the TNC/government interface at distinct levels: the corporation, the industry and the country or bloc. That assists in identifying the areas of possible system conflict within the Triad. One major source of possible conflict would be differing US and Japanese sensibilities related to FDI. For example, the Japanese keiretsu-system essentially keeps outside TNCs from operating successfully in the Japanese market, while Japanese TNCs are seen to be gobbling up US competitors in the United States by way of takeovers and mergers. 54/

### 3. Considerations

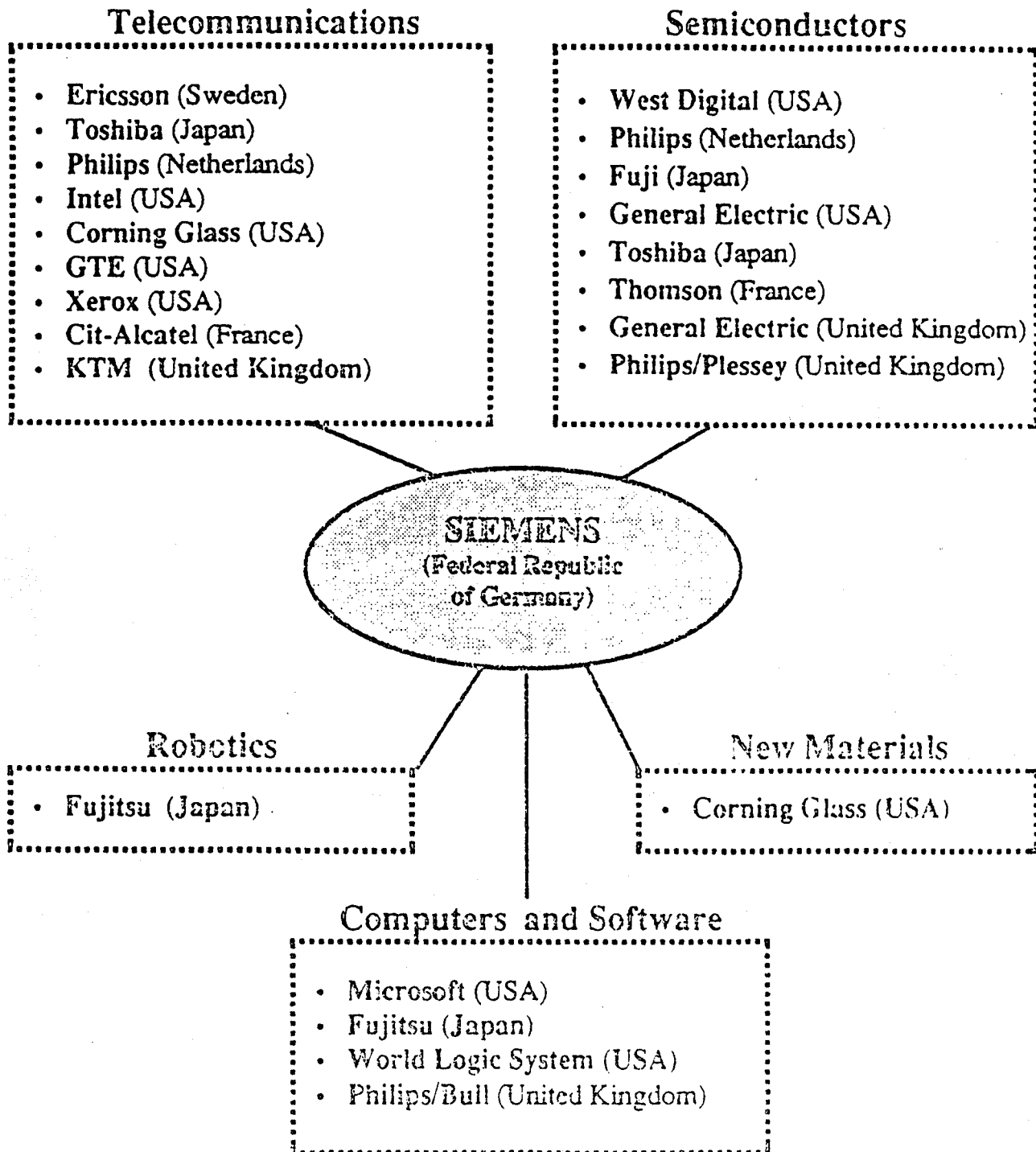
It is convenient now to analyze somewhat the new nature of international competitiveness. A good beginning is to rely less on classical trade-centric theories on comparative advantages of nations according to simple factor endowments and more on the analysis of the new situation from the point of view of the competitive advantage of firms, emphasizing the importance of research and development, innovation and technology. 55/

The new situation is most clearly manifest in two separate and distinct areas. First, in strategic and technologically-sophisticated 'leading edge' industries, such as microelectronics, biotechnology, new materials, robots/machine tools, computers/software, telecommunications, etc., competitive advantage is for the most part created by way of huge research and development investments and strategic alliances among advanced-technology TNCs. Siemens is a good example here, as Figure 4 suggests.

Second, for the mature scale-based mass-production industries presently undergoing restructuring, such as automobiles, consumer electronics, textiles, iron and steel, etc., competitive advantage is in large part acquired by a mixture of technological advance and organizational innovation. A UNCTC publication on this subject maintains that the new best-practice manufacturing system has three broad dimensions. The first is technological and relates to the use of flexible, integrated automation technologies in all aspects of firm activities. The second dimension is the incorporation of new management forms and production organization within firms, allowing for attainment of quality and flexibility standards now demanded by the market-place. The third dimension encompasses a new set of relations between firms and their suppliers based on co-operation and trust and reflecting a sharp break with the adversarial relations of the past. ... As the

Figure 4

## SIEMENS AG AND ITS MAIN INTERNATIONAL CO-OPERATIVE AGREEMENTS, 1984-1987



**Source:** UNCTC, based on company annual reports and other publicly available documentation. Includes joint ventures in R & D and in production, licensing and sub-contracting.

broad outlines and principle features of the new system now are becoming clear, it is likely that they will fundamentally influence international competition and economic development in the coming decades. <sup>56/</sup>

This new international competitiveness is also manifest in the increasingly footloose nature of international production by 'global' TNCs <sup>57/</sup> and the growing role of foreign direct investment. <sup>58/</sup>A Group of Thirty report suggests that foreign direct investment now possesses the same potential for increasing growth and efficiency as had international trade in the 1950s and 60s. <sup>59/</sup> The increase in outsourcing by TNCs also reflects the global streamlining and/or specialization undertaken by internationally-competitive TNCs.<sup>60/</sup> In terms of the competitive advantage of nations, Porter points out that it is necessary to specify competitive industries and industrial segments, that the only meaningful measure is productivity and, when all is said and done, a nation's competitiveness depends on the capacity of its industry to innovate and upgrade. <sup>61/</sup> Three principal sets of factors identified by Ergas which help explain the differing pace of innovation among countries are i) those that affect the inputs into innovation, such as the quality of a country's scientific base, the presence of research institutions and, above all, its education; ii) those that influence demand, such as receptive and sophisticated customers calling for constant innovation; and, iii) an industrial structure that combined opportunities for intense competition with some mechanism for firms to share the financing and diffusion of scientific research. <sup>62/</sup> Fajnzylber suggested that seven relevant indicators on international competitiveness, dealing mainly with exports of manufactures, growth of productivity and research and development expenditures, demonstrated that a comparison of Japan, Germany and the US left Japan in first place, Germany in second place and the US in third place. <sup>63/</sup> That seems to adequately reflect most opinions on the subject. It also indicates the central source of system friction.

In summary, available statistics and other information on foreign trade and investment suggests that discernible trends in terms of globalization, specialization and regionalism are setting a new international context for competition. A one world/three poles perspective has helped promote convergence in respect of certain fundamental principles of international relations; however, that tendency has been accompanied by one of increased system tension or friction due to the fact that international competition for the first time is increasingly characterized by a head-to-head struggle for the same industries in the same principal markets rather than the search for market niches. In essence, a thousand or so dominant TNCs are disputing a half dozen technologically-sophisticated industries and another half dozen which are undergoing active restructuring, and are focussed on the

US, European and Japanese markets. The situation of the principal actors is not the same. The Japanese and German examples of cooperative managerial capitalism seem to be gaining the upper hand in the international competition with US competitive managerial capitalism. The competitive edge of Japanese and German industrialization is obliging US industry to react, that is, restructure in order to remain competitive. This is a situation qualitatively distinct from the industrial restructuring that took place in western Europe in the 1950s and apparently will take place in eastern Europe during the 1990s. The situation is complicated and system friction among the dominant countries has been a result.

This is the outline of the new international industrial order in respect of the general situation of increased competition. In the context of a broad consensus on the central features of the contemporary political economy, increased competition among the dominant transnational corporations operating in the more dynamic industries is generating friction and conflict among the governments of the principal industrial countries. It is not at all clear that these governments possess the capacity, the will or the foresight to actively deal with the situation, or if it will be left to unilateral actions, 'the market' or 'business' to resolve. Furthermore, the manner with which this situation is dealt with will have strong consequences for developing countries, which is the subject of Chapter II.

## Chapter II

## INCORPORATION OR MARGINALITY FOR DEVELOPING COUNTRIES?

The increased international competition in global economic relations has resulted in the fact that developing countries now receive fewer preferences from and, at the same time, have to compete on harsher terms with the OECD countries. Only a relatively small group of developing countries are in a position to do so. They could be incorporated into the new international industrial order.

Experience has shown that the few developing countries which are in the process of incorporation have done so through a combination of design and good fortune. The incorporation of developing countries into the new international industrial order requires the coincidence of at least three factors. First, the economic policies of the developing country must be clear and coherent and provide a stable environment for all concerned. Second, the comparative advantages of the developing country in terms of natural resources, wage levels or human capital must coincide with the corporate strategies of major transnational corporations. Third, the framework of the new international industrial order, as manifest in the rules of the game drawn up by the Triad members of the OECD (IMF orthodoxy, GATT membership, etc.), must facilitate the entry of the developing country. The coincidence of these three factors requires not only a well thought out plan by aspiring new entrants and good will by the major players, it also must be accompanied by a significant degree of good luck. In this context, it would appear that the vast majority of developing countries face further marginality.

This document will focus on the **great contrast** of the post war period in terms of the incorporation of developing countries, that is, the very distinct experiences of the **developing Asia** and **Latin American** regions. Many Asean countries, such as the newly industrializing countries (Hong Kong, Singapore, Taiwan and South Korea) the ASEAN 4 (Thailand, Malaysia, Indonesia, and the Philippines) and even, to an extent, China, are often viewed as examples of successful adaptation to changing circumstances. The nature of their industrialization processes, as manifest in accelerated growth of output, trade and, more recently, foreign investment, demonstrates central aspects of their incorporation into the new international industrial order. As a point of departure, well-designed and practical export-oriented growth and industrial policies in these countries proved convenient to labour-seeking TNCs, especially Japanese ones, and this coincided with the explosion of world trade facilitated by the GATT framework during the 1960s and 70s. Many of these countries came to be considered developing country copies of the successful Japanese experience.

The industrialization processes of Latin American countries were viewed as less successful, even though they started earlier, especially since the debt crisis produced the 'lost decade' of the 1980s when growth and investment nosedived. Generally, economic and industrial policy in the region had been centered on the substitution of industrial imports and was accompanied by low levels of exports of manufactures and plagued by problems of relative inefficiency. These policies historically were attractive to some TNCs, especially US ones<sup>64/</sup>, which sought to maintain former export sales in what became very protected markets; however, this did not facilitate the incorporation of these countries into the existing industrial order. The Latin American operations of TNCs generally served local markets and did not form an important part of any regional sourcing network or export platform for any of the principal OECD countries. Foreign exchange shortfall was a constant constraint on this industrialization process and most governments as a result developed a defensive stance in respect of foreign investment during the 1970s. This situation changed radically due to of the debt crisis and, following the implementation of stabilization policies, more liberal approaches to trade and investment became prevalent. Nonetheless, the international trade and investment framework was no longer as supportive for prospective new entrants.<sup>65/</sup> Any major alteration in the nature and degree of the incorporation of Latin America into the new international industrial order is not as yet readily apparent.

The Asean experience can be interpreted in a conceptual framework very similar to that of Porter/Ozawa discussed elsewhere.<sup>66/</sup> The "flying wild geese" scheme envisions growth and technological progress in Asia in terms of the arrow shaped pattern of migrating waterfowl. The idea in essence is that there exists a lead-geese which is more advanced and gives direction to the flock. That role is played by Japanese industry which is more technologically-sophisticated and which, during the innovation-driven stage of competitive development, to use Porter's terminology, spins off investment-driven industries, such as some intermediate and capital goods, to the more advanced developing countries of the region in similar fashion as it did previously with labour-intensive manufacturing as it left the factor-driven stage of competitive development. In this sense, the Asean newly industrialized countries (NICs) take up positions in the flying geese pattern immediately behind Japan. The ASEAN 4 follow and enter the labour-intensive manufacturing activities spun off in turn by the Asean NICs. China might be considered to be further back in the pack picking up the most labour-intensive and least technologically-demanding of assembly operations left behind by more advanced members of the flock. As can be appreciated the operational element of this scheme is the process of learning associated with technological development, which begins with the original

technology transfer and passes through several progressive stages (assimilation, absorption, diffusion, adaptation, institutionalization, generation and innovation) until the original technology is again transferred, this time by the recipient to a relatively less technologically-advanced country. Several countries of developing Asia have been particularly astute at using export processing zones to access foreign technologies. This kind of scheme produces useful insights into the changes taking place in global trade and investment flows and, thereby, throws light on the nature of developing country incorporation into the new international industrial order.

### 1. Tendencies in International Trade: gains for Asean NICs

It would appear that developing countries, as a group, have been making headway in terms of breaking into international trade flows of manufactures. As Table 5 indicates, developing countries as a group have raised their share of world trade of manufactures from under 13 percent in 1966 to over 19 percent in 1989. A closer examination of those figures demonstrates that the gains are highly concentrated in a handful of Asean NICs. Exports of manufactures from Africa have declined so severely that they are now marginal to world trade. Exports of manufactures from Latin America have fallen from 5 percent of world trade in 1966 (then, higher than the developing countries of Asia) to less than 4 percent in 1989. At the same time, the exports of manufactures from Asia have shot from under 4 percent in 1966 to over 12 percent in 1989. The gains are concentrated in just four Asean 'tigers'--Republic of Korea and the Chinese exporters: Taiwan, Hong Kong and Singapore--while two other Asean countries (Malaysia and Thailand) have also registered major advances. Much less dramatic gains were compiled in Latin America by Mexico and Brazil. All in all, the advances in the export of manufactures from developing countries is highly concentrated in a small group of fortunate ones, while the majority seem to have become progressively more marginalized from international trade in manufactures. The export gains of these Asean developing countries were concentrated primarily in the US and the developing Asean markets, although gains were also attained in the European and Japanese markets.

Tables 6 through 8 assist in highlighting differences in the nature and dimension of the industrialization processes in the two regions, at least in so far as their external projection via exports is concerned. Table 6 indicates that one of the few industries that developing countries have been able to penetrate to an important degree is that of electrical machinery and electronic equipment (hereafter, shortened to electrical equipment). The developing country share of this rapidly expanding market exploded from 3 to over 23 percent between 1966 and 1989, demonstrating what developing

Table 5  
EXPORTS OF ALL MANUFACTURES, BY AREA, SELECTED YEARS, 1966-89

	Millions of dollars					Percentage				
	1966	1977	1982	1986	1989	1966	1977	1982	1986	1989
I. All available reporters	136 931	804 694	1 262 265	1 545 436	2 310 440	100.0	100.0	100.0	100.0	100.0
a) Industrial economies	117 841	625 626	988 602	1 275 930	1 848 410	86.1	77.8	78.3	82.6	80.0
b) Developing countries economies	17 339	133 012	209 324	260 667	443 606	12.7	16.5	16.6	16.9	19.2
i) Asia	4 839	50 035	107 547	147 843	294 385	3.5	6.2	8.5	9.6	12.7
Taiwan	328	8 887	21 469	38 051	64 274	0.2	1.1	1.7	2.5	2.8
Korea	183	9 027	20 807	33 272	60 182	0.1	1.3	1.6	2.2	2.6
Hong Kong	988	7 383	13 412	19 260	28 063	0.7	0.9	1.1	1.3	1.2
Singapore	677	6 284	17 282	19 675	41 856	0.5	0.8	1.4	1.3	1.9
Malaysia	495	3 399	7 413	9 130	18 906	0.4	0.4	-0.6	0.6	0.8
Thailand	322	2 124	4 391	6 258	16 096	0.2	0.3	0.3	0.4	0.7
Philippines	345	1 987	2 897	2 876	n.a.	0.3	0.2	0.2	0.2	n.a.
ii) Latin America	6 840	35 004	50 174	61 291	80 440	5.0	4.4	4.0	4.0	3.5
Brazil	1 256	9 100	16 317	19 986	28 797	0.9	1.1	1.3	1.3	1.2
Mexico	538	2 701	11 196	14 129	16 665	0.4	0.3	0.9	0.9	0.7
Argentina	904	3 374	4 600	4 331	7 469	0.7	0.4	0.4	0.3	0.3
Colombia	435	2 144	2 569	4 213	4 084	0.3	0.3	0.2	0.3	0.2
Chile	718	1 812	2 800	2 931	6 138	0.5	0.2	0.2	0.2	0.2
iii) Africa	1 750	16 954	10 462	6 204	1 463	1.3	2.1	0.8	0.4	0.1
iv) All Other	1 750	46 056	64 339	8 839	18 424	1.3	5.7	5.1	0.6	0.8

Source: United Nations Statistical Office, CONTRADE, data retrieved on 10 August 1992.



Table 6  
EXPORTS OF ELECTRICAL MACHINERY AND ELECTRONIC EQUIPMENT (ISIC 383), BY AREA, SELECTED YEARS, 1966-1989  
(thousands of dollars and percentage)

Reporter	1966	1977	1982	1986	1989	1966	1977	1982	1986	1989
Industrial market economies	7 752 113	52 300 152	84 537 157	127 791 463	190 625 899	96.9	88.8	84.0	81.1	76.7
All developing countries	241 075	6 510 324	15 521 840	29 261 488	57 686 399	3.0	11.0	15.4	18.6	23.2
i) Asia	126 700	5 239 741	12 728 830	23 584 278	51 755 647	1.6	8.9	12.6	15.0	20.8
Taiwan	9 364	1 440 862	3 287 763	5 826 285	11 844 041	0.1	2.4	3.3	3.7	4.8
Korea	5 093	1 028 720	2 267 693	5 941 321	13 200 572	0.1	1.7	2.3	3.8	5.3
Hong Kong	81 228	1 050 573	1 761 484	2 853 126	4 407 157	1.0	1.8	1.7	1.8	1.8
Singapore	19 212	1 168 566	3 078 675	4 721 972	10 715 211	0.2	2.0	3.1	3.0	4.3
Malaysia	2 518	333 442	1 592 640	2 987 568	6 787 479	0.0	0.6	1.6	1.9	2.7
Thailand	577	63 594	316 284	703 275	1 812 498	0.0	0.1	0.3	0.5	0.7
Philippines	1	26 873	121 532	344 105	n.a.	0.0	0.0	0.1	0.2	n.a.
ii) Latin America	21 810	493 593	749 100	3 046 940	1 991 702	0.3	0.8	0.7	1.9	0.8
Brazil	5 099	289 259	427 731	761 328	1 049 994	0.1	0.5	0.4	0.5	0.4
Mexico	9 001	65 660	74 413	2 014 545	717 873	0.1	0.1	0.1	1.2	0.3
Argentina	2 923	40 072	45 850	48 669	63 635	0.0	0.1	0.0	0.0	0.0
Colombia	883	8 088	22 872	12 339	23 651	0.0	0.0	0.0	0.0	0.0
Chile	3 864	5 062	11 584	3 692	5 945	0.0	0.0	0.0	0.0	0.0
iii) Africa	2 152	69 512	71 246	41 023	13 247	0.0	0.1	0.1	0.0	0.0
All other	3 600	117 870	646 523	593 013	97 789	0.0	0.2	0.6	0.4	0.0
Available reporters	7 996 788	58 928 415	100 705 520	157 646 193	248 428 483	100.0	100.0	100.0	100.0	100.0

Source: United Nations Statistical Office, COMTRADE, data retrieved 10 August 1992

Table 7

EXPORTS OF NON ELECTRICAL MACHINERY (ISIC 382), BY AREA, SELECTED YEARS, 1966-1989  
(thousands of dollars and percentage)

Reporter	1966	1977	1982	1986	1989	1966	1977	1982	1986	1989
Industrial market economies	18 670 788	96 275 322	152 183 185	205 961 278	310 022 477	98.8	96.7	93.6	91.5	88.8
All developing countries	221 510	3 171 238	8 253 004	16 372 605	38 790 347	1.2	3.2	5.1	7.2	11.1
i) Asia	77 116	1 384 857	4 651 702	11 615 588	31 579 047	0.4	1.4	2.9	5.2	9.0
Taiwan	8 735	424 027	1 450 749	4 083 872	9 629 743	0.0	0.4	0.9	1.8	2.8
Korea	3 989	147 306	544 366	2 005 775	5 162 716	0.0	0.1	0.3	0.9	1.5
Hong Kong	13 002	190 549	758 332	1 530 157	2 706 116	0.1	0.2	0.5	0.7	0.8
Singapore	32 513	410 188	1 474 409	3 199 604	9 522 379	0.2	0.4	0.9	1.4	2.7
Malaysia	6 325	42 297	125 655	231 364	780 502	0.0	0.0	0.1	0.1	0.2
Thailand	52	17 654	29 246	192 785	1 506 187	0.0	0.0	0.0	0.1	0.4
Philippines	70	10 447	27 909	20 973	n.a.	0.0	0.0	0.0	0.0	n.a.
ii) Latin America	45 447	842 286	1 694 148	2 413 255	3 845 090	0.2	0.8	1.0	1.1	1.1
Brazil	22 877	452 915	1 073 111	1 164 376	2 066 184	0.1	0.5	0.7	0.5	0.6
Mexico	6 355	101 975	217 983	918 976	1 323 823	0.0	0.1	0.1	0.4	0.4
Argentina	13 156	201 955	244 997	232 677	315 945	0.1	0.2	0.2	0.1	0.1
Colombia	1 957	25 807	34 260	22 239	19 332	0.0	0.0	0.0	0.0	0.0
Chile	537	10 198	10 096	9 239	14 409	0.0	0.0	0.0	0.0	0.0
iii) Africa	3 935	203 070	224 408	37 421	28 710	0.0	0.2	0.1	0.0	0.0
All other	8 264	120 138	2 179 981	2 811 198	91 100	0.0	0.1	1.3	1.3	0.0
Available reporters	18 900 562	99 566 736	162 616 170	225 145 120	348 982 393	100.0	100.0	100.0	100.0	100.0

Source: United Nations Statistical Office, COMTRADE, data retrieved 10 August 1992.

countries are capable of, if given the opportunity. In this case, they took advantage of the microelectronics revolution to break into the international market. A close examination of the data contained in Table 6 indicates, never the less, that this success was almost completely centered on the Asean region especially the Asean NICs.

Effectively, this all-important explosion of foreign tradewhich provided a dramatic boost in dynamism for certain Asean developing countries passed by Latin America. Asean developing countries saw their share of world exports of electrical equipment rocket from 1.6 to 21 percent while that of Latin America, with the partial exception of Mexico, remained stagnant as of 1977. Several developing countries in Asia were able to use their ability to cheaply manufacture products stemming from the microelectronics revolution (and the accompanying explosion of foreign trade) as a springboard to integrate themselves more closely into the new international industrial order.<sup>67/</sup> Continual technological upgrading helped them sustain it.

Developing countries were also fortunate, although to a lesser extent, in other of the more technologically-sophisticated industries. Table 7 points out that their share of non-electrical machinery exports rose considerably from 1.2 to 11 percent over the 1966-89 period; in similar though less spectacular fashion to that of the gains registered in the electrical equipment industry. Again, the principal beneficiaries were developing countries from Asia, whose share grew from less than 1 to 9 percent of the world total while that of the Latin American region, excepting Mexico, barely changed after 1977. It was the Asean NICs which led the way again as had been the case for the electrical equipment industry.

Export gains by developing countries in the transport equipment industry was also significant, rising from 1.7 percent of world exports in 1966 to 7 percent in 1989, although the principal increase took place previous to the 1980s. Table 8 demonstrates that benefits, as measured by the volume and increase of exports, were again concentrated in the Asean NICs although less so than in the other mentioned industries. Furthermore, it is noteworthy that non-Aseans in the form of two Latin American countries, Mexico and Brazil, registered very significant increases in, or recuperation of, their exports of transport equipment toward the end of the 1980s.

Information similar to that for the OECD countries reviewed in elsewhere <sup>68/</sup> clarifies which of the developing country can be considered 'winners' and 'losers' in international trade and its relation to technological aspects of the industrialization process. Table 9 provides an example of how winners can be defined in terms of their trade gains between 1979 and 1988. From this perspective, the principal winners are all Asean--Republic of Korea, Singapore, China, Thailand and Turkey--while Mexico and, to a lesser extent, Brazil and Chile, made minor progress. The losers, excepting the case of the Philippines, were all Latin American countries.

Table 8

EXPORTS OF TRANSPORT EQUIPMENT (ISIC 384), BY AREA, SELECTED YEARS, 1966-1989  
(thousands of dollars and percentage)

Reporter	1966	1977	1982	1986	1989	1966	1977	1982	1986	1989
Industrial market economies	17 536 186	118 047 084	179 143 487	253 028 469	353 252 122	98.2	96.4	93.1	94.0	92.4
All developing countries	311 251	4 113 777	11 513 879	14 765 481	27 008 610	1.7	3.4	6.0	5.5	7.0
i) Asia	99 526	1 929 739	6 421 175	7 849 881	15 806 564	0.6	1.6	3.3	2.9	4.2
Taiwan	1 822	391 592	1 261 706	1 945 478	3 357 819	0.0	0.3	0.7	0.7	0.9
Korea	2 056	713 000	3 459 182	4 227 628	6 054 578	0.0	0.6	1.8	1.6	1.6
Hong Kong	21 381	147 568	337 454	334 271	236 888	0.1	0.1	0.2	0.1	0.1
Singapore	51 106	443 801	852 399	769 427	1 775 235	0.3	0.4	0.4	0.3	0.5
Malaysia	12 365	35 190	127 967	270 521	568 123	0.1	0.0	0.1	0.1	0.2
Thailand	101	3 517	14 455	44 115	257 883	0.0	0.0	0.0	0.0	0.1
Philippines	70	14 551	26 677	34 486	n.a.	0.0	0.0	0.0	0.0	n.a.
Latin America	17 555	1 013 694	2 736 471	4 475 143	7 580 436	0.1	0.8	1.4	1.7	2.0
Brazil	5 862	636 502	1 909 145	1 927 100	3 606 700	0.0	0.5	1.0	0.7	0.9
Mexico	4 778	74 968	472 436	1 127 635	3 604 417	0.0	0.1	0.2	0.4	0.9
Argentina	4 129	220 444	203 619	202 541	225 478	0.0	0.2	0.1	0.1	0.1
Colombia	152	18 612	18 630	26 998	9 580	0.0	0.0	0.0	0.0	0.0
Chile	1 526	9 933	31 246	52 493	37 295	0.0	0.0	0.0	0.0	0.0
iii) Africa	5 246	141 110	219 557	54 407	56 136	0.0	0.1	0.1	0.0	0.0
All other	18 140	261 814	1 795 670	1 507 560	174 006	0.1	0.2	0.9	0.6	0.0
Available reporters	17 865 577	122 422 676	192 453 036	269 301 700	380 436 741	100.0	100.0	100.0	100.0	100.0

Source: United Nations Statistical Office, COMTRADE, data retrieved 10 August 1992.

Table 9

## EXPORT MARKET DYNAMICS FOR PRINCIPAL DEVELOPING COUNTRIES, 1979 and 1988

Exporting Country	Share of OECD imports			Export classification (%)				Structure of exports (%)			
	1979	1988	Percentage change	Optimal a/	Vulnerable b/	Lost opportunities c/	Retreat d/	Natural resource	Energy	Natural resource based	Manufactures
I. "Winners"											
Republic of Korea	0.92	2.10	128	83	10	6	1	4	1	5	90
Singapore	0.46	0.78	70	69	5	15	11	3	10	5	82
China	0.56	1.44	157	66	30	1	2	14	10	11	66
Thailand	0.30	0.52	73	65	23	10	3	33	1	17	50
Turkey	0.15	0.36	140	56	33	1	11	22	12	8	58
Mexico	1.03	1.48	44	51	32	13	4	10	23	9	57
Brazil	0.99	1.18	19	41	46	8	4	30	3	29	38
Chile	0.24	0.25	4	14	33	3	50	39	-	54	3
II. "Losers"											
Philippines	0.39	0.32	-18	35	10	28	28	22	1	23	53
Argentina	0.40	0.25	-38	13	28	22	37	36	3	43	18
Colombia	0.28	0.23	-18	12	44	4	40	58	27	3	11
Venezuela	0.78	0.42	-46	11	50	1	38	6	81	8	5

Source: Derived from F. Fajnzylber, "International insertion and institutional renewal", CEPAL Review No. 44, August 1991, Table 2, pp. 142-143.

a/ a favorable competitive position of products and a high relative efficiency of country. b/ an unfavorable competitive position of products and a high relative efficiency of country. c/ a favorable competitive position of products and low relative efficiency of country. d/ an unfavorable competitive position of products and a low relative efficiency of country. Note- Data not available for Taiwan, Hong Kong, Malaysia and India.

That same Table also makes manifest that the success of the principal winners stems from their concentration in optimal export situations, that is, increasing their exports of manufactures with products which are also gaining global market shares: Republic of Korea (83%), Singapore (69%), China (66%), and Thailand (65%) are all in this category. Moreover, their success stems primarily from non natural resource-based manufactures, that is, their comparative advantages tend to be dynamic not static ones. Generally, the reverse is true for the losers, that is, they face export situations of retreat (declining exports of products which themselves are losing global market shares), as is the case for Colombia (40%), Venezuela (38%), and Argentina (37%). They also tend to specialize in natural resource based manufactures, energy or natural resources not technology- or human resource- based manufactures.

Helleiner long ago suggested that it is revealing to distinguish at least four categories of exports of manufactures: 69/

- i) local raw materials processing;
- ii) import-substituting industry and its conversion to export-based activity;
- iii) new labor-intensive final products; and
- iv) labor-intensive processes and component specialization within vertically-integrated international industries.

These categories are not mutually exclusive, none the less, they do help to clarify the situation in respect of the export experience of Latin America and the Asean NICs. In general, it could be maintained that most Latin American exports of manufactures have come from the first and, more recently, the second categories, that is, local raw materials processing (i.e. foods and metals) and import-substituting industries, whereas the exports of manufactures from the Asean NICs have been more concentrated in the third and fourth categories, that is, new labor-intensive final products (i.e. clothes) and labor-intensive processes and component specialization within vertically-integrated international industries (i.e. consumer electronics). Thus, it would appear that Asia specialized more in globalizing industries than did Latin America.

Again, similar to the analysis of the competitive situation of the principal OECD countries mentioned previously, Table 10 gives an indication of the distinct aspects of the competitive situations of developing countries as manifest in the Asean NICs and Latin American members. According to this information between 1970-3 and 1988-9, the Asean NICs upped their share of world exports of

manufactures from 2.5 to 7.5 percent whereas that of the Latin American countries fell from 3.4 to 3.0 percent. Although the Latin American countries did make some gains in terms of more 'modern' activities, that is, science-based (0.6 to 1.6 percent), specialized suppliers (0.5 to 1.3 percent) and scale intensive ones (1.3 to 2.5 percent), the principal advances were registered by the Asean NICs.

Table 10  
MARKET SHARE OF Asean NICS AND LATIN AMERICA IN WORLD EXPORTS OF  
MANUFACTURES BY SECTOR, 1970-1973 AND 1988-1989  
(In percentage)

	Asean NICs			Latin America		
	1970-1973	1988-1989	change	1970-1973	1988-1989	change
Science-based <sup>a/</sup>	1.4	9.2	7.7	0.6	1.6	0.9
(R&D intensive electronics)	(3.4)	(16.2)	(14.1)	n.d.	n.d.	n.d.
Specialized suppliers	1.1	3.9	2.8	0.5	1.3	0.9
Scale intensive	1.2	5.5	4.3	1.3	2.5	1.2
Traditional	7.0	14.0	7.0	1.9	2.9	1.0
TOTAL	2.5	7.5	5.0	3.4	3.0	-0.4

Source: Guerrieri, P., "Technological and Trade Competition: a comparative analysis of the US, Japan and the European Community", mimeo, July, 1991.

<sup>a/</sup> subsector of science-based which includes data processing equipment, electronic components and telecommunication equipment.

Most notable are their increases in the science-based (1.4 to 9.2 percent), especially research and development intensive electronics (3.4 to 16.2 percent), scale-intensive (1.2 to 5.5 percent) and specialized suppliers (1.1 to 3.9 percent) sectors. In other words, Asean NICs have achieved a remarkable degree of international competitiveness via **specialization in modern activities**.

Thus, some developing countries have had an important amount of success in gaining access, in distinct degrees, to the new international industrial order by way of trade in manufactures, however, that success is very much concentrated in the Asean NICs and to the exclusion of the great majority of developing countries, which are increasingly marginalized from that system. It is noteworthy that these successful developing countries are concentrated in what has been referred to as Japan's backyard while those in what has been called the US backyard -Latin America- have experienced very limited success in this field. Could it be that the Japanese system of cooperative

managerial capitalism has more positive consequences for many of its imitators and associates in the developing world? Japan's developing country imitators appear to have better prospects for incorporation into the new international industrial order.<sup>70/</sup>

The 'flying wild geese' scheme as applied to Asia by Fukasaku, <sup>71/</sup> among others, demonstrates that some developing countries are capable of consciously altering the structural nature of their exports of manufactures --increasing their human capital- and technology-intensive nature and diminishing their natural resource- and unskilled labour-intensive aspects-- such that their industrialization process becomes centered on **technological upgrading** which in turn provides both a more sustained basis to that process and increased access to the new international industrial order. In other words, if one must imitate others in order to gain access to the international trading system, it is of utmost importance to follow a successful example. In this regard, the Asean NICs and ASEAN 4 have demonstrated not only that they are astute imitators but that they are even becoming tough competitors for their mentor.<sup>72/</sup>

Finally, it must be mentioned that the eruption of Asean NIC exports toward the US market has produced significant frictions, similar to the previous case, of Japan's export penetration of that market. Their preferences (GSP) to that market have been rescinded and they have come under strong bilateral pressure to let their local currencies appreciate. Further advances toward the technology frontier in the electronic industry has become more difficult even for the Asean NICs.<sup>73/</sup> This represents a new challenge to the success of these countries in maintaining access to the new international industrial order.

## 2. Tendencies in foreign direct investment: developing Asia displaces Latin America?

The access of developing countries to the new international industrial order in the present context of globalization now depends as much on foreign direct investment as on trade. The recent conformation of a global Triad in which the three principal members-- North America, the European Community and Japan-- represent the cores for three distinct regional production networks has provoked a virtual **explosion** of foreign direct investment (FDI), especially in the United States, and has made FDI more dynamic than international trade in stimulating world growth.<sup>74/</sup> In the course of the delineation of this Triad a limited number of developing countries can become associated with particular 'clusters', or regional sourcing networks, which for all practical purposes defines their incorporation into the new order.



Blomstrom 75/ has suggested that FDI flows to the manufacturing sector of developing countries have traditionally coincided with the industrial and trade policies being implemented by those countries. In that sense, it can be said that Latin America originally opted for an inward-looking strategy and attracted foreign manufacturing investment (mainly US and European) into protected import-substituting activities and, in spite of efforts at export promotion, never really succeeded in convincing TNCs to export in significant volume from their local operations. The Asean NICs, which were relative latecomers in terms of their industrialization process, evidently progressed from import-substituting industrialization toward more outwardly-focussed policies which, combined with the judicious use of free export processing zones, have resulted in more export-oriented (mainly Japanese) TNC operations. Kojima 76/ even went so far as to suggest that FDI came in pro-trade and anti-trade variants. The similarities and differences in the Japanese and US TNC operations in these two regions represents the subject matter of this section.

Relative FDI flows to Latin America boomed during the 1970s and it appeared that the region was being progressively incorporated into the global productive structure, although with hindsight it is clear that Latin American trade flows, especially exports, did not keep pace with FDI inflows. The import-substituting nature of the industrialization process which depended for its dynamism on the local market was sent reeling by the debt crisis. The Asean NICs, on the other hand, saw their export-oriented industrialization process dovetail well, first, during the 1960s and 70s with the expanding multilateral trade framework and the establishment of a regional supply network by Japanese TNCs, later in the 1980s with surging US imports and an explosion of intraregional FDI primarily associated with the offshore Chinese network.77/ Thus, FDI flows to Asia boomed in the 1980s 78/ and the Asean NICs were progressively incorporated into the global structure of production. As Table 11 illustrates, a feature shared with the trade situation has been that the principal gains were registered by the Asean region, in general, and the Asean NICs, in particular; however, in this case it was not simply that Asean gains were superior to those of Latin America, rather increasing relative incorporation for the Asean region coincided with an increasingly more marginalized Latin America, especially as of 1985. From the point of view of FDI inflows as a percentage of world totals, Latin America and developing Asia **exchanged positions** over the 1970-89 period. Developing countries became further marginalized from global foreign direct investment flows--their share dropped from 25 to 19 percent during the course of the 1980s; however, the Asean

Table 11

FDI INFLOWS, BY AREA AND PERIOD, 1970-1989  
AVERAGE ANNUAL INFLOWS IN MILLIONS OF DOLLARS AND PERCENTAGE

	1970-74	1975-79	1980-84	1985-89	1970-74	1975-79	1980-84	1985-89
All market economies	14 691	27 534	52 841	117 047	100.0	100.0	100.0	100.0
a) Industrial economies	12 682	21 022	37 326	100 081	86.3	76.3	74.8	81.4
b) Developing country economies	2 009	6 512	15 515	16 966	13.7	23.7	25.2	18.6
i) Asia	673	1 422	4 907	12 449	4.6	5.2	9.3	10.6
Taiwan (including China) <sup>a/</sup>	n.d.	n.d.	530	2 487	n.d.	n.d.	1.0	2.1
Korea	77	71	71	580	0.5	0.3	0.1	0.5
Hong Kong	n.d.	n.d.	680	1 650	n.d.	n.d.	1.4	1.4
Singapore	213	390	1 387	2 690	1.4	1.4	2.6	2.3
Malaysia	210	442	1 131	799	1.4	1.6	2.1	0.7
Thailand	83	64	285	732	0.6	0.2	0.5	0.6
Philippines	4	110	39	389	0.0	0.4	0.1	0.3
ii) Latin America	1 588	3 574	5 434	5 655	10.8	13.0	10.3	4.8
Brazil	852	1 823	2 100	1 426	5.8	6.6	4.0	1.2
Mexico	413	790	1 499	2 178	2.8	2.9	2.8	1.9
Argentina	10	120	439	730	0.1	0.4	0.8	0.6
Colombia	34	72	398	559	0.2	0.3	0.8	0.5
Chile	-142	99	242	125	-1.0	0.4	0.5	0.1
Venezuela	-140	-64	120	81	-1.0	-0.2	0.2	0.1
iii) Africa	537	918	1 096	2 602	3.7	3.3	2.1	2.2
iv) Middle East	-19	275	323	547	-0.1	1.0	0.6	0.5
Turkey	58	52	65	271	0.4	0.2	0.1	0.2

Source: International Monetary Fund, Balance of Payments Tape. UNCTC estimates for Taiwan/China and Hong Kong.

<sup>a/</sup> As this figure combines Taiwan and China it is not comparable to the trade statistics.

region actually increased its share from 5 to 11 percent over the 1970-89 period and those gains were concentrated mainly in the Asean NICs. The Latin American region saw its share contract from 11 to less than 5 percent during the same decade after reaching a high of 13 percent in 1975-79 and it represented the most rapidly marginalized of all the developing areas.

Another factor which needs to be explicitly taken into account is the **nationality** of the principal foreign investors in each case. Detailed information on the operations of European TNCs does not exist, therefore the analysis will be limited to the operations of US and Japanese TNCs. It is usually asserted that, historically, US (and European) TNCs have dominated foreign direct investment flows to Latin America and Japanese TNCs have more recently come to dominate those to the Asean NICs. Given that the US subsidiaries were designed primarily to service the import-substituting industrial needs of the local economy or, to a lesser extent, the processed raw material needs of the US TNC, exports of manufactures were not a principal feature of such operations. While it is true that US TNCs were responsible for a growing share of the exports of manufactures from Latin America, in general, export propensities were low due to the concentration on local sales and the relative inefficiency of those operations. US TNCs dominated wide areas of the Latin American manufacturing sector <sup>79/</sup>, especially chemicals and machinery, and the characteristics of their operations generally prevented them from serving as significant competitive stimuli for national enterprises, especially from an export perspective.<sup>80/</sup> While Latin American governments tended to cede the more technologically-sophisticated industries to TNCs (machinery and chemicals) believing that these companies would provide the necessary technology, they often obliged TNCs to take on local partners in certain specific activities (i.e. petrochemicals, autoparts, computer equipment, etc.). The conversion of import-substituting industries to export activities has only become an urgent need for US TNCs operating in Latin America since the debt crisis exploded in the 1980s and the degree of their success attained is not as yet well-known, aside from the fact that trade liberalization policies have been found to be much slower than expected in provoking structural adjustment at the firm level.<sup>81/</sup>

The impact of Japanese TNCs on the Asean NIC manufacturing sector appears to have been considerably distinct. The Japanese TNCs seem to have selected their foreign investment targets primarily in terms of factors related to international competitiveness rather than simply the size of the national market. To a significant extent Japanese TNCs were transferring abroad Japanese operations which had lost competitiveness to lower wage areas as well as establishing low-cost sourcing centers for components for vertically integrated international industries. Given the small size

of most Asean NIC local markets, an export orientation was central to the investment decisionmaking process. Incentives in the form of free export processing zones stimulated this transition. Majority-owned Japanese operations in the zones usually generated a significant amount of subcontracting activities for local enterprises.<sup>82/</sup> To the extent that the national market came to interest these Japanese investors joint ventures with local partners often proliferated. Japanese foreign direct investment was clearly an important element in relocating production within the region in response to shifts in competitive advantage <sup>83/</sup>, however, the most important effect was that national companies were driving those economies <sup>84/</sup>, especially local companies contracted as suppliers to Japanese TNCs. Where Japanese TNCs lost competitive advantage the Asean NICs were able to meet the cost and quality requirements demanded by Japanese TNCs, and that served as a strong stimulus to consolidate a solid export-oriented process of industrialization. Behind the Asean NICs stood the four members of the Association of South East Asian Nations (ASEAN) searching for opportunities not only in labor-intensive industries but also in others in which their advances in technological upgrading became a factor in improving their international competitiveness. <sup>85/</sup>

Rather than a simple comparison of the Latin American operations of US TNCs to the Asean operations of Japanese TNCs, it was considered more relevant to concentrate on the more technologically-advanced industries (machinery and transport equipment) of both US and Japanese TNCs, especially those in the Latin American and Asean regions. It was felt that this would provide a clearer picture of the nature of the international competition at the frontier in so far as it involved developing countries. Table 12 provides a first approximation.

The information contained in Table 12 provides a snapshot of the changes which took place during the 1980s in the more technologically-complex activities of the manufacturing sector. It can be appreciated that while the 1982 stock of US FDI in the manufacturing sector in general and in the machinery and transport equipment industries in particular was larger in volume (\$77 billion compared to \$20 billion) than the Japanese FDI, the more technologically-complex industries were of similar relative importance (around 38 percent of the total for the manufacturing sector) in terms of the structure of FDI stocks. The US FDI was more centered on general machinery (13.4%) and the Japanese FDI more focussed on electric equipment (14.4%). A similar concentration (around 14%) was encountered in the transport equipment industry. By 1989, great changes had taken place. The stock of US FDI (\$156 billion) was still very superior that of Japan (\$66 billion), however, the Japanese FDI was expanding faster. The composition of US FDI was not altered in any major way during this period (flows were small compared to the large stock) whereas Japanese FDI

Table 12

## COMPARISON OF THE GROWTH AND REGIONAL DISTRIBUTION OF US AND JAPANESE FOREIGN DIRECT INVESTMENT IN THE MANUFACTURING SECTOR DURING THE 1980s

	European Community		North America a/		Japan		Latin America		Developing Asia		All Countries	
	1982	1989	1982	1989	1982	1989	1982	1989	1982	1989	1982	1989
1) US FDI (US Billions)	33.3	74.9	18.3	32.3	1.8	10.0	13.8	21.3	2.1	6.7	76.7	155.7
General Machinery (non electric)	7.4	16.4	1.9	3.3	D	2.6	1.7	2.8	0.2	0.8	13.4	27.1
Electric Equipment	2.5	4.1	1.3	2.2	0.1	1.2	1.0	1.1	0.9	2.7	6.7	11.9
Transport Equipment	3.4	9.2	3.8	7.7	...	2.3	1.7	3.2	D	0.3	10.1	23.5
2) US FDI (Percentage)	43.4	48.1	23.9	20.7	2.3	6.4	18.0	13.7	2.7	4.3	100	100
General Machinery (non electric)	9.6	10.5	2.5	2.1	D	1.7	2.2	1.8	0.3	0.1	17.4	17.4
Electric Equipment	3.3	2.6	1.2	1.4	0.1	0.8	1.3	0.7	1.1	1.8	8.8	7.6
Transport Equipment	4.4	5.9	5.0	4.9	...	1.5	2.2	1.4	D	0.2	13.2	15.1
3) JAPANESE FDI (US Billions) b/	1.4	7.9	5.2	33.5	-	-	3.9	5.6	6.5	15.6	19.5	66.1
General Machinery (non electric)	0.2	1.8	0.5	4.0	-	-	0.3	0.4	0.4	1.6	1.4	7.9
Electric Equipment	0.3	2.0	1.5	8.7	-	-	0.3	0.5	0.7	3.3	2.8	14.7
Transport Equipment	0.2	1.3	0.8	4.5	-	-	0.6	1.1	0.5	1.3	2.9	9.0
4) JAPANESE FDI (Percentage)	7.2	12.0	26.7	50.7	-	-	20.0	8.5	33.3	23.6	100	100
General Machinery (non electric)	1.0	2.7	2.6	6.1	-	-	1.5	0.6	2.1	2.4	7.2	12.0
Electric Equipment	1.5	3.0	7.7	13.2	-	-	1.5	0.8	3.6	5.0	14.4	22.2
Transport Equipment	1.0	2.0	4.1	6.8	-	-	3.0	1.7	2.6	2.0	14.9	13.6

Sources: US data - US Department of Commerce, US Direct Investment Abroad: 1982 Benchmark Survey Data, Washington, D.C., December, 1985 and Survey of Current Business, August, 1990. Japanese data - Kerai Koho Center, Japan 1992: An International Comparison, Tokyo 1992, Japan 1984: An International Comparison, Tokyo, 1984.

a/ In the case of US FDI North America signifies Canada. b/ The dates of the Japanese figures are March, 1984 and March 1990. D= Information not disclosed.

demonstrated an accelerated specialization in the machinery and transport equipment sectors, considerably outpacing the US FDI in relative terms. In other words, the Japanese FDI over this period was considerably more dynamic with regard to its expansion (assisted by a strongly appreciating yen) and its specialization in technologically-sophisticated sectors (rising from 36.5 to 48% of their total stock of FDI in the manufacturing sector).

Of special interest is the regional orientation of US and Japanese FDI during the 1980s in these same industries. Here it can be appreciated that the stock of US FDI, historically centered on the European Community (43.4% in 1982), Canada (24%) and Latin America (18%), was somewhat altered by 1989. Relative increases occurred in the European Community (to 48%), Japan (2.4 to 6.4%) and developing Asia (2.7 to 4.3) whereas a minor relative decline took place in Canada and a dramatic decline occurred in Latin America (from 18 to 13.7%). The stock of US FDI remained focussed on the European Community and Canada, however, the Asean region (Japan plus developing Asia) apparently was about to displace the Latin American region as a target of FDI from US TNCs operating in the manufacturing industry. In terms of industrial specialization in the machinery and transport equipment sectors, the major changes concerned the new FDI in the transport equipment sector in Europe and Japan and the electrical equipment industry in developing Asia. Thus, even though relatively small inflows were impacting a large stock of FDI in the case of the United States TNCs, some alterations in its geographical distribution could be perceived during the 1980s.

The Japanese TNCs were much more dynamic with their FDI in the manufacturing sector during the 1983-89 period and their regional focus was concentrated almost exclusively on the North American market, where it rose from 27 to 51 percent of total Japanese stock of FDI in the manufacturing sector. Developing Asia, which was previously the center of the FDI network with one-third of the total for manufacturing suffered a relative decline, falling to 24 percent. The Latin American region saw its share of the stock of FDI nosedive from 20 to 8.5 percent. Aside from the tremendous expansion in the North American market, only the European Community enjoyed an important relative increase (from 7 to 12 percent). With respect to the industrial specialization in the machinery and transport equipment areas, the major increases were registered in the electrical equipment industry in North America (7.7 to 13.2%), developing Asia (3.6 to 5%) and the European Community (1.5 to 3%); the general machinery sector in North America (2.6 to 6.1%) and Europe (1 to 2.7%); and the transport equipment industry in North America (4.1 to 6.8%) and the European Community (1 to 2%). Thus, Japanese FDI in the manufacturing sector was considerably more

dynamic than that of the United States and as well as specializing increasingly in technologically more complex activities, it focussed progressively on the principal developed country markets of the Triad during the 1980s.

A common feature to the regional specialization of both the US and the Japanese FDI during the 1982-89 period was the increased **marginality of Latin America** and its progressive **displacement by developing Asia in respect of the electrical equipment industry**. More detailed information on the international aspects of US and Japanese TNC affiliates operating in these regions and their significance within the framework of the TNC networks is contained in Table 13.

Before analyzing the information contained in the mentioned table it is noteworthy that while relatively good and consistent data has become available on the nature and structure of US and Japanese TNC activities; nevertheless, that statistical information is far from perfect.<sup>86/</sup> The information is collected by national authorities for distinct purposes. The most detailed US data deals only with majority-owned foreign affiliates while the Japanese information includes all associates with more than 10 percent shareholding by the headquarters company or subsidiaries. Fortunately, the Japanese TNC network is more prone than the US one to employ joint ventures and minority holdings.<sup>87/</sup> A consequence of such, however, is that the US minority shareholdings in important areas, such as the Japanese automotive industry, are not included in the tables on sales. Also, the coverage of the Japanese survey is not near as complete as that for the US. The 1989 version incorporated less than 65 percent of overall sales of manufactures. Reporting by the TNCs producing transport equipment was particularly low (42% of sales). Furthermore, the US data provide information only for imports from the US itself, while the Japanese figures provide information on imports both from Japan and from other sources. In spite of the statistical problems involved the 'benchmark surveys' of the US Department of Commerce and the Japanese Ministry of International Trade and Industry represent the most comprehensive sources of comparative information on this subject.

Referring to **the manufacturing sector as a whole**, the information contained in Table 13 indicates, first and foremost, that Latin America never represented an important element of Japanese TNC operations (only 8 percent of local sales and exports in 1983) whereas the developing Asia region did (representing 35 percent of local sales, over half of all exports and almost 40 percent of all imports). Second, during the 1980s Latin America became even less important to Japanese TNCs (3 percent of overall sales) while the developing Asia region retained a very significant role

Table 13

COMPARATIVE ANALYSIS OF INTERNATIONAL ASPECTS OF JAPANESE AND US TNC AFFILIATES  
IN THE MANUFACTURING SECTOR, BY REGION, 1977, 1982 AND 1989

	JAPANESE AFFILIATES				US MAJORITY-OWNED FOREIGN AFFILIATES					
	1982		1989		1977		1982		1989	
	US Millions	% Ind. Total	US Millions	% Ind. Total	US Millions	% Ind. Total	US Millions	% Ind. Total	US Millions	% Ind. Total
I. All Manufacturing										
Latin America Total	2011	8	3081	3	24217	12	39506	15	47539	9
1. Local Sales	1480	8	2154	3	21876	16	34814	19	37363	12
2. Exports to home country to others	531 (229) (302)	8 (8) (8)	927 (335) (592)	4 (4) (5)	2341 (874) (1467)	4 (5) (3)	4692 (1855) (2837)	5 (7) (4)	10176 (6412) (3764)	6 (9) (3)
3. Imports from home country from others	203 (187) (16)	3 (3) (1)	295 (119) (176)	1 (...)	(2644)	(11)	(4379)	(13)	(8577)	(13)
Developing Asia Total	9920	40	29533	29	5125	3	9933	4	24647	5
1. Local Sales	6585	35	18877	23	2204	2	2550	1	10787	3
2. Exports to home country to others	3335 (1107) (2227)	51 (39) (61)	10654 (4669) (5987)	51 (37) (47)	2921 (0) (0)	5 (0) (0)	0 (4060) (1894)	0 (15) (3)	13861 (8535) (5326)	8 (13) (5)
3. Imports from home country from others	2655 (1845) (1810)	38 (31) (70)	8246 (6381) (1865)	25 (23) (36)	(935)	(4)	(2771)	(8)	(4524)	7
II. Non Electrical Machinery										
Latin America Total	84	17	241	4	1899	7	3315	8	5768	6
1. Local Sales	70	18	230	5	1649	9	1705	11	4102	7
2. Exports to home country to others	14 (9) (4)	13 (16) (8)	10 (1) (10)	1 (...)	250 (28) (222)	2 (2) (2)	611 (104) (507)	4 (3) (4)	1666 (819) (847)	4 (4) (4)
3. Imports from home country from others	14 (14) (...)	11 (11) (...)	14 (6) (8)	1 (...)	(195)	(6)	(354)	(7)	(784)	(7)
Developing Asia Total	311	63	1396	25	243	1	796	2	0	0
1. Local Sales	224	59	794	19	71	...	0	0	0	0
2. Exports to home country to others	87 (47) (40)	81 (82) (78)	602 (254) (348)	42 (88) (30)	172 (99) (73)	2 (1)	0 (312) 24	0 (10) (2)	0 (0) (0)	0 (0) (0)



3. Imports from home country from others		82 (81) (1)	31 (65) (...)	396 (363) (33)	20 (20) (26)	(51)	(2)	(187)	(4)	(907)	(8)
III. Electrical Equipment											
Latin America Total		203	3	812	2	1991	11	2674	11	3598	10
1. Local Sales		200	4	771	3	1649	13	2065	14	2219	10
2. Exports to home country to others		3 (...) (3)	...	406 (...) (400)	4 (...) (...)	341 (260) (81)	5 (12) (2)	608 (507) (101)	6 (11) (2)	1379 (1272) (107)	9 (18) (1)
3. Imports from home country from others		34 (34) (...)	1 (1) (...)	10 (68) (33)	1 (1) (1)	(348)	(15)	(927)	(20)	(2054)	(27)
Developing Asia Total		2308	32	10390	27	2306	12	5099	20	9217	25
1. Local Sales		846	15	3888	14	D	D	621	4	2958	13
2. Exports to home country to others		1462 (519) (943)	86 (86) (86)	6502 (2798) (3704)	72 (89) (63)	D (0) (0)	D (0) (0)	4478 (3325) (1153)	44 (72) (20)	6259 (3847) (2412)	41 (55) (29)
3. Imports from home country from others		642 (537) (104)	21 (18) (74)	3120 (2412) (707)	20 (19) (26)	(699)	(29)	(2026)	(43)	(2767)	(36)
IV. Transport Equipment											
Latin America Total		574	11	201	1	5249	11	7558	13	9929	9
1. Local Sales		546	12	191	1	4867	16	6887	21	6677	11
2. Exports to home country to others		531 (229) (302)	8 (4) (11)	9 (-) (9)	... (-) (...)	382 (0) (0)	2 (0) (0)	671 (432) (239)	3 (4) (2)	2839 (413) (3565)	6 (10) (2)
3. Imports from home country from others		111 (110) (1)	8 (9) (2)	20 (20) (...)	1 (...) (3)	(2644)	(11)	(4379)	(13)	(8577)	(13)
Developing Asia Total		1479	30	6008	28	D	D	D	D	1727	2
1. Local Sales		1282	28	5534	28	D	D	D	D	1608	3
2. Exports to home country to others		198 (82) (116)	56 (57) (55)	474 (97) (377)	27 (17) (32)	D (0) (0)	D (0) (0)	234 (155) (79)	1 (1) (1)	119 (69) (50)	... ... ...
3. Imports from home country from others		362 (328) (34)	28 (26) (68)	1554 (1537) (17)	18 (18) (25)	(11)	(1)	(57)	(...)	(95)	(...)

Sources: US Department of Commerce, Benchmark Surveys on US Direct Investment Abroad, 1977, 1982 and 1987, Washington, D.C., April 1987, December 1985 and October 1991. Japan, Ministry of International Trade and Industry, Benchmark Surveys on Japanese Companies Foreign Activities: Compendium on Foreign Activity Data, Tokyo, 1986 and 1991.

(29 percent of overall sales, over one-half of exports and one-quarter of all imports in 1989) in spite of the fact that flows were concentrated on the North American market during that decade. Third, it can be appreciated from these figures that the Japanese TNCs established regional supply networks and export platforms in developing Asia. Foreign trade played a fundamental role in these operations and that was so not only for trade with Japan but also for exports to and imports from third parties. Developing Asia represented a core element of the international expansion of Japanese TNCs. Latin America played a marginal and declining role.

With regard to the operations of US majority-owned foreign affiliates in the manufacturing sector as a whole, it can be stated that both Latin America and developing Asia have played relatively minor roles in their overall operations, although that of Latin America historically has been considerably more important than that of developing Asia. Sales from their Latin American network were five times the value of those in developing Asia in 1977, and represented 16 percent of all local sales (but only 4 percent of all exports of manufactures). During the 1977-82 period the relative importance of the Latin American region and the local sales-centric nature of the operations of US TNCs in that region was accentuated, reaching 19 percent of all local manufacturing sales (but only 5 percent of all exports). Over the 1982-89 interim the Latin American operations of US TNCs became more marginal (dropping to only 12 percent of all local sales); however, they did change in nature by becoming somewhat more export-oriented than previously (providing 6 percent of all exports of manufactures) and by beginning to serve more as sourcing centers for US TNCs (supplying 9 percent of all exports of manufactures of these US TNCs to the US market) even though exports to third parties declined. Thus, in spite of the changes undertaken, the Latin American operations of majority-owned US TNCs did not come to represent a significant supply network nor an export platform of note.

The operations of US TNCs in developing Asia in 1977 were of marginal importance as they represented only 2 percent of all local sales and 5 percent of all exports of manufactures by US TNCs during that year. Even so, export sales of these US TNCs in developing Asia in 1977 already surpassed those generated by their Latin American operations. By 1989, overall sales had about quintupled in value (now equivalent to about one-half those from the Latin American operations) and export sales had jumped to 8 percent of all exports by these firms and 13 percent of all of their exports back to the United States. Thus, although the Latin American operations of the majority-owned US TNCs remained more important in terms of total sales they were losing ground within the global corporate framework. The operations in developing Asia were increasing in importance,

especially in respect of exports and particularly exports back to the North American market. Developing Asia was becoming a sourcing center for US TNCs. As shall become clear, the central activity of the US TNC network in developing Asia concerned the electrical equipment industry.

In other words, Latin American operations were of growing importance to US TNCs while those corporations valued local sales as their principal activity and their operations in that region declined in relative importance as export activities became increasingly prized by US TNCs, although some adjustments were visible by 1989 in terms of the increase in their export activities in Latin America. In developing Asia, US TNCs clearly focussed their operations on the sourcing and trading of electrical equipment.

This information on the international aspects of the operations of Japanese and US TNCs in the manufacturing sector of Latin America and developing Asia confirms that, as far as developing regions are concerned, the Japanese TNCs have very much focussed on developing Asia and that their operations involve high levels of foreign trade which is consistent with the view that their primary purpose is one of component assembly and sourcing. The US TNCs, which rely less in general on productive facilities in developing countries, had tended to concentrate their activities in the Latin American region and those activities were essentially based on serving the local market. This distinct characterization of the manufacturing operations of Japanese and US TNCs in developing regions began to lose some of its relevance in the 1980s as the Latin American activities of US TNCs lost importance within the corporate network and began to change in nature and as US TNC activities in developing Asia gathered steam. This becomes clearer by analyzing the situation of the more technologically-sophisticated industries, that is, the information from Table 13 on machinery and transport equipment.

It should be emphasized at the outset that the Latin American operations of Japanese TNCs in the machinery and transport equipment sector are of no global significance, even taking into account obvious under-reporting in the transport equipment sector. This observation translates into the fact that Japanese TNCs, the most dynamic foreign direct investors in globalizing industries during the 1980s, paid virtually no attention to Latin America. With regard to the manufacturing activities of Japanese TNCs in developing Asia, these were heavily concentrated in two areas of relative technological sophistication: electrical equipment (sales of US\$ 10.4 billion representing 27 percent of total sales by Japanese TNCs in that industry in 1989) and transport equipment (US\$ 6 billion in sales representing 28 percent of all sales by Japanese TNCs in the industry in the same year). The Japanese TNC operations in the non-electrical equipment sector in developing Asia might also be

mentioned, although sales in 1989 only reached U\$ 1.4 billion, due to the significant FDI which has taken place there during the 1980s, as Table 12 suggested.

The operations of majority-owned US TNCs in these two regions were concentrated in only three activities of relative technological sophistication: transport equipment in Latin America (sales of U\$ 9.9 billion representing 9 percent of all sales by US TNCs in that industry in 1989), electrical equipment in developing Asia (sales of U\$ 9.2 billion corresponding to 25 percent of all sales of US TNCs in that industry in 1989) and non-electrical equipment in Latin America (sales of U\$ 5.8 billion equivalent to 6 percent of the total sales of US TNCs in that industry in 1989). Compared to the Japanese TNC operations in the same sectors in these two regions, two features stand out. First, the most important Latin American activities of majority-owned US TNCs--transport equipment and non-electrical equipment-- are activities of relatively minor importance which are becoming more marginalized within the global corporate structure (6-9 percent of total sales by US TNCs operating in those sectors in 1989 down from 8-13 in 1982). At the same time, the electrical equipment activities of US TNCs in developing Asia are already of much significance within the global corporate framework (25 percent of all sales by US TNCs in that industry in 1989) and undergoing accelerated expansion (up from 12 percent of total sales in 1977).

Second, the high foreign trade component to the electrical equipment activities of US TNCs in developing Asia, which correspond to over 40 percent of the exports of US TNCs in that industry in 1989, indicates that US TNCs are not necessarily bound to serve only the local market, as has been their traditional role in Latin America. Although the levels of foreign trade are considerably lower than the regional supply network in electrical equipment established by Japanese TNCs in developing Asia; evidently US TNCs have created a kind of supply network to feed the North American market and to a lesser extent, third countries. Moreover, a glance at the changes taking place in the Latin American operations of US TNCs in this sector indicates that while local sales have declined due to the recession in Latin America during the 1980s, the level of exports has increased substantially (from 6 to 9 percent of total exports of US TNCs operating in this industry between 1982 and 1989), especially exports to the US market (from 11 to 18 percent of total such exports by US TNCs in this industry over the same interim). It would appear that US TNCs are trying to adapt their Latin American operations to the new international industrial order in which regional supply networks represent an important element in international competitiveness. This is an important advance for US TNCs; never the less, it should be pointed out that the exports of electrical equipment by their Latin American operations to the US market consist primarily of consumer electronics while the exports

of electrical equipment by their developing Asean operations to the US market are mostly computers and associated products. Thus, there exist certain differences in terms of technological sophistication within the same industry between the US TNC operations in developing Asia and those in Latin America on top of the mentioned differences relating to dynamism and potential for better integrating the global corporate networks of these TNCs.

The manufacturing side of the microelectronics revolution was undisputedly centered on developing Asia and that region came to serve as a sourcing center and export platform for TNCs operating in the industry, both Japanese and US. This suggests that in equal conditions the more recent behavior of Japanese and US TNCs is convergent in terms of the nature of regional manufacturing operations in certain developing countries. Moreover, the Latin American operations of US TNCs active in this sector apparently are trying to adapt by converting to component and final product assembly for export to the US market.

It must be emphasized, however, that there do exist several critical differences in their behavior of US and Japanese TNCs in their respective regional networks and those differences heavily influence the benefits going to the developing countries incorporated into or associated with those distinct TNC regional networks. For example, the US TNC network is based more directly on majority ownership of local operations whereas the Japanese TNCs utilize a good deal of minority ownership options and, more particularly, licensing or subcontracting relationships. The licensing or subcontracting relationships used by Japanese TNC regional networks have been found to be of significance for national firms in the developing countries used for sourcing as it facilitates their technological upgrading within a national industrial strategy which pursues incorporation into the new international industrial order, particularly from the point of view of trade and investment flows.

With regard to this topic it should be mentioned that while the four Asean NICs can all be considered successes in further incorporating their economies into the new international industrial order by way of trade and investment flows, especially in the electronics industry, there are certain distinctions which should be made. Hong Kong and Singapore have followed what could be labelled a TNC-centric strategy while Korea and, to a lesser extent, Taiwan, have followed a TNC-associated one. Both variants began as low cost assembly bases for export-oriented TNCs, often via export processing zones, however, the Korean/Taiwanese variant went further than the Hong Kong/Singapore one by using domestic demand to assist national suppliers to graduate to competitors with their own brand name products. 88/

In terms of the importance of TNCs for these two strategies, the Hong Kong/Singapore variant utilized foreign direct investment as a major element in domestic capital formation, reaching 15.2 and 25.5 percent, respectively, during 1985-7, while the level for Taiwan and Korea was considerably lower, at 3.3 and 1.4 percent, respectively.<sup>89/</sup> While the proportion of the stock of FDI in the manufacturing sector which was channeled to the electronic sector was roughly similar for these NICs, at about one third of the total (except for Hong Kong with 46 percent), the nature and national origin of this FDI differed considerably. These differences held important consequences in terms of the national benefits from this foreign participation. In general, FDI in this sector in Hong Kong and Singapore came primarily from the United States and usually in the form of majority-owned foreign affiliates. In Korea and, to a lesser extent, Taiwan, FDI in this sector came principally from Japan and often in the form of minority participations and new forms of investment.<sup>90/</sup> For that reason, the principal electronics firms, by sales, in Hong Kong (Digital, General Electric, Hewlett-Packard, Honeywell and IBM) and Singapore (Seagate, Philips and National Semiconductors) usually are subsidiaries of US TNCs. The most important electronics companies in Korea (Samsung and Goldstar) and Taiwan (Tatung, Sampo and Teco) now are national firms. It has been quite clearly demonstrated that the Korean/Taiwanese variant has been more successful in stimulating nascent industrial clusters which provide a firmer technological basis upon which national firms can sustain the catching up process.<sup>91/</sup> This would appear to be a useful, if difficult, strategy for developing countries which possess sufficient domestic demand to help nurture national champions through associations with TNCs which provide them with the requisite technologies.

The Asean NICs success in the electrical equipment industry would appear to be the most pertinent example for developing countries in respect of their incorporation into the new international industrial order in formation because it is based on increased international competitiveness which has produced significant trade and investment flows. Notably, the Asean regional network centered on Japanese TNCs has provided some developing countries with significant opportunities to become more integrated into the international industrial system by taking advantage of the phase of Japanese foreign direct investment, <sup>92/</sup> called "subcontracting-dependent, assembly-based industrialization and the assembly-transplanting stage of multinationalism".<sup>93/</sup>

The regional core network strategies of Japanese transnational corporations in the electrical and electronic industry now appear to follow a pattern of strong upstream (supply) linkages from Japan to Asean affiliates, which then serve the dual function of, firstly, selling finished goods to local and regional markets (import-substituting investments), and secondly exporting to affiliates in the

Triad to support their own operations with low cost inputs (rationalized investments). <sup>94/</sup> This provides a relatively small group of developing countries with the opportunity to better integrate their productive structure for the electronic industry more fully into the structure of the more dynamic elements of the international industry. High sales volumes and larger export markets have enabled the development of regional supply networks, with integrated operations in several Asean countries supplying inputs to one another. Asean NIC FDI in this sector in the ASEAN 4 and other developing countries is gaining strength.<sup>95/</sup> Thus, some NICs have graduated from local TNC supplier to authentic competitor in certain lines of production, as was suggested by the flying wild goose scheme. The Asean NIC experience in the electronic sector, in these terms, can be considered superior to the experiences in other regions of the developing world.

### 3. Change in Latin America?

It is evident that the several countries in developing Asia, especially the Asean NICs, have been relatively successful in terms of increased integration into the new international industrial order, never the less, one should not neglect the important changes are currently taking place in other regions, particularly in Latin America. It is now clear that US TNCs are adapting to diminished international competitiveness <sup>96/</sup> and the import penetration of their national market by undergoing **major adjustments** in important industrial sectors and those changes do offer opportunities for well-prepared developing countries, particularly those in Latin America. Tables 14 and 15 point out that US TNCs have accelerated their use of offshore component assembly and sourcing in the electrical equipment and transport equipment sectors during the 1980s. Exports of manufactures for further processing rose from less than \$9 billion in 1977 to almost \$48 billion in 1989. This process now extends well beyond Canada and Europe and, as well as Asean NICs, the small group of developing country beneficiaries includes non-Aseans, particularly Mexico, whose share tripled over the same period, from 4 to 12 percent of those exports. Imports of components and finished goods from affiliates by US TNCs almost tripled during the 1982-9 interim alone and Mexico's share, especially of transport and electrical equipment, rose appreciably.

The United States was a dynamic market for the importation of manufactures,<sup>97/</sup> rising from \$257.5 to \$388.8 billion between 1985 and 1990, and developing countries saw their share of that market increase from 25.5 to 29.8 percent of the total. As well as the market share gains registered by the Asean NICs (from 14.7 to 15.3 percent) and the ASEAN 4 (from 1.9 to 3.4 percent), Latin

America enjoyed an increase from 6.9 to 8.7 percent based primarily of Mexico's increase from 3.5 to 5.5 percent of the total. This recent success of Mexico in integrating its industry further into the US productive system, if not the new international industrial order, is one of the few existing examples of a sharp change in fortune for a Latin American country. Does it represent a means by which Latin American countries can become more integrated into the new international industrial order?

Unfortunately, rather than representing a first example of the incorporation of a Latin American country into the new international industrial order, Mexico more properly represents a special case. Mexico possesses an increasingly important advantage over other developing countries in respect of its exports of manufactures to the US market due to its **privileged geographical proximity** which facilitates the use special instruments, such as **export processing zones** (maquiladoras). Special tariff treatment has been given to US goods sent outside the country for further processing since the 1950s in the form of items 806.30 and 807.00 of the former tariff schedules, known since 1 January 1989 as subheadings 9802.00.60 and 9802.00.80 of the US Harmonized Tariff Schedules. The latter is the most important provision and allows for the importation of goods of US origin assembled abroad in which duty is applied only to the value added via foreign processing and no further processing in the US is required. Currently, 20 percent of US imports of manufactures enter the country via these tariff subheadings. The use of these two mechanisms is concentrated in only two industries: transport equipment (72 percent of the total for 9 802.00.80 in 1989) and electronic equipment (15%); and only three countries: Canada (32 percent of the total in 1990), Japan (23%) and Mexico (17%). In 1990, 60 percent of Mexico's exports of manufactures to the US market entered via HTS subheading 9802.00.80 and Mexico was by far the principal beneficiary among developing countries, accounting for over half (56%) of the value of all US imports of manufactures from developing countries under this program. The principal items exported from Mexico to the US under this program were electrical equipment (37 percent of the total) and transport equipment (31%). Thus, Mexico has enjoyed special benefits from its proximity to the US that other Latin American countries have not shared to the same extent and it has employed special mechanisms in the form of export processing zones, that have not been available to the same extent to other Latin American countries. Mexico, then, appears to be a special case more than a model for Latin america. Furthermore, it must be added that the Mexican maquila program has not as yet demonstrated as positive results as the export processing zones of Asia in respect of technology transfer and adaptation via subcontracting.98/



Table 14

EXPORTS OF MANUFACTURES SHIPPED TO AFFILIATES BY US PARENTS, 1977, 1982 AND 1989  
(Billions of US Dollars and Percentage)

INDUSTRY	1977				1982				1989			
	Total	For Further Manufacture	(2) as a % of (1)	(%)	Total	For Further Manufacture	(2) as a % of (1)	(%)	Total	For Further Manufacture	(2) as a % of (1)	(%)
Motor Vehicles & Eqpt.	9.4	2.3	24	26	11.1	7.5	68	35	23.6	16.2	69	34
Computer & Office Eqpt.	1.3	D	D	D	2.3	1.6	70	7	7.7	7.5	97	16
Electronic Components	1.1	0.9	82	10	2.7	2.6	96	12	5.3	5.2	98	11
Instruments, Etc.	1.0	0.5	50	6	1.9	1.4	74	7	3.1	2.9	94	6
Industrial Chemicals	2.6	1.5	58	17	1.6	1.2	75	7	3.5	2.6	74	5
All Others	5.1	3.5	69	40	9.3	7.1	76	33	14.6	13.1	90	28
TOTAL	20.5	8.7	42	100	28.9	21.4	74	100	57.8	47.5	82	100
COUNTRY	1977				1982				1989			
	Total	For Further Manufacture	(2) as a % of (1)	(%)	Total	For Further Manufacture	(2) as a % of (1)	(%)	Total	For Further Manufacture	(2) as a % of (1)	(%)
Canada	12.6	3.1	25	32	15.5	8.4	54	38	32.1	18.9	59	40
Europe	9.5	3.3	35	34	15.2	6.7	44	30	27.0	14.5	53	31
Mexico	0.7	0.4	57	4	2.1	1.7	81	8	6.0	5.5	92	12
Japan	0.6	D	D	D	1.5	0.5	33	2	6.0	2.3	38	5
Singapore	0.3	0.2	67	2	0.8	0.4	50	2	2.1	1.5	71	3
Brazil	0.6	0.4	67	4	0.6	0.4	67	2	1.3	1.1	85	2
Malaysia	0.2	D	D	D	1.0	0.9	90	4	0.8	0.75	94	2
Korea	D	D	D	D	0.2	0.1	78	...	0.6	0.4	67	1
Taiwan	0.1	0.1	72	1	0.3	0.3	88	1	0.6	0.4	67	1
Hong Kong	0.3	0.1	33	1	0.9	0.2	22	1	2.0	0.3	15	...
All Others	4.6	2.0	43	21	6.2	2.8	45	12	7.1	3.4	48	4
TOTAL	29.3	9.6	33	100	44.3	22.4	51	100	85.6	49.0	57	100

Source: US Department of Commerce, "Benchmark Surveys on US Direct Investment Abroad: April 1981, December, 1985 and October 1991."  
g/ Includes all industries (not only manufacturing) especially wholesale trade.

Table 15

IMPORTS OF MANUFACTURES TO US SHIPPED BY AFFILIATES TO US PARENTS, 1977, 1982 AND 1989  
(Billions of US Dollars and Percentage)

INDUSTRY COUNTRY \		1977					1982					1989				
		Total	Tran Eqpt	Non- Elec	Elec	Oth	All	Tran Eqpt	Non- Elec	Elec	Oth	All	Tran Eqpt	Non- Elec	Elec	Oth
US	Canada	9.5	7.7	D	D	D	13.1	10.6	0.7	0.2	1.6	33.9	23.8	2.1	0.9	7.1
	Europe	2.0	D	0.6	0.2	D	2.5	0.1	0.9	0.3	1.2	10.1	1.2	4.4	0.7	3.8
	Mexico	D	D	...	D	D	1.5	D	...	D	D	6.2	3.2	0.3	2.1	0.6
	Singapore	D	D	...	0.5	D	1.1	...	0.3	0.8	-	4.0	D	2.4	1.6	D
	Brazil	D	...	...	D	D	0.4	0.1	D	0.2	0.1	1.8	D	0.6	0.5	D
	Japan	D	-	D	...	D	D	-	D	...	D	1.5	...	D	0.2	D
	Hong Kong	D	-	D	D	D	D	-	D	0.5	D	1.4	D	0.2	0.4	D
	Taiwan	0.5	-	...	D	D	0.6	-	D	D	D	1.4	-	0.6	0.7	0.1
	ALL Others	D	D	D	D	D	D	D	D	D	D	4.0	D	D	2.1	D
	TOTAL	14.5	8.4	1.1	2.3	2.7	22.8	11.3	2.3	5.0	4.2	64.3	28.6	12.1	9.1	14.5
%	Canada	66	53				57	46	3	1		53	37	3	1	11
	Europe	14		4	1		11		4	1		16	2	7	1	6
	Mexico						7					10	5	...	3	1
	Singapore				3		5		1	4		6	D	4	2	D
	Brazil						2			1		3	D	1	1	D
	Japan											2	...	D	...	D
	Hong Kong									2		2	D	...	1	D
	Taiwan	3					3					2	-	1	1	...
	ALL Others											6	D	D	3	D
	TOTAL	100	58	8	16	19	100	50	10	22	18	100	44	19	14	23

Sources: US Department of Commerce, "Benchmark Surveys on US Direct Investment Abroad", April, 1981, December, 1985 and October, 1991.

It is evident that the North American Free Trade Agreement (NAFTA) already accorded in principle among the US, Canada and Mexico will provide, once approved by the US Congress, a direct and formal integration of Mexico into the US cluster within the Triad. The Enterprise of the Americas Initiative of the US Government might very well extend certain trade and investment advantages to Latin American countries; however, one can legitimately question assumptions that the NAFTA will become a hemispheric institution in the near future, with Central American flying wild geese following Mexico's lead.<sup>99</sup> Thus, while that trilateral scheme will delineate the specifics of Mexico's integration into the North American segment of the new international industrial order, that alternative may not be available to many developing countries in Latin America, especially in the short term. The case of Mexico in this sense again represents a special rather than generalized effect of the adjustment and restructuring process undertaken by US TNCs. Other Latin American countries appear to have fewer opportunities than Mexico in this regard and no strategy.

In order to face up to the increased international competition associated with the new international industrial order, US TNCs are adjusting and restructuring their operations, particularly in the transport and electrical equipment sectors, and this has provided some opportunities for a few developing countries, such as Mexico. At the same time, it must be pointed out that these opportunities associated with the US TNC network appear considerably scarcer and significantly distinct from those associated with the Japanese network established in developing Asia. Unlike the case for the countries from developing Asia in which a decreasing share of their exports of manufactures to the US market took place by way of majority-owned foreign affiliates of US TNCs during the 1982-89 interim (it dropped from an average of 15.6 to 13.3 percent), the share of Mexico's exports of manufactures to the US via US TNCs rose (from 30.3 in 1982 to 31.7 percent in 1989, when foreign investment regulations were **liberalized to allow for wider majority ownership by TNCs**). The relatively high and growing level of exports of manufactures to the US via US majority-owned TNCs contrasts sharply low level for Asean NICs, such as Korea (3.1%), Taiwan (5.9%) and Hong Kong (14.8%)- but not Singapore (46.7%)- and the declining levels of Asean members, such as Malaysia (from 68.9 to 32.5%) and the Philippines (from 21.5 to 7.2%)- but not Thailand (from 9 to 20.1%). Thus, one major difference between the recent Mexican success in placing exports of manufactures in the US market and the experience of most Asean success stories is the **more important role** played by majority-owned foreign affiliates of US TNCs **operating in Mexico**. This could directly impact, by blunting, the process of technology transfer, adaptation and upgrading in Latin American countries interested in pursuing the opportunities stemming from any possible further incorporation into the US TNC network.

#### 4. Considerations

In summary, information on international trade and foreign investment suggests the existence of simultaneous processes of increased marginality (for the majority of developing countries) and incorporation (for a few Asean NICs and perhaps a few others, such as Mexico) of developing countries into the new international industrial order in formation. One very important ingredient in the success of the Asean NICs has been the rapid growth of Japanese foreign direct investment and the expansion and consolidation of Japan-centric regional supply networks and export platforms, as the example of the electric and electronic equipment industry suggests. The Asean NICs proved very useful to the Japanese TNC regional supply network by becoming low cost and high quality manufacturers often linked more via joint ventures and the subcontracting nexus than straightforward majority foreign ownership. The international framework of the 1960s and 70s facilitated the accelerated expansion of the exports of manufactures (especially electric and electronic equipment) from these countries. In this context, and mainly by way of their individual efforts, the Asean NICs implemented an ongoing process of technological upgrading such that, in many lines of manufacturing activities (though not necessarily in technological innovation), these 'flying geese' began to challenge their mentor.

The adjustment and restructuring of the US TNC network, especially in the transport and electrical equipment industries, also opens up some opportunities for prepared developing countries seeking incorporation into the new order; however, it would appear that these opportunities differ from the ones enjoyed by Asean NICs in the context of the Japanese regional supply network and export platform in the sense that direct corporate control (majority ownership) could very well prove a limit on the process of technological upgrading for those countries. It is evident that TNCs heavily influence the adaptability of developing countries to the newly emerging international industrial order by way of their international strategies and action taken in the fields of international trade and foreign investment,<sup>100/</sup> the question is: how can those few developing countries with opportunities to become partially or fully incorporated into the new international industrial order best take advantage of those opportunities?

Aside from promoting local labor-intensive production, developing countries must endeavor to **design an industrial strategy and implement well thought out and consistent policies** especially with regard to the forms of association with TNCs which will gain or maintain access to new and dynamic technologies in order to make more permanent any improved international competitiveness

they might achieve in labor-intensive industries. Even the successful Asean NIC export-led industrialization strategies have been running up against escalating protectionism in the OECD countries.<sup>101/</sup> The Asean NICs earned the possibility of incorporation into the new international industrial order by producing more cheaply other's products, however, in their transition to higher cost economies they must still succeed in developing and marketing their own products. In Latin America the goal continues to be to make more headway in low cost, high quality manufacturing, something that is presently taking place within the relatively more limited constraints of the less dynamic and recently emerging US TNC supply network.

Viewed historically, developing countries which today seek incorporation into the new international industrial order must achieve more with more limited policy alternatives, in a context of increased competition. As time goes on it is **more not less difficult** for the three mentioned factors to coincide, that is, clear and coherent economic policies on the part of developing country aspirants which will provide them a stable environment, TNC strategies which target the comparative advantages of developing countries with regard to natural resources, wage levels and the quality of human capital, and rules of the game established and implemented by the Triad members of the OECD which facilitate the incorporation of the few better-prepared developing countries. The role model selected by the developing country aspirant could well be a key factor in the success that it meets.<sup>102/</sup> The vast majority of developing countries could easily become further marginalized if they do not take clear cut decisions based on a consistent strategy in this regard.

## Chapter III

THE AUTOMOBILE SECTOR AS EPI-CENTER OF THE  
TRANSNATIONAL CORPORATION SHAKE UP

The motor vehicle and directly-related industries 103/ have been so important to the development process in most industrial countries--especially the United States--that it can be said that they represent a "style of industrialization", if not development.104/ It is a style of industrialization centered on a petroleum-motor vehicle axis. Governments have tended to view it as an important engine of growth and overall international competitiveness.105/ In the United States,106/ manufacturing motor vehicles employed over 1 million people (before General Motors' late-1991 cutbacks) in the design, fabrication and assembly of cars, trucks, buses and replacement parts. About 9 percent of US total consumer spending was directed at the sector, where about 14 million vehicles were purchased in 1991. World production was valued at about \$500 billion in the late 1980s and, if one included associated activities such as the sale of parts, used vehicles and repair work, it represents a trillion dollar industry.107/ A brief look at the history of the automobile industry in the twentieth century assists in appreciating its current importance as a war zone for some of the world's most powerful transnational corporations and a source of friction among governments of the US, Japan and the EEC. This situation holds significant consequences for developing countries.

1. Background

The internal combustion engine and the motor vehicle were European inventions of the late nineteenth century. From its custom-made and inefficient origins the motor vehicle industry was marked by three major transformations. The first major one occurred in the early twentieth century and came in the form the dramatic success of the US **mass production** system coupled with new principles of scientific management.108/ Henry Ford perfected the moving assembly line which reorganized production techniques on the shop floor by simplifying the tasks performed by semi-skilled and unskilled labor. In this way great cost reductions from superior economies of scale were achieved by US industry in the production of 'standard' automobiles. Alfred Sloan of General Motors (GM) reorganized management to accommodate integrated production through a multidivisional

structure for distinct automobiles. This was supplemented with economies of scale attained via in-house component production. This productive system and new organizational techniques provided US motor vehicle producers with an enormous initial competitive advantage, as can be appreciated in the information contained in Tables 16 and 17. The major US producers used this advantage to expand nationally (between 1905 and 1923 the number of automobile plants jumped from 121 to 2,471 making it the largest industry in the US)<sup>109/</sup> and internationally, especially to Europe (for example, as early as 1929, Ford had assembly operations in 21 countries while GM operated in 16 countries).

The second major transformation of the motor vehicle industry was related to the way that European producers reacted to the US dominance of the industry, which took place in the 1950s and 1960s.<sup>110/</sup> Many major manufacturers--series producers, such as Volkswagen, Renault and Fiat--succeeded in mastering the US production practices; however, the major innovation was the appearance of **specialty producers** offering highly differentiated multi-option vehicles rather than 'standard' ones. Important market niches were encountered in small car and, especially, luxury car production (i.e. Daimler-Benz, BMW, Volvo) where US competitive advantages were weakest. European motor vehicle production grew rapidly for 20 years and extra-regional exports exploded. Volkswagen (VW), in particular, challenged the dominant US producers not only at home but in North and South America as well. Both VW (with 36 percent of total production outside of its home country) and Renault (20 percent) acquired a significant degree of international expansion by 1980 including production facilities in the US; however, US producers, such as Ford (55 percent) and GM (29 percent) were still the principal international motor vehicle manufacturers, most notably in absolute terms (even though their share of world motor vehicle production had fallen below that of European producers by 1970). The second major transformation of the global motor vehicle industry, then, was the relative success of some European producers in meeting the American challenge, particularly those which specialized in certain market niches.

The third major transformation of the motor vehicle industry came in the form of the **Japanese challenge** beginning in the 1970s to US and European dominance of that industry. Its principal manifestation was the export penetration of their national markets. In this case it was not simply an attempt to improve upon existing US techniques or encounter market niches but a complete revolution in technical and organizational aspects of motor vehicle production. This revolution was based on flexible and specialized production which achieved shorter production runs

Table 16

## WORLD MOTOR VEHICLE PRODUCTION, BY REGION, 1950-1988

		North America b/	Europe c/	Japan	All others d/	Total
In million of units: a/	1929	5.6	0.7	0	-	6.4
	1938	5.0	1.1	0	0.3	6.4
	1950	8.4	1.6	0	0.6	10.6
	1960	8.3	6.7	0.5	0.8	16.4
	1970	9.5	12.4	5.3	1.4	28.6
	1980	9.4	12.9	11.0	5.5	38.8
	1988	13.2	16.0	12.7	7.8	49.7
In percentage:	1929	88	12	0	-	100
	1938	79	18	0	3	100
	1950	79	16	0	5	100
	1960	51	41	30	5	100
	1970	33	43	19	5	100
	1980	24	33	28	15	100
	1988	26	32	25	17	100

Source: UNCTC, "Transnational Corporations in the International Auto Industry", ST/CTC/38, New York, 1983, and Karmokalias, Y., "Automobile Industry trends and prospects for investments in developing countries", IFC Discussion Paper, No. 7, The World Bank, Washington D.C., 1990; Hoffman, K and R. Kaplinsky, Driving Force, Westview Press, Boulder, 1988, p. 80.

a/ Passenger cars and commercial vehicles excluding assembly operations.

b/ United States and Canada.

c/ Excludes Eastern Europe.

d/ Essentially centrally-planned economies and developing countries.



Table 17

## EXTRAREGIONAL AUTOMOBILE EXPORTS, 1929-1990

(millions of units)

	North America	Europe	Japan
1929	0.4	-	0
1938	0.1	0.1	0
1950	0.1	0.4	0
1960	0.1	1.2	-
1970	-	1.9	0.7
1980	0.2	1.3	3.9
1985	-	1.7	4.4
1990	na	na	na

Source: Hoffman, K. and R. Kaplinsky, *Driving Force*, Westview Press, Boulder, 1988, p. 76.

without sacrificing efficiency and while improving upon quality. Toyota led the way with innovative organizational techniques such as "just-in-time" supply, a zero defects policy combined with quality circles in the production line, person-related not job-related wages, etc. Nissan took the lead in applying automation technology (robots) to motor vehicle production. Honda demonstrated marketing know-how in conquering the US market. The results of this multifaceted revolution in motor vehicle production and marketing was evident in the jump in Japanese-produced vehicles, from less than 1 to over 11 million units during a 20 year span from the 1960s to the 1980s, and an explosion of exports, from less than 1 to over 4 million units during the 1970-85 interim. Trade restrictions stalled but did not defeat the Japanese onslaught, as it was transformed from export penetration to the installation of foreign-owned plants in the US itself.<sup>111</sup> By the early 1990s, for example, the new plants in the US of Japanese automobile TNCs accounted for about one quarter of total North American automotive production. In this sense, the Japanese challenge was directed at one of the key industries of the Western capitalist system, a style of industrialization as it were, and therein lies a central aspect of the importance of the transformation of the motor vehicle sector.

The industry is important also because it was the gestor of some of the biggest transnational corporations in the world and it is one of the most 'globalized' of markets, characterized by exceptionally fierce global competition of the recent period. There is little doubt that the most

successful industrial economy of the twentieth century --the United States-- had a clear petroleum/motor vehicle axis to its process of industrialization. That is evident in even a cursory examination of the characteristics of the principal US corporations, as Table 18 suggests. Petroleum refining, about 25 percent of which goes to make gasoline,<sup>112/</sup> and motor vehicles and their parts account for almost one third of the total sales of the 500 largest US corporations. More notably, three petroleum refiners and three motor vehicle manufacturers account for 69 percent of the total sales of the largest 10 US industrial corporations and almost 20 percent of the sales of the 500 largest US industrial corporations. And, although they are not very propense to export, as measured by the proportion of exports to total sales, the three motor vehicle manufacturers are among the major US industrial exporters, occupying second, third and seventh spots on the 1989 Fortune list of major US industrial exporters by sales. This no doubt reflects the automotive pact with Canada.

This petroleum/motor vehicle axis to industrial development was, to a certain extent, imprinted on the rest of the industrial world. A look at the 25 largest industrial corporations in the world (Table 19) suggests similar characteristics. The petroleum refining and motor vehicle and parts industries represent over one-third of the overall sales of the 500 largest industrial corporations. Seven petroleum refiners and seven motor vehicle manufacturers account for 64 per cent of the total sales of the 25 largest industrial corporations and 18 per cent of those for the 500 largest ones. Thus, the petroleum/motor vehicle axis to the industrialization process generated some of the largest TNCs not only in the United States but in the entire world.

Table 20 offers a closer appreciation of aspects of the 20 principal automobile-producing TNCs over the 1973-89 period. These data demonstrate that, in general, the changes taking place in this group of TNCs consists of an increase of market shares on the part of the 8 Japanese (especially Honda and Toyota) and 1 South Korean producers, a decrease in markets shares for the 3 US manufacturers (especially Chrysler), and a mixed and unexciting situation for the 8 European producers (that of Peugeot resulted from acquisitions more than internally-generated growth). While the two dominant and most international of US producers still head the ranking by sales, the more automotive-focussed Japanese producers are closing the gap both in terms of sales as well as their networks of foreign manufacturing facilities, particularly those in the US itself. In this sense, the automobile industry is important not only as a source of some of the world's largest and most international TNCs but also because it represents one of the principal sectors where the new international industrial order is taking shape as a result of intense competition.<sup>113/</sup> The result has been the creation of severe **overcapacity** in the sector.

Table 18

**CHARACTERISTICS OF THE TEN LARGEST US CORPORATIONS  
BY SALES, 1989  
(Billions of US dollars)**

Rank sales	Corporation	Sales	Industry	Rank exports	Exports as % of sales
1	General Motors	127.0	Motor vehicles	2	8.0
2	Ford Motor	96.9	Motor vehicles	3	8.9
3	Exxon	86.7	Petroleum refining	32	1.2
4	Int'l Business Machines	63.4	Computers	5	8.6
5	General Electric	55.3	Electronics	4	13.2
6	Mobil	51.0	Petroleum refining	-	-
7	Philip Morris	39.1	Food	15	5.9
8	Chrysler	36.2	Motor vehicles	7	12.9
9	E.I. Du Pont	35.2	Chemicals	6	13.8
10	Texaco	32.4	Petroleum refining	-	-
	Total top 10	623.2	28.8%		
	Total top 500	2 164.3			
	<u>Industry totals</u>				
1	Petroleum refining	359.9	16.6%		
2	Motor vehicles and parts	295.1	13.6%		

Source: Fortune, "500 largest US industrial corporations", 23 April 1990 and Fortune, "America's 50 biggest exporters", July 16, 1990.

Table 19

**CHARACTERISTICS OF THE 25 LARGEST TRANSNATIONAL CORPORATIONS  
BY SALES, 1990  
(Billions of US dollars)**

Rank	Transnational Corporations	Country	Sales	Industry
1	General Motors	United States	125.1	Motor vehicle
2	Royal Dutch Shell Group	U.Kingdom/Netherlands	107.2	Petroleum refining
3	Exxon	United States	105.9	Petroleum refining
4	Ford Motor	United States	98.3	Motor vehicle
5	International Business Machines	United States	69.0	Computers
6	Toyota Motor	Japan	64.5	Motor vehicle
7	IRI Group	Italy	61.4	Metals
8	British Petroleum	United Kingdom	59.5	Petroleum refining
9	Mobil	United States	58.8	Petroleum refining
10	General Electric	United States	58.4	Electronics
11	Daimler Benz	Germany	54.3	Motor vehicle
12	Hitachi	Japan	50.7	Electronics
13	Fiat	Italy	47.8	Motor vehicle
14	Samsung	South Korea	45.0	Electronics
15	Philip Morris	United States	44.3	Food
16	Volkswagen	Germany	43.7	Motor vehicle
17	Matsushita Electric	Japan	43.5	Electronics
18	ENI Group	Italy	41.8	Petroleum refining
19	Texaco	United States	41.2	Petroleum refining
20	Nissan Motor	Japan	40.2	Motor vehicle
21	Unilever	U.Kingdom/Netherlands	40.0	Food
22	E.I. Du Pont	United States	39.8	Chemicals
23	Chevron	United States	39.3	Petroleum refining
24	Siemens	Germany	39.2	Electronics
25	Nestle	Switzerland	33.4	Food
	Total top 25		1 452.3	28.6%
	Total top 500		5 062.3	
	<u>Industry totals</u>			
1	Petroleum refining	941.8	18.6 %	
2	Motor vehicles and parts	796.1	15.7 %	

Source: Fortune, "The global 500: world's biggest industrial firms", 20 July 1991.

Table 20

**THE PRINCIPAL AUTOMOBILE PRODUCING TRANSNATIONAL CORPORATIONS,  
SELECTED YEARS, 1973-1989**

Rank global 500 1989	TNC	Home country	World production in millions of units <u>a/</u>			Percentage distribution			Percentage foreign production <u>b/</u>		Automotive revenues % of total revenues
			1989	1981	1973	1989	1981	1973	19..	1980	1989
1	General Motors	United States	5.9	5.5	8.1	18	21	24	na	29	79
2	Ford Motor	United States	4.4	2.9	5.3	13	11	16	na	55	80
6	Toyota	Japan	3.1	2.3	2.3	10	9	7	na	-	85
	Subtotal top 3		(13.4)	(10.7)	(15.7)	(41)	(40)	(47)	na	(39)	(80)
21	Volkswagen	Germany	2.7	2.1	2.4	8	8	7	na	36	100
17	Nissan Motor	Japan	2.3	2.0	2.1	7	8	6	na	-	96
	Subtotal top 5		(18.4)	(14.8)	(20.2)	(56)	(56)	(60)	na	(32)	(84)
15	Fiat	Italy	2.2	1.8	1.7	7	7	5	na	14	70
35	Peugeot	France	2.0	1.5	0.8	6	6	1	na	18	95
30	Honda Motor	Japan	1.7	0.9	0.4	5	3	1	na	-	95
27	Renault	France	1.6	1.5	1.4	5	6	4	na	20	97
16	Chrysler	United States	1.1	0.8	2.2	3	3	7	na	25	88
	Subtotal top 10		(27.0)	(21.3)	(26.7)	(83)	(80)	(80)	na	(27)	(85)
61	Mazda Motor	Japan	1.1	0.8	0.7	3	3	2	na	-	85
56	Mitsubishi Motors	Japan	0.7	0.6	0.6	2	2	2	na	-	100
222	Hyundai Motor	South Korea	0.7	na	na	2	na	na	na	-	70
13	Daimler Benz	Germany	0.5	0.5	0.5	2	2	2	na	11	74
74	BMW	Germany	0.5	0.3	0.2	2	1	1	na	-	100
-	Rover/British Leyland	United Kingdom	0.5	0.4	1.0	2	2	3	na	12	100
70	Volvo	Sweden	0.4	0.2	0.3	1	1	1	na	34	78
175	Suzuki Motor	Japan	0.3	0.1	0.2	1	<1	1	na	-	100
258	Fuji Heavy	Japan	0.3	0.3	na	1	1	na	na	-	93
234	Daihatsu Motor	Japan	0.2	0.2	na	1	1	na	na	-	93
	Subtotal top 20		32.2	24.7	30.2	(98)	(93)	(91)	na	na	(85)
	Others		0.5	1.8	3.0	2	7	9	na	na	85
	Total		32.7	26.5	33.2	100	100	100	na	19	85

Sources: Data from Motor Vehicle Manufacturers Association, Automotive News, UBS Philips and Drew Global Research Group as presented in UNCTC, "TNC's in the International Auto Industry", op.cit. Business week, "Global Auto Scoreboard", 7 May 1990; and Fortune, "Global 500", 20 July 1991.

a/ Passenger car production only, excludes trucks and buses and all assembly operations.

b/ Percent of total TNC production undertaken outside of home country.

## 2. The Japanese challenge: its dimension

It is now relevant to indicate the dimension of the challenge being put by the Japanese automobile industry to the US and, in a less immediate sense, the European automobile manufacturers, before proceeding to examine the central features of that challenge. It is worth recalling that the decline in overall US competitiveness (effecting all exports not only automobiles and parts) since 1957, measured in terms of the share of US exports of manufactures in total world exports of manufactures, had been interpreted as a decline in the share of exports from the US during 1957-66 period followed by the stabilization of the export share of the US thereafter; a phenomenon thought to be compensated by a growth in US TNC export shares, during 1957-66, which also stabilized thereafter. It was felt that US TNC export shares were somehow isolated from major changes as they rested on solid comparative advantage of US TNCs in the chemicals, machinery and transport equipment sectors.<sup>114/</sup> For this reason, one should emphasize the SHOCK factor produced not only by the loss of US competitiveness in manufactures in general but by the import penetration of those same US markets where US TNCs were supposed to have impregnable comparative advantages. While the weakened dollar has helped US exporters recover some terrain since 1985, the automobile producers have seen their competitive situation deteriorate even further. The experience of the automobile industry, in particular, was a rude awakening for US businessmen and policy makers. Their national champions were cowered.

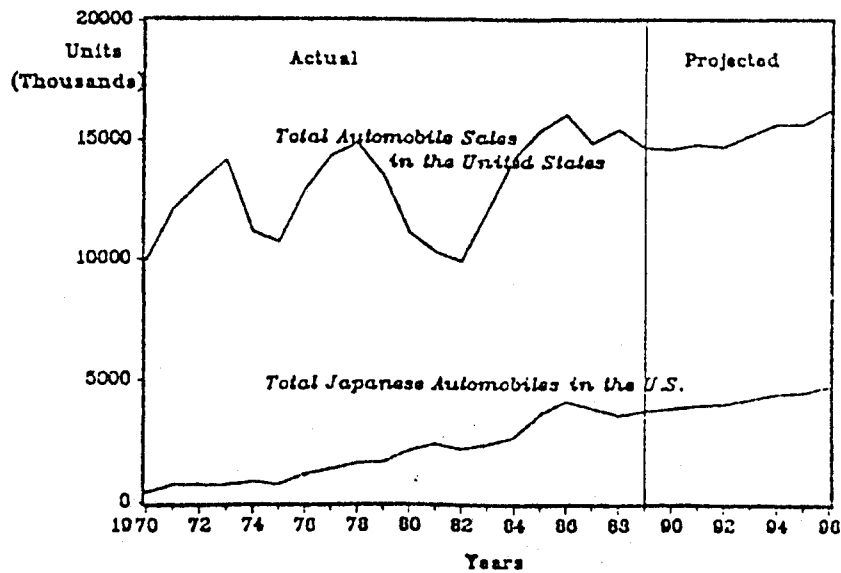
Although physical production of US automobiles had peaked at 13 million units in 1978, it was still not uncommon to come across opinions suggesting that past US glory could be recaptured: "The United States is expected to regain its market share, as a result of current restructuring and investment programs."<sup>115/</sup> During the US recession at the end of the 1970s the volume of Japanese motor vehicle production definitively surpassed that of the US vehicle manufacturers. The three major Japanese producers (Toyota, Nissan and Honda) continued to gain market share in the US itself, rising to almost 30 percent of total sales of cars by 1990 and that was after stringent trade restrictions on Japanese automobile imports (euphemistically referred to as 'voluntary export restraints') were put into practice in 1981.<sup>116/</sup> At an estimated initial cost of between \$10 and 16 billion,<sup>117/</sup> the automobile voluntary export restraints eventually succeeded in reducing imports to the US of Japanese-made automobiles; however it resulted in an explosion of Japanese FDI in local automobile production, that is, Japanese automobiles made in the US by affiliates of

Japanese manufacturers. Such production rose to 1.3 million passenger cars in 1990, equivalent to over 21 percent of passenger car output in the US.<sup>118/</sup> Thus, US trade restrictions did not succeed in eliminating the trade deficit associated with automotive vehicles and their parts, as any decline in the former was to a large extent offset by a rise in the import of parts for local production.<sup>119/</sup> By end-1990, the merchandise trade deficit for automotive vehicles and parts was still close to \$50 billion and the overall trade deficit with Japan was of a similar magnitude.<sup>120/</sup>

Figures 5 through 7 offer a more precise definition of the dimension of the penetration of the US automotive market by Japanese producers. Figure 5 demonstrates that during the late 1980s the situation in the US automobile market was one in which Japanese autos were slowly increasing their market share (around 25 percent) in a growing market and that the same situation was presumed to continue into the future. Figure 6 indicates that the Japanese penetration of the US automobile market since 1970 had in fact been rapid though from a very small base; nevertheless, the penetration appeared to accelerate in the 1980s, even after trade restrictions had been applied. The US policy of trade restriction in this sector did succeed in stimulating Japanese foreign direct investment in the sector, which resulted in the fact that the absolute number of imported Japanese automobiles did begin to decline after 1986. The contemporaneous view was that the decline in imports would be more or less compensated for by local production by Japanese producers. Figure 7 points out that earlier projections proved optimistic. In the context of the recession taking place new car sales in the US nosedived, especially during the 1990s; however, the decline in car sales was primarily at the expense of the 3 US producers (particularly General Motors) as the Japanese market share, be it by import or local production, held firm. The excess capacity of the US market represented about 60 percent of total world automobile overcapacity.<sup>121/</sup>

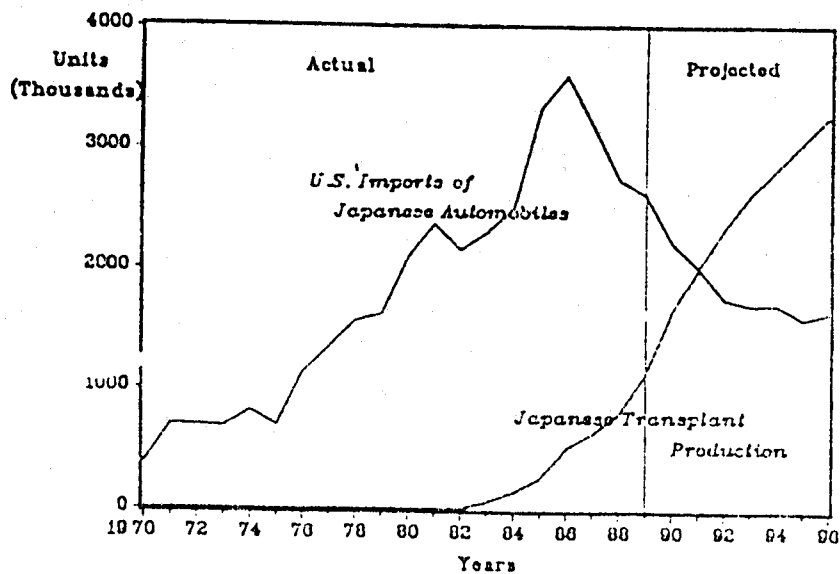
In 1991, the 3 principal US producers all registered significant losses, adding up to over \$7 billions, in spite of the 'streamlining' they had undergone during the previous decade. General Motors suffered the largest loss in its corporate history--\$4.5 billions, and represented a case in point of US stubbornness in the face of superior productive technique. It doggedly resisted outsourcing components in spite of the obvious advantages of such demonstrated by Japanese car makers. GM continued the in-house supply of about 50 percent of parts (70 percent according to one source)<sup>122/</sup>, whereas the Japanese car makers did so for only 30 percent or less.<sup>123/</sup> General

Figure 5



Japanese automobiles in the U.S. automobile market (1970-1996).

Figure 6



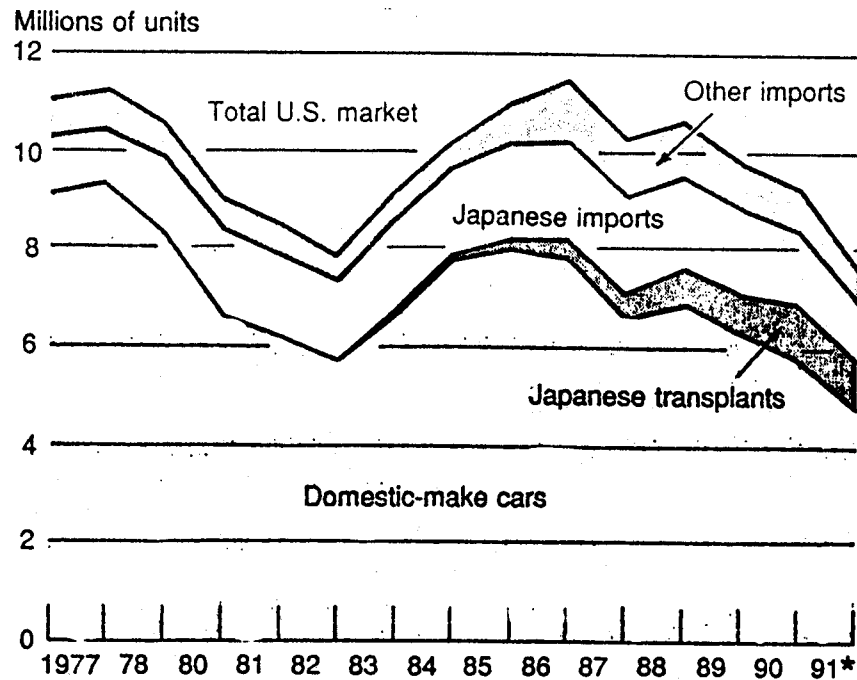
U.S. imports of Japanese automobiles and Japanese transplant production (1970-1996).

Source: Cited in Shujiro Urata, "The Development of the Motor Vehicle Industry in Post-Second World War Japan", *Industry and Development*, N. 24, 1988.



Figure 7

## NEW CAR SALES IN THE UNITED STATES



**Sources:** Ward's Automotive Reports and Automotive Yearbook.

\* 1991 figure is the annualized total for the first quarter.

Cited in Orr, J., "The Trade Balance Effects of Foreign Direct Investment in United States Manufacturing", Federal Reserve Bank of New York Quarterly Review, Summer 1991.

Motors was clearly over-extended with 7 car and truck divisions, 19 body types and 65 different models,<sup>124/</sup> and no amount of financial shenanigans<sup>125/</sup> allowed it to avoid seriously initiating the restructuring or rationalization of its operations, which in early 1992 consisted in the programmed closure of 21 plants and the elimination of 74 thousand jobs.<sup>126/</sup> Any loss in market share by US car manufacturers, especially GM, corresponded closely to a market share gain by Japanese producers. As Japanese automobile TNCs pummeled the US ones, the stage was set for a major confrontation between governments.

The situation in Europe was less dramatic as Japanese penetration was more minor (12 percent of the car market) and the local economic situation was stronger. Furthermore, the operations of the most international US producers (General Motors and Ford) in Europe each held markets shares more or less at par (12 percent) with the major European car makers: VW (16.7 percent), Fiat (13.3 percent), Peugeot (11.3 percent) and Renault (9.9 percent).<sup>127/</sup> The European automobile industry experienced a kind of double whammy, having to face both the competition from the local production facilities of US auto TNCs operating in Europe<sup>128/</sup> as well as Japanese imports.<sup>129/</sup> The principal new challenge, none the less, came from the Japanese producers whose market share had blossomed from 7 percent in 1979 and was expected by some to rise to 19.5 percent by the year 2000 (10.5 percent via imports and 9 percent by way of new plants installed in Europe).<sup>130/</sup> The Japanese initial penetration was doing more damage to series producers (for example, Fiat)<sup>131/</sup> than to specialist manufacturers, as had happened in the United States, however, it was expected that they move upmarket once their penetration of the low-cost small car portion of the market was consolidated.<sup>132/</sup> While the US was considered the automotive TNC battleground of the 1980s, Europe was billed for that role in the 1990s.<sup>133/</sup>

Individual European governments reacted with trade restrictions to the import penetration by Japanese manufacturers. The most stringent were the French and Italian governments, which limited Japanese auto imports to 3 and almost zero percent of the national market, respectively, and undertook on local content grounds to have higher tariffs applied to the imports of Japanese autos produced in their new European plants and their existing US ones.<sup>134/</sup> Eventually, even the European Economic Commission felt the need to establish an 'understanding' with the Japanese manufacturers which would leave them with a market share of 16 percent by 1999 thereafter import restrictions supposedly would be rescinded.<sup>135/</sup>

One interesting sidelight of industrial country policy responses to the Japanese challenge is, for example, the confusion demonstrated by the US government. On the one hand, in response to

the European initiative to restrict imports to Europe of Japanese cars made in the United States, the US trade representative, Carla A. Hills, stated that "We would be remiss if we didn't stress how strongly we feel that a Japanese nameplate car made in our country is an American car".<sup>136/</sup> On the other hand, the US Government was scrutinizing the content of Canadian-made Honda Civic imports into the US to see if they really qualify under the 1989 trade agreement and they eventually ruled that the US-made engines must be considered 'foreign' due to the level of Japanese parts used.<sup>137/</sup>

One clear conclusion that can be drawn from this glance at the dimension of the Japanese challenge in the automobile sector is that the stakes are extremely high. Strategic mistakes by individual national-based TNCs could be fatal. Individual governments no longer possess the financial capacity to orchestrate grandiose rescues of national champions. In this context, it is unlikely that even the industrial countries' governments that are the most ardent defenders of liberal market policies will allow adjustment to take place solely via head-to-head price competition which, undoubtedly, would leave Japanese producers with huge market shares.<sup>138/</sup> It is in this political economy context that one can comprehend more clearly the essence of the matter, that is, the specific technical nature of the Japanese challenge to the existing industrial order as it pertains to the situation of the automotive industry.

### 3. The Japanese challenge: its principal elements

It is a difficult task to summarize or even order the elements of the multifaceted challenge made by the dominant Japanese automobile producers. By lowering the minimum efficient scales of production,<sup>139/</sup> they succeeded in beating the dominant US automobile TNCs at their own game, with the result that a tremendous excess capacity was created and the less competitive producers are being forced to adjust to that situation by rationalizing operations and restructuring productive facilities. Undoubtedly, some national champions will falter and perhaps even disappear.

The Japanese challengers to a certain extent re-invented automotive manufacturing as is evident in the systematic and interrelated nature of the various elements of their new system of production. It was precisely in the automobile and components industry that the Japanese paradigm for a new industrial order was furthest advanced.<sup>140/</sup> Perhaps the best way to examine this topic is to hone in on the central aspects of the Japanese challenge, on the one hand, and the US TNCs' failure to respond adequately to it, on the other, emphasizing firm-level aspects.

The three principal Japanese automobile manufacturers --Toyota, Nissan and Honda-- with 1990 Japanese market shares of 43, 25 and 10 percent, respectively,<sup>141/</sup> each contributed specific elements to the Japanese success in this area. Toyota evolved a new mode of organization of production which can be described fairly as the 'best practice' in automobile manufacture. Eight aspects are pertinent:<sup>142/</sup>

- the underlying philosophy of production has been altered; instead of producing to stock, goods are produced to order. That necessitates a demand-driven system capable of producing a variety of product types in much smaller volumes. Hence, lot sizes have been reduced dramatically.

- efficient production of different products in small lot sizes requires minimizing downtime. That has required quick line changeovers and tool setups. Machinery redesign has been necessary, but more importantly, production-line workers have been trained to do changeovers rather than having them done by separate teams as in mass production.

- production layouts have been restructured, and changes introduced in the use and management of machines in order to create a smooth flow of smaller lot sizes.

- inventories have been limited to a minimum 'just-in-time' level rather than being stocked 'just-in-case', so that the increased number of different product types could be accommodated without large carrying costs.

- maintaining a smooth flow of production without defects requires that components have zero defects or to be of perfect quality, whether they come from suppliers or from in-house sources further back in the production line.

- the concern for quality inherent in 'just-in-time' highlights an important philosophical difference between the West and Japan. Western firms have viewed price and output as primary with quality a secondary consideration and costly to achieve; the Japanese have seen the pursuit of perfect quality as the source of continual gains in productivity.

- the Japanese have developed a philosophy of total quality control that contributed to achieving zero defects in components. This also implied establishing extensive and comprehensive preventive maintenance practices and vesting responsibility for quality control in production-line workers.

- skill and craft demarcations among workers have been eliminated and workers are trained to be multi-skilled; they are paid according to their skill level and the quality of their work.

Toyota is the best car maker in the world and, according to one notable US source, it just keeps getting better and better.<sup>143/</sup>

Nissan's principal contribution was the application of automation technologies, especially automatically-guided vehicles and robots, to computer-integrated manufacturing. Computers are used to control all aspects of production, including the operation of flexible automation technologies, production scheduling, components ordering and in-plant 'just-in-time'.<sup>144/</sup> The unique feature of this system of production control is that it involves extensive and intensive use of computer interfacing between assembly plants and suppliers, between the production plants and the head office host computer, and among the computer-based systems used within the plants themselves. The Nissan system is designed to streamline production of computer-integrated manufacture and produce directly to orders from customers.<sup>145/</sup>

Honda, the most successful of the independent manufacturers, that is, those outside of the six principal keiretsu, made its contributions in the technological and marketing areas. In the former, the design and production of the a new engine (referred to as the CVCC) which satisfied demands for fuel-efficiency and pollution control gave this manufacturer a significant competitive advantage.<sup>146/</sup> That advantage was coupled with a diligent export effort and a well thought out foreign investment policy which made Honda the most international of the Japanese auto TNCs. As early as 1981, over 70 percent of its sales were made overseas.<sup>147/</sup> In the all-important North American market the Honda Accord became the best selling automobile. As of 1991, Americans had purchased almost 2.5 million US-made Hondas since the production line began operation in 1982.<sup>148/</sup>

These three dominant auto TNCs all added some significant element to the Japanese challenge in the automobile sector. Those elements combined to give Japanese producers (both in Japan and in their plants in the United States) a competitive advantage that was second to none. Table 21 offers several indicators of that competitive advantage by comparing Japanese automobile production in Japan to Japanese production located in the United States, to American production in the US and to European producers. The principal advantages are found in reduced stocks, greater productivity, teamwork, lower worker absenteeism, fewer assembly defects and more automation. It might be noted in passing that the Japanese had demonstrated that their 'system' was for the most part transferrable as can be seen by the indicators for the Japanese production in the US, where \$19 billion investments produced a very competitive 2 million car per year capacity (even considering that it carried a 60 percent level of local content).<sup>149/</sup> Also noteworthy is the fact that the European producers trailed even the US producers by a significant margin indicating perhaps that industrial restructuring by the US auto TNCs had produced some positive results for them relative to European

competitors. Other important advantages which have been ascribed to the Japanese producers is their "frankly superior" style of corporate management<sup>150/</sup> and their financial depth to continue the global auto TNC combat, particularly by relying on their solid profit center in Asia.<sup>151/</sup> The central point evidently is that the Japanese auto producers were victorious, more than elsewhere, **on the factory floor.**

The principal feature of the US auto producers failure to adequately face up to the Japanese challenge was also encountered primarily on the factory floor. On one hand, the US auto TNCs had clearly lost the technological lead of a very important industry, one which, because of the use of electronics, new materials and new forms of organization in production, has once again become a pioneer.<sup>152/</sup> On the other hand, and in spite of efforts to improve their system of production, US manufacturers are for the most part still wed to their obsolete mass production paradigm, that is, their efforts to increase productivity to best-practice Japanese standards have fallen short.<sup>153/</sup> Three pertinent examples of the dominant US auto TNCs failure to meet the Japanese challenge are their combative but ineffective small car policies, their poor experience with automation and their inability to match the advantages of the Japanese supply network.

By way of combative small car policies confident US TNCs attempted to meet Japanese import competition head on. The most important projects which were implemented for small cars were Saturn, by General Motors, and the CT20, by Ford. GM's project was billed as an 'all-out, all-American effort to beat the Japanese in the small-car market'.<sup>154/</sup> Ford's intention in 1981 was to make a new version of the Escort its 'world car'.<sup>155/</sup> In terms of their original purpose, both projects failed miserably.

The GM project, named after the rocket which allowed the US space program to leapfrog an initial Soviet technological advantage, was conceived in 1982 after GM cancelled an existing small car project when it learned that its Japanese associate--Isuzu--was capable of building the same planned car for \$2,000 less than GM. Although it resulted in the largest single construction project ever undertaken by GM, the reality in the 1990s was far removed from the original concept. Rather than a \$5 billion investment to create a highly automated plant with an annual productive capacity 500,000 highly fuel efficient (45 miles per gallon in the city) subcompacts priced at \$6,000 each, the result was more like a \$3 billion investment in a not-so-automated facility capable of producing just 240,000 not-so-fuel-efficient (25 MPG in the city) compacts each carrying a price tag in the \$10 - 12,000 range.<sup>156/</sup> Moreover, in 1991 this smaller than planned facility produced only 50,000 cars.<sup>157/</sup> Even if it is hugely successful in its competition with Honda's Civic, Nissan's Sentra,

Table 21

INDICATORS OF THE COMPETITIVE ADVANTAGE OF JAPANESE  
AUTOMOBILE PRODUCERS, 1989, a/

	Japanese in Japan	Japanese in America	Americans in America	European producers
Productivity (hours per vehicle)	16.8	21.2	25.1	36.2
Assembly defects per 100 vehicles	60.0	65.0	82.0	97.0
Repair area (% of assembly space)	4.1	4.9	12.9	14.4
Stock (days) <u>b/</u>	0.2	1.6	2.9	2.0
Work-force in a team (%)	69.3	71.3	17.3	0.6
Number of job classifications	12	9	67	15
Training of new workers (hours)	380	370	46	173
Absenteeism (%)	5.0	4.8	11.7	12.1
<u>% of process automated:</u>				
Welding	86.2	85.0	76.2	76.6
Painting	54.6	40.7	33.6	38.2
Assembly	1.7	1.1	1.2	3.1

Source: M.I.T.; J.D. Power & Associates cited in The Economist, 10 August 1991, p. 63.

a/ Averages for plants in each regions, 1989.

b/ For eight sample parts.

Mazda's 323 and Toyota's Corolla, most probably it will not prove profitable for many years to come, if ever.<sup>158/</sup> Worst of all, this 'cossetted' pet project to meet Japanese competition in the small car market has not been able to equal Japanese levels of success in the implementation of the all-important cross-functional teams (Saturn's are too lightweight)<sup>159/</sup> or the just-in-time inventory systems (strikes at associated metal-stamping plants crippled production schedules).<sup>160/</sup> Likewise, recalls for defective seats and corrosive engine coolant have taken the initial shine off the initiative.

Ford's CT20 project was predicated on the redesign of its best-seller: the Escort. After Ford gave up its pretention to make it into a 'world car' and swallowed its pride, the \$2 billion investment proved less of a disappointment than GM's Saturn experience because Ford wisely allowed its Japanese associate Mazda to take the lead in the development of the new vehicle based on Mazda's own 323 model.<sup>161/</sup> The Escort, like GM's Saturn, will undoubtedly be a money loser, but less than its predecessor. Ford's payoff comes from seeing how Mazda accomplished what it did.

The results of these efforts of both major US auto producers to do battle with Japanese small car imports in the US market proved to be rather poor. The principal consequence for US vehicle manufacturers was not simply the loss of that market segment, that was compensated to a certain extent by gains from meeting US fuel efficiency requirements and in attracting first-time buyers, the major cost was that the Japanese import drive only began with small cars, it was rapidly followed up by major incursions into the family sedan, near luxury and luxury market segments.<sup>162/</sup> Thus, this failure to meet the Japanese challenge in the small car segment was to have dire upmarket consequences for the US auto industry.

A second failure which bears recognition is the attempt by General Motors to shortcut the Japanese lead in automation for automobile production. It has been estimated that General Motors invested around \$50 billion during the 1980s in order to modernize its operations and that about 20 percent of the spending on new technology was wasted.<sup>163/</sup> One of the more spectacular disappointments was the new heavily-automated Hamtramck plant for manufacturing Cadillacs which ranked "among the least competitive plants in the United States".<sup>164/</sup> It was equipped with 260 robots for welding and painting cars, 50 automatic guided vehicles, televisions, computers and laser-based measuring systems to check quality, yet a year after it opened in 1985 it still had not surpassed half its productive capacity, that is, 60 cars an hour.<sup>165/</sup> Things eventually improved at the Hamtramck plant (it won a Malcolm Baldrige National Quality award in 1990),<sup>166/</sup> however, not before it became the most-cited example of how not to face up to the Japanese challenge: by throwing truckloads of cash at new or untried technologies.

The inability of US car makers to match the advantages of the Japanese supply network stems from the difficulties they face in overcoming the original premises of their mass production system. Adversarial relations with outside suppliers resulted in the fact that multiple suppliers competed primarily on price criteria with the effect that quality factors tended to become secondary considerations. External suppliers which met the price targets of US car makers often came up short on quality which produced problems on the assembly line. Furthermore, in-house suppliers sometimes reached higher quality standards but they often accompanied that achievement with severe cost overruns, which produced problems in the show room.

The distinct premises of the Japanese TNCs, which gave them significant competitive advantages compared to US car makers, rested on a relationship of confidence and reliance for first tier suppliers, often in the context of the keiretsu system, and single sourcing which went hand in hand with broadened responsibility for the supplier. Single sourcing in this context resulted in



improved logistical efficiency, better quality control and increased economies of scale at the supplier level. Second and third tier suppliers were often outsiders which achieved long-term relationships by consistently meeting the price and quality demands made on them by first-tier suppliers. In the case of Toyota, for example, it has been stated that its system is fed by a network of suppliers whose competence and close ties to their parent are the envy of the world. Toyota owns two suppliers outright; 228 others produce everything from jigs to molds to general contracting services for new plants. The suppliers also perform more research and development than American ones. That fact, along with higher productivity, helps explain why Toyota's work force numbers 91,790 employees compared to 766,000 at General Motors.<sup>167/</sup>

It is true that some US automobile producers have made great advances in adopting Japanese practices in their supplier network. For example, Ford apparently reduced the number of component suppliers from 20,000 to 6,000 over the 1985-9 period.<sup>168/</sup> Even General Motors has begun to rationalize its antiquated supplier system;<sup>169/</sup> however, its new PICO system appears still to be based on squeezing suppliers, even abrogating existing contracts, and, as a result, it has not yet attained the all important element in, for example, Toyota's relationship with suppliers, that is, trust.<sup>170/</sup> The problem is that US automobile manufacturers still have an incredibly difficult time overcoming their traditional adversarial practices with suppliers. It is hard to imagine that the US car manufacturers will soon catch up to their Japanese competitors in this respect.

Far more serious is the fact that US carmakers are trying to catch a moving target. Gains made at great expense and effort in approximating Japanese quality standards only makes more apparent how far US automakers have to go to catch up in the field of flexibility. A new era of manufacturing is being defined, mass lean production is replaced by **agile production**, where factories are small and mobile and machinery is reprogrammable to make an infinite variety of new customized goods at low unit cost, according to Fortune. "In the flexible factory, scale and scope reinforce each other. No more vivid example exists than the auto industry. Japanese carmakers are rebuilding the heart of their factories to become even more versatile and labor-efficient--an effort that could give them fundamental cost advantages and protect their lead in the time and cost of bringing new cars to market."<sup>171/</sup> Specific advances in the manufacturing operations of Toyota and Nissan are offered to back up this argument.

One could mention a host of other factors associated with the US failure to meet the Japanese challenge--slow responses, crippling bureaucracies, a penchant for quick fixes and fads, etc.--none the less the central point remains the same: in spite of the improvements made, after more than

10 years of adjustment time and something in the order of \$100 billions in new investments the US auto manufacturers are **not** closing the gap. As mentioned, in 1991, General Motors, facing North American operations' losses in the order of \$8 billion, announced plans to close six more assembly plants, eleven component factories and four engine plants and cut 74,000 jobs.<sup>172/</sup> Previous to this, at the beginning of the 1990s, Time magazine referred to General Motors as "a paradigm of America's failure to compete with the Japanese".<sup>173/</sup> Thus, not only were the Japanese auto makers intensely competitive, the US automobile manufacturers were particularly inept at meeting the challenge in the one industry which most closely personified the US. (if not Western) style of industrialization. Their present desperation is reflected in their growing interest in interventionist measures, such as lobbying the US Government to provide protection (against Japanese minivans, for example), funding for research and development projects (of the newly-established United States Council for Automotive Research -USCAR) and to require Japanese car producers in the US to buy more American-made parts (and to do so from American-owned suppliers), and pressuring the Japanese Government to limit automobile exports to the US market and to purchase more components and parts in the US.<sup>174/</sup>

The US Department of Commerce has suggested that the next several years probably will bring increased cooperative production and marketing agreements between firms in the United States, Europe and Asia as well as more cross-border mergers and takeovers. The first stage has been characterized principally by distinct kinds of strategic associations and alliances among carmakers (e.g. the NUMMI project between Toyota and GM, GM's associations with Isuzu and Suzuki, Ford's alliance with Mazda, and the collaboration witnessed between Chrysler and Mitsubishi, Nissan and Volkswagen, Daimler Benz and Mitsubishi, etc.). The recent stage is being characterized more by takeovers and mergers (e.g. Ford's purchase of Jaguar, Porsche was bought by Volkswagen, Renault's investment in part of American Motors, the merger of Ford and Volkswagen -Autolatina- in Brazil and Argentina, etc) in an effort to overcome the problem of overcapacity.<sup>175/</sup> The result, undoubtedly, will be fewer, more equally matched global contestants which will compete primarily with locally based production in three major marketing areas: Europe, North America and the Asia Pacific Rim. Presently, Japanese auto producers are the only major producers in condition to compete strongly in all three regions. This phenomenon is at the heart of the TNC shake-up going on in terms of **the restructuring of the automotive industry**. The small group of surviving global combatants of the world automobile industry will probably include Toyota, Nissan, Honda, General Motors, Ford

and, possibly, Fiat or VW. What consequences this auto TNC shake-up holds for developing countries is an open question.

#### 4. Options and consequences for developing countries

A final topic which must be faced up to in this examination of the automotive industry is what developing countries can do to adapt to the altered situation of the automotive sector in the context of the new international industrial order. Even more than in the industrial countries, the automobile sector has traditionally been viewed by many developing countries' governments as synonymous with the industrialization process itself. Self-respecting developing countries often felt obliged to heavily promote the sector. The less ambitious and, for the most part, more realistic ones, were content to make inroads in the local manufacture of components, as they were more labor intensive, utilized simpler technologies and required lower initial capital outlays than motor vehicles production itself. It was generally assumed that developing country manufacturers with larger national markets would graduate from simpler assembly operations by incorporating increasing levels of local content into national automotive operations via import substituting industrialization and then go on to export such manufactures.<sup>176/</sup>

An interesting current consideration is whether the productive and organizational revolution manifest in the Japanese challenge and the need for restructuring by other major automobile producers provides improved opportunities for developing countries to become better incorporated into rather than more marginal to the new international industrial order. It appears that in general the ability of developing countries, especially their governments, to influence that same process has been diminished, except for a few particular cases.<sup>177/</sup>

Developing countries do not constitute an integral part of the global automobile industry. During the 1970s the major automobile TNCs on average had only around 5 percent of their productive capacity located in developing countries; only Volkswagen (17%) and Fiat (10%) were significantly above that average. While 25 developing countries assembled automobiles and 50 produced components of one kind or another, the automobile industry in developing countries was concentrated in a handful of countries--Brazil and Mexico, and to a much lesser extent, Korea and Taiwan-- those which had achieved what was then considered the minimum efficient scale (around 200,000 units per year) and which incorporated substantial levels of local content (over 60 percent). Most producers in developing countries achieved government-required export levels (usually a

stipulated level of the value of automotive production) by exporting components or, in the case of Brazil, by shipping completely knocked down kits to Latin American and other third world markets. Before the Japanese challenge reached its recent epitome it was generally felt that the area of greatest potential growth in the developing world was Latin America, especially Brazil and Mexico, where most the major US and European auto TNCs were already operating and where a huge potential local demand was thought to be manifest in the relatively large (and heavily protected) national markets.<sup>178/</sup>

In actual fact, it was the Asean auto industry, particularly that concentrated in Korea and Taiwan, which experienced the greatest growth during the last decade or so. The Latin American productive capacity for passenger and commercial vehicles rose from 0.9 million units in 1970 to 2.0 in 1980 before declining to 1.8 in 1990. That of Asean developing countries rose from 0.2 to 0.4 from 1970 to 1980 and rocketed to an incredible 2.6 million by 1988, (with Korea alone accounting for 1.1 million vehicles).<sup>179/</sup> Over the 1977-89 period, the developing country share of world trade in transportation equipment rose from 3.4 to 7 percent; however, while the Asean share rose from 1.6 to 4.2 percent (Korea: 0.6 to 1.6 percent; Taiwan: 0.3 to 0.9 percent), that of Latin America only grew from 0.8 to 2.0 percent of the total (Brazil: 0.5 to 0.9 percent; Mexico 0.1 to 0.9 percent).<sup>180/</sup> The debt crisis explains part of the situation in Latin America, none the less a more complete explanation can be encountered in the interrelationship of several principal factors, such as, the consistency and coherence of the official policy on the national automotive industry, the impact in developing countries of the global strategies of the auto TNCs, the relationships of auto TNCs and their local manufacturing or assembly operations with local suppliers, and the degree of control exhibited over their manufacturing associates by the headquarters TNCs. In this respect, the Asean and Latin American experiences in the automotive sector have been considerably distinct, with quite different results. It is impossible to deal in depth with all these factors, however, it is illuminating to highlight a few relevant comparative aspects.

a) Advances in Asia: piggybacking Japanese techniques

In Asia, Japanese auto TNC strategies to participate in foreign markets and create a regional supply network apparently dovetailed nicely with clear host government policies aimed at promoting an efficient automobile industry, especially in Korea, Taiwan and some members of the Association of South East Asian Nations (ASEAN). The major Asean producers imitated for the most part the Japanese model as illustrated by their sustained government guidance for the industry,<sup>181/</sup> which inter alia often included restricting vehicle imports and limiting the level of foreign control of TNCs

in local manufacturers. The result was a TNC-associated auto industry. It must be emphasized that several Japanese automobile producers were licensing in the 1950s what today would surely be considered second class technology (i.e. Nissan licensed Austin technology, Hino had an agreement with Renault, Isuzu used Roots techniques and what came to be known as Mitsubishi had an accord with Willys). Nevertheless, twenty years later, the Japanese challenge was steamrolling all competitors.

In some other Asean countries, local manufacturers themselves were proving to be reliable subcontractors of inputs to automobile manufacturers and assemblers, especially Japanese ones. As had been case with the Japanese subcontracting system (Shitauke) these inputs increased in quality and in technological complexity over time. Vehicle assemblers, usually joint ventures, copied the new productive and organizational system of the Japanese auto TNCs. In this manner a highly efficient industry was created which eventually graduated, in the cases of Korea and Taiwan, from being vehicle assemblers and complex component suppliers to the Japanese industry to become major exporters and, most importantly, motor vehicle producers, as the examples of the Pony and Excel models of Hyundai demonstrate. Korea has a productive capacity of 0.9 million vehicles, attains local content levels above 90 percent and exports over half of automotive production (mainly to the US).<sup>182/</sup> Taiwan has a productive capacity of over 0.2 million vehicles and incorporates a 60 percent level of local content. These figures represent noteworthy successes of the major Asean developing country auto producers precisely because they stem primarily from efficiency and quality considerations.<sup>183/</sup> They became strong competitors for Japanese auto TNCs at the low cost, fuel efficient end of the automobile spectrum. Some Asean automotive firms such as Kia, Lio Ho and Daewoo, for example, even developed the capability to enter into associations with major producers, such as Ford and General Motors, among others.

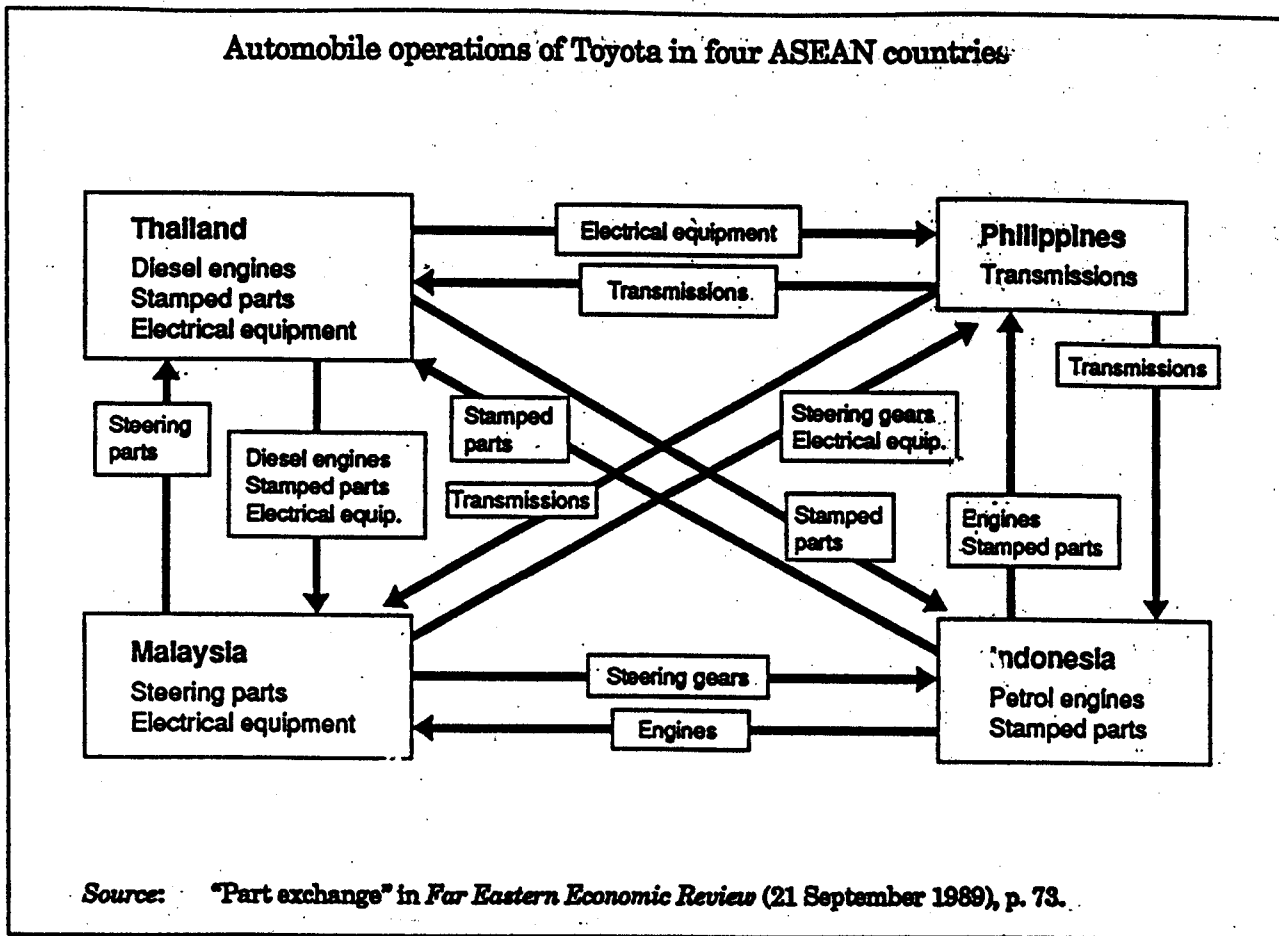
One might also mention that the ASEAN integration scheme has resulted in concerted regional car strategies by major auto TNCs, such as Toyota, something which did not take place, for example, under the government-designed automobile sectoral program of the Andean Pact integration scheme.<sup>184/</sup> While US auto TNCs operating around the globe tended to give up on a world car strategy, some Japanese auto TNCs opted, as a first step, for a regional car strategy within the efficient Asean automotive industry. According to Fortune, Southeast Asia is a paradigm of how companies like Toyota would like to operate in the future- buying parts, building cars, and selling them around the world regardless of national boundaries.<sup>185/</sup> Figure 8 indicates the of **country specialization** pursued by Toyota within the ASEAN integration scheme. This serves the purposes, simultaneously, of the Japanese auto TNCs (such as Toyota) which were being forced by new Asean

competitors, such as Korea and Taiwan, to improve their production costs, in this case by way of ASEAN advantages, as well as the interests of the local industries by integrating them into a regional supply system, as local assemblers and component subcontractors. Such a corporate strategy obviously creates important opportunities for internationally-competitive national automotive industries.

Figure 9 suggests that there are two major advantages for national companies in tying into the supply network of Japanese auto TNCs. First, the system rewards excellence in the sense that internationally-competitive exports play an important role in these operations, averaging over 25 percent of sales. Secondly, about one third of all inputs were sourced from internationally-competitive independent firms in the local economy (30 percent) or other Asean economies (3 percent), that is, the regional network promotes healthy competition which provides significant rewards to selected suppliers. The Asean regional network of the Japanese auto TNCs does not appear to be disproportionately based on intra-firm trade, to the exclusion of local suppliers; rather it incentivates catching up on the part of the local supplier. It might be added that to the extent that the labour component in the final cost of a finished vehicle is tending to decline over time, this incentivates TNC decisionmakers and national policymakers to seek comparative advantage in the national automotive sector not only in low real wages but also in the increasing technical capacity of the skilled and semi-skilled work force. All these advantages impact favorably on the efficiency, technological progress and export possibilities of the local automobile industry.

This short examination of aspects of the automotive industry in Asia in the context of the global auto TNC shake-up taking place suggests that the Asean industry possesses several advantages which might assist it in becoming further incorporated into the new international industrial order in formation. To start with it is already interrelated in a regional network with the present leaders in the auto TNC shake-up. Many of the advantages which the Asean regional automotive industry holds for the Japanese auto TNCs have resulted from learning, copying or assimilating central aspects of what has been labelled 'the Japanese challenge'. Moreover, these Asean governments with the most dynamic automotive industries seem to have conscientiously implemented norms relating to foreign participation (shareholding, supplier and subcontracting relationships) in or with national companies which dovetailed well with the global strategies and customary practices of Japanese auto TNCs. As

Figure 8

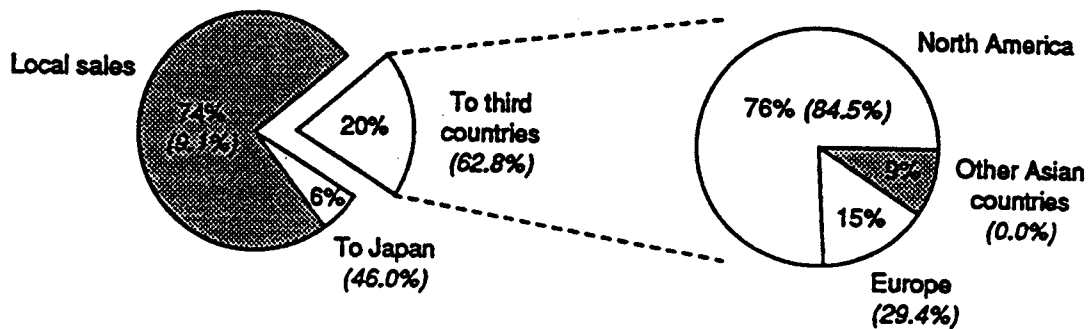


Cited in UNCTC, World Investment Report, 1991.

Figure 9

**Sales and purchases of Japanese affiliates in Asia:  
automobile industry, 1987**  
(Billions of yen)

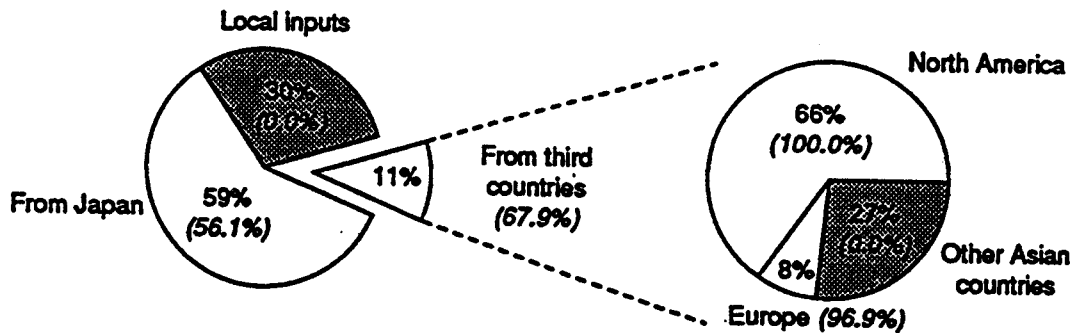
**Sales**



Total sales = 442.7 billion yen

Third-country exports  
Total = 89.9 billion yen

**Purchases**



Total purchases = 174.7 billion yen

Third-country purchases  
Total = 20.1 billion yen

*Note:* Numbers in parentheses indicate percentage accounted for by intra-firm transactions.

*Source:* Ministry of International Trade and Industry (MITI), *Dai-sanhai Kaigai Jigyo Katsudo Kihon*, *Dhosen Kaigai Toshi Tokei Soran* (Tokyo, Kaibun Shuppan, May 1989).



well as the general economic performance of the respective regional motor vehicle and parts industries, their manner of achieving increased incorporation into the international automotive industry-- a TNC-associated one-- contrasted rather sharply with the general Latin American experience with the US and European auto TNCs.

b) Flying geese or sitting ducks? restructuring the automotive industry in Latin America

Without entering into details and at the expense of simplifying a complex reality,<sup>186/</sup> it may be reasonably maintained that in Latin America often the combination of incoherent official policies for national automotive industry and various inconvenient factors related to the original mass production-based strategies of US/European auto TNCs resulted in what, for the most part, could be classified as an inefficient and aimless local automobile industry, the technological progress of which was, with few exceptions, detained in the early 1980s. This regional industry is one in which the manufacture of all motor vehicles is carried out almost exclusively by subsidiaries or majority-owned affiliates of the major US and European auto TNCs. The Nissan plants in Mexico (and to a lesser extent, Toyota's assets in Brazil) are the only exceptions of note to that observation. Product technology and the organization of the production process have had a decidedly US and European auto TNC flavor. The Latin American automobile industry can be characterized as a **TNC-centric** one.

This manner of promoting automotive production in the region did produce some notable initial successes up until the debt crisis unleashed its anger on Latin America at the beginning of the 1980s. An explosion of productive capacity had resulted from TNC oligopolistic competition in these highly protected and segmented markets, in which auto TNCs attempted to carve out increasing market shares. Host government policy did result in relatively high (obligatory) levels of local content for local automobile manufacture and even achieved increased exports (usually via subsidies, such as Brazil's BEFIEX program). For example, Brazil then had a passenger car capacity of 0.8 million units, the local content of nationally manufactured vehicles reached over 90 percent and about 30 percent of the value of automotive production (including parts) was exported. Mexico had a productive capacity of more than 0.3 million units, local content of vehicles manufactures there had risen to about 60 percent and over 40 percent of its automotive production (including parts) was exported. The industry appeared strong.

With the aid of hindsight and an appreciation of the devastation caused by the debt crisis in the region, it is reasonable to suggest that the figures on production capacity, local content levels and even the export mechanisms utilized can be more correctly understood to represent **excesses** rather than **successes** of the automotive industry established in Latin America. This is so because the transition from import substituting industrialization to the export of automobiles from Latin America

resulted moribund. The industry's apparent strength was not a consequence of efficient production coupled with the progressive incorporation of new techniques which led to improved international competitiveness, rather it was more a consequence of at times inappropriate host governments' obligations placed on TNC producers (some of which greatly complicated the already adversarial relations with local suppliers) together with poorly conceived schemes of export promotion by way of government-financed compensation. The debt crisis starkly revealed the shaky technical foundations of the Latin American auto industry. In essence, the transition from import-substituting industrialization to the export of manufactures in the Latin American automotive industry had **not** been achieved in **an internationally-competitive manner**.

Tables 22 through 24 demonstrate aspects of the Latin American automotive industry during the difficult decade of the 1980s. The first table demonstrates that, in terms of passenger car production, only Brazil, Mexico and Argentina can be said to manufacture them to any significant degree; the others are essentially assembly operations. As the figures make manifest, the 1980s witnessed the collapse of physical production (measured in millions of units) which declined continually over this period. Aside from Chile, which virtually withdrew from the industry, the manufacturers saw their passenger car production nosedive throughout the 1980s. Brazil's production of almost 1 million units in 1980 fell by 37 percent the next year and struggled to recover thereafter. Mexico's physical production dropped off by 42 percent over the 1981-3 interim and did not regain the 1981 peak until 1988. Argentina saw its level of physical production plummet 51 percent during 1980-2 and their industry touched bottom in 1990. Although the perspectives for the industry improved for 1991-2, especially for the case of Mexico, generally speaking the existing automotive industry in Latin America was decimated by the crisis of the 1980s.

Table 23 offers some insight into the level of international competitiveness of the Latin American automotive industry in terms of the exports of the auto manufacturers in Brazil, Mexico and Argentina. A first observation is that the Argentine industry, at least in so far as one speaks of passenger car production, was not competitive and exports played no important role in the adjustment process of this evidently inefficient national automotive industry during the 1980s.<sup>187/</sup> The same cannot be said for the Brazilian nor (after 1987) the Mexican automotive industries. Both attempted to better utilize national production capacities in recessionary national markets by way of expanding sales in external markets. Brazil had some relatively minor success, it raised the export coefficient (exports as a percentage of total sales) of passenger cars from 12 percent in 1980 to an average of 22 percent for the decade but prospects for the 1990s are fair, at best. The success of Mexico is

Table 22

## LATIN AMERICA: PASSENGER CAR PRODUCTION AND ASSEMBLY, 1980-90

(Thousands of units)

	Manufacturers			Subtotal (%)	Assemblers				Total
	Brazil	Mexico	Argentina	Manufacturers	Venezuela	Colombia	Chile	Others	
1980	933	303	218	1,454 (87)	155a/	43a/	25	29	1,663
1981	586	356	139	1,081 (83)	154a/	24	22	28	1,309
1982	673	301	107	1,081 (83)	155a/	27	9	24	1,296
1983	748	207	129	1,084 (88)	110a/	21	3	11	1,229
1984	679	245	137	1,061 (87)	110a/	34	4	13	1,222
1985	759	297	114	1,170 (88)	115a/	33	5	14	1,337
1986	815	209	138	1,162 (90)	94	35	2	18	1,293
1987	683	277	159	1,119 (92)	74	41	2	23	1,222
1988	782	354	136	1,272 (90)	68	44	4	23	1,411
1989	731	439	108	1,278 (94)	16	36	7	22	1,357
1990	663	598	81	1,342 (95)	22	31	3	22	1,420
1991*	650	800	110	1,560 (94)	34	34	3	24	1,655
1992*	712	1,000	137	1,849 (94)	55	36	4	20	1,964

Source: ECLAC/DESJ Unit based of information from associations of national automobile manufacturers.

a/ Total vehicle production, not only passenger cars.

b/ Peru, Ecuador and Uruguay.

\* Forecasted production of passengers cars.

Table 23

**LATIN AMERICA: EXPORTS OF PASSENGER CARS BY MANUFACTURERS, 1980-90**  
 (Thousands of units)

	<u>Brazil</u>	<u>Mexico</u>	<u>Argentina a/</u>	<u>Total</u>
1980	113	nd	...	113
1981	157	nd	1	158
1982	120	nd	3	123
1983	133	nd	5	138
1984	152	nd	5	157
1985	161	50	1	212
1986	138	40	...	178
1987	280	135	...	415
1988	226	144	2	372
1989	165	165	2	332
1990	120	249	1	370
1991*	127	330	nd	457
1995*	215	550	nd	765
2000*	288	1,300	nd	1,588

Source: ECLAC/DESD Joint Unit based on information from national associations of automobile manufacturers.

a/ Includes all vehicle exports, not only passenger cars.

\* Forecasted exports of passenger cars.

Table 24

Sales of Manufacturing Subsidiaries of Auto TNCs Operating in Latin America, 1990 (% and US\$ billions)				
TNC Home Country	Brasil	Mexico	Argentina	Total
United States	37.3	26.8	1.7	65.8
German	8.9	7.4		16.3
Japon	2.3	3.2		5.5
France		1.1	2.1	3.2
Others a/	9.2			9.2
Total %	57.7	38.5	3.8	100
US\$ billions	13.7	9.2	0.9	23.8
a/ Italy, Sweden				

Source: ECLAC/DESD Joint Unit based on a special issue of *America Economica*, December 1991.

dramatic: its export coefficient for passenger cars blossomed from 17 percent in 1985 to 42 percent in 1990, and the prospects for the 1990s are excellent. Mexico is clearly the exception among Latin American passenger car producers.

Foreign direct investment, essentially by US and European TNCs, is a central element to the Latin American style of industrialization and the automotive industry is a core element of the presence of foreign direct investment in Latin America. As Table 24 indicates, the sales of the principal TNC vehicle manufacturers in the region accounted for almost \$24 billion in sales during 1990, equivalent to almost 28 percent of the value of the total sales of the fifty largest foreign firms operating in the region.<sup>188/</sup> In other words, any major changes in the nature of the automobile industry in Latin America necessarily influences the nature of foreign participation in Latin American industry, and vice versa. The Latin American automobile industry is TNC-centric and very vulnerable to fall-out from the global auto TNC shake-up.

It is in this context that one must mention that the local operational results of the subsidiaries of Volkswagen and Ford in Brazil and Argentina got so bad that these erstwhile global competitors merged their manufacturing operations into what has been described as "one of the largest joint ventures in the world auto industry",<sup>189/</sup> called Autolatina, in order to rationalize production. Autolatina was the fourth largest company in Latin America by sales in 1990, and the largest private sector one. Evidently, things were not well in the automobile sector in Latin America, nor concomitantly for an important component of the existing stock of FDI in Latin American industry.

Table 25 indicates the presence of automobile TNCs in the list of the 200 principal Latin American exporters during 1990-91. This table includes exporters from all sectors, not only exporters of manufactures. This information demonstrates with clarity that the listed automotive TNCs still represent an important element in the export performance Latin America (in spite of its natural resource-rich character), accounting for 12 percent of the value of exports of the 200 principal exporters. The list of the 25 most important foreign firm exporters operating in the region is dominated by nine subsidiaries of US and European auto TNCs, which account for over 62 percent of the total value of \$11.5 billion of the exports made by the group as a whole.<sup>190/</sup> None the less, their individual situations are quite distinct.

Perhaps the most important features of Table 25, understood in the context of the preceding analysis, are that the four principal auto TNC exporters, 76 percent of the value of the exports of auto TNCs and most of the export success of the US auto TNCs come from one country-- Mexico

Table 25

**LATIN AMERICA: PRESENCE OF AUTOMOBILE TNCs IN THE LIST OF THE 200  
PRINCIPAL EXPORTERS, 1990-91**

<u>Rank 1991</u>	<u>Exp. 1990</u>	<u>TNC (Home Country)</u>	<u>Location Subsidiary</u>	<u>Exports (US\$Mill)</u>	<u>Export Destinations</u>
3	6	General Motors (US)	Mexico	2,332	N.America, Asia
5	4	Ford (US)	Mexico	1,400	N.America
7	-	Chrysler (US)	Mexico	1,176	N.America
15	20	Volkswagen (Germ)	Mexico	614	N.America, Europe
24	16	Fiat Automoveis (It)	Brazil	449	L.America, Europe
25	51	Ford New Holland (US)	Brazil	441	Mexico, N.America
36	38	Volkswagen a/ (Germ)	Brazil	319	Arg., N.America
50	47	Renault (Fr)	Mexico	236	Europe, N.America
52	56	General Motors (US)	Brazil	224	L.America, N.America
117	-	Mercedes Benz (Germ)	Brazil	98	nd'
124	-	Scania do Brasil	Brazil	90	nd
171	-	Renault (Fr)	Arg.	71	Europe, L.America
179	-	Sevel (Fr)	Arg.	68	L.America, Europe
Total				<u>7,518</u>	
<u>Distribution:</u> i) by TNC home region:					
United States (GM, Ford, Chrysler)				5,573	(74%)
Europe (Fiat, VW, Renault, etc.)				1,760	(26%)
ii) by host country:					
Mexico				5,758	(76%)
Brazil				1,621	(22%)
Argentina				139	(2%)

Source: ECLAC/DESD Joint Unit based on information from "200 mayores exportadores de América Latina", América Economía, No. 65, September 1992.

a/ Division of Autolatina.

--and go to one market-- North America. This suggests that, distinct from the cases of Brazil and Argentina (and the assembly operations in other countries of the region), the automotive sector and its restructuring have formed an important part of the Mexico's adjustment process to the debt crisis and their adaptation and increased incorporation into the new international industrial order. It must be stressed that in this industry, the **Mexican experience is a notable exception** in Latin America. The automotive industry in the rest of the region continues to agonize, in the terms suggested by Table 22. Has Mexico's success in restructuring the automotive sector granted it the status of an Asean-style flying wild goose? Does the unfortunate situation of the automotive industry in the rest of Latin America condemn them to be sitting ducks? These considerations raise some interesting questions, which unfortunately can only be touched upon here.

With regard to the role of the automotive industry in providing Mexico with an Asean flying wild goose status, it cannot be denied that the level of new investment,<sup>191/</sup> the export performance, and, in some instances, the technological and organizational aspects of the production process, have provided substantial improvement in growth rates and quality factors. The prospective NAFTA agreement and its promised permanent access to the huge North American market goes a step farther than even the Asean NICs' advance. One should keep in mind, never the less, that the success of the Mexican TNC-centric automobile industry in undergoing restructuring is above and beyond all else a success of the US auto TNCs operating in that industry.<sup>192/</sup> The final outcome of the restructuring of the Mexican automobile industry will depend on the US auto TNCs' overall ability to deal with the Japanese challenge.

The establishment of a competitive regional supplier network for US auto TNCs will be a requisite for meeting that challenge and, again, the Mexican automotive industry, in this case, autoparts, will play a very important role. To a certain extent, the US auto TNCs are attempting to meet the Japanese challenge (based on an Asean regional supply network) by elaborating a competitive Mexican supply network. Aside from the technological and organizational edge enjoyed by Japanese auto TNCs over their US rivals, serious doubts were raised in the course of the present analysis with regard to the ability of the US (and European) auto TNCs to modernize their existing and often adversarial relationships with suppliers. It is precisely in this area of the Mexican automotive production--autoparts-- that the industry can earn its (Asean wild flying geese) wings by way of the technological upgrading of local suppliers. This has not yet been determined.

Concerning the fear that the rest of the Latin American automotive industry is condemned to be sitting ducks in the framework of the worldwide auto TNC shake-up, the truth of the matter



is that it appears to be the case. The future of the manufacture (not simply assembly) of automobiles in Latin America, excluding Mexico, seems to rest primarily on the success of the Mercosur integration scheme and, in particular, the performance of the Autolatina merger between Volkswagen and Ford. For the most part during the 1980s, auto TNCs in Brazil and Argentina were simply rationalizing local automotive production in a crisis atmosphere; little new investment was made. It bears mentioning that, according to the foreign investment register of the Banco Central do Brasil, the value of the stock of FDI of the automobile manufacturers rose from \$1.7 to 3.6 billion between 1980 and 1987 and fell precipitously to around \$2.5 billion by 1991. The perilous state of the Autolatina and General Motors operations seem to have had a lot to do with this situation, as the level of production of Fiat has increased significantly during 1990-1.<sup>193</sup> In the context of the trade liberalizing schemes already in partial implementation in Brazil and Argentina it would seem difficult to characterize the competitive situation of subsidiaries of US and European auto TNCs operating in Brazil and Argentina as anything other than 'sitting ducks' due to their rather poor operational performance and the lack of new investment in the modernization of their existing facilities. The conclusion is evident: **if their headquarters corporations are not willing or able to invest in the fundamental restructuring of these operations, one can easily question their continued viability in the context of the global auto TNC shake-up.**

c) Does the form of foreign participation influence local technological advance?

Although it is certain that the degree of foreign participation is only one of several factors involved here, it is noteworthy that it is one of the most clear distinctions between the TNC-centric Latin American auto industry and the TNC-associated Asean one. Here, the analysis will be limited principally to capital shareholding as the more sinuous topics of subcontracting and other non-equity relations with suppliers simply escape the limits of the present article.

Tables 26 and 27 provide the available relevant information. These data are from 1986 and do not include substantial Japanese auto TNC investments in Asia which occurred after the date. Table 11 points out that only 12 major auto TNCs possessed about 90 percent of the total TNC productive capacity for automobiles in developing countries in 1986. About one-half of that productive capacity came in the form of subsidiaries or majority-owned affiliates. The other half was minority-owned affiliates or non-equity forms of association. In round numbers, that productive capacity was distributed more or less equally among Japanese, European and US TNCs. The distinguishing feature is that the productive capacity of US and European TNC operating in

Table 26

OPERATIONS OF AUTOMOBILE TNCs IN DEVELOPING COUNTRIES,  
BY FORM OF INVESTMENT, 1986  
(thousands of units)

Transnational corporation	Majority owned	Minority owned	Non equity	Total
Mitsubishi	6.7	483.9	27.9	518.5
Volkswagen	482.6	14.3	6.5	503.4
General Motors	374.8	63.0	13.7	451.5
Ford	355.6	4.1	2.9	342.5
Fiat	168.5	74.9	44.3	287.7
Nissan	78.2	66.7	47.7	192.5
Mazda	9.5	115.9	43.5	168.9
Suzuki	-	98.9	36.3	135.2
Daimler Benz	48.4	60.1	12.0	120.5
Renault	56.6	26.6	25.3	108.5
Toyota	29.3	13.2	52.7	95.2
Chrysler	87.3	4.8	0.3	92.6
All others	11.3	179.5	158.9	349.7
<u>Distribution by home region</u>				
Japan	125.5	841.2	304.8	1 271.5
Europe	763.3	234.8	137.1	1 135.2
United States	800.2	129.8	30.0	959.9
Total	1 689.0	1 205.8	471.8	3 366.6

Source: Calculated from OECD, "New Forms of Investment in Developing Country Industries", Paris, 1988, table 4.22, p. 201. See original table for definitions and explanatory notes.

Table 27  
 OPERATIONS OF AUTOMOBILE TNCs IN DEVELOPING COUNTRIES, BY REGION  
 OF HOST COUNTRY AND FORM OF INVESTMENT, 1986  
 (thousands of units)

Transnational Corporation	Latin America			Asean NICs		
	Majority owned	Minority or non equity	Total	Majority owned	Minority or non equity	Total
Mitsubishi	-	1.3	1.3	6.7	508.6	515.3
Volkswagen	482.6	5.3	487.9	-	8.5	8.5
General Motors	368.5	9.2	377.7	0.3	61.3	61.6
Ford	305.6	0.2	305.8	30.0	5.9	35.8
Fiat	168.0	71.4	239.4	-	29.4	29.4
Nissan	78.2	4.0	82.2	-	107.2	107.2
Mazda	-	13.7	13.7	9.5	144.9	154.4
Suzuki	-	1.0	1.0	-	133.4	133.4
Daimler Benz	48.4	1.5	49.9	-	69.6	69.6
Renault	54.1	26.2	80.3	-	8.9	8.9
Toyota	8.3	19.4	27.7	21.0	44.9	65.9
Chrysler	87.5	5.1	92.6	-	-	-
All others	8.2	52.9	61.1	2.5	226.5	229.0
<u>Distribution by home region</u>						
Japan	86.5	54.5	141.0	39.0	1 072.5	1 111.5
Europe	759.0	131.5	890.6	0.7	149.3	150.1
United States	763.9	25.0	788.9	30.3	127.4	157.6
Total	1 609.4	211.2	1 820.5	70.0	1 349.2	1 419.2

Source: Calculated from OECD, "New Forms of Investment in Developing Country Industries", Paris, 1988 table 4-23, pp. 202-203. See original table for definitions and explanatory notes.

developing countries was primarily in the form of subsidiaries or majority-owned affiliates, whereas the Japanese capacity was almost exclusively in the form of minority-owned associations or non-equity relationships.

Table 27, which compares the Latin American situation to that of Asia, demonstrates that the US and European auto TNC productive capacity in developing countries was very much concentrated (85 percent) in Latin America and that of the Japanese auto TNCs was even more concentrated (89 percent) in Asia. More pointedly, most (88 percent) of the US and European auto TNC capacity was manifest in subsidiaries or majority-owned affiliates, while that of the Japanese auto TNCs in Asia was almost exclusively via minority-owned associates or non-equity associations. These data reconfirm that the Latin American automobile industry can be categorized as **TNC-centric**, while that of developing Asia can be considered **TNC-associated** and that the difference apparently holds important consequences for the predominant automotive industries in developing countries from these respective regions.

It must be reiterated that the form of TNC participation in the automobile industry in developing countries is not the only factor explaining the relative success of regional experiences. Significant differences exist within the Latin American region. The successful restructuring of the Mexican automobile industry represents a clear exception to this generalization linking relative economic performance to the form, origin and level of foreign participation (subsidiaries of TNCs exported over a quarter million vehicles to the US in 1990 and the autoparts industry (primarily motors) supplied 12 percent of the imports of all automotive components to the US market in 1989).<sup>194/</sup> At the same time, never the less, one certain implication of this analysis is that the rest of the Latin American auto industry is in difficult shape apparently because it is a poor copy of the relatively less efficient US and European auto TNCs. It is in more dire need of restructuring than its own progenitors. Troubled manufacturer-supplier relations also seem to hamper their ability to compete internationally.<sup>195/</sup>

As has been demonstrated from many angles, there exists a close interrelation among the Japanese auto TNC strategies, Asean host government policies (particularly those related to preferred forms and levels of foreign direct investment) and less adversarial relationships with suppliers and these have incentivated the creation of a highly efficient and internationally competitive automotive industry. Moreover, significant positive spillovers in the form of accelerated local processes of technological upgrading, which have culminated in the production of 'developing Asean cars' such as Hyundai, Kia, etc. have also been a positive outcome. Some developing Asia auto TNCs are even

at the stage of investing in productive facilities in the North American and European markets in order to obtain an insider status in the global automotive industry. The Latin American automotive industry--excepting to a certain extent the Mexican component--does not appear to enjoy any such advantages and is in serious danger of being severely damaged by the auto TNC shake-up taking place at a global level.

## 5. Summary and conclusions

The world has changed in the sense that a new consensus has emerged in respect of the role of the market, of the precedence of economics over political and social concerns, and the modification of the TNC/State relationship to the benefit of the former. While this new state of affairs would seem to heavily favor those countries which are home base to the largest TNCs, that does not necessarily appear to be the case. Heightened competition in global markets have produced marked trends of globalization and specialization in relation to international trade and globalization and regionalism in relation to foreign direct investment. A new international industrial order is taking form. Although the battle is concentrated in the hands of a few thousand large and innovative TNCs in a dozen high technology and/or trade intensive industries serving three principal markets--US, Europe and Japan--, it does offer opportunities to wily newcomers.

The major Japanese TNCs have frontally challenged blue ribbon US and European TNCs and have obliged many to restructure or perish, even in their own national markets. Taken to a higher level of analysis, it would appear that the Japanese system of cooperative managerial capitalism has shown itself superior to the US system of competitive managerial capitalism or the European system of cooperative managerial capitalism as is manifest in their specialization in dynamic "rising-star" industries, mainly internationally-competitive science-based, scale-based and specialized supplier ones, which has resulted in strong trade gains by Japanese TNCs and their international expansion via foreign direct investment to become "regional insiders" within the US and European markets. In scale-based industries, the Japanese TNCs have revolutionized production techniques and organizational practices. In science-based industries and specialized suppliers, they have closed the gap with other Triad core countries in terms of their proximity to the technological frontier and the magnitude of their expenditure on research and development. Imitation clearly gave way to innovation within the Japanese system of cooperative managerial capitalism and the core of its success is related to what can be considered the formation of the new international industrial order in which

Japanese TNC productive techniques, organizational practices and technological advances become the new benchmarks against which success is measured.

What does this state of affairs mean for developing countries? The principal consequence would appear to be the possible incorporation into the new international industrial order of a few well-prepared ones and the further marginality of the great majority of them. Evidently, a small group of **developing Asean "winners"**, for the most part imitating the Japanese system of cooperative managerial capitalism and following a **TNC-associated** industrial export model, have made very significant gains in world trade in science-based manufactures, especially research and development-intensive electronics, over the last few decades. Their ability to compete internationally creates the potential for **improved incorporation** into the new international industrial order. Moreover, while most developing countries became more marginal to international capital flows during the 1980s, the developing Asia region increased its share, mainly due to Japanese foreign direct investment made to consolidate a regional supply network and gain access to rapidly expanding national markets.

On the other hand, in **Latin America** the less dynamic **TNC-centric** inward-looking import substituting industrial model which became generalized in the region after the second world war was stifled during the 1980s by the debt crisis. Latin American industry experienced weak trade gains for manufactures due to its inability to compete internationally. The recessionary and unstable macroeconomic environment resulted in severe foreign direct investment shortfalls. In general, the Latin American countries seem to be **more marginal** to the new international industrial order, although there are several exceptions to this statement. They faced the triple whammy of having to implement new more open economic models in a crisis situation, to restructure both nationally- and TNC- owned industry and to compete not only with the major global TNCs from the industrial countries but also with the Asean NICs which possess advantages gained from years of coherent long-range industrial policies and more compatible strategies on the part of TNCs.

The example of **the automobile industry** captures the essence of the global changes taking shape and it demonstrates many of the central characteristics of specific countries and particular TNCs in the new international industrial order. The automobile industry was the heart of the US mass production system which gave birth to many of the largest and most powerful US TNCs. It was the foundation of the US system of competitive managerial capitalism which was imprinted on the western world during the 20th century. Yet detailed information on comparative plant efficiencies, the import penetration of the US automotive market and the impact of foreign direct investment in 'transplant' automobile manufacturing facilities in the US itself indicate that it is precisely in the

automobile industry that the Japanese challenge has been the most successful. The battle is being won on the factory floor and by way of amicable manufacturer-supplier relations. Toyota, Nissan and Honda have humbled General Motors, Ford and Chrysler by way of superior production technique, organizational practices and marketing knowhow. That situation might be considered one of the fundamental features of the new international industrial order.

The automobile industry also indicates the 'place' of several developing countries in the new international industrial order. Only a few developing countries--Brazil, Mexico, Korea and Taiwan--possessed the potential to be incorporated in a significant way in the industry. The majority of developing countries are marginal to that industry and its aftermarket. A number of Asean NICs, usually by way of imitating Japanese-style TNC-associated industrial models, are increasingly incorporated as suppliers of components or manufacturers of original equipment, as is the case for Korea, Taiwan and some ASEAN countries. For internationally-competitive and proven local producers and suppliers, Japanese manufacturing techniques and their regional supply network provide many opportunities to follow in the footsteps of Japanese success in the automobile sector--in flying wild geese fashion--and in a region which is slated to provide two-thirds of growth in future world automobile demand.<sup>196/</sup> Automobile manufacturers in countries such as Korea (Hyundai, Kia) and Taiwan (Lio Ho) have been able to develop certain relatively independent automobiles and even export them to developed country market. In this sense, the automotive industry in several developing Asean countries have achieved a closer incorporation into the new international industrial order by piggybacking on Japanese techniques and proving themselves able and competitive suppliers within the Japanese regional supply network. The principal effect is that the skills level of the local work force and the technological capacity of local companies (as well as the domestic economy as a whole) receive a definite and, at times, self-sustaining developmental impulse from its association with the Japanese example of cooperative managerial capitalism.

The few Latin American countries with the capability or potential to become more closely incorporated into the new international industrial order, via the automotive industry, presently seem to be divided into two very distinct categories: potential Latin American style flying wild geese or sitting ducks. As discussed in the body of this document, the Mexican automobile industry would be an example of the first category, while the Brazilian or Argentine automobile industry might be considered examples of the second. Both of these examples saw their automotive industry created following what can be labelled a US or European TNC-centric industrial model based on substituting industrial imports. The TNC subsidiaries involved, with rare exception, never developed a serious or

self-sustaining internationally-competitive export component to their operations. Their behaviour could best be described as oligopolistic competition for domestic market share, paying scant attention to export markets, at least in terms of the proportion of their local production which they destined to foreign markets. The debt crisis of the 1980s revealed the severe weaknesses of Latin American industry and the result could be appreciated by the difficulties faced by Latin American manufacturers in placing a higher proportion of their production in foreign markets as recession set in to the domestic ones.

With regard to the automotive industry, it was exclusively in countries which implemented harsh macroeconomic stabilization programs coupled with audacious liberalization schemes and industrial restructuring that the situation improved in any kind of permanent fashion. The Mexican automotive industry is the case in point. A radical reorientation of government policy facilitated a sharp shift in the corporate strategies of the major US auto TNCs. Those TNCs, in greater or lesser degree, began to restructure their manufacturing operations in Mexico and incorporate their Mexican facilities into their overall corporate response to the Japanese challenge they faced internationally and in their home market. Although the restructured automobile industry in Mexico continues to be TNC-centric and the 'reformed' relationship with local suppliers is not well-defined, there is no doubt that by way of their closer incorporation into the North American automotive industry, the Mexican automotive industry has also become more closely incorporated into the changing international one. It might be mentioned in passing, that with regard to any Latin American style flying wild goose status which may have been attained by the Mexican automobile industry, there exist at least two significant differences with the Asean species. One is that the Mexican auto industry is extremely dependent on one sole export market: North America. The other is the concern if similar benefits, in terms of improved skills of the national work force and advanced technological capacities of local companies, result from the TNC-centric variant to the local automotive industry in Mexico as compared to the TNC-associated one in developing Asia.

The other Latin American manufacturers of automobiles which have not experienced much success in stabilizing their macroeconomic situations, liberalizing their economies or restructuring specific globalizing industries, such as the automotive one, have been categorized as sitting ducks. They are not becoming more closely integrated into the global automotive industry due to the fact that the US and European TNCs, whose subsidiaries dominate the local automobile sector, have not included those Latin American operations in their corporate strategy to face up to the auto TNC shake-up. The investment necessary to restructure the operations of those subsidiaries in order to



make them internationally-competitive was not forthcoming to the extent needed. One could speculate that by way of their actions or lack of them, the major US and European auto TNCs have revealed that their subsidiaries manufacturing vehicles in these other Latin American countries are expendable or, at best, not among the most important corporate assets to be protected during the global auto TNC shake-up taking place.

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192/ One should not forget that government policy played a role; however, aside from attaining macroeconomic stability and generally accommodating the establishment of a Mexican component to the North American automobile industry by loosening restrictions, its other principal action was to permit auto TNCs to make heavy use of the original scheme to convert external debt into local investments. Auto TNCs accounted for 17 percent of the total value of all foreign investments made in that manner, 59 percent of those which were authorized in 1986. About 26 percent of the registered new FDI in the automobile sector during 1982-89 took place by way of the debt/equity conversion mechanism.

193/ See Carta da ANFAVEA, No. 68, Janeiro de 1992.

194/ Bowring, op. cit., p. 61.

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