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## Industrial Restructuring in Latin America: Macroeconomic Conditions and Industrialization Policies

### Introduction

The neoliberal movement during the 1980s emphasized a market-driven economy with private sector initiative, individual value, and “small government.” Supply-siders advocated deregulation, tax cuts, and privatization to increase investment, and through this investment, increased production capacity. This train of thinking coincided with the policies of international financial organizations which were faced with the external debt trauma of developing countries. The International Monetary Fund (IMF) and the World Bank took on leadership roles, and together they addressed the problematic economies of debt-stricken countries by providing loans. But with these loans came strict conditions intended to produce economic stabilization. These *conditionalities* included not only short-term stabilization measures, but also supply-side structural reforms which corresponded to the contemporary neoliberal thinking of what a free market economy should be.

On the other hand, the heavily indebted countries had few choices from which to choose from. The enormous debt repayment burdens caused governments to stop subsidies, cut spending for intervention purposes, and to fire public sector employees. The selling of state enterprises to repay external as well as internal debts was undertaken. Thus the paradigm shifted from government intervention to the invisible hand of market forces, or simply put, from big government to small government. Liberalization, deregulation, privatization, and tertiarization became urgent priorities. Latin America altered its course toward a free market economy, ending a long period of import-substitution policies. Countries eliminated import restrictions, anti-export biases, and investment constraints. The speed and the method each country used to open its economy differed. Chile and Mexico took the lead, while Brazil and Peru remained behind because of macroeconomic mismanagement and political

chaos. In Mexico's case, a free trade argument ultimately led to the formation of a free trade area with the United States and Canada, called the North American Free Trade Agreement (NAFTA).

The free movements of goods, services, and capital bring about drastic changes in industrial structure, as evidenced by East Asian countries. Specialization according to dynamic comparative advantage leads to an international division of labor which promotes intra-industry as well as inter-industry trade across borders. Foreign direct investment (FDI) by multinational corporations plays a vital role not only in the transfer of technological and managerial know-how, but also in the activation of local industries to produce parts and components. Local industries also have upgraded their products to compete with foreign goods. Therefore competitiveness in price, quality, and delivery has become the most crucial factor in a country's economic well-being.

Under these circumstances, however, problems are occurring in small- and medium-scale enterprises (SMEs) which do not have access to conventional financial resources or new technology. Small-scale enterprises (SEs)—defined in this text as establishments with 1–100 persons—seem to be hardest hit by liberalization. As a result, a new approach is needed to avoid future sudden changes. The establishment of functional linkages between downstream and mid- and upstream industries, i.e., the formation of supply chains, is of growing importance.

The first section of this chapter examines the trends in economic thought which took place in the 1980s. The second section analyzes the problems that arose from the “prolonged” import-substitution industrialization of Latin America. Thirdly, macroeconomic conditions and policy shifts of two countries (Brazil and Mexico) are explored. Finally, some suggestions for a new restructuring approach are raised.

## **1. Changes in Economic Thought: Neoliberalism in the 1980s**

The two oil crises of the 1970s (1973 and 1979) induced tremendous changes in the economic policies of the world's advanced countries. Stagflation prevailed, and the fight against inflation became the top priority, superseding unemployment which had been the primary economic concern since the Great Depression. The U.S. Federal Reserve Board shifted its policies from interest rate management to money supply control, and from the end of 1979 through the middle of 1985, it regularly set a targeted money-supply ceiling. These tight money policies boosted interest rates to record highs; they nearly reached 20 per cent in the United States in 1981. Meanwhile recycled oil dollars flowed to Latin American middle-income countries because of their rather buoyant economies, while the advanced countries struggled with severe recessions.

New leaders such as Great Britain's Margaret Thatcher (inaugurated in 1979) and Ronald Reagan (1981) in the United States supported this monetarist approach. Both emphasized supply-side economics in which the private sector was to be the key in revitalizing their respective economies. It was a drastic deviation from the traditional Keynesian approach that emphasized effective demand control. Neoliberalists be-

lieved that the welfare state spoiled people and that the problems of the large cities worsened, mainly because of generous social welfare programs. They insisted that values such as "small government," individual initiative, and the market mechanism be the guiding principles of the new era, and that these would lead to increased production capacity and a rethinking of work ethics. Deregulation, privatization, tax cuts, and monetary stability, including exchange rate adjustments, became the central policy issues of the major advanced countries.

At the same time, the accumulation of external debts at floating interest-rate levels by Latin American middle-income countries—notably Argentina, Brazil, and Mexico—coupled with their expansive government spending, produced economic turmoil, especially after sharp interest-rate increases in the world's financial markets. Mexico declared a debt repayment moratorium in August 1982 triggering a succession of failures in external debt management by Latin American countries. The fundamental problem underlying this liquidity crisis was an inability to earn foreign currency because of the long-standing import-substitution policies of Latin American countries. The Baker initiative of 1985, which combined debt-rescue packages with long-run, supply-side growth objectives, paved the way for debt-stricken developing countries to return to sustained economic growth.

Another important change in the 1980s was a shift in the lending policies of the World Bank, the IMF, and other international financial institutions. The World Bank introduced "non-project" loans—known as sector adjustment loans (SECAL)—in 1979, and structural adjustment loans (SAL) in 1980. The justification behind these new types of loans<sup>1</sup> was a perception that project loans alone could not solve the complexities of development as long as macroeconomic disequilibrium was left untouched. What was needed, lenders believed, was fundamental reform in public institutions, in financial and fiscal systems, and in the legal infrastructure to regain the governability of the state, making possible the return of sustained economic growth. The World Bank recognized that most developing countries lacked specifically the administrative capacity to effectively control their economies, and that the existing loan system was not addressing these problems. The new types of loans—called "policy-based lending"—required as lending conditions, policy as well as institutional reforms in developing countries.<sup>2</sup>

The IMF, which was once recognized as a short-term tool to assist with balance-of-payments difficulties, also emphasized growth aspects. In 1986 it introduced a new lending concept called the structural adjustment facility (SAF) (the total amount of which was expanded in 1987) based on the notion that partial, short-term measures did not address the fundamental solution of long-term economic growth. As a result, the two powerful institutions joined hands to tackle complementarily the economic problems of developing countries.<sup>3</sup>

The World Bank and IMF emphasized a free market approach that coincided with, on many levels, the neoliberal advocacy of the 1980s. They rejected nonmarket devices such as subsidies, administered prices, tariff and nontariff barriers, and production controls. Furthermore, they believed that if economic activity was unhindered, efficiency would increase, and this would lead to a higher level of growth—a growth

level that could not be achieved if economic activity was restricted and controlled. These two institutions, adhering to the new economic trends of the 1980s, encouraged free trading systems, deregulation, privatization of state enterprises, and flexible exchange rate policies.

## 2. Economic Opening Up

When Latin American countries faced the external debt crisis of the 1980s, the crucial problem was the lack of sufficient foreign currency (earned from exports) to pay off debts. This contrasted with the financial situations of East Asian countries, such as Korea and Malaysia, which were able to avoid this problem. Simply stated, the strategy for industrialization in East Asia—the export promotion of manufactured products—was successful, unlike in Latin America where import-substitution policies had been promoted since the Great Depression.<sup>4</sup> It was soon recognized that import-substitution policies had the following shortcomings.

(a) The foreign currency constraint was not improved. The first-stage of import substitution (i.e., the domestic production of consumer goods) successfully ended, but the second-stage of import substitution (i.e., the production of consumer durables and intermediate goods) required more importation of materials and capital goods. Thus, import substitution itself was import promoting. In addition, exports were adversely affected by overvalued exchange rates.

(b) Efficiency and quality consciousness was neglected. Efforts undertaken to address cost reduction and quality considerations tended to be overlooked because of incentives granted to the import-substituting industries. Moreover, the oligopolies divided the small domestic market and as a result higher prices persisted. This produced a low level of competitiveness when companies began to export their products overseas. In addition, resources were wasted in the effort to protect incentives and vested interests, and to carry on activities such as lobbying and other unproductive undertakings.

(c) “Big government” was the underlying cause of inflation and external debt. The financing of chronic fiscal deficits caused by expansive spending relied heavily on internal and external debt as well as on an inflation tax or seigniorage.

(d) Job creation by the import-substituting industries was less than expected. They failed to create sizable employment opportunities due to the labor-saving technology adopted by oligopolies and multinational enterprises.

(e) There was no improvement in the distribution of income. Income concentration was intensified, and the distribution gap grew wider during the 1980s.

The external debt crisis of the 1980s was a major turning point for economic development in Latin America. The region, which experienced a decline in per capita GDP throughout the 1980s, realized a drastic change of policies was needed to stimulate self-sustaining growth. The payment of external and internal debts required so much money that it put overbearing pressure on government expenditures, and the huge deficits which resulted caused widespread inflation in the region and hyperinflation in some countries. The balance-of-payments position did not improve, partly because of

the failure to promote manufactured exports, and partly because of a slow world trade market. Moreover, stagnant investment levels restrained economic growth. To cut off this vicious circle, the principles of the market mechanism and "small government" were emphasized.

Policies involving economic stabilization and structural adjustment, in which state intervention is minimized in favor of the market mechanism, can be summarized as follows: (a) freer trade (tariff reduction, import control deregulation, flexible exchange rates); (b) price and wage deregulation and the abolition of subsidies; (c) balanced fiscal budgets (revision of government-fixed prices, tax system reform, expenditure reduction, state enterprise privatization); and (d) financial market liberalization (interest-rate floatation, capital-movement liberalization, foreign direct investment, etc.). These policies corresponded to the main streams of neoliberal economic thought in the 1980s.

Following some of these policies, Chile has been opening up its economy under a military regime since 1973. Mexico has adopted this line of thinking since 1985, while Brazil's economy has stagnated because of repeated macroeconomic mismanagement. Since the contrast between Mexico and Brazil is clear, an examination of the two countries, particularly from an industrial restructuring point of view, is relevant.

### 3. Mexico

#### *Macroeconomic Restructuring*

Drastic changes in the management of macroeconomic policy took place in Mexico after the 1982 debt squeeze and its resulting confusion. The government began to reduce its anti-export biases, turning away from its long-standing import-substitution policies. The two principal foundations of its restructuring process include: (a) trade liberalization and (b) solidarity pacts. With trade liberalization, tariff and nontariff barriers have been reduced gradually. Coupled with this, Mexico joined General Agreement on Tariff and Trade (GATT) in 1986. The solidarity pacts, enacted between government, entrepreneurs, and labor unions, have stabilized price and wage movements, while deregulation and privatization have revitalized private investment and FDI.

#### *Trade liberalization*

There were four main economic restrictions that were targeted for liberalization or abolition: import tariffs, import-license requirements (quantitative restrictions), official import reference prices, and export controls (export-license requirements and official export reference prices). Mexico's trade liberalization program can be divided into three stages running between 1983 and 1989 [76, pp. 446–55]. The first stage ran from 1983 to June 1985; the second stage from July 1985 to December 1988; and the third since 1989 under the Salinas administration.

During this three-stage period, a 0–100 per cent scale ad valorem import tariff was

gradually reduced to 0–20 per cent, with only five levels (0, 5, 10, 15, and 20 per cent). To compensate for the elimination of some license requirements, a few tariff increases were implemented. At the end of the reform period, only about 20 per cent of imports required licensing. Nevertheless, protection remained in sectors such as petroleum and its derivatives, agriculture and foodstuffs, automobiles and automotive parts, and pharmaceutical.

Official import reference prices began to be eliminated in early 1986, and were completely phased out by the beginning of 1988. In particular, the elimination of all

TABLE 3-1  
ECONOMIC INDICATORS: BRAZIL AND MEXICO, 1985–92

	1985	1986	1987	1988	1989	1990	1991	1992 <sup>a</sup>
Real GDP growth rate (%)								
Brazil	7.9	7.6	3.6	-0.1	3.3	-4.4	0.9	-1.5
Mexico	2.6	-3.8	1.7	1.2	3.3	4.4	3.6	2.5
Latin America	2.8	3.7	3.3	0.8	0.9	0.3	3.5	2.4
Consumer price index (Dec.–Dec.) (%)								
Brazil	239.0	59.2	394.7	992.7	1,861.6	1,584.6	475.8	1,131.5
Mexico	63.7	105.7	159.2	51.7	19.7	29.9	18.8	12.9
Latin America	280.1	64.1	208.9	773.5	1,205.0	1,185.0	198.7	410.7
Public sector deficit or surplus (% of GDP)								
Brazil (NFPS)	–	–	-5.7	-4.8	-6.9	1.2	0.3	-1.5
Mexico (CPS)	–	–	-15.5	-12.5	-5.7	-4.0	1.8	3.4
Real urban minimum wages (1980 = 100)								
Brazil <sup>b</sup>	88.9	89.0	72.6	68.7	72.1	53.4	59.9	55.4 <sup>d</sup>
Mexico <sup>c</sup>	71.1	64.9	61.5	54.2	50.8	45.5	43.6	42.0 <sup>d</sup>
Real effective exchange rate indexes for exports (1985 = 100)								
Brazil <sup>e</sup>	100	106	104	94	72	65	76	85
Mexico <sup>c</sup>	100	139	145	118	110	108	98	91
Total interest due as a percentage of exports of goods and services (%)								
Brazil	40.0	42.4	33.1	29.4	29.2	30.9	27.2	21.6
Mexico	37.2	38.3	29.7	29.9	28.3	24.0	20.8	19.2
Latin America	36.1	36.6	30.4	29.0	28.6	25.3	22.6	19.6

Source: [67].

Note: NFPS = non-financial public sector; CPS = consolidated public sector.

<sup>a</sup> Preliminary estimates.

<sup>b</sup> Minimum wage in the city of Rio de Janeiro, deflated by the corresponding CPI.

<sup>c</sup> Minimum wage in Mexico City, deflated by the corresponding CPI.

<sup>d</sup> January–October average.

<sup>e</sup> Deflator by CPI.

official prices was accelerated when Mexico joined GATT in August 1986. This was finally accomplished by the end of 1987. Significant tariff reductions were enacted as well during this period.

Export controls were also reduced gradually. Export taxes, which covered 7.5 per cent of exports in December 1984, dwindled to 2.2 per cent in February 1989. The tax scale was modified, shrinking from a 0–100 per cent range with seventeen levels, to 0–50 per cent range with only seven levels. The removal of export-license requirements, which applied to 15 per cent of exports at the beginning of the reforms, subsided to 13.2 per cent, while official export reference prices were eliminated, except for those on coffee and male cattle. Export-promotion measures were also introduced.

In exchange rate policies, Mexico took positions supportive of trade liberalization. The sharp depreciation of the peso, which took place from the middle of 1985 to the end of 1986, increased exports, thereby bringing about a favorable balance of payments situation. This can be observed from the movement of the real effective exchange rate (see Table 3–1). The index, which jumped 39 per cent from 100 in 1985 to 139 in 1986, jumped another 4.3 per cent to 145 in 1987 [67].

The negative effect of this sharp depreciation was inflationary pressure. Consumer price rose 106 per cent in 1986, and 159 per cent in 1987, the highest rate of increase in recent history. To depress inflation, Mexico slowed the peso's depreciation in 1987, but this caused another problem—an import boom and worsening trade deficits. According to Ten Kate [63], these abrupt exchange rate movements were harmful. He wrote:

The Mexican case demonstrates that, as long as fiscal deficits are high, trade liberalization alone is incapable of simultaneously keeping inflation low and stimulating exports to the point of keeping the external balance in equilibrium. The role of the exchange rate is controversial in this respect. Keeping inflation low requires a fixed nominal exchange rate anchor which may conflict with other goals of economic policy such as external equilibrium. [63, p. 671]

In spite of these problems, few countries have made the progress toward trade liberalization as quickly as Mexico did between 1983 and 1989. As a result, Mexico is considered "one of the most open economies in Latin America" [50, p. 13].

### *Social consensus*

A noteworthy characteristic of Mexico's stabilization policies is its unique social consensus formed among different economic players through a so-called solidarity pact. In contrast to other countries, Mexico was able to reach a national consensus without much controversy because of the strong influence of its one-party system, the Partido Revolucionario Institucional (PRI), which virtually includes labor unions as well. The first group pact was reached in December 1987. Called the Economic Solidarity Pact (Pacto de Solidaridad Económica, PSE I), it was an agreement among economic agents on a package of economic instruments which included the exchange rate, prices for public, private, and agricultural goods, the minimum wage, govern-

ment expenditures, and external trade measures. The PSE, which was revised six times through December 1988, mainly emphasized a price freeze relying particularly on the fixed exchange rate as an anchor. This self-disciplined mechanism helped to stabilize prices and wages, decreasing the increase in consumer prices from 159 per cent in 1987 to 52 per cent in 1988.

When Salinas de Gortari became Mexico's president in December 1988, the pact's name was changed to the Pact for Stability and Economic Growth (*Pacto para la Estabilidad y el Crecimiento Económico*, PECE I; January-March 1989). The PECE was renewed six times through 1993, making prices, wages and exchange rate adjustments more flexible as prices became more stable. The rate of inflation slowed to 19.7 per cent in 1989. At the same time, economic growth was accentuated, as the name of the pact denotes. Led by its president, Mexico created the national council of concert in 1989 and launched the national plan of development 1989-94. In addition, the deregulation and privatization of state enterprises was accelerated, and the number of state enterprises drastically declined from 1,155 in 1982 to 386 in 1991. Correspondingly, the economy grew strongly, expanding 3.3 per cent (real GDP) in 1989, and 4.4 per cent in 1990.

President Salinas also took the initiative in negotiating the North American Free Trade Agreement (NAFTA) with the United States and Canada. If NAFTA and its free trade provisions are implemented, Mexico will be required to quickly modernize its industrial structure, especially in the area of international competitiveness. Consequently, four modernization programs were launched: the national program of science and technology modernization, 1990-94; the national program for industrial modernization and foreign trade, 1990-94; the national program for modernization of education, 1989-94; and the program for modernization and development of micro, small, and medium industries, 1991-94.

In 1993, PECE was refashioned and renamed the Pact for Stability, Competitiveness, and Employment (*Pacto para la Estabilidad, la Competitividad y el Empleo*). Competitiveness, thus, became the top priority of Mexico's production sector.

### *Industrial Sector Policies*

The policy shift from an inward-looking perspective to an outward-looking one meant greater reliance on market forces with less government intervention. The elimination of subsidies, quotas, and rationing, as well as deregulation and privatization of state enterprises were promoted. Notwithstanding fiscal and financial incentives for export promotion, the deregulation of priority sectors and the easing of FDI has played a vital role in the restructuring of Mexican industry.

### *Priority sectors*

Traditionally Mexican industries have been closed. Specific sectors were reserved for the state, and many areas were for Mexicans only or for Mexican majority capital. Foreigners were limited to investing in certain sectors that had local-content requirements. For example, the state still has monopolistic power in sectors such as oil and gas extraction, refining, basic petrochemicals, and the generation and distribution of



electricity. In addition, the government protects priority sectors, including basic industries (steel, petrochemicals, and fertilizer); capital goods; and strategic sectors (automobiles, computers, and pharmaceuticals). During the 1980s this policy was maintained, particularly in the following five sectors which had their own sectoral development plans: automobiles (1983 and 1989), pharmaceuticals (1984 and 1985), capital goods (1982), microcomputers (1985), and petrochemicals (1989).

However, following the liberalization and deregulation line, some limitations were eased. Local-content requirements for pharmaceuticals and computers were lifted, and the content requirement for cars to be exported was decreased to 30 per cent in 1983 which was half of what was necessary for vehicles destined for the domestic market. From 1986 private companies were allowed to import petrochemical materials; previously this had been permitted only for state enterprises. And as early as 1985, a 100 per cent foreign capitalized company could participate in the computer industry. Altogether, such changes remarkably increased exports of these manufactured goods (see Table 3-2).

Despite the deregulation process, some limitations remain in place. The development of the automobile industry provides a good illustration.

A 1962 decree prohibited car imports and set local-content requirements at more than 60 per cent of domestic products in terms of production costs. Moreover, parts makers were limited to 40 per cent capital participation through FDI. The decree was modified in 1972 and 1977 with emphasis on the promotion of domestic parts makers. For instance, the 1977 modifications prohibited assembly makers from producing parts internally if similar parts were available domestically. At the same time, a 50 per cent local-content requirement was set. In 1983, decree modifications required assemblers to procure necessary foreign currencies by themselves. It also increased local content to 60 per cent by 1987, except for export purposes which had a 30 per

TABLE 3-2  
EXPORT COMPOSITION OF NONTRADITIONAL HIGH-TECH PRODUCTS: MEXICO  
(As a Percentage of Total Industrial Product Exports)

(%)

	Total Export of Industrial Products (U.S.\$ million)	Nontraditional High-Tech Products					
		Vehicles	Engines	Auto Parts	Chemicals and Petro- chemicals	Computers	Electrical Products
1983	5,448	2.3	11.1	6.6	14.5	0.3	1.4
1984	6,986	2.1	14.1	6.1	14.9	0.7	1.6
1985	6,428	2.1	15.4	6.1	13.0	1.0	2.2
1986	7,782	7.0	14.8	7.3	13.9	1.2	1.6
1987	10,588	12.5	12.2	6.4	13.8	2.1	1.2
1988	12,381	11.6	12.0	4.7	14.9	2.8	1.7
1989	13,041	12.0	11.3	5.8	14.9	2.9	1.8
1990	14,784	17.7	8.6	4.9	14.7	2.5	2.5

Source: [61, Table II. 1].

cent requirement. Changes mandated in 1989 asked each assembler to produce a trade surplus—export obligations that offset imports of materials and parts. But local-content requirements were reduced to 36 per cent using the domestic value-added ratio. Also the prohibition of internal parts manufacturing by assemblers was abolished [39, p. 181].

In Mexico's automobile industry, however, the international strategies of the U.S. "big three" must be taken into account. They chose Mexico as a production locale for compact cars, and as an export base for engine supplies in order to compete against European and Japanese car manufacturers. This intra-firm division of labor and intra-industry trade across the U.S.-Mexico border enhanced Mexican car and car-related exports.

#### *Foreign direct investment regulations*

The regulations which governed FDI originated from a 1973 law, the Law for the Promotion of Mexican Investment and Regulation of Foreign Investment. It contained several limitations regarding FDI participation, as well as complex administrative requirements. Facing drastic decreases in FDI after the external debt crisis, Mexico altered its FDI policies. FDI was now encouraged, and in 1989 a major regulatory law eased several FDI constraints. Automatic approval replaced case-by-case authorization. Procedures were simplified, and the authorization period was shortened.

Although the 1989 regulation reserved eight areas for the state and eighteen areas for Mexican enterprises, ninety-six economic activities were opened to FDI, many to 100 per cent foreign participation. These included: automobile assembly, capital goods, textiles, agro-industry, and agriculture [76, p. 454]. Furthermore, FDI was approved immediately when it satisfied certain criteria—an investment amount of less than U.S.\$100 million and a positive trade balance for the first three years of operation.

Also important for FDI in Mexico were price factors. The jumps in investment and the subsequent export expansion which took place were closely related to changes in factor prices and exchange rates. As explained earlier, the 1982 debt crisis brought about a massive devaluation of the peso against the U.S. dollar; it dropped to 120.1 pesos per dollar in 1983 from 24.5 per dollar in 1981 and 56.4 per dollar in 1982. The precipitous falls continued during the rest of the 1980s, reaching 2,812.6 pesos per dollar by 1990. This sharp decline caused unprecedented price declines in terms of U.S. dollars. Industrial wages dropped from U.S.\$1.69 an hour in 1982 to U.S.\$ 0.60 in 1986; this was approximately one-third of Taiwan's average wage. As a result, FDI gushed into Mexico taking advantage of the low wage cost. After a sharp FDI drop in 1982 and 1983 (less than U.S.\$700 million), new direct investment recovered to U.S.\$1.4 billion in 1984, and it continued to expand reaching U.S.\$3.7 billion in 1990.

The only exception to FDI requirements was found in the "in-bond processing" industries, called "*maquiladoras*." In *maquiladora* operations, 100 per cent foreign

capital participation has been allowed since 1975. The striking success of *maquiladoras* in Mexico, particularly in manufactured exports, triggered a further opening of its economy and enhancing its industrial structure.

### *Maquiladoras in Mexico*

The formation of free trade areas is a booming phenomenon in the contemporary world, as in the Single European Market (SEM) and NAFTA. However, their main features can be traced back to the establishment of free trade zones (FTZs) formed during the 1960s in several developing countries. In FTZs, imports and exports are free of tariffs and other nontariff barriers.

*Maquiladoras* comprise a Mexican variant of a FTZ. The term "*maquiladora*" originally referred to millers who collected tolls in kind as a service charge—called "*maquila*"—for processing wheat into flour.

Mexico launched a regional development program along the Mexico-U.S. border in 1965 called the "border industrialization program" (BIP) in which foreign firms registered as *maquiladora* industries within a 12.5-mile border strip. The firms enjoy preferential tax treatment on imports and exports. The program was deemed necessary for the development of the border area, especially to alleviate a severe unemployment situation, the consequence of a terminated contract labor agreement (the "Bracero program") between the two countries in 1964 [44, p. 110].

Under the program, foreign firms were allowed to import machinery, equipment, and manufactured components into Mexico duty-free for processing and assembly, provided that all imported products were re-shipped abroad for final assembly and / or distribution. In the case of U.S. firms, some set up two plants, one on each side of the border, dividing the production processes and business activities to enjoy the comparative advantage of each country (i.e., the labor-intensive portion on the Mexican side and the communication and distribution segment on the U.S. side). This type of production was often dubbed "twin plants," or product-sharing operations.

In addition, the U.S. government prepared special tariff provisions, namely, the Tariff Schedules of the United States (TSUS), items 806.30 and 807.00,<sup>5</sup> and the Generalized System of Preferences (GSP). Tariff items 806.30 (non-precious metals) and 807.00 (all articles of the growth, product or manufacture of the United States), both reformulated in the Customs Simplification Act of 1954, permit duty-free entry of U.S.-made components contained in goods assembled or processed abroad. This means that products which contain U.S.-made components are subject to duty only on the value of the foreign processing (added value) upon their reentry to the United States.

*Maquiladora* operations were further extended through the subsequent revisions of laws, decrees, and regulations as follows: (a) *maquiladora* operations were permitted anywhere in the country, except industrially concentrated areas (1972), and Mexico City for environmental reasons (1983); (b) Mexican majority ownership requirements were loosened (1972) and 100 per cent foreign ownership was permitted, except in the textile industry (1975); (c) customs procedures and bureaucratic re-

quirements were relaxed (1975, 1983, and 1989); (d) sales to the domestic market were authorized up to 20 per cent of output (1983), and up to 50 per cent of the previous year's exports (1989).

In 1990 there were 1,938 *maquiladora* factories employing 460,293 persons. The sector that provided the most employment was the electric and electronic parts-and-accessories industries accounting for 24.5 per cent of the total persons employed. Next was transport equipment with 22.5 per cent, followed by electric and electronic apparatuses 11.2 per cent, and apparel industries 9.3 per cent.

*Maquiladoras* are basically interpreted as "in-bond" operations. Without paying customs duties, imported materials and components are primarily exported to neighboring countries (mainly to the United States) after semi-processing and/or assembly in a registered shop. Foreign currency earnings was one of the prime objectives of *maquiladora* operations, since all value added is exported. Using value added data, net exports can be estimated, although some unreported shipments and statistical discrepancies are involved. Net exports increased remarkably, from U.S.\$454 million in 1975 to U.S.\$3,635 million in 1990, an average annual growth rate of 14.9 per cent over the fifteen-year period. Only four subpar years—1977, 1978, 1982, and 1983—occurred during this time.

As *maquiladora* exports grew, they replaced tourism (except for border travellers) at the beginning of the 1980s as the second largest foreign-currency earner, following only petroleum (see Table 3-3). In general, Mexican manufactured exports expanded strongly, averaging an annual 16.6 per cent growth rate between 1980 and 1990, ultimately reaching U.S.\$13.9 billion. Net *maquiladora* exports totaled U.S.\$3.6 billion in 1990, contributing approximately 20 per cent of Mexico's total manufactured-export earnings.<sup>6</sup>

Since *maquiladora* industries, by concept, can import raw materials and intermediate goods duty-free, they rarely purchase goods from Mexican suppliers. In fact, inter-industry transactions between *maquiladoras* and Mexican manufacturers are

TABLE 3-3  
OVERALL TRADE AND THE RELATIVE POSITION OF *MAQUILADORA* TRADE: MEXICO  
(U.S.\$ billion)

	1980	1985	1986	1987	1988	1989	1990
Imports	18.9	13.2	11.4	12.2	18.9	23.4	29.8
Exports	15.5	21.7	16.0	20.7	20.6	22.8	26.8
Petroleum	10.3	14.8	6.3	8.6	6.7	7.9	10.1
Manufactured exports (A)	3.0	5.0	7.1	9.7	11.5	12.5	13.9
Trade balance	-3.4	8.5	4.6	8.5	1.7	-0.6	-3.0
Tourism (net)	0.5	1.1	1.2	1.5	1.4	1.4	1.5
<i>Maquiladora</i> exports	n. a.	5.1	5.6	7.2	10.0	12.5	15.2
<i>Maquiladora</i> exports (net) (B)	0.8	1.3	1.3	1.6	2.3	3.0	3.6
(B)/[(A)+(B)] (%)	21.1	20.6	15.5	14.2	16.7	19.4	20.6

Sources: Banco de México, *The Mexican Economy 1991* (1991), and Banco Nacional de México, *Industria maquiladora de exportación*, 1991 edition.

quite limited. A close examination of data relating to the purchase of raw materials, containers, and packing materials by *maquiladora* industries shows an average yearly share of only 1.5 per cent of total national consumption during the 1978–88 period. The share for 1990 was 1.8 per cent [26]. The lack of linkages and articulation agreements with domestic industries implies that technology transfer and related human capital development are also bounded only within the *maquiladora* industries. The Mexican government made an effort to have *maquiladoras* contribute more to the region's economic activities, to train workers, and to connect with domestic industries. Although more domestic inputs were consumed by *maquiladoras* in the interior or traditional light industries such as textiles and furniture, linkages and technology transfer continue to remain very weak.

In recent years, the auto-related and electronic industries have flourished, introducing high-tech and capital-intensive technology. Factories, in terms of employment, also increased in size, from an average of 148 persons per plant in 1975 to 238 persons in 1990. The relative importance of skilled workers was also enhanced.

Some *maquiladoras* have grown up and are no longer the small-scale industries they were earlier. These “new *maquiladora*” industries seem to have developed more sophisticated and extensive supplier networks, with the intention of using a much higher degree of domestic inputs. Another new wave of thought came from NAFTA discussion developments. Coupled with the domestic liberalization efforts, NAFTA seems to be downplaying the importance of the *maquiladoras* by applying the full application of “*maquila*-type” operations to North America as a whole.

### *NAFTA and Its Implications*

#### *A brief description of NAFTA*

The liberalization and deregulation process in Mexico culminated with NAFTA, in which the North American countries intend to form a free trading bloc without any restrictions, except on labor mobility, within fifteen years starting January 1994. NAFTA would eliminate trade and investment barriers between the United States, Canada, and Mexico. Negotiations on the pact were concluded in August 1992. According to the pact's text [70], the following six points were agreed to in principle:

- (a) to eliminate barriers to trade in, and to facilitate the cross border movement of, goods and services between the territories of the member countries;
- (b) to promote conditions of fair competition in the free trade area;
- (c) to increase substantially investment opportunities in their territories;
- (d) to provide adequate and effective protection and enforcement of intellectual property rights in each member territory;
- (e) to create effective procedures for the implementation and application of this agreement, and for its joint administration and the resolution of disputes; and
- (f) to establish a framework for further trilateral, regional, and multilateral cooperation to expand and enhance the benefits of this agreement.

Under NAFTA, the elimination of tariffs would make approximately 50 per cent of U.S. exports to Mexico completely and immediately duty-free. Mexican tariffs on all remaining industrial products and most agricultural items will be phased out over five

to ten years. For more sensitive products such as corn, sugar, frijol bean, and oranges, a transitional period of up to fifteen years will be in effect before tariffs are completely eliminated.

The North American Free Trade Agreement also improves investment opportunities. Access to Mexican markets for U.S. and Canadian firms in fields such as telecommunications, banking and insurance, and trucking will be expanded. Moreover, there will be increased access to Mexico's state-owned energy companies (petroleum and electricity), although direct investment will still not be allowed. Mexican regulations on FDI will be abolished gradually, ending local-content requirements and dropping export performance quotas.

To secure benefits for products produced in North America, tough new rules of origin are mandated under NAFTA. For example, the minimum regional value-content of passenger automobiles and light trucks, including the engines and transmissions, will be 62.5 per cent beginning in 2002. This is higher than the current U.S.-Canada 50 per cent free trade agreement. With textiles, the basic rule of "yarn forward" will be applied, meaning that textile and apparel goods must be produced from yarn made in a NAFTA country in order to have access to the full benefits of the agreement.

The North American Free Trade Agreement will also have an impact on *maquiladoras*. Existing drawback programs (and those that are similar), which provided for a refund or waiver of customs duties on materials used in the production of subsequently exported goods, will terminate January 1, 2001.

#### *Implications for Mexico's industrial structure*

The implications of NAFTA for Mexico's economy, especially its possible adverse influences, are often summarized as follows. (a) There is a fear that agriculture, particularly grain production (corn, frijol, wheat, and rice), will be nearly wiped out due to the high production costs and low productivity levels of Mexican agriculture compared to those of the United States (see, for example, [12, pp. 16 and 33]). Because of this, more farmers will migrate to urban areas or to the United States illegally. (b) Small-scale enterprises will be harmed by low-price import products and new inflows of investment; and (c) Regional income differences within Mexico will widen (i.e., the rich north will gain against the poor south).

What industrial effects NAFTA will have on the U.S., Mexican, and Canadian economies can be discerned and are, in fact, quite straightforward in many instances. The foremost effect is that NAFTA will accelerate the industrial restructuring among the three countries through the price mechanism. This will lead to the establishment of a new international division of labor, not only in the three member countries, but also in the region as a whole, including Central America and the Caribbean.

First, U.S. and Canadian firms will move factories to Mexico to utilize low-cost labor. Mid-level technology and modest value-added products will be transferred to Mexico, while high value-added and knowledge-intensive products will likely stay put in the country of origin. Labor-intensive processes involving the same product will likely also be shifted to Mexico. Moreover, if final assemblers are moved, some

parts-and-equipment makers—supporting industries—will probably relocate to Mexico. As a result, intra-industry and inter-industry trade will increase among the NAFTA countries.

Second, large-scale Mexican enterprises will have to compete with new flows of FDI, either by investing in themselves or by forming joint-ventures and strategic alliances with foreign multinational companies.

As noted earlier, the concern mainly lies with small- and medium-scale enterprises (SMEs) since they have limited managerial, technological, financial, and marketing resources. NAFTA is apt to hit SMEs the hardest, especially as low-cost import goods flow in. Nevertheless, interaction (and eventually integration) between SMEs and large-scale enterprises, and between SMEs and foreign parts-and-component makers, will gradually occur. Some *maquiladoras* have already developed such relationships.

The formation of supply chains is of vital importance to economic development. Currently subcontracting is relatively common among SMEs in Mexico. Mexico seems to be reinforcing the subcontracting system to increase its competitiveness. Subcontracting furthers the absorption and accumulation of new technology, as this is necessary to move to the next stage of integration.

Third, although Mexican labor will not be allowed to emigrate, the real wage will rise gradually in the near future (this was the case with East Asia's middle-income countries). The rise in real wage will be accelerated if the Mexican government maintains its stronger new peso against the U.S. dollar. Ultimately the real wage increase will lead to an investment boom from NAFTA countries to neighboring regions, such as Central America and the Caribbean. Mexico's role as an investor in these countries is extremely important in the formation of a multi-layered industrial structure throughout the region as a whole. Eventually specialization according to the degree of technology, value added, and factor prices will be established through dynamic comparative advantage.

Fourth, a horizontal as well as vertical international division of labor will progress, as constraints on trade and investment are dissolved. These industrial shifts, mainly in the search for low-cost labor, should be understood in terms of economic logic. It is not always the case that less developed countries are relegated to less value-added products assembled with cheap labor. Rather the situation is a dynamic one in which less developed countries learn by producing, and thereby are able to elevate their industrial structure to a higher level, involving higher value-added products, elaborate technology, and complex supply-and-information chains. The development process seems to speed up for latecomers, meaning that the later a country begins to develop, the quicker its development. This "compressed" pattern of development has been experienced in East Asia. Why not in Latin America also?

Fifth, service sectors will prosper because industrial sectors require efficient information systems. Paradoxically, information and computerization systems, which are designed to save time and effort, require labor-intensive data input and data-checking processes before they are used. These processes are well-suited for countries with abundant labor. Information networking, as well as essential physical infrastructure,

such as telecommunications, land transportation, and energy, will generate information-related service sectors in NAFTA and neighboring countries.

Lastly, these changes, coupled with the rapid technology cycle, will demonstrate the importance of worker retraining (including managers), and their relocation and repositioning. This will lead to a rethinking of the traditional management-labor relationship, the mass production system, education and training, and more fundamentally, basic Latin American values.

#### **4. Brazil**

##### *Macroeconomic Disorder*

The Brazilian economy had been experiencing setbacks since the Sarney administration (1985–89), partly because of macroeconomic mismanagement and partly because of political disarray. Between 1986 and 1991, five economic “shock” plans were implemented: the Cruzado plan (1986), the Bresser plan (1987), the Summer plan (1989), the first Collor plan (1990), and the second Collor plan (1991). During this period the currency was denominated twice, wiping out six zeros. The currency name was also changed three times. Severe measures, including a price-wage freeze and even a financial assets freeze (Collor plan I), were implemented. President Collor, the first civilian president elected after the military regime, was impeached on corruption charges in 1992. Clearly this turmoil created strong doubts about the government’s credibility and its ability to govern, and this was reflected in an inflationary upsurge which almost became hyperinflation (see again Table 3–1). Vice President Itamar Franco succeeded Collor, but seems to have failed in his attempts to steer the Brazilian economy back onto course. The “lost decade” shows no sign of ending. The opening up of Brazil’s economy, which gained its first meaningful momentum during the Collor government, is again at a standstill.

##### *Past Industrialization Policies*

###### *A brief policy review*

Brazil adopted an interventionistic approach to protect its national industries. Emphasis was placed on establishing and fostering an industrial base ranging from intermediate goods such as iron, steel, and basic petrochemicals to consumer durables such as automobiles and minicomputers [30].

During the 1950s, the Target Plan 1956–61 was launched to select successful industrial sectors and to invest heavily in infrastructure. Basic industries (steel, automobiles, shipbuilding), energy, and transportation were chosen as development priorities by special governmental steering committees for sectoral planning. In 1964 these steering committees were integrated with a newly formed organization, the Industrial Development Council (Conselho de Desenvolvimento Industrial, CDI), which was responsible for the registration and approval of new investment plans. CDI acted as a control tower directing investment with an implicit bias toward national interest goals. For example, if CDI approved a project involving a government-



guided area, it received several benefits such as tax credits applied toward the industrial product tax (*Imposto sobre Produtos Industrializados*, IPI) and the market circulation tax (*Imposto sobre Circulação de Mercadorias*, ICM), tariff exemption for imported materials and machines, accelerated depreciation, and government loans at preferential rates through the National Bank for Economic Development (*Banco Nacional do Desenvolvimento Econômico*, BNDE, established in 1952; now BNDES). In return, approved firms had to satisfy rather high local-content requirements.

The bank, BNDE, also played an important role in industrial development by providing long-term loans with soft conditions. In particular, FINAME (*Fundo de Financiamento para Aquisição de Máquinas e Equipamentos Industriais*),<sup>7</sup> a special fund for assisting the development or the purchase of domestic machinery and equipment (set up in 1966), fostered the domestic machinery sector in Brazil. To receive FINAME loans, firms had to have an 85 per cent minimum local-content requirement in their products. In this sense, FINAME and CDI were closely connected to the development of domestic industries and in the promotion of import substitution.

At the early stage of military rule (1964), several modernization measures were implemented involving banking, the stock exchange, housing finance, and the social security system. A price indexation system was adopted, as was a crawling peg exchange rate. These modernization and restructuring efforts allowed the Brazilian economy to take off between 1968 and 1973. During this period, the country averaged a two-digit growth rate annually. The military government launched a series of large-scale projects, including the construction of the Itaipú and Tucuruí dams; a nuclear power plant; expansion projects at the three big steel companies and construction of two new steel plants at Tubarão and Açominas; a second petrochemical base at Camaçari<sup>8</sup>; the Cerrado agricultural development; and a subway and a new international airport at Rio de Janeiro.

The oil shock (1973) hit Brazil hard because Brazil's Achilles' heel at the time was energy. The military government intensified petroleum exploration, especially the development of the continental shelf near Rio de Janeiro. It launched an alcohol development program by subsidizing sugarcane plantations and by financing distiller activities. A 100 per cent alcohol-engine car was invented; its production reached a record high of 700,000 units in 1986. The alcohol program seemed a great success while petroleum prices remained high.

The characteristics of Brazil's industrial policy can be observed in an "infant"-industry argument involving the information industry, particularly that of mini- and microcomputers. Aside from the large mainframe computers which were monopolized by the big U.S. computer companies, Brazil wanted to develop in the 1970s its own hardware and software companies that could compete in the micro- to medium-sized computer markets. Defense and security reasons, as well as technological autonomy, were the primary motivations behind this action. The Brazilian market was reserved for five Brazilian-majority companies which were started in 1977. In 1979 the Special Secretariat for Informatics (*Secretaria Especial de Informática*, SEI), which had close ties to the military, was established to direct this sector.

The Falkland (Marvinas) war and the impact of the Exocet combat missile reaffirmed to the military government the importance of technological autonomy. The Special Secretariat for Informatics was strengthened, and it extended the market reservation and import-restriction policies into numerical control machines, semiconductors, CAD / CAM systems, and industrial robots. Even a toy which used a very simple minicomputer required SEI's permission for its importation. Before the termination of military rule, the government hastily passed the informatics law of 1984. Under this law, foreign capital participation was limited to 30 per cent, imports of hardware for less than medium-sized computers were prohibited, and software similar to that of domestic origin was limited in its importation. The United States immediately responded to this law and began to study the situation under "super 301." The negotiations between the two countries resulted in Brazil's promulgation of the software law of 1987.

Generally these policies protected Brazil's minicomputer industries. In terms of value, the portion held by Brazilian companies in the mini- and personal-computer markets, as compared to that of the multinationals, increased from 7 per cent in 1980 to 40 per cent in 1987. During this time the use of computers in Brazil expanded, particularly in banking with cash-management machines.

#### *Evaluation of industrial policy*

It is well known that government intervention results in a biased allocation of resources. In Brazil's case, the following unsatisfactory results became obvious through its prolonged import-substitution industrialization.<sup>9</sup>

First, in its attempts to pick winners, factors of production, financial resources, and technology resources were directed to the iron and steel, petrochemical, and transportation equipment (automobiles, shipbuilding) industries, all of which required economies of scale. This mainly benefited the larger companies. Through repetition and prolonged protection, these companies were able to ignore cost reduction, quality upgrading, and aftercare services. Consequently Brazil's emphasis on its domestic capital goods industries, through local-content requirements and other incentives, made the country more capital-intensive, and this resulted in excess capacity, inefficient production, obsolete technology, and fewer employment opportunities.

Another example can be seen in the alcohol program which emphasized sugarcane production. Although Brazil developed other crops, it remained an importer of wheat. Moreover, fertile land was specifically utilized for sugarcane production to reduce the high production cost of alcohol compared to that of petroleum. Even when oil prices decreased and stabilized far below the production cost of alcohol, protection continued. The ultimate result was excess alcohol production, and its usage impelled Brazil to export its leftover gasoline.

Second, Brazil's interventionist policies in the information industries, combined with its import restrictions on computer-equipped machinery, produced great delays not only in the development of this field, but also in the incorporation of technology in other industries. Technological innovations in the information industries were especially rapid as demonstrated by a quickly declining learning curve. Brazil's efforts

to catch up with the latest technology through copying and reverse engineering created unnecessary friction with the more advanced countries, particularly the United States.

Third, the intense protection of large industries produced an oligopolistic business structure with monopolistic power concentrations. For example, the country has four major blast furnace firms, five major aluminum firms, four major pulp firms, six major petrochemical firms, five major auto assembly firms, five major heavy electric firms, and four major textile firms. In every industrial sector, the large firms hold a preponderance of market share. Lobbying, influence peddling and other profit-seeking activities by oligopolies resulted in the formation of entry barriers as well as prolonged protection. To make matters worse, the oligopolies made no effort to adopt cost-sensitive, quality-conscious, delivery-attentive considerations.

Fourth, Brazil was not able to achieve international competitiveness because of its protection-oriented policies. As explained earlier, considerations involving cost, quality, and delivery were basically ignored since the products produced by the oligopolies were mainly headed for a protected domestic market. The large firms did not need to worry about international competition. Exports that competed in the world marketplace were only possible through subsidized prices or weak exchange rates.

Fifth, the oligopolistic private sectors, as well as bloated state enterprises, became obstacles to production efficiency and finance. Except for a few excellent companies, such as EMBRAER—Empresa Brasileira de Aeronáutica, SA (aviation) and CVRD—Companhia Vale do Rio Doce, SA (mining, forestry products, and transportation), many state enterprises became inefficient and heavily indebted due to protection and a lack of effort to restructure.

Lastly, with respect to industrial institutions, Brazil's "large-is-beautiful" attitude prevented the fostering of small-and medium-scale enterprises as well as their integration with large-scale enterprises. The large-scale enterprises tended to manufacture parts and components internally, self-generating their largeness by purchasing high-cost domestic machinery which lessened the need for more employment. Few entrepreneurs thought of downsizing and outsourcing to find and obtain merits such as efficiency, quality, low-cost performance, prompt delivery, and high profitability, all factors that characterize a modern industrial society.

#### *Collor Shock: Liberalization and Privatization*

Facing the circumstances detailed above, coupled with a depressed macroeconomic situation involving hyperinflation and unemployment, the Collor administration (March 1990) decided to make drastic changes in the Brazilian economy. The new government emphatically pushed a free market economic agenda using trade liberalization, privatization, and deregulation.<sup>10</sup> Trade liberalization was enacted immediately. According to the schedule, tariffs were to be reduced to 14.2 per cent on average (maximum 40 per cent) by the end of 1994, and the MERCOSUR (Mercado Común del Sur—the Southern Cone Common Market) arrangement—the customs union plan to set a flat rate of 7 per cent in the region, and 15 per cent for other countries—would start thereafter.<sup>11</sup>

Plans to privatize state enterprises also took shape. Originally, eight steel, fourteen chemical, seven fertilizer, and thirteen other companies were to be privatized. By February 1992, auctions had been completed for eight firms, including USIMINAS (steel works), CELMA (jet engine repair), and INDAG (fertilizer) [9].

### *Policy directions*

The basic concept behind the Collor administration's new trade and industrial policies was the transformation of Brazil's inward-looking, closed, protected economy to an outward-looking, open, liberalized one. As described earlier, Brazil protected several industrial sectors with subsidies and tax incentives following an import-substitution policy. The closed, protected and oligopolistic markets led to inefficiency, to high-priced low-quality products, and to firms that were unable to compete in the international market.

In 1990 Collor launched the national reconstruction plan. The plan was sweeping, aiming to reform government and reduce its intervention, increase competitiveness, liberalize trade, fight poverty, address environmental concerns, and protect human rights.

Under the new policy directives, a program called PICE (Política Industrial e de Comércio Exterior—Industrial and Foreign Trade Policy) was announced in June 1990<sup>12</sup> to overcome macroeconomic obstacles and introduce market mechanisms. The program attempted to increase productivity in Brazil's industries and to promote trade liberalization through the following measures: (a) elimination of tariff and nontariff barriers; (b) abolishment of policies which set priority industries, such as the "market reserve" scheme for the information industry; (c) deregulation and removal of price controls; (d) privatization of state enterprises; and (e) strengthening of antitrust laws.

The program, PICE, emphasized productivity and the development of technology, and those were to be promoted through the following three programs: PCI (Programa de Competitividade Industrial—Industrial Competitiveness Program), PBQP (Programa Brasileiro de Qualidade e Produtividade—Brazilian Quality and Productivity Program), and PACTI (Programa de Apoio à Capacitação Tecnológica da Indústria—Program for the Support to the Technological Improvement of Industry). The Industrial Competitiveness Program, PCI, had two objectives: (a) the promotion of high-tech industries, particular those involved in information, fine chemicals, biotechnology, precision machines, and new materials, and (b) the restructuring of industries to attain international competitiveness. Objectives of PBQP were to support industrial efforts to promote quality and productivity through five subprograms: (a) creation of awareness and motivation programs for quality and productivity, (b) development and disclosure of management methods, (c) training of human resources, (d) promotion of technological services needed for improving quality, and (e) articulation of institutional components. The government served as a mediator, and set up industrial subcommittees for twenty-seven sectors with affiliated entrepreneurs to supervise operations. The PACTI program aimed at providing assistance to programs involved in technology education and training. It also set an investment

target for science and technology—1.4 per cent of GDP in 1994.

In the information industry, SEI's responsibilities were moved to the National Council of Informatics and Automation (Conselho Nacional de Informática e Automação, CONIN) under the Secretary of Science and Technology. Trade restrictions also were relaxed as follows: (a) liberalization of computer hardware imports, although some tariffs were maintained (55 per cent in 1992, gradually reducing to 35 per cent by July 1993), (b) abolition of the checking process on imported software where similar domestic software was concerned, and (c) increased participation of foreign capital in ventures with 49 per cent being the top limit (the informatics law, 1991).<sup>13</sup>

### *Restructuring process*

With the implementation of PICE, drastic industrial restructuring followed. For example, Villares, one of the largest domestic capital-goods producers (transportation and steel), reduced employment in its elevator division from 1,400 persons in 1985 to 800 in 1992. Gradiente, the largest domestic electronic home appliance company, reduced its number of employees from 6,500 in 1987 to 3,000 in 1992. These forced reductions were the result of both the recession and cost reduction efforts needed by these companies to survive.

In the purchase of parts and components, Villares decreased the use of internally produced items from 65 per cent in 1985 to 42 per cent in 1992, and was planning to reach the 30 per cent level in the near future. Gradiente expected to increase its importation of parts and components (chips, IC, PCB—print circuit board, and other high-tech items) to 60 per cent in value in 1992. Those moves suggested that domestic parts makers were suffering; some even faced bankruptcy.

One interesting feature of this economic slimming-down transformation is “deverticalization” or “tertiarization.” Large companies tended to obtain inputs from outside sources, foregoing the procurement of parts and components by internal means. Fringe services such as food programs and transportation services for employees were separated, and were provided by other companies. Some major companies even disintegrated their own divisions, setting up new firms. For example, the PCB-assembly and metal-pressing divisions of Villares were separated and set up as two new companies, VRI and Engevall. Thus a new subcontracting system or supply chains for parts and components was created by way of this “spin-off.”

Another noticeable aspect was that Brazilian entrepreneurs were eager to absorb new management methods, such as “lean production” techniques. Brazilian professor José Roberto Ferro of the Getúlio Vargas Foundation, a participant in a 1990 Massachusetts Institute of Technology study of the worldwide auto industry (International Motor Vehicle Program), translated the study (*The Machine that Changed the World* [72]) into Portuguese, and it became a “must-read” among businessmen in Brazil.

Yet, these efforts did little to reduce the inflation rate. Federal deficits remained out-of-control in spite of privatization measures and spending cuts, and Collor's ultimate fate—impeachment in the diet—added more fuel to the inflationary spiral. The

new president, Itamar Franco, a conservative from the state of Minas Gerais, seemed reluctant to accelerate the privatization process. Nobody really knew where Brazil would go under his presidency.<sup>14</sup>

## 5. A New Restructuring Approach

Profound economic structural changes are currently taking place in several Latin American countries under the banner of “trade liberalization.” The industrial transformation is taking place across borders through the price mechanism, according to the comparative advantage of different industries. Large-scale enterprises (LEs) that have accumulated technical know-how and capital seem to be successfully restructuring. Their access to conventional sources of credit as well as technology from multinational enterprises has been highly beneficial. Problems, however, are occurring in small-scale enterprises (SEs). They face insufficient financial resources as well as difficulties in gaining access to new technology and government assistance. Unless SEs become more flexible and cost-conscious, they will be forced out of business by larger competitors, both domestic and foreign. This will particularly be the case in Mexico under the new NAFTA arrangement, and in Brazil which is experiencing its severest recession ever.

To ensure a smooth economic transition and to increase product competitiveness, entrepreneurs will have to implement several necessary measures. Those associated with productivity and competitiveness fall into two categories: in-house measures and those related to industrial structure. In-house measures, which apply to both large and small firms, include improvements in: raw material choices, machinery and equipment, molds and dies, processing technology, product designs, quality control, and management. These factors are critical since modern factories increasingly use production methods that require uniformity, evenness, standardization, and synchronization, as explained in Chapter 2.

Organizational aspects include the strengthening of intra-firm and inter-industry divisions of labor, particularly the linkages between parts-and-component producers and assembly operations (i.e., the development of subcontracting systems or the formation of supply chains). The role of small- and medium-scale enterprises (SMEs), as suppliers of parts and components (supporting industries) to larger down-stream industries, is vital. Small- and medium-scale enterprises alone may not enjoy economies of scale, but may do so if integrated with larger enterprises. This is not internal verticalization, but the external verticalization of large-scale enterprises. The strengthening of organizational ties between LEs and SMEs, and an improvement in the flow of information between them, will enhance the international competitiveness of Latin America’s industries.

In this context, FDI can play an important role by bringing supporting industries together with assembly makers. In addition, multinational companies should attempt to buy local products to avoid criticism that they ignore domestic enterprises. Large-scale domestic enterprises also should attempt to integrate local SMEs into their systems. (One of the ways to promote the subcontracting system, such as the network of

*bolsas de subcontratación* system, will be explained in the following chapter.) The method of “spinning off” firms used in Brazil is another way to form supply chains. If SMEs are to increase their level of technology and produce higher-quality products, both multinational companies, domestic LEs, and government must provide technical training, quality-control methods, inspection equipment, and design assistance. By doing so, all participants may share bigger future returns.

## Notes

- 1 Up to that time, there existed what were known as “program” loans which were used for non-project purposes. However, the amount of money involved was insignificant.
- 2 Another factor which caused this lending policy shift was said to be a delay of disbursements, partly due to the delay of local cost portions and partly due to the slow absorptive capacity of aid-receiving countries. The gap between the bank’s commitment and disbursements widened during the 1970s. For example, the ratio between disbursement and commitment was under 50 per cent between 1974 and 1978. Thus, from the accounting point of view, “quick” disbursement was needed through other programs, rather than traditional project loans.
- 3 By 1992 the World Bank approved US\$42.2 billion under the SECAL and the SAL programs, and the IMF disbursed SDR3.1 billion under the SAF and the extended SAF program [74] [41].
- 4 This “prolonged” import-substitution policies were pointed out by Akio Hosono in his *Raten Amerika no keizai* [Latin American economies] (Tokyo: The University of Tokyo Press, 1983).
- 5 Under the Harmonized Tariff Schedule of the United States (HTSUS) system, these tariff items were reclassified under subheadings 9802.00.60 and 9802.00.80 respectively [69, p. 27].
- 6 *Maquiladora* exports are classified as service trade in Mexico’s balance-of-payments statistics, while manufactured exports are in the merchandise trade category.
- 7 Now Agência Especial de Financiamento Industrial.
- 8 Exploration for oil and the production of basic petrochemicals were controlled by the state. Secondary petrochemical products (downstream products) were segmented by the one firm / one factory / one product rule.
- 9 Export-promotion strategies, known as BEFIEX (Benefícios Fiscais a Programas Especiais de Exportação), were adopted in the early 1970s. Under this program, export industries obtained fiscal incentives. The automobile, textile, leather, and machinery industries were the main beneficiaries. However, the export ratio to GDP remained low, averaging about 10 per cent.
- 10 Ironically, the external debt problem triggered this process, since the heavy debt repayment burden (external as well as internal) sped up the selling of state enterprises, and government deficits slowed subsidies and fiscal incentives.
- 11 The member countries of MERCOSUR include Argentina, Brazil, Paraguay, and Uruguay. The realization of this arrangement has not been clear up to 1994 because of uncertainties involved in the Brazilian economy, which is the most influential in Latin America in terms of GDP and population, particularly its hyperinflation and shaky exchange rate.

Coupled with recovered macroeconomic conditions in Argentina and its appreciating exchange rate, massive flows of products from Brazil to Argentina have been taking place.

- 12 During the Sarney administration, the Industrial Policy of the New Republic was launched in 1988 emphasizing competitiveness and productivity, and proposing the establishment of export processing zones. However, the plan never materialized.
- 13 Brazilian computer companies soon formed joint ventures, such as ITAUTEC with IBM, SID with AT&T, MICROTEC with DEC, and DIGILAB with NEC.
- 14 Finance minister Fernando Henrique Cardoso under the Franco administration was elected president of Brazil in October 1994. He formulated plans to reduce hyperinflation (Cardoso Plan I, June 1993; and Cardoso Plan II [called the Real Plan: Step 1, December 1993; Step 2, March 1994; and Step 3, July 1994]). In the Real Plan, he introduced a new currency called the “real,” which was redenominated and made par with the U.S. dollar. These plans seem to have stabilized inflation, and the Brazilian economy is expected to normalize during his mandate beginning from January 1995.