

Chapter 19

Continentalizing the North American Auto Industry

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The automobile industry (defined here as autos and auto parts) is of enormous importance to the economies of Canada, the United States, and Mexico. In each of these countries it employs a significant number of people directly and, through its linkages with suppliers and buyers, another large percentage indirectly. The economic viability of the auto industry has a direct impact on the overall health of each of the three North American economies. Predicted substantial excess capacity and large numbers of plant closures over the next ten years threaten this economic health.

Even before the conclusion of the North American Free Trade Agreement (NAFTA), the economies of Canada, the United States, and Mexico were linked (Cameron, Eden, and Molot, 1992). The auto industry is one critical part of that linkage. Whereas in the early 1960s there were, in effect, three separate auto industries in North America, by the beginning of the 1990s the industry was well on its way toward integration along continental lines.

The explanation for the continentalizing character of North American auto production lies in the interrelationship between state policies and corporate production strategies. State policies in the three countries have facilitated integration, which has moved even more rapidly since the Mexican government's decision in the mid-1980s to open its economy. The 1965 Canada-U.S. Auto Pact, the 1989 Canada-U.S. Free Trade Agreement (CUFTA), and the Mexican auto decrees in the 1970s and 1980s are the

relevant state policies that have affected North American auto industry location decisions. The trilateral agreement reached by the three states establishing NAFTA will further cement this continental integration.

Corporate production strategies, driven by technological change and the desire of North American auto firms to regain their competitiveness vis-à-vis their Japanese rivals, are also fostering integration. Recent corporate location choices by both auto assemblers and parts firms have been shaped by considerations of competitiveness within a globalized industry and by the introduction of "lean production" techniques based on just-in-time production and new information technologies. This continental organization for production characterizes not only the Big Three auto producers in the United States but also the Japanese transplants and Volkswagen. Auto industry investment, particularly since the mid-1980s, demonstrates the increasingly continental perspective of this industry.

What does continentalization mean for the auto industry? While the continuing evolution of the forces for and against further integration makes definitive answers impossible, a number of trends are now visible. Using trade data in autos and auto parts within North America, as well as evaluation of the shift to "lean production" techniques, we outline the extent to which there is a continental economy in this industry. We argue that the auto sector is the most globalized of the manufacturing industries and thus may serve as a bellwether for how other industries may respond to these kinds of state policy and technology changes in the 1990s.

What does continentalization mean for the Canadian auto industry? The Canadian auto industry, including components and assembly, now employs approximately 150,000 workers. This figure is lower than at the end of the 1980s, as restructuring and the relocation of some parts producers to either the United States or Mexico have reduced Canadian auto industry employment by some 24,000 jobs (Pritchard, 1991, p. B3). The assembly sector in Canada is totally foreign-owned. It includes the Big Three U.S.-based transnationals (TNCs), Volvo, and four Asian transplants (Honda, Toyota, Suzuki, and Hyundai). The great majority of their plants are in Ontario and Quebec.

The Canadian auto parts sector comprises some 600 firms. Slightly over half of the value added comes from a small number of captive plants—engine, transmission, and trim companies owned by, and vertically integrated into the production of, the Big Three. Canadian-owned components plants produce about 20 percent of Canadian parts shipments, with the remaining 30 percent accounted for by foreign-owned, primarily U.S. transnationals (Industry, Science and Technology Canada, 1990; Prosperity Secretariat, 1991, p. 98).

The Canadian state has historically had one concern about the auto industry—that it provide jobs, primarily assembly jobs, for Canadian workers (MacDonald, 1989; Reich, 1992). There was less attention to the nationality of ownership in the auto industry or to the level of Canadian value added that went into a vehicle. This policy orientation contrasts with that of the Mexican government, which has demanded high levels of domestic content in assembled vehicles and as much Mexican ownership as possible of parts producers. The U.S. state, as the home country of the Big Three, has, over the last decade, been preoccupied with the competition posed by the Japanese auto firms, many of which have moved assembly and now parts production to North America and are rapidly increasing their share of the U.S. market.

Because of its possible effects on the intra-North American distribution of production, employment, trade, and investment, the auto chapter was one of the most contentious in the NAFTA negotiations. The assemblers and parts firms in each of the three countries took very different stances on the NAFTA talks, positions that reflected their differing strengths within the global auto industry. Each government wanted to protect its share of North American production and investment. The U.S. state worried about the threat of Japanese competition, whereas both Mexico and Canada sought to increase their share of Asian transplant investment. Hence the three countries had different goals for their auto industries in the NAFTA talks. Whether Canada can maintain its historical share of Big Three production and trade in the 1990s is unclear. Although the NAFTA agreement preserves the Auto Pact and opens the Mexican market, the full impact of the accord, including the 62.5 percent North American content requirements, on the Canadian auto industry will not be known for some years. Canadian parts producers, in particular, worry about their future.

INTRA-NORTH AMERICAN TRADE AND INVESTMENT PATTERNS¹

Trade Patterns

We have argued elsewhere (Eden and Molot, 1991a,b, 1992, 1993) that trade and investment linkages among the three North American economies are patterned like a hub and spoke, with two pairs of bilateral trading partners (Canada–United States, Mexico–United States) characterized by the asymmetric dependence of one party in each dyad on the United States. The United

States is the hub, the major trading partner, absorbing roughly 70 percent of merchandise exports from the two spokes, Canada and Mexico. The United States, in turn, sells about 20 percent of its exports to Canada and 6 percent to Mexico. Mexico and Canada trade very little with each other; Canada may rank sixth among Mexico's trade partners, but each country's exports account for less than five percent of the other's imports.

Although Mexico is a newly industrializing country, it sells a higher percentage of fully manufactured goods to Canada (69 percent) than Canada exports to it (24 percent). Close to 80 percent of Canadian exports to Mexico are in two categories: agricultural products (almost half of all exports) and machinery and transport equipment (a third). Fully two-thirds of Mexico's sales to Canada are in the machinery and transport equipment category. Indeed, engines constitute the most important single commodity traded between Canada and Mexico (Hart, 1990, p. 118).

Trade between affiliated companies, whether intrafirm or other forms of non-arm's-length transactions, accounts for a significant part of both United States-Mexico and United States-Canada trade. Approximately 35 to 40 percent of Canada-United States trade is intrafirm, and up to 70 percent is not at arm's length. While figures for Mexico are difficult to find, a significant percentage of Mexico-United States trade is also accounted for by the movement of goods between affiliated companies.² According to Sidney Weintraub, "because of the extensive trade that takes place between affiliates of the same company in Mexico and the United States, imports and exports have become part of the same process" (1988, p. 23). Much of this trade, and some Canada-Mexico trade, is in intermediate products, whether in autos, consumer electronics, or other manufactured end products, as well as some semifabricated goods. Intrafirm trade in autos and auto parts grew following the negotiation of the Auto Pact, and this intrafirm trade is the *raison d'être* for the *maquiladora* factories; rationalization of TNC operations is also increasingly frequent between Canadian and U.S. affiliates since the conclusion of the CUFTA.

Trade in automotive products between Canada and Mexico illustrates the way in which the activities of U.S. TNCs have linked the two economies, despite their limited formal economic connections. Because of the way in which the Auto Pact and the *maquiladora* industrialization program have facilitated rationalization of production, there is already something akin to free trade in automotive products among the three countries. For example, over 98 percent of automotive imports from Mexico into Canada already enter duty free under the terms of the Auto Pact.³ Some statistics on the composition of 1989 intra-North American auto trade are provided

**Table 19.1
Intra-North American Trade In Autos 1989**

(all figures in thousands of U.S. dollars)

	CANADA TO MEXICO	CANADA TO U.S.	MEXICO TO CANADA	MEXICO TO U.S.	U.S. TO CANADA	U.S. TO MEXICO
Autos	0	13,516,841	62,568	1,174,841	7,014,122	17,198
Light Trucks	0	4,943,566	50	118,947	1,198,072	7,190
Engines	90	1,436,529	185,797	683,232	1,672,081	6,624
Engine Parts	18,983	548,660	29,404	110,014	1,009,978	390,333
Chassis with Engines	0	52,650	784	16,521	70,043	2,172
Auto Bodies	0	511	0	8,928	3,222	23,152
Auto Parts	62,745	6,151,602	192,403	1,044,745	9,069,855	1,973,304
TOTALS	81,818	26,650,359	471,006	3,157,228	20,037,373	2,419,973

Source: authors' calculations based on data from Statistics Canada and data supplied by the U.S. Bureau of the Census.

by Table 19.1, which breaks this trade into the following segments: autos, light trucks, engines, engine parts, chassis with engines, auto bodies, and auto parts, moving from the downstream output (cars and light trucks) to the upstream stages (original equipment parts).

As the table shows, Canada's exports to Mexico, which are very small, are heavily weighted toward auto parts. Mexican exports to Canada, while larger, are dominated by auto parts and engines. Half of all Canadian exports to the United States (the largest single category) are autos, while autos and auto parts together take three-quarters of all U.S. exports to Canada. Mexican exports to the United States are equally dominated by cars and auto parts, while over 80 percent of U.S. exports to Mexico consist of auto parts. In

effect, the largest export classification from both of these spoke economies is auto parts and assembled vehicles.

This intracontinental composition of trade reflects the division of labor that resulted from the bilateral restructuring of production following the 1965 Auto Pact. Canada, because of its lower wage costs, became the site for the more labor-intensive industrial activities, final assembly, and the production of labor-intensive parts, while U.S. plants became the location for the production of components higher on the value chain—body stampings, engines, and drive train components. Big Three investment in Canada went to assembly production rather than more research-intensive areas, which remained with the parents in the United States.⁴ As a result of this division of labor, Canadian assembly plants became dependent on the vehicle sourcing decisions of the Big Three and the particular demand for vehicles in the U.S. market (Holmes, 1993). While in the short term this division of labor has worked to the advantage of the Canadian auto industry, its longer-term implications may be less positive.

Investment Patterns

The above statistics illustrate the uneven character of trade concentration in both overall trade and auto trade. These patterns are also reflected in the investment flows and stocks linking the three economies. Approximately two-thirds of the foreign direct investment (FDI) stock in Canada and Mexico is controlled by U.S. transnationals. Canadians control about 25 percent of FDI in the United States. On the other hand, Canadian investment in Mexico is only about 1.5 percent of total FDI in Mexico. The dependence of both Canada and Mexico on the U.S. market and U.S. investment, and the limited nature of the economic ties between Canada and Mexico, again illustrate the hub-and-spoke nature of economic linkages within North America.

Transnationals based in the United States had investments of \$67 billion in Canadian affiliates and \$7 billion in Mexican affiliates by 1989.⁵ In Canada, 48 percent of the FDI went into manufacturing operations; in Mexico, it was 82 percent. Similarly, in Mexico over 80 percent of all U.S. TNC sales and over 80 percent of assets were in the manufacturing sector, compared with 56 percent of U.S. TNC sales and 36 percent of assets in Canada. Thus U.S. transnationals used Mexico more heavily as a manufacturing location than they did their Canadian affiliates. The total dollar values of sales and assets, however, are much larger in Canada; Mexican sales in 1987 were 12 percent of Canadian sales of \$145 billion, while Mexican assets were 11 percent of Canadian assets of \$151 billion.

In the transportation sector, U.S. transnationals by 1989 had invested \$7 billion in their Canadian affiliates and \$1.5 billion in their Mexican affiliates. The transportation sector represented 24 percent of total U.S. transnational sales in both countries, even though sales in Mexico were only 12 percent of the Canadian levels. In terms of assets, however, U.S. transnationals were specialized much more heavily in Mexico, with almost 20 percent of all assets in this sector, compared to under 1 percent in Canada.

In summary, the trade and investment linkages within North America can be characterized as a hub-and-spoke relationship with the United States as the central hub, linked bilaterally to northern and southern spokes. This pattern is emphasized in the auto industry, where U.S. transnationals clearly dominate in each of the three countries. This integration is now being facilitated by the adoption of new technologies, the so-called lean production methods.

WORLDWIDE SOURCING AND LEAN PRODUCTION IN AUTOS

Worldwide Sourcing and Lean Production

U.S. transnationals have historically used FDI as a way to gain access to cheap natural resources in Canada and elsewhere. Since the 1960s, however, there has been a trend toward worldwide sourcing of cheap labor inputs. This trend has been facilitated by the spread of export processing zones (EPZs) throughout East Asia and Latin America. An EPZ is a form of free trade zone where components can be imported duty free for purposes of assembly and then reexported. By 1987, foreign components, frequently from offshore plants, were being used by close to 90 percent of U.S. manufacturers (Pastor and Castañeda, 1989, p. 210). Availability of cheap labor in the *maquila* factories worries labor unions in Canada and the United States, and is at the root of their opposition to NAFTA.

Having the opposite impact on TNC location decisions is the growing significance of knowledge-based or "lean" production. Lean production involves the joint use of information technologies (computer-aided design and manufacture, robotics, telecommunications hardware and software) and just-in-time manufacturing (just-in-time delivery of zero-defect-quality components). With lean production, the new factory is located near suppliers, accepts only defect-free components, utilizes mechanized production technology, can rapidly shift production from one product line to another, and

employs a highly skilled and flexible work force (Eden, 1991; Hoffman and Kaplinsky, 1988; van Tulder and Junne, 1988; Womack et al., 1990).

As long as labor was a significant factor in overall manufacturing costs, TNCs had an incentive to locate in sites where labor was cheap, such as EPZs in developing countries. However, using lean production technologies reduces the importance of labor costs; as a result, many TNCs are relocating parts or all of their assembly activities closer to the final demand for the product in the developed market economies. In the North American environment, the adoption of the new production style should assuage some of the concerns of U.S. and Canadian labor with respect to the loss of manufacturing jobs to low-wage Mexican factories. On the other hand, because of their location on the U.S. border, Mexican factories are likely to attract FDI away from East Asia (Womack et al., 1990). If Mexican plants can be technologically upgraded—and there is some evidence that at least the Ford plant at Hermosillo functions on a comparable level with assembly plants in Canada and the United States (Womack et al., 1990, pp. 265-6)—and integrated into U.S. just-in-time delivery systems, Canadian plants may face more severe competition.

Whether transnationals will be induced to shift their investments among the three North American countries depends on several factors. The most important of these is the affiliate's role in the "value chain," the range of activities (extraction, processing, sub- and final assembly, sales and distribution, technology development, overhead functions) performed by the TNC. Affiliates can be classified according to three basic motives for foreign direct investment: resource-seeking, cost-reducing, and market-driven FDI (Eden, 1991). A resource-seeking affiliate is set up to extract and process raw materials at the upstream end of the value chain, a cost-reducing affiliate to manufacture parts and make sub- and final assemblies, and a market-driven affiliate to sell at the downstream end. Research and development and other overhead functions are usually assigned to the parent firm.

The choice of affiliate location therefore depends on the motive for FDI, the relative attractiveness of various host locations, and the availability and cost of alternative contractual arrangements. Whereas foreign plants in one location (for instance, Mexico) may be established in order to gain access to low-cost labor for subassembly, another affiliate may be located in a high-cost location (for instance, Canada) to gain access to the local market. The ability of plants in one country to withstand competition from TNC affiliates in another country depends very much on whether the plants are horizontally or vertically related to one another, on their adaptability to technological change, and on their ability to engineer new functions with the TNC's hierarchy (Eden, 1991).

Lean Production in the Auto Industry

Plants in the auto industry normally take on either a cost-reduction or a market-driven strategic function. The production of original equipment parts and their subassembly into chassis and engines is typically driven by the need to reduce costs. The more technologically sophisticated the component (engines, for example), the more likely that production will not be located in EPZs, but in areas where skilled labor is available. Final assembly of autos usually takes place in the consumer market, partly to ensure that the vehicle meets consumer preferences, but also often due to government regulations requiring domestic content. In North America, as noted above, the content requirements of the 1965 Auto Pact have been responsible for shifting assembly operations to Canada, while the manufacture of most sophisticated parts and the research and development functions have remained in the United States.

The shift to lean production methods in the 1990s is demonstrably changing the location of production within the North American auto industry. That Mexican workers are able to master lean production with the same speed as their U.S. and Canadian counterparts suggests that lean production will have a mixed impact on the evolving North American political economy.⁶ On the one hand, lean production may preserve jobs in U.S. and Canadian factories (because labor costs become less important relative to knowledge-intensive functions) at the same time that it facilitates continental rationalization by U.S. transnationals. On the other hand, as affiliates are drawn more tightly into the TNC's overall strategic planning, the Canadian division may simply disappear into an integrated North American strategic business unit. Regardless of NAFTA, the changing nature of manufacturing will encourage a process that is already under way most notably, but not only, in the auto industry—namely, the rationalization of TNC production across North America as a whole.

The growing linkages in auto production across Canada, the United States, and Mexico are, in short, the result of the interplay of state policies and corporate investment decisions. The Big Three have been rationalizing production on a continental basis, and the transplants have followed this pattern (but so far only across two countries). Volkswagen produces all its North American output from its Puebla plant. Independent components producers have followed the location decisions of the major auto firms. It is this (together with labor costs) that explains the movement of Canadian and U.S. parts suppliers to new sites in the United States and Mexico.

Although a continental rationalization of production has begun, it is not clear how far and how quickly it will evolve. The push factors in this

rationalization have just been discussed at length and some analysts (Womack et al., [1990, p. 226], for example) argue that auto producers are developing a "new configuration" for North America in which Mexico will be the production location for low-cost, entry-level cars and trucks for the continent while Ontario and the Midwest of the United States will supply larger trucks and cars for all of North America. The pull factors are the uncertain attraction of lower labor costs to the Big Three, higher transportation costs from Mexico, the less-developed state of Mexican infrastructure, and, perhaps most important, the contents of NAFTA, to which we now turn.

AUTOS AND THE NAFTA NEGOTIATIONS⁷

In a global economy in which trading blocks are becoming critical, all three countries in North America have an interest in creating a trading unit that will enhance their economic opportunities. The United States clearly sees NAFTA as a way to reassert its economic hegemony vis-à-vis Europe and Japan, as well as a way to broaden and deepen its economic empire within the Americas. The Mexican government views NAFTA as the means to consolidate its economic liberalization policies, guarantee unrestricted access to the U.S. market, and encourage the investment inflows necessary to promote long-run economic growth and employ its rapidly growing population. Given that a bilateral U.S.-Mexican accord would likely have worsened Canada's access to the U.S. market, the Canadian government decided to participate in the NAFTA talks primarily to preserve its U.S. market access. In addition, Mexico is perceived as a potential future market for Canadian exports. In short, U.S. motives for NAFTA are more geopolitical, Mexican more economic, and Canadian more defensive (Eden and Molot 1991a,b, 1992, 1993).

Despite the already high level of industrial integration, the auto provisions of the NAFTA agreement will have an impact on the future shape of the industry. A major point of contention in the negotiations was North American content rules.

Each of the players in the North American auto industry took a position that demonstrated its assessments of potential gains and losses from further continental integration. The Big Three auto producers, sensitive to their weakening competitive position, adopted a protectionist position on NAFTA, one that would effectively rewrite a key segment of CUFTA. Ford, Chrysler, and General Motors all demanded a higher regional content

provision than the 50 percent extant under CUFTA; Ford and Chrysler advocated 70 percent while General Motors sought 60 percent North American (now including Mexican) content.⁸ They argued, moreover, for the creation of a "Two Tier" system that would ensure that the five companies that are the major players in the Mexican auto industry (themselves plus Nissan and Volkswagen) would enjoy a privileged position in the Mexican market for 15 years (Hufbauer and Schott, 1992, Ch. 11). Under their proposal, performance and other requirements for the Big Three (plus Nissan and Volkswagen) would be reduced more quickly while those for newcomers to the Mexican market would have a 15-year transition period for these requirements and tariffs.⁹

What underlay this proposal was the concern that NAFTA would permit "Mexico to establish itself as a platform for major new automotive capacity from third-country producers for export to the U.S. market" (*Inside US Trade*, September 23, 1991, p. S-3). The result of the Big Three proposal would be the reservation of the domestic and import market for assembly firms already established in Mexico, while the tight rule of origin would make it more costly and more complex for non-North American companies to operate in Mexico.

The Canadian subsidiaries of the Big Three, not surprisingly, adopted the same position in the NAFTA talks as their U.S. parents, although the parent firms argued that their affiliates were nationally responsive in their trade-policy positioning. The Canadian parts industry, concerned about potential job losses to U.S. components producers as well as to Mexico, supported a higher North American content requirement under NAFTA. The Canadian parts industry advocated a 75 percent North American content requirement but, beyond that, wanted a 50 percent Canadian value added content rule to protect Canadian parts suppliers (Automotive Parts Manufacturer's Association, 1991).¹⁰ The Mexican supplier industry opposed both the Two Tier proposal and that for higher North American content, preferring the transition period to be structured by the performance requirements of the 1989 Automotive Decree (Olea, 1993).¹¹

Each of the three governments sought to protect its own auto industry. The United States was (and continues to be) concerned about the competitive strength of the Big Three producers. In the NAFTA talks it wanted Mexico to open its market more broadly to car imports,¹² simplified North American content rules, and a North American content level of at least 60 percent. Canada sought to preserve the auto assembly provisions of the Auto Pact,¹³ which ensure the country assembly jobs, improved access to the Mexican market for Canadian auto parts and vehicles, and the resolu-

tion of some of the administrative difficulties with the CUFTA rules of origin. The Canadian government would have preferred a North American content requirement similar to that of CUFTA (i.e., 50 percent), which would have made Canada an attractive location for new auto industry, particularly transplant, investment, but was prepared to countenance a 60 percent content figure. Mexico wanted to maintain as many of the assembly provisions and domestic content requirements as it could to preserve its status as an attractive site for new TNC investment.

These differing state positions were resolved in a manner that was closest to U.S. demands. Under NAFTA cars must have 62.5 percent North American content to be shipped duty free from one country to the other. Mexico's 1989 Automotive Decree will be phased out in stages during the transition period and its restrictions on foreign investment reduced. There can be no new entrants to the Mexican assembly market for ten years; after that, new assemblers can have free access to North American markets if they meet the content requirements.

Canada was able to retain the assembly provisions of the Auto Pact; it was also able to negotiate some changes in how North American content is defined that are less stringent than under CUFTA. These changes may alleviate some of the content difficulties that resulted in U.S. Customs' charges that Honda Civics, assembled in Aliston, did not meet North American content requirements. On the other hand, the 62.5 percent North American content requirements will not do anything to enhance Canada's attractiveness as an investment location for transplant producers. Virtually all of the transplant investment in components production is in the United States, a fact that the new North American content rule will simply reinforce. Given the existing excess capacity in North American auto plants, the market sales plans of the Japanese firms, and the downscaling that has already started at General Motors,¹⁴ the Canadian auto parts industry, in particular, has reason to worry about its long-run viability.

CONCLUSIONS

The auto industry is clearly the most integrated North American industry. TNC rationalization of production on a continent-wide basis, which has resulted in massive new investments in assembly and supplier capacity in both Mexico and the United States, has been promoted both by state policies and the new lean production technologies. Integration in the auto industry will continue regardless of NAFTA. What TNC positions on NAFTA

demonstrated is that, although there is support for free trade, it is tempered by the realities of Asian offshore and transplant competition and fears about further erosion of North American market position.

State policies and the investment activities of the transnational auto makers have structured the Canadian auto industry and promoted its integration with the United States, and to a limited extent Mexican, auto industries. It has been argued (Womack et al., 1990) that continentalization will result in a spatial allocation whereby Mexico will be the site for low-cost entry vehicles (the least expensive cars), and the area from Indiana up through Ontario for medium and higher-priced cars. Although this assessment of future production sites might, at first glance, be reassuring in terms of the prospective health of the Canadian auto industry, this prediction is far too sanguine given the competitive stresses under which the industry is operating and the dramatic job losses that the Canadian industry has experienced since 1989.

What happens to the Canadian auto industry, and more particularly to the parts segment, will be determined by the interaction of state policies and corporate production strategies. Lean production methods are more closely linking the North American auto plants and their suppliers on a continental basis. As the three countries free up intra-North American trade and investment, integration of auto production based on lean production techniques is likely to proceed rapidly.

NOTES

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1. Trade and investment statistics in this section are from Eden and Molot (1991a) and are explained in more detail there.
2. Exports of intermediate goods rose from 61 percent of Mexico's manufactured exports in 1980 to 70 percent in 1986; imports of intermediate goods were 65

percent of manufactured imports in 1986, up from 57 percent in 1980 (Weintraub, 1988, p. 23).

3. The remaining 2 percent are imported by non-Auto Pact companies and are imported at the Generalized Preferential Tariff rate of 6 percent (Standing Committee on External Affairs and International Trade, 1990, No. 61, p. 12). Under the Auto Pact, the United States admits duty free only cars assembled in Canada and made-in-Canada original equipment parts. Canada, on the other hand, admits, duty free, U.S.-made products and offshore imports from auto firms that meet Canadian content rules. Thus producers in Canada can bring in captive imports (vehicles they produce in third countries) without paying the Canadian duty (Morici, 1991, p. 114).
4. The exception to this is the 1980s General Motors investment in its Autoplex facility in Oshawa, which includes the first-ever stamping plant in Canada.
5. See Table 4 of Eden and Molot (1991a) for more details on the data in this paragraph and the next.
6. Ford's Hermosillo plant, which employs just-in-time production methods, was ranked second in the world in terms of quality (Womack cited in Olea, 1993).
7. On recent events in the North American auto industry see Automotive Parts Manufacturer's Association (1991), "Detroit South" (1992), Holmes (1991, 1993), Hufbauer & Schott (1992, Ch. 11), Industry Science and Technology Canada (1990), Molot (1993) and Reich (1992).
8. Regional content refers to the proportion of a car's content produced in a location required to allow the vehicle to move across a border duty free. The CUFTA established a tighter North American content requirement than had existed under the Auto Pact, changing the basis of the calculation of content to "direct cost of manufacturing" or "factory cost," which includes labor, materials and the direct costs of assembly, and excluding promotional and overhead costs.
9. To solidify their position in the Mexican market, and to facilitate the continental rationalization of the auto industry, the Big Three sought to reduce current Mexican government requirements, such as the percent of local purchases required. Retention of these requirements for Japanese transplant producers would make it more difficult for the latter to compete in the North American auto market from locations in Mexico. This is a strategy which employs the provisions of a free trade agreement to enhance the protection of those already producing inside the market.
10. The Japanese-owned Canadian auto assemblers wanted North American content rules of 50 percent. This group also wanted the 9.2 percent Canadian external tariff, which encourages domestic content, lowered at least to the United States' level of 2.5 to 3 percent.
11. The 1989 Mexican Automotive Decree, which came into effect on 1 November 1990, liberalized some of the conditions under which foreign auto companies operate in Mexico, but maintained local content requirements of at least 36 percent

for vehicles sold on the domestic market. For additional details on this Automotive Decree and previous ones see Hufbauer and Schott (1992, pp. 215-219).

12. Current Mexican regulations demand that two-and-a-half cars be built in Mexico for each one imported.
13. This provision requires U.S. assemblers to build in Canada one car for every one they sell in the country.
14. There is reason to worry about Canadian assembly jobs, given the necessity for the Big Three to downsize and restructure. As General Motors considers which plants it will close in the next few years, GM executives have made clear that even the new Autoplex in Oshawa is not exempt from possible closure.

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and
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*[TK]For Doris, Eitan, and Yuval
For Fabiola
with love*

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