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Who Does What after NAFTA? Location Strategies of U.S. Multinationals

Imagine a chessboard where, in addition to the chess pieces, there are immovable blocks scattered across the board. The impediments are more numerous in the middle of the board. Two players can manoeuvre the chess pieces around the blocks but clearly the game is less efficient than one without such barriers. Individuals who play regularly become skilled at taking the barriers into account in their game strategies. Some will hide behind them, others develop methods of avoiding the blocks, others use them to obstruct their opponents. Now suppose the rules of the game are changed and most of the blocks are removed. Several things happen. In the short run, some old strategies no longer work and individuals may lose games that they usually won. Costs are incurred in learning new strategies. It is possible that people who played the old game regularly may adapt more quickly to the new board, or perhaps new players without the handicap of history adapt more quickly. It is probable that flexibility and scanning ability will be key factors affecting success. In the long run, the game should be faster and the players more efficient. The question is: are we better off after removing the blocks?

INTRODUCTION

MULTINATIONAL ENTERPRISES (MNEs) are strategic actors in the world economy.¹ They are large, oligopolistic firms with foreign affiliates in several host countries. Their affiliates share common goals, have access to a common pool of financial, human and physical resources, and are under the common control of their parent firms. As Raymond Vernon has long argued, these three characteristics of common control, common goals, and common ownership of geographically spread resources create a paradox: on the one hand, they generate conflict between MNEs and nation states; on the other hand, they offer the potential for cooperative behaviour and mutual gain.

Since, by definition, MNEs span national borders, they immediately come into conflict with national governments. Multinational firms have goals that are narrower and more directed (e.g., maximization of long-run returns)

than the complex goals of nation states (e.g., a high and rising standard of living, job creation, generation of tax revenues). MNEs have access to broader and more mobile resources. Being located in several countries means these firms can tap into human and physical resources in many locations, and move among locations as technology, endowments and prices dictate. Common control by the parent firm means that decisions affecting thousands of people in host countries can be made by head office staff on the other side of the world. For these reasons, it is not surprising that governments distrust the multinational enterprises in their midst. Home country multinationals are now seen no differently from foreign-based MNEs, because in today's world of interlocking webs among giant firms all MNEs, wherever headquartered, are seen as "them", exercising common control for the benefit of their shareholders, not their home country.

Common control, common goals and common ownership of geographically spread resources also create the potential for mutual gains between MNEs and nation states. Multinational firms have a strategic advantage over domestic firms since MNEs have access to a wider variety of resources and options than domestic firms. This makes multinationals attractive to governments that are interested in improving their country's economic growth and national competitiveness. In the 1980s governments substantially liberalized their economies and opened their doors to multinationals, treating these firms as partners in the growth process. Some authors, John Dunning (1993) for example, have argued that a new era of cooperation between MNEs and nation states — MNEs are "us" — has now replaced the old antagonisms of the 1970s.

This tension between the perceived benefits and costs of multinational enterprises is clearly evident in the current debate over regional free trade in North America. The Canada-U.S. Free Trade Agreement (FTA), which came into effect on January 1, 1989, is widely seen by the general public, the media and labour and social groups in Canada as having caused thousands of job losses, hundreds of plant closures, and the hollowing out of the manufacturing sector particularly in Ontario, as U.S. and Canadian multinationals shifted their operations to the United States. Similarly, both Canadians and Americans are predicting large losses in jobs and production to Mexico if the North American Free Trade Agreement (NAFTA) is ratified and takes effect on January 1, 1994. In both cases, multinationals are generally seen to be the primary beneficiaries of regional free trade, while labour groups and local communities are the losers.

On the other hand, all three governments have substantially liberalized their economies since the early 1980s, specifically in order to attract more inward foreign direct investment (FDI) and to make their own firms more globally competitive. During the FTA and NAFTA negotiations, the three governments were advised by industry groups where MNEs were well represented. Clearly, national governments see MNEs as partners in the international competitiveness process, even if their constituents see them as adversaries.² Economic studies of regional integration

generally predict substantial gains to national economies from the location responses of multinationals.³

In this study, I try to shed some light on this paradox by examining the locational strategies of U.S. multinationals in North America and their likely responses to the NAFTA. Firms in North America may be loosely grouped into three different types. First, there are the veteran multinationals (see Vernon, this volume) which are well established within the North American region. These are primarily U.S.-owned firms, but some are Canadian. Second are the domestics or local firms that have no foreign plants. The domestics may be in either traded sectors (e.g. Mexican auto parts) or non-traded sectors (e.g. grocery stores, public utilities). Mexican firms tend to be primarily domestic (the largest are the Mexican *grupo* firms) as do smaller Canadian firms. Transplants make up the third group, North American subsidiaries with foreign parents, generally located in the United States. The transplants may be just importers and distributors of foreign products or they may have manufacturing capacity.

In this study, the focus will be specifically on the veterans, that is, on U.S. multinationals and their majority-owned foreign affiliates (MOFAs). U.S. MNEs have had branch plants in Canada and Mexico for a long time. In fact, trade and FDI patterns within North America look like a hub-and-spoke economic relationship, with U.S. firms controlling approximately two-thirds of the FDI stock and the merchandise trade flows in both Canada and Mexico (Eden & Molot, 1992). However, the U.S. share of FDI in Canada has been declining and there are also some signs that it may not rapidly increase in Mexico (see both Unger and Niosi, this volume). How will the FTA and the NAFTA affect the configuration of U.S. MNE plant locations in these three countries?

U.S. MNEs are the firms best placed to take advantage of the falling tariff and non-tariff barriers that the FTA and the NAFTA will bring. These firms are the bellwethers of change, leading the way in terms of business reactions to the FTA and the NAFTA. As they alter the configuration of their activities, other firms will follow. Are the labour groups right? Will there be massive job losses and plant closures as U.S. multinationals shift their operations to Mexico to take advantage of cheaper labour and weaker environmental regulations?

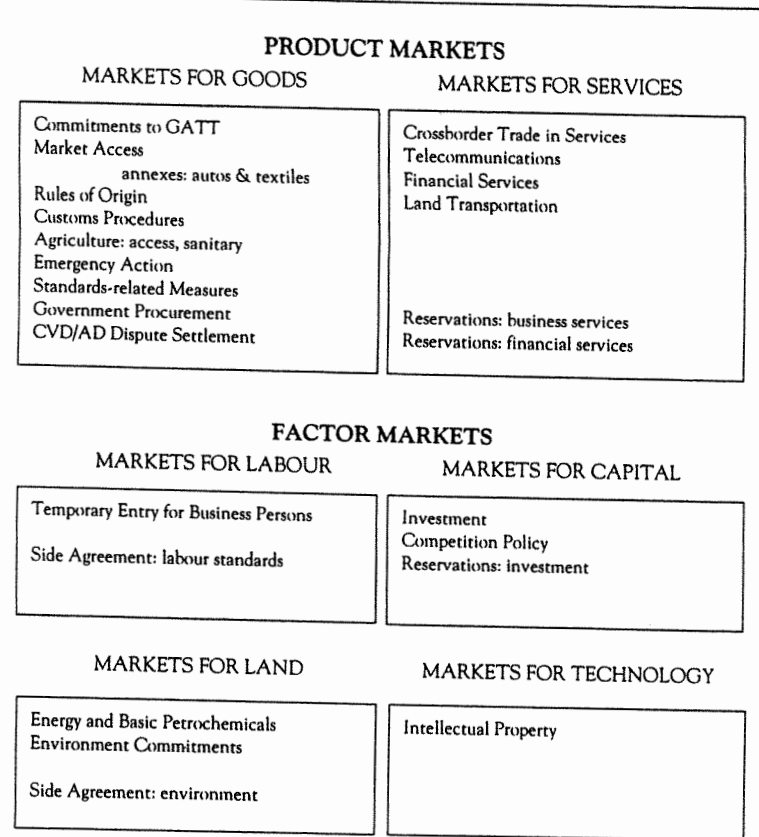
THE NAFTA AND PLANT LOCATION

THE NAFTA: MUCH MORE THAN A FREE TRADE AGREEMENT

THE NAFTA IS MUCH MORE than a simple free trade agreement; that is, it eliminates tariff barriers among the three parties, but it does much more than that. As Figure 1 illustrates, the NAFTA liberalizes crossborder trade in just about all product (goods and services) and factors markets in the three countries.⁴

FIGURE 1

EFFECT OF THE NAFTA ON PRODUCT AND FACTOR MARKETS



The NAFTA is based on the General Agreement on Tariffs and Trade (GATT). Its clauses are extensions of the GATT principles of nondiscrimination, most favoured nation and reciprocity, applied not only to goods, but also to services, investment and intellectual property. The objectives of the agreement are to eliminate trade barriers, promote fair competition, increase investment opportunities, protect property rights, create effective procedures for administration and dispute resolution, and establish a framework for widening the agreement. The GATT obligations of each Party (nation) are

affirmed, but where inconsistencies exist between the NAFTA and other agreements, the NAFTA prevails.⁵ The objectives chapter makes it clear that the NAFTA is to be consistent with the GATT article 24 on free trade areas.

The greatest number of chapters in the NAFTA deal with liberalization of crossborder trade in goods, reflecting the GATT origin of the agreement, the more transparent nature of trade barriers in goods than in services and factor markets, and the difficulty of reducing barriers in the latter markets. The NAFTA eliminates tariffs and most non-tariff barriers among the three countries over a 15-year period. Because the agreement does not require harmonization of tariffs against nonmembers, tight rules of origin are introduced to prevent "backdoor" entry into the North American market through the country with the lowest tariffs. Separate deals were struck in textiles and apparel and in autos that are now widely perceived as protectionist, even though tariffs are eliminated, because of their strict domestic content requirements. The NAFTA is the first trade agreement to phase out tariffs and NTBs in agriculture (over 15 years for U.S.-Mexico trade). It also provides for a trilateral dispute settlement process in dumping and export subsidy cases, based on the successful FTA process.

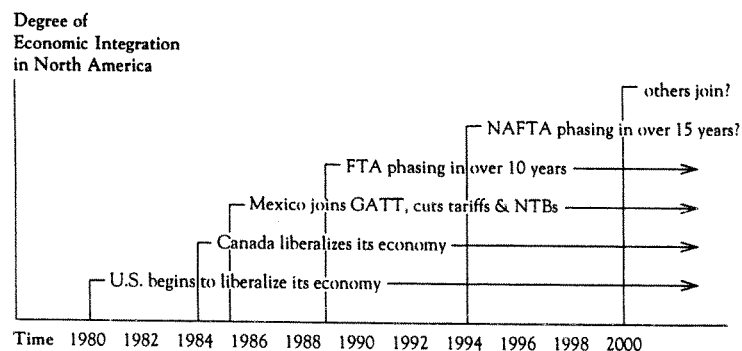
The NAFTA also liberalizes crossborder markets for labour, capital, land and technology; opens up the Mexican economy to Canadian and U.S. investors; provides better security for FDI in North America; and makes exceptions more transparent by forcing governments to identify their exceptions (Rugman and Gestrin, 1993). The NAFTA guarantees national treatment and most-favoured-nation status to North American investors and investments, eliminates performance requirements, and opens up new sectors for investment. Cross-border movement of business persons is allowed. The NAFTA guarantees national treatment and opens up sectors in services (especially financial, telecommunication and cross-border transportation services). An intellectual property rights chapter provides longer patent and copyright protection for technology.

MEASURING THE EFFECTS OF THE NAFTA

BECAUSE THE NAFTA LIBERALIZES almost all product and factor markets in North America it should lead to deeper regional integration than simple tariff reduction exercises predict. Economists who have tried to estimate the economic effects of the NAFTA on the three economies have therefore underestimated the likely effects of the agreement. General equilibrium economic models are designed to measure small changes in a few policy variables from existing conditions in countries that are roughly similar. However the models do not handle well large changes that involve more than one country at different levels of economic development, eliminating many tariffs and barriers to trade in goods, services and investments simultaneously over a long period. As a result, the models tend to underestimate the effects of major changes.⁶

FIGURE 2

THE PATH TOWARD A NORTH AMERICAN ECONOMY



Further confounding the problem of determining the effects of the NAFTA, is the lack of clarity as to what date should be used as the benchmark for computing the effects of a free trade agreement. There are two reasons for this. First, multinationals as strategic actors are best placed to anticipate events such as the FTA and the NAFTA and to act on their beliefs. First mover advantages are important where market share is key to competitiveness; for oligopolistic MNEs this means they must be opportunistic. They are therefore more likely to invest prior to the NAFTA rather than react afterward. Thus much of the investment reaction to the FTA may have happened prior to 1989 and, for the NAFTA, prior to 1994, depending on the probability MNEs attach to the passage of the agreement and their perceptions of what would happen to such investment if the agreement were not passed. The greater the financial assets of the firm and the more importance it attaches to market share, the more likely it will be to have already reorganized its activities on a regional scale in anticipation of the free trade agreement.

Second, the NAFTA can be seen as simply another step in an ongoing process of economic integration of the North American economy. In order to measure the effects of regional free trade we need a date to use as the benchmark against which changes are to be measured. Should it be 1980 or 1984 or 1989 or 1994? As Figure 2 shows, all these dates are important, as all three countries have been liberalizing their economies since the early 1980s.

With respect to external barriers, the U.S. economy has been open to trade and foreign investment inflows since the early 1950s with tariff levels in the 1980s averaging 4 percent. However, quotas, voluntary export restraints, countervailing and anti-dumping duties have frequently been used to provide temporary protection to industries, such as autos and steel, facing serious import penetration.

Historically, Canada has had much higher tariff levels, particularly on manufactured imports, than the United States. The history of U.S. foreign investment in Canada is one of U.S. multinationals locating here to assemble and sell in the local market or to access Canadian natural resources. The main exception to this was the auto industry where the 1965 Auto Pact led to a rationalization of product lines and plant locations on a Canada-U.S. basis.

Until the mid-1980s, Mexico pursued a strategy of import substitution industrialization based on government decrees, licensing, high tariffs, domestic content regulations and restrictions on foreign ownership. As a result, FDI stocks were lower than they might otherwise have been, and they were diverted into particular sectors (e.g. the maquiladoras) where regulations were lower. Much of the FDI has been import-substituting investment designed for the local market. Foreign plants were generally small scale and inefficient.⁷

The first major impetus toward increased integration in North America began in 1980 with the domestic deregulation and privatization of the U.S. economy by President Ronald Reagan. Deregulation in the United States was soon followed by similar action in Canada after Brian Mulroney was elected Prime Minister in 1984. The Canadian and U.S. governments began negotiations for liberalizing crossborder trade through a Canada-U.S. free trade agreement in 1986. The resulting agreement, the FTA, is being phased in over 10 years, starting on January 1, 1989, and is now causing a similar rationalization in other sectors of the economy, as occurred earlier in autos.

In Mexico, the 1982 debt crisis forced President Miguel de la Madrid to reconsider, and then discard, Mexico's long-standing import substitution strategy. Mexico began by unilaterally reducing tariffs and eliminating licenses and quotas, joining the GATT in 1986, and opening the door to foreign investors. As Mexico reduced its trade barriers and liberalized its economy, the focus of FDI moved to export-oriented production. This is most visible in the explosive growth of the maquiladoras in the 1980s and in the autos and electronics industries. In June 1990, Presidents Carlos Salinas and George Bush agreed to begin negotiating a U.S.-Mexico free trade agreement, which was subsequently broadened into trilateral negotiations in 1991. The NAFTA, if it is ratified by the U.S. Congress in the autumn of 1993, will be phased in over 15 years, beginning on January 1, 1994.

Thus, measuring the effects of the NAFTA depends very much on the benchmark selected for comparison. On its own, the NAFTA is simply one event in a process of liberalization and integration of the three economies that started in autos in the 1960s. The benchmark is critical for evaluating its

effects. This is illustrated below by comparing worst- and best-case scenarios for Canada if the NAFTA comes into effect in 1994.

THE WORST-CASE AND BEST-CASE SCENARIOS

IN CANADA THE VIEW is widespread that the FTA has been responsible for massive job losses and plant closures as multinationals shifted their operations to the United States. The NAFTA is also expected to cause similar moves to Mexico. In the United States this fear is also pervasive. This section sets out this worst-case scenario and compares it to the best-case scenario as generally put forward by economists and the three governments involved.

Regional Free Trade: The Worst-Case Scenario

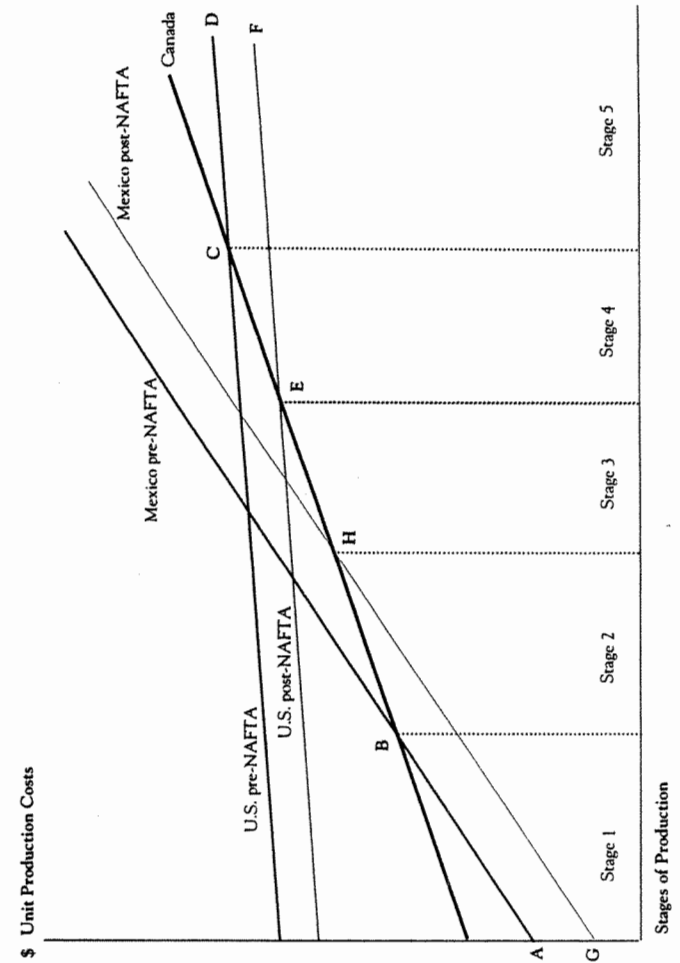
Assume a multinational enterprise is vertically integrated with six stages of production. The stages are ranked by level of technological sophistication, with Stage 1 being the least, and Stage 6 being the most, knowledge intensive. The stages need not follow one another in production sequence. For example, in the auto industry the production of engines is technically more advanced than auto assembly, and so engines would be ranked higher than assembly. Assume the goal of the firm is cost minimization, i.e. location of each plant in the cheapest country.

Figure 3 illustrates unit costs of production if a plant were located at each of these stages in Canada, the United States or Mexico. For simplicity we assume straight line cost curves. Unit production costs, which are assumed to rise at each stage, are measured on a CIF (inclusive of insurance and freight costs and customs duties) basis, and reflect the three countries' supplies of high-skilled labour, capital and technology. We assume that Mexico, the least endowed in technology, has the lowest production costs for Stage 1 and the highest for Stage 5, and that its costs rise most rapidly. The United States, the best endowed, has the highest relative costs for Stage 1 and the lowest for Stage 5, and its costs rise most slowly. Canada's unit production costs fall in between those of the other countries.

Based on the shapes of the unit cost curves, Mexico has the lowest costs for Stage 1, Canada for Stages 2, 3 and 4, and the United States for Stage 5. The switch-over points are B and C: below B, plants in Mexico have the lowest per-unit costs, above C, U.S. plants have the lowest costs, while between points B and C, Canada is the cheapest location. Assuming the firm has the ability to site plants in the cheapest location, the MNE therefore puts Stage 1 in Mexico, Stages 2, 3, and 4 in Canada, and Stage 5 in the United States, as represented by the line A-B-C-D.

The first benchmark for comparison purposes is pre-1989. Assume the introduction of the FTA in January 1989 lowers unit production costs in both Canada and the United States because tariffs fall to zero in both countries and

FIGURE 3
EFFECTS OF THE FTA AND THE NAFTA ON THE LOCATION CHOICES OF A VERTICALLY INTEGRATED U.S. MULTINATIONAL



non-tariff barriers are reduced. The worst-case scenario for Canada — and the common public perception — is that with the removal of tariffs and most non-tariff barriers between the two countries, the greater size of the United States together with higher labour costs, taxes, political instability and so on in Canada will cause U.S. multinationals to close their Canadian plants and shift production back to the United States.⁸ Effectively, the removal of government-imposed trade barriers means production costs fall in both locations, but the fall is greater in the United States. Instead of modelling this as both cost curves shifting downward, only the U.S. cost curve is shown as shifting downward (the net effect). The switch-over point moves from C to E. The MNE's low-cost production line is now A-B-E-F, with Stage 4 shifted from Canada to the United States. The most technically sophisticated stages of Canadian manufacturing are therefore shifted to U.S. plants.

A more complicated graph would show both the U.S. and Canadian cost curves shifting downward. As a result, Canada's competitiveness as a production location for Stage 1, *vis-à-vis* Mexico, improves, and there could be some investment diversion from Mexico to Canada, arising from a member country (Canada) becoming a lower cost production location *vis-à-vis* a non-member country (Mexico) as a result of the formation of a Canada U.S. free trade area.⁹

Now look at the effects of the proposed North American Free Trade Agreement. Like the FTA, the NAFTA reduces tariffs and NTBs, and also substantially liberalizes intra-North American transportation and investment flows. As a result, cost curves for all three countries shift downward; however, since most of the adjustment for Canada and the United States is already happening under the FTA, Mexico is the country most affected by the NAFTA. Only the net adjustment is shown; that is, the Mexican unit cost function shifts downward. The cost function for the MNE becomes G-H-E-F, making Mexico the most efficient site for locating Stages 1 and 2. Note that Stage 2 is shifted from Canada to Mexico, as Canada is assumed to have the next-lowest production costs for this stage. Again, some investment diversion could occur *vis-à-vis* nonmembers if, for example, U.S. multinationals shift production from plants in East Asia or the Caribbean to Mexico.

Therefore, the worst case for Canada is to be squeezed at both ends by regional free trade. The FTA causes the higher value-added stages to shift to the United States while the NAFTA causes the lower value-added stages to shift to Mexico.¹⁰ This is the belief popularized in the Canadian press and feared by labour, social and environmental groups.

Regional Free Trade: The Best-Case Scenario

The best-case scenario for Canada is to assume that the decline in relative unit costs under the FTA favours Canada over the U.S. as a production location. Since Canada is the smaller of the two countries and had higher barriers before the FTA, instead of showing both Canadian and U.S. unit cost functions shifting downward

(with the Canadian one shifting more than the U.S. one), the net shift would be shown as the Canadian cost function shifting downward. Then, as a result of the FTA, the range of activities that are cost efficient in Canada rises and Stage 5 could possibly shift to Canada. Production in Canada also becomes more efficient *vis-à-vis* Mexico, and Stage 1 may or may not shift to Canada. Thus Canada benefits at both ends of the production process.

As in the worst-case scenario, the NAFTA will still benefit Mexico as a cost location relative to Canada. However, as Wonnacott and others have argued, there are three problems with seeing this as costly for Canada. First, if Canada does not take part in the NAFTA and a separate U.S.-Mexico free trade agreement is signed, Mexico still becomes a cheaper production location (so that the effect on Canada is the same), but the United States also gets preferential access to the Mexican market (which Canada would lose by not joining the NAFTA unless there were also a separate Canada-Mexico FTA). Thus, Canada loses competitiveness *vis-à-vis* Mexico as a production location for low-tech activities whether or not it joins the NAFTA. Second, economists argue that low-tech, low-wage production is leaving Canada in any case for locations in less developed countries; not signing the NAFTA will not prevent these (inevitable) job losses. The third argument is that Mexican products have had essentially unlimited access to U.S. and Canadian markets for several years because both countries have granted Mexico preferential tariff treatment as a developing country. Thus the costs of the NAFTA to Canada are small, whereas the benefits to Canada are large as Mexico substantially opens its economy to Canadian investors and exporters.

Some Caveats to the Analysis

There are several caveats that should be noted here. For example, there are other possible scenarios. The cost curves could have been shown as nonlinear such that one country has a cost advantage at both the low-tech and the high-tech stages. Free trade would therefore have less predictable effects, with some high- and low-tech stages shifting to the lower cost location.

Another relevant benchmark for comparison purposes would be to ask what would happen if the free trade agreement were not passed; what would be the base-case scenario? For example, if the NAFTA does not go through it is possible that the anticipatory investments in Mexico may be withdrawn, causing a crisis on the Mexican balance of payments and in the Mexican stock market. Comparing the effects of the NAFTA with the straight-line liberalization picture painted in Figure 2 gives a very different result from one where Mexico, if the NAFTA is not passed, closes its doors to trade and investment and reverts to its protectionist past. Assuming the base case is the pre-1994 situation is the same as assuming Mexico will continue unilaterally to liberalize its economy if NAFTA is not passed — an unlikely situation.

However, the real problem with the above analysis is its simplicity. Other factors also need to be considered. First, technological change will affect the ability of a high-cost location to maintain production once tariff barriers have been removed. Upgrading the labour force, improving the transportation and telecommunications infrastructure, using automation to substitute robots for labour, shifting to flexible automation techniques, and so on may have more effect on production location than changes in tariff and non-tariff barriers.¹¹ Second, cost is not the only determinant of production location. Production may be tied to a particular location because of the need to be close to customers or the need to use complementary but location-specific resources. Third, horizontal integration has been ignored. Most international trade is intra-industry, intra-firm trade; the FTA will encourage MNE plant rationalization with some product lines being located in U.S. plants, others in Canadian plants and increased intra-firm trade between them (as happened in the Canada-U.S. auto industry as a result of the 1965 Auto Pact).¹² To the extent this happens, free trade will not cause MNEs to shift stages of production between countries but rather to increase the specialization of product lines within stages. Fourth, Figure 3 shows only manufacturing activities. MNEs are also active in natural resources and the service industries (e.g. telecommunications, financial). To the extent that the FTA and the NAFTA increase Canada's competitive advantage as a production location in these activities, FDI in Canada should grow.

EFFECTS OF THE NAFTA ON REVENUES AND COSTS OF FIRMS

THIS DISCUSSION CAN BE made more concrete by looking at the costs of assembling cars, televisions and personal computers in Mexico and the United States, based on data in the U.S. Office of Technology Assessment (1992). In all three cases in Table 1, components are assembled in Mexico and then shipped to the United States for final sale. The table shows clearly that producing in Mexico saves on labour costs but adds transportation costs. Where labour costs are an important part of total costs, assembly is more likely to take place in Mexico. Where shipping and inventory costs are important, assembly is more likely to take place in the United States. Because these products already either enter duty free or face low U.S. tariffs, tariffs are not a consideration affecting plant location. In effect, transport costs act like a trade barrier (see Rousslang & To, 1993, for some estimates of these barriers).

Based on its analysis of several industries, the OTA (1992) argued that a U.S.-Mexico free trade agreement would lead multinationals to choose one of two strategies: a low-cost, mass production model where labour-intensive processes are shifted south to Mexico, or an upgrading strategy where flexible automation, improving labour skills, and shifting to higher value-added activities keep production in the United States. If firms follow the first strategy, U.S. wages might be forced downward toward Mexican levels.¹³

It is clear from the above that the NAFTA is likely to have a major impact on the configuration of U.S. multinational firms in North America. Table 2 shows some of the ways in which the NAFTA could affect a firm's revenues (sales, exports, income from intangibles) and costs (factor and material costs, transportation, trade costs, taxes). Based on this table, the overall effect on multinationals should be positive, that is, revenues should increase and costs should fall. This does not mean, however, that all components of the MNE, i.e. every plant, will benefit equally. In order to explore the impact of these factors on plant location decisions, I will look at the existing configuration of U.S. branch plants and then turn to an analysis of the factors affecting the location of U.S. affiliates.

TABLE 1

U.S.-MEXICO ASSEMBLY COST COMPARISONS (US\$)

	MOTOR VEHICLE ASSEMBLY		TV ASSEMBLY		PERSONAL COMPUTER ASSEMBLY	
	UNITED STATES	MEXICO	UNITED STATES	MEXICO	UNITED STATES	MEXICO
Labour Costs	\$ 700	\$ 140	\$ 90	\$ 15	\$ 35	\$ 5
Overhead Costs	0	0	70	60	100	80
Cost of Parts and Components	7,750	8,000	225	225	865	865
Subtotal of Labour, Overhead & Materials Costs	8,450	8,140	385	300	1,000	950
Shipping Costs of Components	75	600	0	0	0	0
Shipping Costs of Finished Product	225	400	0	1.50	0	6
Inventory Costs	20	40	0	0.60	0	18
Subtotal of Shipping & Inventory Costs	320	1,040	0	2.10	0	24
Additional Duty	0	0	0	3.75	0	0
TOTAL COSTS	\$ 8,770	\$ 9,180	\$ 385	\$ 305.85	\$ 1,000	\$ 974
Labour Costs as a % of Total Costs	8.0	1.5	23.4	4.9	3.5	0.5
Shipping and Inventory Costs as a % of Total Costs	3.7	11.3	0.00	0.7	0.0	2.5

Source: Author's calculations based on data in U.S. Office of Technology Assessment, 1992, pp. 145, 166.

TABLE 2	
POTENTIAL EFFECTS OF REGIONAL INTEGRATION ON FIRM PROFITS	
COMPONENTS OF THE FIRM'S PROFIT FUNCTION	HYPOTHESIZED EFFECTS OF NORTH AMERICAN FREE TRADE ON FIRM REVENUES AND EXPENDITURES (+ RISES) (- FALLS)
REVENUES	
Domestic Sales	<ul style="list-style-type: none"> - As tariff and nontariff barriers fall, more firms may enter the market, reducing market share of the existing firms, especially if they are inefficient. + If the NAFTA raises incomes, this will generate more sales in the longer run.
Exports Within North America	<ul style="list-style-type: none"> + Firms should have easier access to North American market + If exports and FDI are substitutes and plants are inefficient on a regional basis, MNEs may close plants and shift from FDI to exporting.
Exports Outside North America	<ul style="list-style-type: none"> 0 No direct effect. + If the NAFTA makes domestic firms more competitive they may increase their exports outside North America.
Royalties, Licensing Fees	<ul style="list-style-type: none"> + Parent MNEs should receive more revenues from intangibles due to tighter intellectual property rules on patents and copyrights.
Profit Remittances	<ul style="list-style-type: none"> + The NAFTA guarantees free crossborder movement of repatriated earnings; earnings are more secure.
EXPENDITURES	
Labour Costs	<ul style="list-style-type: none"> - Costs will fall in sectors where unit labour costs are important since the NAFTA makes it easier to relocate plants to take advantage of lower labour costs. May be pressure to harmonize labour standards.
Borrowing and Insurance Costs	<ul style="list-style-type: none"> - Liberalization of FDI by North American investments and investors in banking, financial and insurance markets should make financial markets more efficient and lower borrowing costs. + Opening of the Mexican market creates new demands for these services; suppliers may raise their prices as they increase their exports and FDI in the service sector in Mexico.

TABLE 2 (CONT'D)	
Costs of Raw Materials	<ul style="list-style-type: none"> - Liberalization of FDI access in North American resources should encourage exploration and development (except in Mexican oil!).
Freight and Inventory Costs	<ul style="list-style-type: none"> - New rules on crossborder trucking and FDI entry should lower freight and inventory costs.
Cost of Parts	<ul style="list-style-type: none"> - Should fall to extent parts were already imported within North America and tariffs are removed. + May rise if necessary to source inside North America in order to meet tighter rules of origin; affects some sectors (e.g. textiles) more than others.
Telecommunications Costs	<ul style="list-style-type: none"> - Should fall in Mexico with breakup of national monopoly and improvement of telecommunications infrastructure.
Pollution Abatement Costs	<ul style="list-style-type: none"> + More lax enforcement of regulations means these costs are lower in Mexico. Environmental side agreement and higher Mexican incomes should eventually raise pollution abatement standards to U.S. levels, thus raising these costs.
Tariffs, Quotas, License Fees	<ul style="list-style-type: none"> - The NAFTA reduces or eliminates these costs for trade within North America - Tariffs remain for imports from non-member countries, but the volume of these imports is likely to fall as firms substitute imports from member countries.
Corporate Income Taxes, Value-Added Taxes	<ul style="list-style-type: none"> 0/- Each country keeps its own tax system. Possible increased ability to transfer price and thus avoid taxes. In the long run, should be more pressure to harmonize North American tax rates and tax bases.

PLANT LOCATION PATTERNS OF U.S. MULTINATIONALS

IN ORDER TO ASSESS the effect of the FTA and the NAFTA on U.S. multinationals, statistical data are needed to provide a picture of the role U.S. multinationals play in North America, Japan and the European Community (the Triad). This section provides such a picture, examining the majority-owned foreign affiliates (MOFAs) of U.S. non-bank MNEs located in Canada, Mexico, Japan, the European Community and world wide in terms of their balance sheets, income statements, sales, and merchandise trade with the United States. In addition, the distribution of their capital stock and sales by industry within these countries is reviewed. Finally,

average employee compensation across industries is compared and a proxy for unit labour costs is calculated. This can provide some evidence as to the strength of one motivation — cost reduction — for shifting plant locations from Canada to Mexico.

WHO DOES WHAT NOW? U.S. MOFAS IN 1990

IN 1990 U.S. MULTINATIONALS owned almost 16,000 foreign affiliates, just under 2,000 of which — or 11.7 percent of the total — were located in Canada (see Table 3). Almost half were located in the European Community, while less than 1 percent were located in Mexico or Japan.

Looking first at their balance sheets, these MOFAs held \$1.3 trillion of assets and \$0.8 trillion of liabilities, for a net worth of \$0.5 trillion, or a return of 36.7 percent on total assets. Canada, with 11.7 percent of U.S. MOFAs, held a slightly larger share of worldwide assets (14.4 percent, reflecting its much greater share of net physical assets of 22.3 percent), liabilities (14.8 percent) and owners' equity (13.8 percent) than its numbers alone would suggest. Mexico, with 0.7 percent of U.S. MOFAs, had similar percentages of assets (1.1 percent) and liabilities (0.9 percent), but a higher share of worldwide MOFA owners' equity (1.4 percent).

The Canadian and Mexican shares of worldwide MOFA income and expenses are shown in Table 4. MOFAs in Canada are larger than the average U.S. MOFA worldwide. Although they number only 11.7 percent of all U.S. MOFAs, Canadian affiliates received a larger share of gross income (14.6 percent), incurred a larger share of total expenses (15.1 percent), hired relatively more employees (16.6 percent) and paid more employee compensation (18.2 percent). They paid proportionately less corporate income taxes (8.7 percent) and other taxes (9.5 percent) but more production royalties (29.7 percent); as a result, their share of net (after tax) income was smaller (7.3 percent). In 1990, these affiliates were half as profitable as all U.S. MOFAs, whether measured by net income as a percent of sales, owners' equity or total assets (e.g. worldwide net income as a percent of sales is 6.1 percent versus 3.0 percent in Canada).

MOFAs in Mexico were also larger (1.6 percent of gross income and expenses) relative to their numbers (0.7 percent of all MOFAs), paid relatively more income taxes (2.6 percent), and were more profitable (2 percent of net income, with an income-to-sales ratio of 7.4 percent). Although they employed 7.1 percent of all MOFA employees, their share of compensation was only 1.7 percent, reflecting the much lower average compensation per employee (\$671 in Mexico versus \$3,122 in Canada and \$2,851 worldwide). Relatively lower R&D costs were incurred by the parent firm on behalf of MOFAs in Mexico and in Canada, whether measured as a percent of total MOFA R&D or as a percent of affiliate sales or cost of goods sold.

Table 5 looks at MOFA sales of goods and services, both world wide and broken down by region (U.S., local and third countries), and in terms of the

TABLE 3

ASSETS AND LIABILITIES OF U.S. MAJORITY-OWNED FOREIGN AFFILIATES (MOFAs), US\$ MILLION, 1990

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,841	11.88	113	0.73	118	0.89	6,831	43.98
Total Assets of MOFAs	1,263,457	182,063	14.41	13,993	1.11	61,696	4.88	659,920	52.23
Total Current Assets	647,412	73,104	11.29	8,074	1.25	41,148	6.36	365,072	56.39
Total Noncurrent Assets	616,045	108,959	17.69	5,919	0.96	20,549	3.34	294,848	47.86
Net Property, Plant & Equipment	279,221	62,251	22.29	4,410	1.58	8,459	3.03	129,296	46.31
Net IPE as % of Total Assets	22.10	34.19		31.52		13.71		19.59	
Accumulated Depreciation & Depletion	221,939	36,531	16.46	3,531	1.99	5,788	2.61	112,957	50.90
Total Liabilities of MOFAs	800,449	118,065	14.75	7,394	0.92	47,282	5.91	446,648	55.80
Current Liabilities & Long-term Debt	676,669	90,371	13.36	6,938	1.03	35,498	5.25	393,567	58.16
As a % of Total Liabilities	84.54	76.54		93.83		75.08		88.12	
Owners' Equity	463,008	61,998	13.82	6,599	1.43	14,415	3.11	213,271	46.06
Equity as a % of Total Assets	36.65	35.15		47.16		23.36		32.32	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*, Washington, USGTO, 1990 (as reported in the National Trade Data Base — the Export Connection, February 1993), Tables 90-30, 90-22 Preliminary.

TABLE 4

INCOME AND EXPENSES OF U.S. MAJORITY-OWNED FOREIGN AFFILIATES (MOFAs), US\$ MILLION, 1990

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,841	11.68	113	0.73	138	0.89	6,831	43.98
Gross Income of MOFAs	1,233,496	180,637	14.64	19,717	1.60	63,055	5.11	636,683	51.62
Income from Sales of Goods & Services	1,191,832	177,200	14.87	19,330	1.62	62,117	5.21	615,192	51.62
Income from Equity Investments	19,787	983	4.97	95	0.48	72	0.36	10,915	55.16
Total Costs & Expenses of MOFAs	1,160,590	175,352	15.11	18,292	1.58	60,924	5.25	600,004	51.70
Cost of Goods Sold & General Expenses	1,067,608	164,359	15.40	16,496	1.55	55,397	5.19	556,126	52.09
Foreign Income Taxes	30,658	2,658	8.67	807	2.63	2,330	7.60	11,564	37.72
Income Taxes as a % of Total Costs	2.64	1.52		4.41		3.82		1.93	
Taxes other than Income & Payroll	89,713	8,488	9.46	704	0.78	2,922	3.26	56,658	63.15
Production Royalty Payments	3,318	985	29.69	0	0.00	1	0.03	449	13.53
Total Employee Compensation	148,353	26,962	18.17	2,489	1.68	7,165	4.83	84,435	56.91
Number of Employees	5,204	864	16.60	371	7.13	142	2.73	2,269	43.60
Average Compensation per Employee	2,851	3,122		671		5,046		3,721	
Employee Compensation as % of Total Costs	12.78	15.38		13.61		11.76		14.07	
Employee Compensation as % of PPE	53.13	43.31		56.44		84.70		65.30	
R&D Expenditures Performed by MOFAs	10,417	1,168	11.21	53	0.51	507	4.87	7,604	73.00
As % of Total Sales	0.87	0.66		0.27		0.82		1.24	
As % of Cost of Goods Sold	0.98	0.71		0.32		0.92		1.37	
Net Income of MOFAs	72,906	5,285	7.25	1,425	1.95	2,131	2.92	36,679	50.31
Net Income as % of Total Sales	6.12	2.98		7.37		3.43		5.96	
Net Income as % of Owners' Equity	15.75	8.26		21.59		14.78		17.20	
Net Income as % of Total Assets	5.77	2.90		10.18		3.45		5.56	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*. Washington: USGFC, 1990 (as reported in the National Trade Data Base -- the Export Connection, February 1993), Tables 90-20, 90-22, 90-30, 90-66 Preliminary.

TABLE 5

SALES OF GOODS AND SERVICES BY U.S. MAJORITY-OWNED FOREIGN AFFILIATES (MOFAs), US\$ MILLION, 1990

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,841	11.68	113	0.73	138	0.89	6,831	43.98
MOFA Sales of Goods & Services, all Locations	1,191,832	177,200	14.87	19,330	1.62	62,117	5.21	615,192	51.62
Sales to Affiliated Persons	286,829	36,907	12.87	6,482	2.26	9,507	3.31	154,066	53.71
Inter-affiliate Sales as % of Worldwide Sales	24.07	20.83		33.54		15.30		25.04	
MOFA Sales to the United States	123,801	41,404	33.44	5,066	4.09	3,280	2.65	22,129	17.87
U.S. Sales as % of Worldwide Sales	10.39	23.37		26.21		5.28		3.60	
Sales to U.S. Parents	98,574	33,673	34.16	4,985	5.06	3,171	3.22	17,045	17.29
Sales to U.S. Parents as % of Total U.S. Sales	79.62	81.33		98.40		96.68		77.03	
Sales to U.S. Parents as % of Worldwide Sales	8.27	19.00		25.79		5.10		2.77	
MOFA Local Sales to Host Country	795,244	129,740	16.31	13,461	1.69	55,048	6.92	412,295	51.85
Local Sales as % of Worldwide Sales	66.72	73.22		69.64		88.62		67.02	
Sales to Other Foreign Affiliates	37,875	2,188	5.78	864	2.28	3,265	8.62	20,327	53.69
Inter-affiliate Sales as % of Total Local Sales	4.76	1.69		6.42		5.93		4.93	
Intra-firm Local Sales as % of Worldwide Sales	3.18	1.23		4.47		5.26		3.30	
MOFA Sales to Third Countries	272,787	6,056	2.22	803	0.29	3,789	1.39	180,768	66.27
Third-country Sales as % of Worldwide Sales	22.89	3.42		4.15		6.10		29.38	
Sales to Other Foreign Affiliates	150,397	1,046	0.70	633	0.42	3,071	2.04	116,694	77.59
Inter-affiliate Sales as % of Third-country Sales	55.13	17.27		78.83		81.05		64.55	
Intra-firm Other Sales as % of Worldwide Sales	12.62	0.59		3.27		4.94		18.97	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*. Washington: USGFC, 1990 (as reported in the National Trade Data Base -- the Export Connection, February 1993), Tables 90-20, 90-40 Preliminary.

nature of the sales, whether arm's length or intra-firm. MOFAs in Canada sold relatively more goods and services (14.9 percent) worldwide, to the United States (33.4 percent) and locally (16.3 percent) than their numbers suggest (11.7 percent), but much less to third countries (2.2 percent). Local sales (73.2 percent) and U.S. sales (23.4 percent) together represented 97 percent of all sales by U.S. MOFAs in Canada. The affiliates sold through arm's length channels at home (only 1.7 percent of local sales were interaffiliate) but 81.3 percent of all U.S. sales were intra-firm sales to their parents. The Mexican picture is even more skewed: U.S. sales were 26.2 percent of all sales, 98 percent of which were intra-firm sales to their U.S. parents.

Table 6 provides data on U.S.-MOFA merchandise trade in 1990. Although only 11.7 percent of all U.S. MOFAs were in Canada, 36.3 percent of all U.S. merchandise exports to MOFAs world wide were shipped to MOFAs in Canada and 45.2 percent of U.S. imports from MOFAs worldwide came from Canadian affiliates, for a net U.S. deficit of \$3.2 billion on this trade. Trade with U.S. parents generated 83 percent of total U.S.-MOFA trade in Canada, for both imports and exports, slightly below the worldwide MOFA intra-firm average (88 percent for exports, 85 percent for imports).

Trade between MOFAs in Mexico and the United States was also relatively large. With just 0.7 percent of U.S. MOFAs world wide, Mexican affiliates purchased 7.3 percent of U.S. merchandise worldwide exports to MOFAs and supplied 7.2 percent of U.S. worldwide imports from MOFAs, generating a small U.S. trade surplus of 0.2 billion dollars. Parent-MOFA intra-firm trade represented almost 100 percent of these flows (95.1 percent of exports, 99.0 percent of imports).¹⁴

AN INDUSTRY PROFILE OF U.S. MOFAs IN 1990

THIS SECTION EXAMINES the distribution of MOFAs by industry within countries. As proxy measures of relative importance of these foreign affiliates within their host countries, on an industry basis, Table 7 provides 1990 data on the net property, plant and equipment (PPE) by MOFA industry while Table 8 examines total sales by industry of the affiliate.¹⁵

Based on their net property, plant and equipment, MOFAs world wide were distributed as follows: petroleum (31 percent) and manufacturing (49 percent) are the largest, with wholesale trade, services and other industries making up the rest. MOFAs in Canada (although only 11.7 percent of U.S. affiliates world wide) held 22.3 percent of world wide PPE; thus these affiliates were on average larger than those in other host countries. As a percent of world wide PPE by industry, MOFAs in Canada were particularly concentrated in the following industries: petroleum (28.1 percent), metals (30.2 percent), other manufacturing (30.6 percent), and finance, insurance and real estate (48.1 percent). Their share was lowest in machinery (6.3 percent) and wholesale trade (9.6 percent). Comparing the Canadian numbers to Mexico, MOFAs in

TABLE 6
U.S. MERCHANDISE TRADE WITH U.S. MAJORITY-OWNED FOREIGN AFFILIATES (MOFAs), US\$ MILLION, 1990

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,841	11.68	113	0.73	138	0.89	6,831	43.98
U.S. Merchandise Exports Shipped to MOFAs	101,661	36,857	36.25	7,428	7.31	7,361	7.24	29,145	28.67
Shipped by U.S. Parents	89,649	30,599	34.13	7,062	7.88	7,098	7.92	26,598	29.67
Shipped by Unaffiliated U.S. Persons	12,012	6,259	52.11	365	3.04	263	2.19	2,547	21.20
Parent Exports as % of Total	88.18	83.02		95.07		96.43		91.26	
U.S. Merchandise Imports Shipped by MOFAs	88,607	40,017	45.16	7,239	8.17	1,859	2.10	13,442	15.17
Shipped to U.S. Parents	75,364	33,210	44.07	7,164	9.51	1,799	2.39	11,156	14.80
Shipped to Unaffiliated U.S. Persons	13,243	6,807	51.40	74	0.56	60	0.45	2,286	17.26
Parent Imports as % of Total	85.05	82.99		98.96		96.77		82.99	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*, Washington: USGPO, 1990 (as reported in the National Trade Data Base -- the Export Connection, February 1993), Tables 90-20, 90-59 Preliminary.

TABLE 7

NET PROPERTY, PLANT AND EQUIPMENT (PPE) OF U.S. MOFAs BY INDUSTRY OF AFFILIATE, US\$ MILLION, 1990

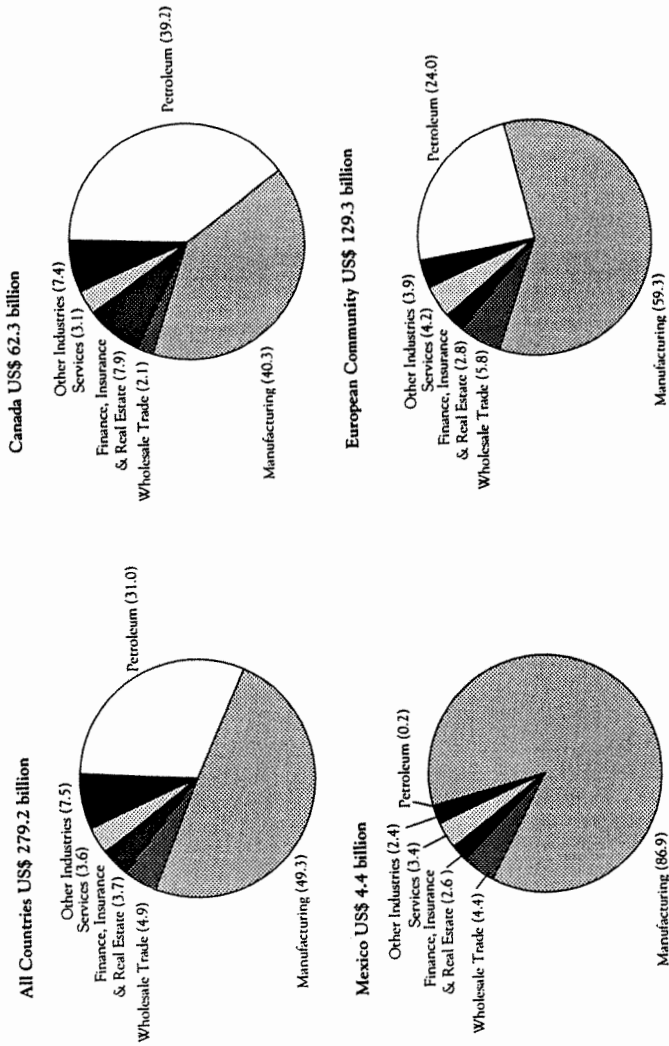
	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,814	11.68	113	0.73	138	0.89	6,831	43.98
Petroleum	86,637	24,377	28.14	10	0.01	1,021	1.18	31,008	35.79
As % of Total Industry PPE	31.03	39.16		0.23		12.07		23.98	
Total Manufacturing	137,590	25,086	18.23	3,830	2.78	5,782	4.20	76,707	55.65
As % of Total Industry PPE	49.28	40.30		86.85		68.35		59.33	
Food and Kindred Products	12,546	1,891	15.07	355	2.83	198	1.58	6,419	51.16
As % of Total Industry PPE	4.49	3.04		8.05		2.34		4.96	
Chemicals and Allied Products	31,293	3,584	11.45	615	1.97	1,022	3.27	20,085	64.18
As % of Total Industry PPE	11.21	5.76		13.95		12.08		15.53	
Primary & Fabricated Metals	8,052	2,435	30.24	114	1.42	115	1.43	3,045	37.82
As % of Total Industry PPE	2.88	3.91		2.59		1.36		2.36	
Machinery, except Electrical	19,085	1,204	6.31	na	na	2,206	11.56	12,658	66.32
As % of Total Industry PPE	6.84	1.93				26.08		9.79	
Electrical & Electronic Equipment	10,677	945	8.85	408	3.82	1,052	9.85	4,989	46.73
As % of Total Industry PPE	3.82	1.52		9.25		12.44		3.86	
Transportation Equipment	25,799	5,799	22.48	1,339	5.19	53	0.21	15,578	60.38
As % of Total Industry PPE	9.24	9.32		30.36		0.63		12.05	
Other Manufacturing	30,138	9,228	30.62	na	na	1,136	3.77	13,933	46.23
As % of Total Industry PPE	10.79	14.82				13.43		10.78	

TABLE 7 (CONT'D)

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Wholesale Trade	13,789	1,329	9.64	195	1.41	1,111	8.06	7,515	54.40
As % of Total Industry PPE	4.94	2.13		4.42		13.13		5.81	
Finance (except Banking), Insurance & Real Estate	10,215	4,911	48.08	116	1.14	286	2.80	3,620	35.44
As % of Total Industry PPE	3.66	7.89		2.63		3.38		2.80	
Services	10,165	1,952	19.20	151	1.49	219	2.15	5,379	52.92
As % of Total Industry PPE	3.64	3.14		3.42		2.59		4.16	
Other Industries	20,826	4,596	22.07	107	0.51	40	0.19	5,067	24.33
As % of Total Industry PPE	7.46	7.38		2.43		0.47		3.92	
All Industries	279,221	62,251	22.29	4,410	1.58	8,459	3.03	129,296	46.31
As % of Total Industry PPE	100.00	100.00		100.00		100.00		100.00	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*. Washington: USGTC, 1990 (as reported in the National Trade Data Base -- the Export Connection, February 1993), Tables 90-20, 90-26 Preliminary.

FIGURE 4
PPE BY INDUSTRY OF MOFA, 1990 (%)



Mexico were largest in manufacturing (2.78 percent), particularly in the transport (5.2 percent) and electrical equipment (3.8 percent) industries. The extraordinarily low investment in petroleum (0.01 percent) is very noticeable and reflects Mexico's constitutional prohibition of foreign direct investment in petroleum.

The figures for the breakdown of industry PPE within each country are provided in Table 7 but are easier to see in Figure 4. By looking at the distribution of PPE within Canada, it may be seen that U.S. MOFAs were concentrated in manufacturing (40.3 percent) and petroleum (39.2 percent), even though manufacturing in Canada was small relative to its share for all MOFAs worldwide (49.3 percent). MOFAs in Mexico, on the other hand, were overwhelmingly in manufacturing (86.9 percent), notably in transport equipment (30.4 percent of PPE in Mexico).

Turning now to the distribution of sales by industry of MOFA, Table 8 shows that sales by MOFAs in Canada as a share of worldwide MOFA sales were highest in other industries (43 percent) and transport equipment (31.7 percent), and lowest in machinery (7 percent) and wholesale trade (8.1 percent). In Mexico, transport equipment again dominated (5.3 percent of worldwide sales) while petroleum was noticeably under-represented (0.04 percent). Figure 5 plots the sectoral distribution of MOFA sales for 1990. The dominance of manufacturing in Canada (54.5 percent) and Mexico (85.3 percent) is evident. Within manufacturing, transport equipment represented 22.3 percent of sales by MOFAs in Canada and 34 percent in Mexico.¹⁶ Sales were lowest in services (2.5 percent), primary metals (2.6 percent) and electrical equipment (3.2 percent) in Canada, and in petroleum (0.5 percent), services (1 percent), finance, insurance and real estate (1 percent) and primary metals (1.6 percent) in Mexico.

Table 9 provides data on total MOFA employment,¹⁷ average employment compensation and unit labour costs by industry for 1990.¹⁸ The average wage for MOFAs in all industries varied enormously from a low of \$6,700 (Mexico) to an average of \$28,500 (all countries) to a high of \$50,500 (Japan). The average MOFA wage in Canada was \$31,200, above the overall average but below the average in Japan and the European Community. Note it was more than four times higher than the average Mexican compensation package.

The range is similar for all manufacturing; however, here the gap for Canada was more pronounced. The average MOFA wage in manufacturing in Canada was \$38,000, now higher than the world average and the average EC wage, and more than six times larger than the average level in Mexico. Canada is the only country of the five cases shown where there was a substantial differential between the average wage for MOFAs in all industries and in manufacturing. This could reflect the superior productivity levels of workers in Canadian manufacturing, better negotiating by Canadian trade unions, an older age distribution in this sector, residual protection from high (but falling) Canadian tariffs on manufactured goods, the Auto Pact, or other factors. Within industries there was also significant variation in wage levels. In some

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Number of MOFAs	15,532	1,814	11.68	113	0.73	138	0.89	6,831	43.98
Petroleum	237,227	25,384	10.70	101	0.04	11,633	4.90	89,062	37.54
As % of Total Industry Sales	19.90	14.33		0.52		18.73		14.48	
Total Manufacturing	580,311	96,644	16.65	16,487	2.84	23,265	4.01	339,388	58.48
As % of Total Industry Sales	48.69	54.54		85.29		37.45		55.17	
Food and Kindred Products	60,361	7,116	11.79	1,879	3.11	1,907	3.16	34,483	57.13
As % of Total Industry Sales	5.06	4.02		9.72		3.07		5.61	
Chemicals and Allied Products	107,227	11,233	10.48	2,985	2.78	4,094	3.82	69,723	65.02
As % of Total Industry Sales	9.00	6.34		15.44		6.59		11.33	
Primary & Fabricated Metals	23,306	4,607	19.77	363	1.56	377	1.62	13,414	57.56
As % of Total Industry Sales	1.96	2.60		1.88		0.61		2.18	
Machinery, except Electrical	113,761	7,950	6.99	na	na	na	na	76,020	66.82
As % of Total Industry Sales	9.55	4.49						12.36	
Electrical & Electronic Equipment	45,979	5,613	12.21	1,406	3.06	3,118	6.78	19,128	41.60
As % of Total Industry Sales	3.86	3.17		7.27		5.02		3.11	
Transportation Equipment	124,759	39,508	31.67	6,572	5.27	159	0.13	65,964	52.87
As % of Total Industry Sales	10.47	22.30		34.00		0.26		10.72	
Other Manufacturing	104,917	20,617	19.65	na	na	na	na	60,656	57.81
As % of Total Industry Sales	8.80	11.63						9.86	

	ALL COUNTRIES	CANADA	CANADA AS % OF TOTAL	MEXICO	MEXICO AS % OF TOTAL	JAPAN	JAPAN AS % OF TOTAL	EUROPEAN COMMUNITY	EC AS % OF TOTAL
Wholesale Trade	223,536	18,152	8.12	1,747	0.78	18,553	8.3	119,928	53.65
As % of Total Industry Sales	18.76	10.24		9.04		29.87		19.49	
Finance (except Banking), Insurance & Real Estate	60,035	11,833	19.71	340	0.57	6,237	10.39	24,946	41.55
As % of Total Industry Sales	5.04	6.68		1.76		10.04		4.05	
Services	42,358	4,414	10.42	197	0.47	1,749	4.13	27,823	65.69
As % of Total Industry Sales	3.55	2.49		1.02		2.82		4.52	
Other Industries	48,366	20,773	42.95	457	0.94	681	1.41	14,044	29.04
As % of Total Industry Sales	4.06	11.72		2.36		1.10		2.28	
All Industries	1,191,832	177,200	14.87	19,330	1.62	62,117	5.21	615,192	51.62
As % of Total Industry Sales	100.00	100.00		100.00		100.00		100.00	

Source: Author's calculations based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*. Washington: USGPO, 1990 (as reported in the National Trade Data Base -- the Export Connection, February 1993), Tables 90-20, 90-32 Preliminary.

TABLE 9
EMPLOYEES, EMPLOYEE COMPENSATION AND UNIT LABOUR COSTS OF U.S. MOFAs

	ALL COUNTRIES			CANADA		
	LABOUR FORCE ('000)	AVERAGE EMPLOYEE COMP. (US \$)	UNIT LABOUR COST	LABOUR FORCE ('000)	AVERAGE EMPLOYEE COMP. (US \$)	UNIT LABOUR COST
	L	W=W/L/L	W L/P Q	L	W=W/L/L	W L/P Q
Petroleum	188	42,207	0.03	32	65,688	0.08
Manufacturing	3,358	27,772	0.16	429	38,014	0.17
Food	329	21,842	0.12	34	30,000	0.14
Chemicals	488	31,451	0.14	46	40,391	0.17
Metals	182	24,962	0.19	31	33,839	0.23
Machinery	500	36,952	0.16	34	45,824	0.20
Electrical Equipment	485	17,959	0.19	36	35,000	0.22
Transport	606	31,611	0.15	120	41,475	0.13
Other Manufacturing	767	25,870	0.19	129	35,543	0.22
Wholesale Trade	507	40,444	0.09	59	34,797	0.11
FIRE	129	44,760	0.10	31	36,355	0.10
Services	409	28,406	0.27	61	22,230	0.31
Other	613	15,108	0.19	252	15,933	0.19
All Industries	5,204	28,507	0.12	864	31,206	0.15

Source: Author's calculations based on data in U.S. Dept of Commerce, Bureau of Economic Analysis, *Operations of U.S. Parent Companies and their Foreign Affiliates*. Washington: USGPO, 1990 (National Trade Data Base - the Export Connection, Feb. 1993), Tables 90-32, 90-54, 90-56 Preliminary.

cases (e.g. petroleum in Mexico and Japan, financial, insurance and real estate [FIRE] services in Mexico) where U.S. MOFAs are significantly under-represented the numbers may well be suspect and should be treated cautiously. Figure 6 plots average compensation levels for some of these sectors.

Historically, unit labour costs have been used by economists as one predictor of production costs. The general public point to the large difference in wage levels between Canada and Mexico illustrated by the \$31,206 Canadian and \$6,709 Mexican wages in Table 9 and use this gap to argue that the NAFTA will cause jobs to flee to Mexico. Economists, however, argue that wages generally reflect productivity levels; people are paid more because they are worth more (Watson 1993). Higher wages reflect better education, higher capital-labour ratios, newer technology and so on. A better measure of cost differential is unit labour cost defined as the wage rate divided by the average productivity of labour or, alternatively, total employee compensation per unit

TABLE 9 (CONT'D)
BY INDUSTRY OF AFFILIATE, 1990

MEXICO			JAPAN			EC		
LABOUR FORCE ('000)	AVERAGE EMPLOYEE COMP. (US \$)	UNIT LABOUR COST	LABOUR FORCE ('000)	AVERAGE EMPLOYEE COMP. (US \$)	UNIT LABOUR COST	LABOUR FORCE ('000)	AVERAGE EMPLOYEE COMP. (US \$)	UNIT LABOUR COST
L	W=W/L/L	WL/PQ	L	W=W/L/L	WL/PQ	L	W=W/L/L	WL/PQ
1	20,000	0.20	na	na	na	51	50,118	0.03
330	6,488	0.13	80	50,138	0.17	1,523	37,005	0.17
31	7,484	0.12	2	57,550	0.08	120	32,508	0.11
37	9,811	0.12	21	43,762	0.22	233	41,618	0.14
11	5,455	0.17	2	40,500	0.21	86	30,837	0.20
17	6,647	na	31	61,613	na	282	44,759	0.17
92	4,533	0.30	14	38,071	0.17	144	29,944	0.23
81	6,284	0.08	1	25,000	0.16	315	38,273	0.18
62	7,210	na	10	42,900	na	342	32,509	0.18
10	16,200	0.09	33	49,212	0.09	258	44,027	0.09
1	39,000	0.11	11	72,182	0.13	55	54,545	0.12
17	4,294	0.37	13	34,308	0.26	227	34,762	0.28
12	4,500	0.12	na	na	na	156	20,968	0.23
371	6,709	0.13	142	50,458	0.12	2,269	37,212	0.14

of output produced. Unfortunately data on output is not available so sales revenues must be used as a proxy (Eden & Molot, 1992). Unit labour cost figures are provided in Table 9 and illustrated in Figure 7.

The first important point to note is that the variation in unit labour costs is significantly lower than the variation in average wages. In fact, comparing MOFAs in the same industry in different countries, unit labour costs were often strikingly similar. For example, the numbers vary from a high of 0.15 (Canada) to a low of 0.12 (Japan and all countries) with Mexico at 0.13. In manufacturing, the numbers vary from 0.17 (Canada and the EC) to 0.13 (Mexico). In transportation equipment Mexico had a clear advantage (0.08) compared to all the other cases. The second point to note is that Canada was often at the high end in terms of unit labour costs, which is cause for concern assuming the 1990 figures were not a one-time event. Where the differential between Canada and Mexico is significantly large (e.g. transport equipment) there may be reason to be concerned about plant shifts to Mexico.¹⁹ The third point to note is that in some industries unit labour costs were higher in Mexico than in Canada (e.g. services, electrical equipment, FIRE, petroleum). In such cases the NAFTA could cause plants to move northward.²⁰

FIGURE 5
SALES BY INDUSTRY OF MOFA, 1990 (%)

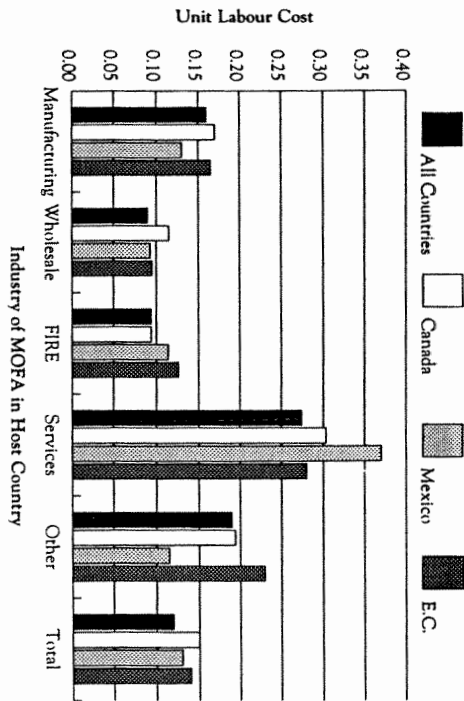
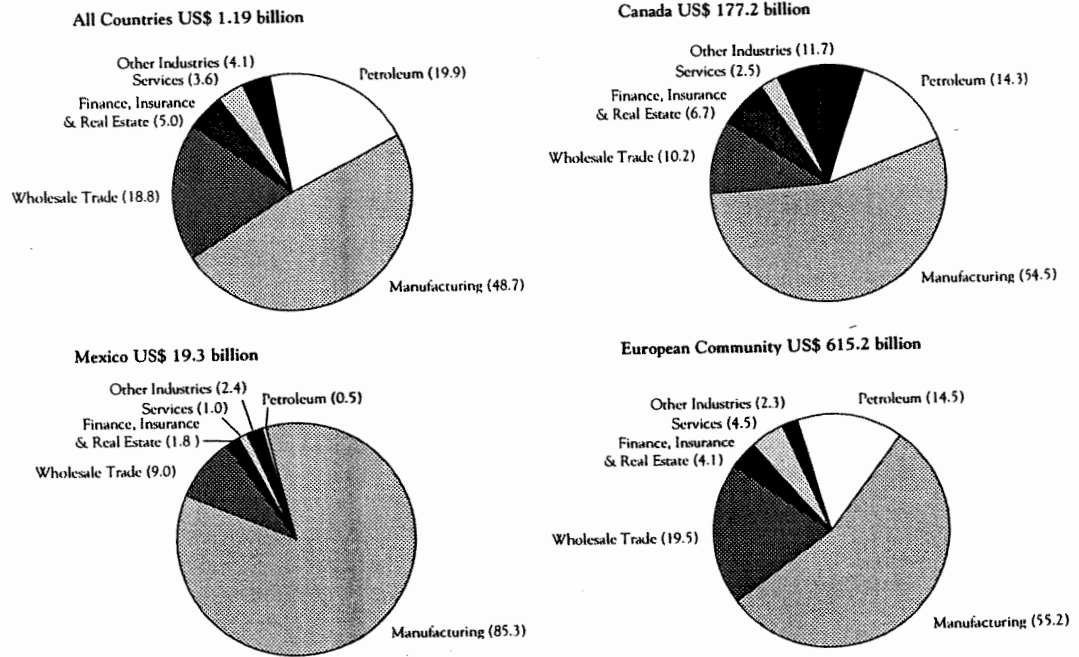


FIGURE 7
UNIT LABOUR COSTS, 1990

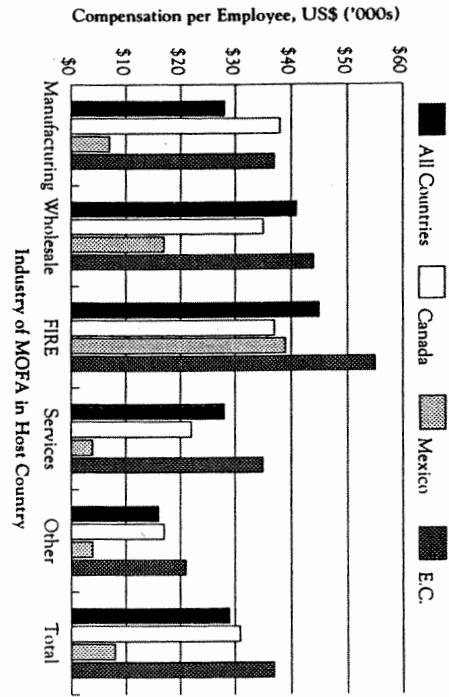


FIGURE 6
AVERAGE EMPLOYEE COMPENSATION, 1990

WHO DOES WHAT NOW?

IN SUMMARY, THE KEY INFORMATION about the relative roles of U.S. MOFAs in Canada and Mexico, based on 1990 data, is as follows:

Canada has 12 percent of all U.S. MOFAs world wide. MOFAs in Canada are large in terms of their shares of world wide MOFA assets (especially PPE), gross income, expenses and employees. Their shares of world wide PPE are highest in petroleum, other manufacturing, and finance, insurance and real estate. MOFAs in Canada pay relatively higher royalties and lower corporate taxes, but receive less net income. They also sell relatively more goods and services. Of these sales, just under three-quarters are arm's-length local sales, with almost all the rest intra-firm sales to their U.S. parents. Their shares of world wide sales of goods and services are highest in other industries and transport equipment. Over one-third of all U.S. merchandise exports to MOFAs go to Canada and almost one-half of U.S. imports from MOFAs come from Canada. Average employee compensation is higher in Canada compared to MOFAs in all countries, as are unit labour costs in many industries.

Mexico has just under 1 percent of all U.S. MOFAs world wide. MOFAs in Mexico are also large in terms of gross income, expenses, income taxes paid, net income earned, and labour compensation. They stand out in terms of their labour intensity; over 7 percent of MOFA employees world wide work in Mexico. They are also distinctive by their absence from the petroleum sector, measured either by PPE or sales, and by their dominance in manufacturing, particularly in transportation equipment. Almost 30 percent of total sales are to the United States (almost entirely intra-firm), the rest are local and mostly at arm's length. MOFAs in Mexico are heavily involved in two-way merchandise trade with the United States, almost all of which is with their U.S. parent firms. Average employee compensation is significantly lower compared to MOFAs in all countries, but unit labour costs are roughly comparable.

In this section we have provided a statistical "snapshot" of the activities of majority-owned foreign affiliates of U.S. multinationals in 1990. The question we want to address, however, is not the current pattern, but who will do what after NAFTA? In order to answer this question, we need to develop a theory of international production that explains the current pattern of MOFA activities, and then use this theory to predict likely reactions of U.S. multinationals to the NAFTA.

MULTINATIONALS AND THE THEORY OF INTERNATIONAL PRODUCTION

WHY DO MULTINATIONALS SET UP FOREIGN PLANTS?

IN ORDER TO EXPLAIN the locational strategies of multinational enterprises, it is necessary to examine their value chains, that is, the products and processes

that take place within the firm. As Figure 8 shows, the range of value-adding activities in which a firm can engage include: primary activities (extraction and processing of raw materials, fabrication of parts and sub-assemblies, final assembly, sales and customer service) and support activities (head office functions, support services and technology development). Another way to view this is sectoral: resources, manufacturing and services. When a firm engages in two or more of these activities in a linked fashion (e.g. parts, assembly and sales) the firm is said to be vertically integrated; when a firm has two or more plants at one of these stages (e.g. several assembly plants in different locations), the firm is horizontally integrated.

This concept of the value chain may be used to explain why firms set up plants in foreign countries. The reasons may be internally driven (either by product requirements or the nature of overall firm requirements) or externally motivated (by strategic interactions with rival firms or by government regulations) or both. I hypothesize that there are six general motivations behind the establishment of a subsidiary or branch plant in a foreign country: the search for raw materials, the search for new markets, the search for low-cost production locations, the need to provide support services to other parts of the MNE, financial reasons, and strategic motivations for offshore location.²¹

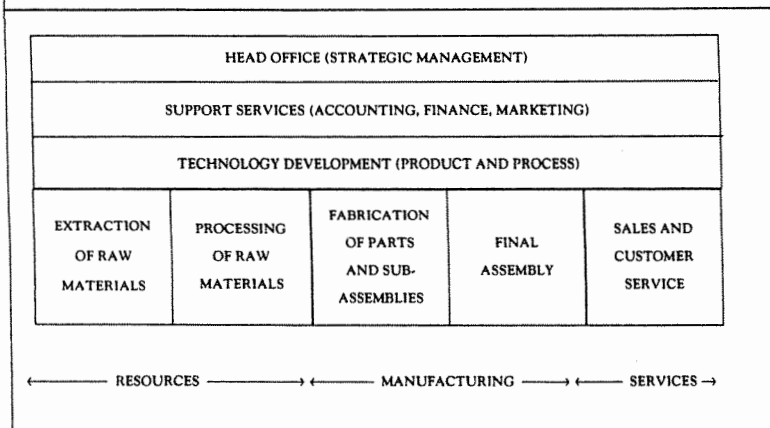
The Search for Raw Materials

First, MNEs establish foreign plants in order to access natural resources not available at home. This type of resource-seeking international production was typical of MNEs in the early part of the 20th century. The so-called Old International Division of Labour (OIDL) linking developed and developing countries was based on vertically integrated trade in raw materials.

In the stereotypical case, natural-resource seeking MNEs go into resource-rich countries to set up natural resource (e.g. mining, oil) extraction plants. The MNE brings in a package of capital goods, engineers, and technology, and uses domestic labour and energy inputs to extract the raw materials. The raw materials are either exported directly to the parent or other affiliates in unprocessed form or processed in an adjacent plant and then exported in semi-processed form. The latter case provides some upgrading of technology inflows and local capability. Economies of scale relative to the size of downstream demand determine the size of plant. The raw material flows are intra-firm so that transfer prices are used to price the products as they are sold from one plant to another. However, since the products are commodities, arm's length market prices are likely to exist for comparison. Transport and energy costs are important for determining upgrading possibilities; so too are tariff and NTBs in downstream countries, as these tend to discourage host country upgrading. Typically most developed countries have had a cascading tariff structure (higher tariffs the higher the degree of processing) and cascading tends to discourage upgrading in the host country.

FIGURE 8

THE TYPICAL VALUE CHAIN OF A MULTINATIONAL ENTERPRISE



The Search for Market Access

The second motive for setting up a foreign plant is to secure access for products in foreign markets. This type of market-seeking international production replaces exports to a country with production inside that country. The product may be either a final good (e.g. autos) or an intermediate good (e.g. auto parts) or business services (a financial affiliate). There are several motivations for wanting market access:

- **Tariff jumping or defensive FDI** If a country has high tariffs and/or non-tariff barriers designed to keep out foreign goods, exporting firms that consider this market to be important are likely to incur the costs of setting up inside the tariff walls. Such inward FDI is an efficient (for the firm) response to internalizing market imperfections caused by government policy, but inefficient from the viewpoint of world welfare. An additional problem occurs if excessive entry results as MNEs compete strategically to enter new markets. The term 'miniature replica effect' was coined to describe the high cost production based on excessive numbers of product lines supplying too small a market that occurred in Canadian manufacturing in the 1950s and 1960s as a result of high Canadian trade barriers.

- **New or expanded market entry** When a previously closed market opens up to foreign firms, particularly if the market is of large size or strategic importance, firms will enter to supply that market. The opening of China and Eastern Europe to foreign investment and the (expected) removal of U.S. prohibitions against U.S. firms doing business in Vietnam are examples. Related to this is the formation of free trade areas and customs unions which induce entry by new MNEs seeing the possibilities of a larger market with reduced intra-regional barriers (and possibly higher barriers against imports so that tariff jumping may also be a factor).

- **Following customers abroad** This is a common motivation for firms that provide intermediate goods and services to downstream businesses. When Japanese automotive assembly plants moved into North America in the mid-1980s, auto parts suppliers from Japan followed a few years later. Hotel chains provide similar services to their international customers, regardless of their location. Banks set up branches in foreign countries to supply their manufacturing customers with the same services they have at home.

- **Rationalizing the production of existing plants** When a free trade area is formed, some MNEs will already have plants within the market, each of which may have been primarily oriented to its own domestic market. When the interregional barriers come down, there is a new possibility for the firm to rationalize production among existing plants. The MNE may rationalize vertically (i.e. change plant functions so that the plants become vertically integrated) or horizontally (i.e. change product lines so that each plant specializes in a different product line and then intra-firm trades with the others).

Recently some multinationals have begun developing regional core networks of affiliates. These "regionally integrated, independently sustainable networks of overseas investments [are] centered on a Triad member", according to the UN Centre for Transnational Corporations (UNCTC 1991, p. 42). Each network tends to have a lead plant in a member of the Triad plus affiliates located in regional spoke countries (e.g. lead plants in the United States with cluster plants in Canada and Mexico). By setting up a core network the multinational ensures that it has access to, and that its affiliates become regional insiders in, each of the three Triadic regions. The UNCTC argues that regional core networks have economic (comparative advantage, economies of scale) and political (avoidance of tariff and non-tariff barriers) motivations. In practice,

what may become more important if the trading blocs do become protectionist is the potential for these foreign affiliates to be seen as insiders within each bloc and thus be spared the entry barriers facing outside firms that attempt to trade with or invest in the bloc.

The Search for Low-Cost Production Sites

Third, MNEs set up foreign plants in locations where inputs into the production process are cheaper than at home; this is primarily a search for cheaper labour inputs, but it could also be a search for cheaper energy or materials. While the resource-seeking stage is tied to the location of natural resources and the market-access stage is tied to the location of markets, the cost-reducing stages are more footloose and can move from country to country in search of lower production costs.

Developing countries set up export-processing zones to encourage MNEs to assemble and manufacture low-technology products for final assembly and sales in the Triad countries. Such world wide sourcing has been called the New International Division of Labour (NIDL), because it links developing country labour-intensive manufacturing to Triadic high-tech assembly and sales, creating enormous flows of intermediate goods trade in parts and partly assembled products.

Providing Support to Other Affiliates

Fourth, provision of business services to support other parts of the MNE may be shifted to offshore locations. These include the sales, producer service, technology and head office stages. The sales distributor is often the first move a firm makes into a new market, while other producer services follow at a much later date when the MNE has established a more diversified subsidiary base. Services affiliates are the fastest-growing category of FDI according to the UNCTC; their purpose is to supply accounting, finance, marketing, and so on in support of the MNE's manufacturing and resource-based affiliates. With respect to technology development, historically little R&D was decentralized from the parent firm's location; however, with new products and processes being developed throughout the Triad, it is now more important that MNEs have access to the latest technology, wherever developed. As a result, R&D affiliates are being set up outside the home country (e.g. U.S. labs in Europe, Japanese labs in the United States).

Financial Motivations

Fifth, there may be financial motivations for setting up foreign plants. Fluctuations in exchange rates may affect the price of foreign assets; if firms treat FDI as a long-run decision such changes are unlikely to affect the plant

location decision. They may, however, affect the timing of the investment. Exchange rates can also affect the costs of production between countries, causing footloose firms to move to lower-cost locations. For example, Japanese MNEs, faced with the sharp rise in the yen and the subsequent increase in wage rates, have shifted labour-intensive stages offshore to ASEAN countries.

Setting up a plant in a tax haven, primarily designed as a conduit for evading national taxes on financial flows, was and still is a common MNE strategy. Competition among U.S. states to attract FDI inflows through subsidies and tax holidays may have shifted such investment from other countries (e.g. Canada) or simply from one state to another.

Strategic Risk-Reduction Motivations

Finally, there may be strategic motivations for setting up a foreign plant. Some authors (Vernon, for example) have argued that MNEs follow risk avoidance strategies that focus on increasing their share of global markets. Large MNEs are international oligopolists, engaged in strategic games with their rivals, fighting over global market shares. In addition, they face opportunistic governments and trade unions bent on securing their "fair" (read "larger") share of the global pie of rents created by these firms. Thus business strategy may dictate plant location if other reasons (such as market access or cost reduction) are unimportant. Some examples of strategic motivations are:

- **International diversification of assets** Setting up competing plants in several locations allows for international diversification of risk. MNEs can reduce the political risks of being held hostage or expropriated by governments, the economic risks of fluctuating exchange rates, and the geographic risks of disruptions in upstream supplies (e.g. crude oil for refineries). As Vernon (1983) shows, risk avoidance can lead to vertical integration. In fact, in an industry where some firms are vertically integrated and others are not, the independents can reduce the risk of opportunistic behaviour from the integrated MNEs (affecting supplies and/or markets) by becoming integrated themselves. Risk avoidance can also lead to horizontal integration as a way of, for example, avoiding the risk of government barriers by becoming an "insider" in the market. (Eden and Molot, 1993).
- **Oligopolistic competition for market share** There are several possible oligopolistic strategies that can increase market share. For example, market pre-emption may be a motivation for setting up a new plant since the first firm into a new market has a first mover advantage over follower firms; in addition the firm may be able to pre-empt the competition. Opportunistic

retaliation may be a rationale; i.e. one firm may retaliate against second firm's entry into its market by a tit-for-tat strategy that involves entering the second firm's market. This results in both firms having hostages in each other's markets and should reduce opportunistic behaviour. A third motivation is following the leader since in an uncertain world following the leader may be the most efficient long-run strategy in a loose oligopoly. This induces bunching of foreign investment. In high-tech sectors such as computers foreign firms may set up windows on the competition. Another possible motivation is to co-opt the competition by becoming an insider in a regional market through mergers, acquisitions or joint ventures with a domestic partner.

U.S. MULTATIONALS AND PLANT LOCATION IN NORTH AMERICA

BASED ON THE MOTIVATIONS for foreign plants outlined above, I conclude that plants have specific purposes within the MNE hierarchy. These are: market access, resource seeking, cost reduction, support services, financial and/or strategic motivations. Where (in which specific country or region) these plants will be located will depend on their plant function, whether or not they need to be close to other plants within the MNE, what locational factors they need, and which locations offer the most attractive sites. That is, the choice of plant location will depend on the specific characteristics of the products, firms, industries and countries involved. Table 10 outlines some possible effects each can have on the plant location decision.

This table is developed from Dubois, Toyne and Oliff (1993) who examine product-, firm- and industry-specific factors affecting the international manufacturing strategies of multinationals. My analysis broadens theirs to encompass all stages of production, but focuses specifically on plant location decisions within North America. I examine the four factors in detail below and use them to develop hypotheses about the impact of NAFTA on MNE plant location.

Product-Specific Characteristics

The type of product is important. Product is defined as the total package of benefits offered to the customer, not just the physical entity but also intangibles such as security of supply, technical assistance, and finetuning. If the good or service is distinctive and needs to be tailored for a segmented market or if customer involvement with the product is important, then the MNE maximizes its local responsiveness through locating plants near major customers. On the other hand, if the product is a mass-market, standardized good, the MNE is more likely to locate production in the lowest cost location. The type of consumer also matters. Industrial customers tend to work with a small number

of upstream suppliers with product lines in order to minimize transaction costs.

Hypothesis 1: The production of mass produced, standardized goods is more likely to be footloose and move to Mexico. Where local responsiveness to the consumer is important, production will stay close to the final market.

The value-to-weight ratio also affects the likelihood of producing the product off shore. Since transportation costs are often tied to weight, the lower this ratio, the more likely the product is to be manufactured close to the market.

Hypothesis 2: The higher the value-to-weight ratio, the more likely production is to shift to the lowest-cost production site.

TABLE 10
FACTORS AFFECTING THE PLANT LOCATION CHOICE

PRODUCT-SPECIFIC CHARACTERISTICS	FIRM-SPECIFIC CHARACTERISTICS	INDUSTRY-SPECIFIC CHARACTERISTICS	COUNTRY-SPECIFIC CHARACTERISTICS
Type of product (consumer good, capital good, business service, intangible)	How firm competes in market (price, market share, customer service)	Number of competitors, size and degree of market concentration	Economic (area and population size, income, factor costs, transportation and communications costs)
Stage in product life cycle (new, mature)	Amount of international experience (trade, investment, international alliances)	Age and rate of growth of industry, rate of technological change in industry	Social/cultural (language, culture, psychic distance)
Weight-to-value ratio (high, low)	Size and profitability of firm (economies of scale and scope, resource base, excess capacity)	Degree of globalization of firms in industry (local, regional)	Political/legal (tariff & non-tariff barriers to trade, FDI regulations, taxes, legal system)
Degree of product differentiation (commodity, brand name)	Nature of the value chain of the firm (in-house, sub-contracting), number, location and functions of existing plants	Type, importance and strength of related and supporting industries	General role played by government in economy (attitude toward competition, FDI, public infrastructure)

The stage in the product life cycle can affect the location decision. As products become more mature, location becomes more footloose and cost reduction becomes more important so that MNEs are more likely to shift manufacturing offshore as the product matures. Related to this is the technological intensity of the product. The higher the technology level, the more likely the product itself is to be produced close to the R&D affiliate (generally in the home country).

Hypothesis 3: Mature products are more likely to be produced in Mexico; new and high-tech products in Canada and the United States.

Just-in-time (JIT) production requires upstream suppliers to locate close to their major industrial customers (e.g. auto parts plants near assembly plants). Undifferentiated products with high labour content can be either produced in highly automated home country plants or dispersed to low-cost labour sites in developing countries.

Hypothesis 4: JIT production requires location near downstream firms. Generally this means location closer to final markets, i.e., the United States. Thus JIT discourages production in Mexico.

Firm-Specific Characteristics

Dubois et al. (1993) show that the goals of the firm affect the international manufacturing decision. Firms tend to place differing emphases on cost/efficiency (lowest production cost), quality (product performance), flexibility (the ability to make range of different products and/or adjust output volume rapidly) and dependability (providing dependable products, delivery and price). A focus on the first strategy, cost minimization, is more likely to lead to world wide sourcing of inputs and global manufacturing than are the other strategies.

Hypothesis 5: Firms located in mature, mass production industries, industries where import penetration is high and/or where managers have short-run time horizons, are the ones most likely to use cost-minimization strategies based on cheap labour costs. Such firms are most likely to shift production to Mexico (see Kogut, this volume).

The level of international experience also matters: the greater the experience, the more likely is offshore production. The motivation for a firm going abroad the first time (a new MNE) may be very different from subsequent investment decisions (a veteran or established MNE). For veteran MNEs, expansion may be into new areas or locating new plants in existing

areas of penetration. New plants may involve either new product lines, either vertically or horizontally related to existing plants, or be a way to rationalize production with existing plants, or involve the closure of old, obsolete plants and their replacement by more modern facilities. Further, in each case expansion may be either greenfield (a new investment) or brownfield (through mergers and/or acquisitions). Related to this is the size of the firm. Large firms have the economies of scale and scope and the resource base to support production offshore.

Hypothesis 6: The largest U.S. multinationals with plants scattered throughout the Triad are the firms best placed to reconfigure their activities so as to take advantage of the FTA and the NAFTA. They should therefore be more footloose than domestic firms.

The nature of the firm's value chain (that is, its historical configuration of activities) also affects the plant location decision. The number, location and functions of existing plants will affect the decision on where to locate a new plant.

Hypothesis 7: Decisions on plant location are made within the context of the MNE's overall strategy and structure, and are therefore firm-specific.

Industry-Specific Characteristics

The largest MNEs are international oligopolists, faced with rivals that they know in various markets around the world. Every action is therefore taken with some presumption as to how the rival firms will react. At the industry level, the number of competitors in the industry, their size, profitability, how they compete, how international they are, the degree of market concentration, will all affect the firm's plant location decision because MNEs are international oligopolists. Therefore their actions will depend upon the anticipated reactions of their competitors, and *vice versa*.

Hypothesis 8: The more internationalized the industry, the more footloose will be U.S. multinationals.

Country-Specific Characteristics

The firm must use some foreign factors in connection with its domestic firm-specific advantages (FSAs) in order to earn full rents on these FSAs. Therefore the locational advantages of various countries are key in determining which will become host countries for the MNE. Clearly the relative attractiveness of different locations will change over time. The country-specific advantages that influence

where an MNE will invest can be broken into three categories: economic, social/cultural and political/legal. Economic advantages include the quantities and qualities of the factors of production, size and scope of the market, transport and telecommunications costs, and so on. Social advantages include psychic distance between the home and host country, general attitude toward foreigners, and overall stance toward free enterprise. Political CSAs include the general and specific policies that affect inward FDI flows, international production and intra-firm trade.²²

Hypothesis 9: Economic, social/cultural and political/legal factors all influence the plant location choice. As regional integration reduces trade barriers, economic and social CSAs will have more impact on plant location.

Table 11 provides a broad-brush, general comparison of country-specific advantages of Canada, Mexico and the United States in 1990.²³ The table is subdivided into comparisons of economic CSAs (grouped according to Michael Porter's "diamond" of competitive advantage, i.e., factor conditions, demand conditions, structure of firms and industry rivalry, and related and supporting industries), and social/cultural and political/legal CSAs. The table argues that Canada and the United States are much closer to each other than to Mexico, reflecting Mexico's economic position as a developing country with a historically closed economy.

In terms of economic CSAs, the table argues that Canada is relatively well endowed in natural resources and high-skilled labour, the United States in capital, technology and high-skilled labour, and Mexico in low-skilled labour (see also Knubley, Legault and Rao, this volume). Canada's market is small, urban and high-income; the U.S. market is large, urban and high-income; while Mexico's market is split between a relatively large, mostly rural, low-income segment and a small, urbanized, high-income segment. Competition is oligopolistic in most industries, with U.S. MNEs dominating in all three countries, as U.S. multinationals do in technology generation. In related/supporting industries, Canada's strengths lie in the financial sector and public infrastructure; U.S. strengths are in transport and communications, business services, and agglomeration economies; Mexico is weak in these industries.

In terms of social/cultural CSAs, language differences are important; differences in labour and environmental standards are primarily due to weaker enforcement in Mexico (see Mayer, this volume). Finally, in terms of political/legal CSAs, the historical role of Mexico and Canada as host countries to U.S. FDI is reflected in their FDI regulatory policies; the traditional home country role of the United States in its more relaxed regulation of MNEs (see Kudrle, this volume).

TABLE 11 A BROAD-BRUSH COMPARISON OF COUNTRY-SPECIFIC ADVANTAGES WITHIN NORTH AMERICA, 1990			
COUNTRY-SPECIFIC ADVANTAGE	CANADA	UNITED STATES	MEXICO
COUNTRY-SPECIFIC ECONOMIC ADVANTAGES			
FACTOR CONDITIONS			
Quantity and Quality of Primary Factors (endowment of land, labour, capital, energy)	Natural-resource abundant; rich, small and ageing labour force; high rate of unionization.	Capital and land abundant; large and ageing labour force; high wages and low rate of unionization.	Rich in petroleum reserves; abundant young & unskilled labour force; low wages; low education levels; high rate of unionization; low labour participation rate.
Advanced Factor Creation (educated, high-skilled labour)	Small and well-educated labour force; most R&D through government.	Large, high-skilled labour force; global competitive advantage.	High-skilled, educated labour is very small percent of total labour force.
Creation and Adaptation of New Technologies	Most product technology imported through licensing and/or FDI; adaptation of existing rather than creation of new technology; competitive strengths in resource-based technologies; some adoption of lean production techniques.	Innovation center; globally competitive; world leader in product but not process technology creation; some diffusion of lean production techniques.	Product technology imported through licensing and/or FDI; generally slow adaptation of existing technologies; most sectors have technology gap; some competitive plants in auto sector.

TABLE 11 (CONT'D)			
A BROAD-BRUSH COMPARISON OF COUNTRY-SPECIFIC ADVANTAGES WITHIN NORTH AMERICA, 1990			
COUNTRY-SPECIFIC ADVANTAGE	CANADA	UNITED STATES	MEXICO
COUNTRY-SPECIFIC ECONOMIC ADVANTAGES			
DEMAND CONDITIONS			
Market Size and Characteristics (income levels, urbanization, age distribution, discriminating consumers)	Small but very high income market; primarily urban; population 27 million and ageing; slow growing domestic market too small to achieve economies of scale in mass production industries.	Large, very high income market; primarily urban; population of 253 million, slow growing and ageing; market sufficient to achieve economies of scale in mass production industries customers very demanding; high-income/high-taste market; Triad economy.	Medium-sized but low-income market; large disparities in income distribution; large informal sector; primarily rural population of 83 million, rapidly growing and young; current market too small to achieve economies of scale in mass production industries.
STRUCTURE OF FIRMS AND RIVALRY			
Degree of rivalry among firms; presence of joint corporate linkages; industry concentration levels	Tight, interlocking group of families own shares in largest businesses; concentration ratios high in capital-intensive sectors due to small market size; manufacturing, resources, finance and retail sectors oligopolistic.	Competition among firms high but most industries oligopolistic; biggest firms are world leaders and compete globally for market share.	Tight, interlocking group of families own most local, large-scale businesses; joint ventures with foreign firms; high degree of nationalized firms.
Size of firms and degree of multinationality	Largest firms still small by global standards; some multinationals mostly in natural resource sector; high foreign ownership; especially by U.S. MNEs, of resource and manufacturing sectors.	Largest firms globally in many sectors; largest number of headquarters for multinationals; MNEs especially prevalent in manufacturing and services; rapid growth in inward FDI with Asian and European transplants.	Domestic firms small; few multinationals headquartered in Mexico; high degree of foreign ownership, especially U.S., in nonrestricted sectors; joint ventures in restricted sectors.

TABLE 11 (CONT'D)			
Openness of firms to innovation and adaptation of new technologies.	Primarily follower firms; innovative firms in resource, transport and telecommunications; generally slow adaptation of new technologies.	Leaders in product innovation; some difficulty in moving from innovative to market stages; problems with process innovation.	Primarily follower firms; generally slow adaptation of existing technologies imported through licensing and FDI.
RELATED AND SUPPORTING INDUSTRIES			
Transportation and communications (T&C)	Good T&C infrastructure, but long distances from east to west (population spread out along the 49th parallel); high transport costs act as barrier to interprovincial trade; Ontario "golden triangle" close to U.S. northeast and midwest, so costs lowest here.	Producers in northeast and mid-west "core" have costs effectively zero; low costs for producers in other regions.	Poor T&C infrastructure plus most cities are long distance from North American "core" so T&C costs high; Major investments needed to offset distance to U.S. central markets.
Presence of strong business services sector	Financial sector strong historically, business services hampered by small market size.	Strong, weakened by collapse of thrifts, competitive advantages in engineering, advertising, accounting services, and so on.	Small and inefficient; many sectors historically nationalized are now being privatized.
Competitive machine tool and capital goods industries	Small and inefficient except in public infrastructure projects.	Regionally large and competitive, but facing substantial import competition from Asia.	Small and inefficient.
Public goods infrastructure: commercial, legal, educational, public health	Very good, financed by general taxes.	Good in general but decaying inner cities, health costs borne primarily by large firms.	Poor, traditionally provided through nationalized firms.

TABLE 11 (CONT'D)			
A BROAD-BRUSH COMPARISON OF COUNTRY-SPECIFIC ADVANTAGES WITHIN NORTH AMERICA, 1990			
COUNTRY-SPECIFIC ADVANTAGE	CANADA	UNITED STATES	MEXICO
COUNTRY-SPECIFIC ECONOMIC ADVANTAGES (CONT'D)			
RELATED AND SUPPORTING INDUSTRIES (CONT'D)			
Agglomeration economies from locating in same place	Clusters of firms in regional centres, especially "golden triangle" around Toronto; natural resource-based clusters in Western and Eastern Canada.	Clusters of manufacturing firms, historically in Northeast-Midwest; some now rust belt areas as businesses move to southern U.S.; high-tech clusters in California; "hub" of North America remains central U.S.	Clusters in Mexico City (population 20 million) and around Monterrey; clusters of maquiladoras along Mexico-U.S. border.
COUNTRY-SPECIFIC SOCIAL/CULTURAL ADVANTAGES			
General public attitude towards foreigners and foreign goods	Traditionally open to investment inflows; worries over levels of U.S. foreign investment and loss of cultural sovereignty especially in the 1970s.	Traditionally open to investment inflows; some concerns over national security; desire for "level playing field" with foreigners; recent "Japan bashing".	Traditionally anti-U.S. attitude, suspicious of U.S. foreign investment, particularly in petroleum; worries over loss of cultural sovereignty.
Psychic distance: language, culture, customs	English with some French primarily in Quebec; bilingual country.	English with some Spanish.	Spanish with some English.

TABLE 11 (CONT'D)			
Labour standards	High union membership in manufacturing and government services; resistance to introduction of flexible automation; high strike rates historically.	Low union membership; confrontational relations between labour and business; headquarters of many international unions.	High union membership outside maquiladoras; company unions in many plants; labour laws give unions considerable power in principle.
Environmental standards	Federal environmental regulations; Canada-U.S. border committee.	CAFE rules in autos; federal environmental standards.	Tight environmental laws but weak enforcement; U.S.-Mexico border committee.
COUNTRY-SPECIFIC POLITICAL/LEGAL ADVANTAGES			
Role of government in the economy	Heavy in public infrastructure; sizeable government deficit and national debt; substantial privatization and downsizing since 1980; heavy involvement in education and health; legal and administrative system well developed common law; Parliamentary democracy.	Laissez-faire; defense spending largest government role; large government deficit and national debt; legal and administrative system well developed, common law; democratic republic.	Government intrusive role in economy through regulation and public ownership; substantial divestment since 1986; government budget in surplus but debt still large; legal and administrative system less developed, based on Napoleonic code, subject to corruption; democratic republic with historical political élites.
Government attitude toward MNEs	General open door to FDI; some screening of very large acquisitions or culturally sensitive sectors; long-standing foreign firms seen as insiders in Canadian market.	Supportive of domestic MNEs and outward FDI; fear of Asian competition and transplant contributions to economy, foreign transplants seen as outsiders.	Historical negative attitude to inward FDI, especially from the U.S.; foreign firms seen as outsiders.

TABLE 11 (CONT'D)			
A BROAD-BRUSH COMPARISON OF COUNTRY-SPECIFIC ADVANTAGES WITHIN NORTH AMERICA, 1990			
COUNTRY-SPECIFIC ADVANTAGE	CANADA	UNITED STATES	MEXICO
COUNTRY-SPECIFIC POLITICAL/LEGAL ADVANTAGES			
General government trade & investment strategy	Historically high tariffs against imports, falling since Tokyo Round; strong commitment to participation in multilateral organizations such as the GATT; perception of nation as small, open economy reliant on access to U.S. and world markets for trade and FDI.	Generally low U.S. tariffs against imports; Congress traditionally protectionist while Executive pro free trade; long time participant in multilateral organizations such as the GATT; perception of nation as hegemony responsible for ensuring liberal world trading order.	General import-substituting industrialization until 1980s; move to export-oriented industrialization since joining GATT in 1986; unilateral reduction in tariffs and NTBs especially licensing; perception of nation as developmental state, dependent on United States.
Specific policies affecting intra-North American trade and investment	Auto Pact; countervailing and anti-dumping duty legislation; screening of inward FDI; vestiges of the National Energy Policy; restrictions on foreign ownership particularly in banking and culture; compulsory licensing of pharmaceuticals; preferential tariffs for developing countries; national treatment under the FTA.	Various non-tariff barriers including voluntary export restraints, quotas under the MultiFibre Arrangement and subsidies to agriculture exports; Auto Pact; Section and Super 301; preferential tariffs for developing countries and 806/807; heavier use recently of countervailing and anti-dumping legislation; Exon-Florio on national security; limits to foreign ownership in key sectors; national treatment under the FTA.	Constitutional limits on FDI in petroleum; the autos and FDI decrees; regime of high tariffs, licenses and NTBs now being unilaterally dismantled; key sectors closed to inward FDI; maquiladoras program.

The next section predicts the effects of the NAFTA on plant location strategies of U.S. multinationals within North America, based on their current configuration of activities, and on an analysis of the factors likely to influence these location decisions.

WHO DOES WHAT AFTER NAFTA?

CANADA HAS ABOUT 12 percent of U.S. MOFAs world wide. MOFAs in Canada are relatively large, with strong representation in the petroleum, other manufacturing, and the finance, insurance and real estate industries. Three-quarters of Canadian MOFA sales are arm's length local sales, with most of the rest intra-firm sales to their U.S. parents; by industry, world wide sales are highest in other industries and transport equipment. Canadian MOFAs are heavily engaged in intra-firm export and import trade with their U.S. parents. Average employee compensation of MOFAs in Canada is high compared to U.S. MOFAs world wide, as are unit labour costs in many industries.

Mexico, on the other hand, has just under one percent of all U.S. MOFAs world wide; they are relatively large affiliates and very labour intensive. They dominate in manufacturing, particularly in transport equipment, and are absent from the petroleum industry. Almost 30 percent of total sales go to the United States (almost all intra-firm); the rest are local and mostly at arm's length. MOFAs in Mexico are also heavily involved in two-way merchandise trade with their U.S. parent firms. Average employee compensation is well below world wide MOFA levels, but unit labour costs are roughly comparable.

Given this existing configuration of MNE activities in Canada and Mexico, how can we expect the NAFTA to affect plant location decisions? Table 12 attempts to answer this question by looking at the roles Canadian and Mexican plants play within MNE affiliate groups and examining how the NAFTA is likely to affect these roles. Table 12 outlines the six basic motivations for setting up foreign plants: the search for natural resources, new markets, and cheap production locations, the need to provide support and financial services to the MNE family, and strategic risk-reduction motivations. In each case, the Table identifies country-specific advantages likely to attract such plants, and then uses this information to predict how the NAFTA will influence the existing locational configurations of U.S. multinationals in North America.

THE SEARCH FOR RAW MATERIALS

THE NAFTA SHOULD CAUSE U.S. MNEs to rationalize their resource-based plants within North America. There should be more investment in endowment-rich areas in Mexico where inward FDI has previously been restricted. FDI should flow into the Mexican petrochemical sector, but not directly into petroleum

EFFECTS OF THE NAFTA ON PLANT LOCATION STRATEGIES OF U.S. MULTINATIONALS

MOTIVATION	COUNTRY-SPECIFIC ADVANTAGES	EFFECT ON PLANT LOCATION
Search for Raw Materials	<ul style="list-style-type: none"> - abundant, cheap natural resources - low energy and capital costs - low transport costs 	<p>Rationalization of production within the NAFTA. More investment in endowment-rich areas where inward FDI previously restricted, especially in Mexico. Possible upgrading of plants from simple extraction to processing as downstream tariff barriers fall.</p>
The Need for Market Access	<ul style="list-style-type: none"> - size, income level and characteristics of market - local content rules, tariffs and NTBs - economies of scale in final assembly - cost of capital and highly-skilled labour - transportation and communications infrastructure 	<p>Where markets are important, rationalization of existing plants in terms of products and/or processes. Agglomeration effects and economies of scale encourage shift of production to largest market (U.S.). Closure of inefficient plants in small markets and replacement with local distributors. Rapid growth in Mexico of FDI in previously closed sectors.</p>
Search for Cheap Production Locations	<ul style="list-style-type: none"> - low-cost labour and capital - geographic proximity to downstream firms - trade preferences encouraging offshore production - subsidies to local production 	<p>Rationalization of parts plants and sub-assemblies based on lowest cost location (including subsidies). Set up new plants in most cost-effective locations. Possible closure of inefficient plants.</p>
Providing Support Services and Financial Services within MNE Family	<ul style="list-style-type: none"> - entrepôt functions (e.g. good telecommunications and transportation infrastructure) - tax haven country 	<p>For existing MNEs, rationalization of existing subsidiary support functions; shift to centralizing support functions within the U.S. parent. For new MNEs, increased probability of establishing sales and distribution offices in other member countries. Centralization of R&D in parent likely to continue. Shift to marketing for North America as one market.</p>
Strategic-Risk-Reduction Motivations	<ul style="list-style-type: none"> - large and growing market - oligopolistic industries with rent-yielding potential - sectors previously closed to FDI 	<p>The NAFTA reduces risk so FDI increases. MNEs' desire for first mover advantages generates waves of FDI into Mexico before and immediately after NAFTA signed, particularly into previously closed sectors.</p>

extraction, due to Mexican constitutional restrictions. In addition, as downstream tariff and non-tariff barriers fall, general upgrading of resource-based plants from simple extraction to processing activities can be expected. While resource-based industries like the mining and petrochemical industries are pollution intensive, the environmental side agreement to the NAFTA should tighten the application of these rules in Mexico, reducing its attractiveness as a haven for polluting activities (see Mayer, this volume).

THE NEED FOR MARKET ACCESS

WHEN TRADE BARRIERS such as tariffs and government procurement policies have been important in influencing market access, MNEs are likely to have set up plants inside national markets to secure such access. The NAFTA reduces these barriers within North America, thereby reducing the need for MNEs to be located in a specific national market. Rationalization of existing plants in terms of products and/or processes is therefore likely, thus increasing both the degree of horizontal and vertical integration within the MNE and the amount of intra-firm trade flows within North America.

Where agglomeration effects and economies of scale are important, these will favour the location of production within the largest market, the U.S. hub, rather than the Canadian or Mexican spokes (see Vernon, and Eaton, Lipsey & Safarian, "Agglomeration Effects", this volume). In such cases, we expect closure of inefficient plants in small markets and their replacement with local distributors. For example, U.S. and Canadian auto exports to Mexico should rise rapidly as Mexico dismantles the trade-balancing requirements of the 1989 Auto Decree; some closures of inefficient plants in Mexico may occur. Related to this, where the MNE is using lean production technologies based on just-in-time delivery and production, parts plants are likely to follow downstream firms. Thus, the first-round location decisions of market-driven assembly plants are likely to be followed by a second round of parts plants investments (e.g. auto parts are likely to follow assemblers, see McCarthy, 1993). On the other hand, where a local presence is important for local sale (e.g. distribution, consumer services) or consumer tastes vary widely between national markets, the activities are not foot-loose, so the NAFTA should not shift such activities.

Where sectors have been closed to inward FDI prior to the NAFTA, there should be increased inward FDI into these sectors, particularly if strong market growth is expected. For example, consumer services such as finance, insurance and telecommunications should expand in Mexico after the NAFTA.²⁴ Retailing is another sector expected to expand rapidly; retail floor space in Mexico City is extraordinarily low for a city of 20 million. For example, the Mexican affiliates of Sears, Wendy's, Wal-Mart and Pepsi Cola are among the most profitable affiliates of these U.S. multinationals; all these firms are investing heavily in Mexico in anticipation of the NAFTA (*The New York Times*, July 21, 1993).

THE SEARCH FOR LOW-COST PRODUCTION SITES

REDUCTION OF TRADE BARRIERS under the NAFTA should increase the importance of economic factors such as unit labour costs as influences on the location of cost-driven plants. MNEs with labour-intensive parts plants located in the ASEAN and Caribbean countries may close those plants and shift production within North America. Tight rules of origin, particularly in the autos and textile sectors, should also encourage more onshore sourcing of parts and components. Rationalization of parts plants and sub-assemblies based on lowest cost location (including subsidies) is likely as MNEs move to set up new plants in the most cost-effective location. This should lead to increased vertical integration, and the possible closure of inefficient plants both inside and outside North America.

Two factors will be key to this decision for cost-reducing plants, in terms of comparing location in Mexico rather than in Canada or the United States. First, MNEs must trade off lower unit labour costs (as determined by wage rates and labour productivity) in Mexico against higher transport and infrastructure costs. Since the NAFTA improves crossborder transportation, we expect the natural insulation of transport barriers to decrease, increasing the probably vertical integration of Mexican plants into the MNE hierarchy (see also Unger, this volume). In addition, Mexican workers, when placed with world class plants and technology, are as productive as workers in Canada and the United States (as documented, for example, in the Ford Hermosillo plant). This should lead to increased parts and components production in labour-intensive, medium-technology activities such as consumer electronics, textiles and auto parts, as predicted by the Office of Technology Assessment (1992).

The second factor is the rate at which the MNE adopts lean production technologies, as opposed to continuing the 1970s strategy of mass production accompanied by world wide sourcing of parts and components. Lean production strategies encourage clustering of parts plants near the parent firm (lead plant) and downstream assembly and R&D plants. If agglomeration encourages plant location in the U.S. hub after the NAFTA, then lean production should discourage the erection of cost-reducing plants in low-wage locations (see Kogut, this volume). This may have more impact on U.S. outward FDI in plants in export-processing zones in Asia than in Mexico.

PROVIDING SUPPORT AND FINANCIAL SERVICES

WITH NATIONAL BORDERS BEING ERODED, the necessity for U.S. MNEs to have regional head offices in Mexico and Canada should be reduced. Some rationalization of existing subsidiary support functions (e.g. finance, government relations) is expected as the parent firm centralizes its head office support functions within the U.S. parent. U.S. MNEs should shift to treating North America as one integrated market for advertising purposes.

Centralization of R&D in the parent firm is likely to continue since the NAFTA prohibits the use of non-tariff barriers such as local content rules and performance requirements (see Eaton, Lipsey & Safarian, "Agglomeration", this volume).

STRATEGIC RISK-REDUCTION MOTIVATIONS

NAFTA REDUCES THE RISK for firms investing within North America so that intra-North American FDI flows should increase (see Vernon, and Eaton, Lipsey & Safarian, this volume). This desire of the largest U.S. multinationals for first-mover advantages in the Mexican market has already generated waves of inward FDI into Mexico. These should continue immediately after the NAFTA is signed into law, particularly into previously closed sectors, so that bunching should be visible.

SUMMARY

IN SUMMARY, IT IS EXPECTED THAT the NAFTA will induce substantial rationalization and possibly some downsizing of U.S. majority-owned foreign affiliates both inside and outside North America. As a result, the degree of horizontal and vertical integration of these MNEs should increase, creating more intra-firm trade and investment flows within North America, and perhaps smaller trade and investment flows between North America and Europe and Asia. Substantial investments in Mexico are anticipated, primarily in market access and resource-seeking investments in sectors where FDI has been restricted. However, given that: 1) differentials in unit labour costs in the three countries, while favouring Mexico, are currently not large, 2) Canadian and U.S. tariffs on Mexican exports are already low, and 3) labour costs are a small and declining share of total production costs for most stages of production, wholesale migration of plants from Canada or the United States to Mexico is not expected. In fact, relocation to the United States, both by foot-loose stages of production and by regional head office functions where economies of scale and agglomeration are important, is more probably for U.S. MOFAs in Canada than relocation to Mexico.

CONCLUSIONS

THE QUESTION, "Will NAFTA cause U.S. multinationals to shift their branch plants to Mexico?" requires both a simple answer and a complex one. The simple answer is "no", the NAFTA will not cause a massive exodus of plants from Canada and the United States to Mexico. As the statistics on U.S. MOFAs show, wide differentials exist in average employee compensation within the same industry but in different countries. However, unit labour costs are much more homogeneous, reflecting the fact that highly productive workers

are better paid, and in some industries unit labour costs are higher in Mexico. Therefore widespread closures of U.S. branch plants in Canada are not predicted, even for firms where labour costs are a large proportion of total costs.

The complex answer to the question is that there will be both closures and changes. These are likely to be much greater than simple econometric trade models predict because the NAFTA is much broader than a simple tariff-removal exercise. As government regulatory and trade barriers fall, liberalization will lead to reorganization and rationalization of MNE activities within each country and between countries.

U.S. MNEs are the firms best placed to take advantage of the falling tariff and non-tariff barriers that the FTA and the NAFTA will bring because they are already located in all three countries. The configuration of their plants was historically based on the "blocks" governments had positioned on the North American "chessboard". With governments now removing these blocks, the underlying economic factors will have more impact on location decisions. Because MNEs are international oligopolists, concerned about their shares of global markets, they will change the configuration of their activities in order to increase their international competitiveness.

U.S. MNEs are expected to locate, close and/or expand their plants with the whole North American market in mind. This should lead to reduced numbers of product lines in various plants and increasing horizontal trade among plants. MNEs are also likely to segment their production process among plants so that more vertical intra-firm trade takes place. As a result there should be more cross-border vertical and horizontal intra-firm trade. Certain product lines, industry segments, and plant functions will shift among the three countries and these will cause job losses and plant closures in certain locations. Precisely which plants and/or locations will depend on a complicated array of factors, some of which are exogenous to the firms involved (such as factor prices and transportation costs) and others which are firm-specific (such as the nature of the products produced and the ingenuity and entrepreneurship of the individuals involved). In each case, decisions will be taken at the level of the firm and we can but identify the factors that will be important in the decision making, without knowing the final outcome.

It may be concluded that the NAFTA will cause a variety of responses by U.S. multinationals, depending on their particular configurations of product-, firm-, industry- and country-specific characteristics. The strategic role each plant plays within the MNE, the types of locational factors the plant needs, and the country-specific advantages of various locations within North America will all affect the outcome. For most U.S. multinationals, low wages are a minor consideration in these location decisions. Rationalization of plant functions, either in terms of horizontal specialization in particular product lines, or vertical specialization in particular processes, is much more likely than plant flight to Mexico.

ENDNOTES

- 1 See Chesnais (1992), Dunning (1993), and the *Economist* (1993).
- 2 On the labour, social and environmental arguments concerning the NAFTA, see *The New York Times* (1993), *Business Week* (1993), Globerman and Walker (1993), Lemco and Robson (1993), Morici (1991), Prestowitz et al. (1991), Randall et al. (1992), OTA (1992), UNA-USA (1992), and Reifman (1992).
- 3 See Dunning (1993), Emerson et al. (1988), Investment Canada (1991), Rugman (1990) and UNCTC (1990).
- 4 For good summaries of the NAFTA see Government of Canada (1992), Globerman and Walker (1993), and Hufbauer and Schott (1993).
- 5 The only exception to this is global environmental accords such as the Ozone Accord and the Basel Convention on hazardous wastes, where the environmental accord takes precedence over the NAFTA.
- 6 Good analyses of the FTA and the NAFTA can be found in Cushing et al. (1993), Eden & Molot (1992), Fry & Radebaugh (1991), Globerman (1991), Globerman & Walker (1993), Hufbauer & Schott (1992, 1993), Lustig et al. (1992), Morici (1991), Prestowitz et al. (1991), Randall et al. (1992), Reynolds et al. (1991), Rugman (1990), UNCTC (1990), ITC (1991) and Watson (1991, 1992, 1993).
- 7 For a detailed history of FDI and industrial restructuring in Mexico see UNCTC (1992).
- 8 This hypothesis is discussed in Niosi's study in this volume.
- 9 Such investment diversion would be one reason for Mexico's desire to join the FTA.
- 10 Womack et al. (1990) predict this pattern for the North American auto industry, with the smaller, lower value-added autos being produced in Mexico and the larger, higher value-added ones in Canada and the United States.
- 11 While technological change will have pervasive effects on U.S. multinationals and their configuration of plants in North America, in this study we concentrate primarily on regional integration. See Eden (1991) and Morton (1991) for detailed analyses of the impacts of flexible automation on MNEs.
- 12 A long-running debate in Canada has focused on the role the Auto Pact safeguards, which effectively requires one car to be assembled here for each one sold here, have played a part in maintaining assembly functions in Canada, with some authors maintaining that the safeguards have not been binding since the mid-1980s and could therefore be dropped. The Canadian government, however, was successful in both the FTA and the NAFTA negotiations in keeping the Auto Pact in place in spite of U.S. pressures to eliminate it, see Eden & Molot (1993).
- 13 Leamer (1992), using a Heckscher-Ohlin three-factor model, reached similar predictions concerning the wage gap.

- 14 This table also illustrates the points made in the Encarnation study in this volume concerning U.S. MOFAs in Japan. Note the large trade surplus (\$5.5 billion) and the higher proportion of U.S. exports (7.2 percent) relative to imports (2.1 percent) compared to the share of U.S. MOFAs in Japan (0.9 percent).
- 15 We do not have data on the output or value added by industry, so PPE (a measure of the net physical capital stock) and sales are proxies for the relative size of MOFAs by industry in the host country.
- 16 Note that MOFAs in Canada, in the transport equipment industry, had 31.7 percent of world wide sales but only 22.5 percent of world wide PPE. This probably reflects the less capital-intensive nature of the primary activity in Canada (vehicle assembly) compared to parts and components production. Mexico, on the other hand, had 5.3 percent of world wide sales and 5.2 percent of world wide PPE in this industry.
- 17 While we do not discuss this in detail here, one can compare the labour force data among countries and across industries as another proxy for the relative size of MOFAs in particular countries and sectors. For example, 16.6 percent of the 5.2 million workers employed in U.S. MOFAs in 1990 were in Canada, 7 percent were in Mexico. Some other shares are: manufacturing (Canada 12.8 percent, Mexico 9.8 percent), transport equipment (Canada 19.8 percent, Mexico 13.4 percent), electrical equipment (Canada 7.4 percent, Mexico 19 percent).
- 18 Average compensation was calculated as total employee compensation (not provided) divided by the number of MOFA employees. Unit labour costs were calculated as total employee compensation divided by total MOFA sales (from Table 8).
- 19 Clearly, in order to make predictions as to the likelihood of plant shifts due to differences in unit labour costs, we would need data at a much finer level than the two-digit SIC code.
- 20 Unfortunately, the U.S. data do not provide the same information for U.S. parents, so that we cannot perform unit labour cost comparisons for the parent firms. However, Table 1 does provide such numbers for three assembly operations; unit labour costs are much higher in these plants than in the U.S. plants.
- 21 Dunning (1993) and UNCTC (1990) provide somewhat differently organized lists, although similar factors are discussed.
- 22 See McCarthy (1993) for an interesting discussion of the regional CSAs that have led German MNEs to locate in the Carolinas.
- 23 The table of country-specific advantages developed here is an amalgamation of Dunning's basic OLI model (see Dunning, 1993) and Michael Porter's diamond model of competitive advantage (see Porter, 1991). Porter's diamond consists of economic factors influencing plant location, and thus appropriately belongs within the group of country-specific economic advantages.

- 24 For example, per capita consumption of insurance in Mexico is \$30 per year; in Canada it is \$1,200 and in the United States it is \$1,900. The market in Mexico for insurance is predicted to grow from \$4.5 billion today to \$50 billion, with Mexico moving from 27th to the 7th largest market in the world. See *Business Week*, August 9, 1993.

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