
Economic Interests and Regional Trading Arrangements: The Case of NAFTA

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In recent years, there has been a dramatic expansion in the number and scope of regional trading arrangements in the world economy. One study finds that more than one-third of all trading blocs formed since 1948 were established in the past decade.¹ A significant body of work maintains that these arrangements are designed to strengthen protectionist barriers and divert trade.² Welfare-based trade models yield only protectionist reasons to form trading blocs—to exercise market power over other countries or blocs. Studies in the political economy of trade emphasize rent-seeking motives to divert trade from outside to within a region.³

These approaches suggest that regional trading arrangements tend to evolve in an outwardly protectionist direction, interfering with multilateral trade liberalization. Many analysts point to the disintegration of the trading system during the 1930s as evidence of the pernicious effects of regionalism. Conventional wisdom also links recent regional trade initiatives with protectionist pressures that undermine the multilateral system.⁴

However, there is little systematic empirical work on the political economy factors driving the creation of regional arrangements. One recent review concludes that

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1. Frankel 1997, 4.

2. See Gilpin 2000; Conybeare 1993; Thurow 1992; Garten 1993; Bhagwati 1993; Krueger 1997; and Lal 1993.

3. Grossman and Helpman 1995.

4. Observers note that the pursuit of regional arrangements in U.S. policy coincided with a shift to “aggressive unilateralism” (that is, greater use of contingent protection and strengthened Super 301 provisions for trade retaliation), at a time when the Uruguay Round appeared to have reached a low point. Moreover, many believe the protectionist turn in the United States inspired Canada and Mexico to pursue regional free trade. See Garten 1995; and Cox 1996.

There is a lack of empirical evidence indicating which domestic groups support regional trade agreements, whose interests these agreements serve, and why particular groups prefer regional to multilateral trade liberalization. . . [and] we know little about whether, once in place, regional arrangements foster domestic support for broader, multilateral trade liberalization or whether they undermine such support.⁵

This article develops an explanation of domestic lobbying for regional trade liberalization to fill these gaps in the political economy of trading blocs. This framework emphasizes two factors at the industry level that have not received enough attention in the literature: first, economies of scale in production; and second, production sharing across borders in intermediate goods. I then test my expectations in an analysis of lobbying on the North American Free Trade Agreement (NAFTA) in the United States.

Specifying the implications of economies of scale and regional production sharing and evaluating their effects on trade preferences illuminates why particular industry groups in a large, advanced economy such as the United States would seek trading blocs. This approach also explains why business and labor divided over regional free trade in some sectors but united against it in others, a difference that is puzzling for conventional trade models. A closing discussion of the NAFTA case highlights several reasons why many U.S. firms viewed trade discrimination as a prerequisite for reorganizing their manufacturing establishments to operate more efficiently.

I begin with a review of unresolved puzzles in the political economy of trading blocs. The second part of the article presents an explanatory framework to examine the domestic politics of regional trade agreements. The third part tests these expectations on group preferences (lobbying in the United States) and policy outcomes (tariff-phasing schedules in the NAFTA treaty). The fourth part evaluates specific motives in U.S. domestic politics for regionalism and trade discrimination. The final part discusses conclusions and implications.

Trading Blocs: The Economics and the Politics

Jacob Viner's *Customs Union Issue* is the starting point for the modern economic analysis of trading blocs. The purpose of this seminal work was normative: to assess how shifts in the source of supply of goods after regional integration affected national and world welfare. In this exercise, Viner treated customs union formation as an exogenous event.⁶ Yet the decision to establish such an arrangement has remained a puzzle for welfare-based trade models because the motives

5. Mansfield and Milner 1999, 604.

6. Viner found that customs unions could have positive or negative welfare effects on members and nonmembers based on the net of "trade creation" and "trade diversion." Viner 1950.

to stop partway along the road to free trade are unclear: eliminating all tariffs is always a better option for governments seeking to maximize social welfare, so regional integration is a “second-best” policy.⁷ An exception is the case in which customs union enables members to exploit market power over states left out of the group.⁸ Yet neither of these endpoints—global free trade or protectionist regional fortresses—plausibly characterizes the integration process. Thus economists concluded years ago that the motives must be “noneconomic.”⁹

As in most normative trade models, customs union theory’s focus on consumer surplus (welfare) rather than producer surplus (rents) limits its positive explanatory power. Other work, however, examines rent-seeking motives to form trading blocs. These accounts base their assumption that trading blocs reflect rent-seeking pressure on two generalizations: first, the costs of trade creation are concentrated on a small number of producers while the costs of trade diversion are diffused across a wide range of consumers; second, protectionist groups can form alliances more effectively than antiprotectionist groups.¹⁰ As a result, trading blocs are likely to be weighted in favor of exporters that benefit from enhanced protection, because governments seeking to ensure political support have incentives to grant special exemptions to import-competing sectors that would lose protection.¹¹ Domestic groups in free trade agreements can also extend trade barriers to the regional level by establishing rules of origin against nonmembers or by abusing dispute settlement provisions.¹²

A minority view counters that trading blocs reduce rent-seeking pressure or strengthen protrade lobbies, which facilitates more extensive trade liberalization. If regional integration establishes a common external tariff or transfers authority to supranational institutions, then protectionist national groups must reorganize at the regional level, where they will be larger, less homogenous, and more susceptible to free riding.¹³ Import-competing sectors might also lose political influence at the national level if their output contracts after regional trade liberalization.¹⁴ Third-country exporters injured by trade diversion will lobby to join trading blocs to regain lost markets.¹⁵ For developing countries, regional arrangements provide a commitment device to “lock in” economic reforms, which strengthens exporters and businesses with multinational ties, and weakens import-competing firms and

7. As Kemp and Wan explain, countries *should* have “an incentive to form and enlarge customs unions . . . until the world is one big customs union, that is, until world free trade prevails.” Kemp and Wan 1976, 96.

8. Mundell 1964 was the first to analyze the terms-of-trade effects of trading blocs. Recent work includes Krugman 1991; and Saxonhouse 1993.

9. Johnson 1965. Frankel 1997, chap. 10, reviews the extensive literature on the economic theory of customs unions.

10. Bhagwati 1993.

11. See Grossman and Helpman 1995; and Hirschman 1981, chap. 12.

12. See Krueger 1997; and Levy and Srinivasan 1996.

13. Olson 1982.

14. Richardson 1993.

15. Oye 1992.

state-owned enterprises.¹⁶ Finally, regional trade agreements can help to overcome status quo bias when groups are uncertain about the size of the adjustment costs associated with liberalizing trade multilaterally.¹⁷

However, many “stepping-stone” accounts of regional integration fail to explain why states pursue trade liberalization regionally rather than multilaterally. These arguments present trading bloc formation as an exogenous event that subsequently alters the preferences or organizational abilities of pro-trade and protectionist interests, but most of the approaches lack an endogenous mechanism to explain why groups prefer regionalism in the first place. Owners of locally abundant factors of production and producers of exported goods receive more benefits from multilateral or unilateral trade liberalization; it is not clear why they would prefer a “second-best” policy unless better alternatives are not feasible.¹⁸ At the same time, regional trade liberalization erodes protection for locally scarce factors and import-competing producers, so these actors are likely to prefer trade barriers at the national rather than the regional level. Because regional arrangements involve opportunity costs for competitive producers and adjustment costs for uncompetitive producers, “stumbling bloc” outcomes seem more plausible under neoclassical assumptions (that is, perfect competition and constant returns to scale).

To fill this gap, recent work incorporates imperfect competition and economies of scale into explanations for trading blocs. This research emphasizes incentives to ensure a stable market and to capture excess profits in industries with increasing returns to scale.¹⁹ Barriers to intraregional trade are costly when they deter firms from introducing technologies requiring larger-than-national markets to exploit economies of scale.²⁰ Regional integration offers especially large benefits to small-country firms, which can move down their cost curves once they gain access to a larger customer base.²¹ While some analysts surmise that industries with increasing returns to scale are likely to support protectionism in trading blocs, others argue that the main beneficiaries of regional arrangements tend to be strong advocates for multilateral trade liberalization.²²

16. Tornell and Esquivel 1997.

17. Wei and Frankel 1996.

18. As a result, some of these accounts add neoliberal assumptions that large numbers and high transaction costs in multilateral negotiations inhibit progress toward global free trade. On this approach, see Haggard 1997; and Yarbrough and Yarbrough 1992.

19. See Froot and Yoffie 1993; Busch and Milner 1994; and Milner 1997.

20. Mattli 1999, 46–47, 77–80.

21. Casella 1996.

22. Froot and Yoffie 1993 find strong incentives to protect industries with increasing returns to scale because, they argue, capital will be less mobile across borders. Busch and Milner counter that “the firms most likely to demand regionalism are also the least likely to favor external protectionism.” In this view, firms favorable to free trade seek regional arrangements because multilateral negotiations fail to liberalize trade enough to fully exploit economies of scale (presumably because of high contracting costs). Busch and Milner 1994, 273. Milner’s subsequent work, however, suggests that trading blocs are designed to exclude third-country firms. She also predicts that industries with increasing returns to scale will receive more extensive trade liberalization in regional than in multilateral agreements. Milner 1997, 85–86, 100.

These studies offer a promising approach to domestic support for regional arrangements. They also present an alternative way of thinking about the political economy of trade. Recent surveys underscore the growing recognition that factors omitted from standard trade models—economies of scale, product differentiation, and intra-industry trade—are theoretically and empirically important in contemporary trade politics.²³ Yet empirical work to date has not rigorously examined these variables on a large number of cases.²⁴

I build on this work by examining the effects of increasing returns to scale and systematically testing their importance in trade lobbying and trade policy. In doing so, I seek both to provide a persuasive account of the formation of trading blocs and to further advance the case for the inclusion of new variables in the political economy of trade.

Domestic Groups and Regional Trade Liberalization

My analytical framework examines how dynamic considerations cause domestic groups to lobby for regional trade liberalization. The static, once-and-for-all effect of trade creation and trade diversion is not a strong motive for regional integration. Rather, it is the opportunity for businesses to reorganize their operations that makes regional trade liberalization politically attractive. The gains from reallocating factors of production are most significant when manufacturing technologies and processes require access to a larger-than-national market to be profitable. Firms will exert political pressure to eliminate barriers to trade and investment that restrict the range of the market available to them if they can subsequently restructure to employ these technologies more effectively. Firms unable to make use of these technologies, however, will be less interested in regional integration; indeed, these firms might have reasons to oppose it.

Examining the dynamic effects of trading blocs helps to explain why some domestic groups lobby for regional trade liberalization while others fight it. I make two specific arguments. First, producers support trading blocs when access to the regional market enables them to take advantage of economies of scale. Firms producing goods with steep cost curves seek regional arrangements because increased production for an enlarged market yields significant reductions in unit costs. If cost curves are flat, however, longer production runs will have little or no effect on unit costs, and businesses will be less interested in a larger market.

Second, producers support trading blocs when an integrated regional market enables them to move stages of production across borders. Because barriers to regional trade and investment restrict opportunities to take advantage of differences between countries in wages, skills, or capital costs, firms seek regional arrange-

23. See Alt et al. 1996, 693–95; and Frieden and Rogowski 1996, 28–30.

24. An exception is Dick 1994. Milner and Yoffie 1989 provide case studies of strategic trade policy and corporate trade preferences.

ments if they can redeploy intermediate production between labor-rich and labor-scarce areas. Firms unable to move production abroad are not affected by these barriers and therefore have less incentive to push for regional trade liberalization.

Studies based on standard trade models ignore these dynamic effects, because they are derived from endowment-based theories of inter-industry trade.²⁵ However, this type of trade is declining in importance. For one, trade less often follows the conventional pattern of countries with different factor endowments exchanging labor-intensive for capital-intensive goods. Instead, countries with similar endowments frequently exchange similar products. This is inconsistent with the mobile-factors trade model; it also confounds the distinction in the specific-factors approach between export-oriented and import-competing industries. Economies of scale and product differentiation are the factors most commonly adduced to explain this apparent anomaly.

In addition, production is not country-specific: it is subdivided and dispersed across borders, with different stages located where they can be most efficiently performed. Firms engaging in “production sharing” or “outsourcing”²⁶ across borders transfer intermediate goods between countries, often (though not always) through intrafirm trade. Technological innovation has made this practice increasingly common: 40 percent of U.S. trade involves affiliates of the same multinational firm rather than separate, independent firms.²⁷ The ease with which owners of capital can move labor-intensive tasks to areas where labor is abundant challenges endowment-based trade models and confounds distinctions between export-oriented and import-competing, because two-way trade occurs as part of an integrated production process within a single firm.

While theoretical accounts of these trends are growing, economics has not yet produced a “new” trade model with the rigor to supplant established approaches.²⁸

25. In the “mobile factors” (Heckscher-Ohlin-Samuelson) model, trade divides factors of production, capital versus labor, with the factor of production that is abundant in a given economy experiencing an increase in its income and the scarce factor of production suffering a reduction in its income. This suggests that abundant factors support trade liberalization and scarce factors support trade protection. In the “specific factors” (Ricardo-Viner) model, trade-related domestic cleavages divide sectors, which lobby for trade policies based on whether they are export-oriented or import-competing. Predictions about income distribution in both approaches derive from the Heckscher-Ohlin theory of inter-industry trade (at least in principle). They simply make different assumptions about the ability of factors to move between industries in response to relative price changes. See Rogowski 1989; Magee, Brock, and Young 1989; Frieden 1991; and Hiscox 2001.

26. One study defines outsourcing as “the practice in which firms divide production into stages and then locate each stage in the country where it can be performed at least cost.” This includes offshore procurement from affiliated firms as well as unaffiliated suppliers. Feenstra, Hanson, and Swenson 2000, 85. I use outsourcing (or “offshore assembly”) specifically to describe the process by which goods sold in the domestic market are first shipped abroad and then returned after value has been added. “Production sharing” more generally refers to linkages in the manufacturing process between producers in different countries, regardless of the market of origin or final sale.

27. Figures for 1994 are 36.3 percent for U.S. exports and 42.7 percent for U.S. imports. Calculated from the sources on intrafirm trade in Appendix 1.

28. Helpman and Krugman 1985 and 1989 attempt to integrate these new approaches into standard trade theory. Also see Krugman 1986; and Grossman 1993. The ensuing discussion draws heavily from these sources.

Efforts to incorporate these factors into empirical work on the political economy of trade therefore rest on a less secure theoretical foundation. Nevertheless, it is possible to draw analytical first principles from this literature to illuminate how domestic actors evaluate their trade preferences when there are opportunities to take advantage of economies of scale or production sharing. Below I discuss the logic underlying my expectations about domestic support for regional trading blocs, before evaluating these hypotheses against the real-world behavior of organized groups.

Economies of Scale

When there are economies of scale, manufacturing costs per unit decline as a firm produces more of a product.²⁹ Declining unit costs enable firms to earn more “excess profits”³⁰ the larger their scale of output. This creates a tendency toward concentration and imperfect competition: normally there are few producers, each one an oligopolist or monopolist, with profits commensurate to their scale of production and the number of competitors in the market.

Economies of scale are important to the political economy of trade because trade enlarges the available market, which affects plant size. For example, trade encourages firms to expand production runs, increase capacity utilization, rationalize production facilities, and pursue mergers and acquisitions. As one source puts it, “[s]teady economic expansion . . . tends to reduce the incidence of uneconomically small operations in oligopolistic industries.”³¹ An enlarged market therefore can trigger a reduction in unit costs and yield larger excess profits.³²

Recent work on the formation of trading blocs focuses on the size of domestic markets, arguing that producers reap large gains from regional trade liberalization when their home market is small compared to the minimum efficient scale (MES).³³ In its present form, however, this argument is problematic. Both Milner and Casella suggest that the scale firms have attained before regional integration is endogenous to market size: small-country firms produce on a relatively smaller scale than large-country firms because they lack sufficient domestic demand to achieve high-volume production. But this produces a contradiction: on one hand, small-country firms will be more favorable to trading blocs because they experience a

29. In other words, if a firm with economies of scale doubles its inputs of capital and labor, it will more than double its output of finished goods.

30. I use “excess profit” instead of the more conventional “rent” to avoid confusion between motives for protection in alternative trade models. Excess profits exist when price exceeds marginal cost, so producers earn more excess profits the greater their price-cost margin. When there are economies of scale, a firm’s scale of production determines its marginal costs; at the same time, markets often are imperfect, so prices tend to exceed marginal costs. Thus each increase in scale reduces a firm’s marginal costs and increases its excess profits, all else equal.

31. Bain 1959, 166–67.

32. I assume that firms have not reached the “minimum efficient scale,” or the scale of output that minimizes unit costs. In other words, they must remain on the downward sloping portion of their cost curve.

33. See Milner 1997; and Casella 1996.

larger increase in their available market after regional integration; on the other hand, small-country firms will be more resistant to trading blocs because they anticipate competitive pressure from large-country firms in the region after trade liberalization.³⁴ Thus approaches linking scale and market size cannot explain the formation of trading blocs, as they imply that small-country firms will want national protection and large-country firms will prefer global free trade; neither group has an incentive to lobby for trade liberalization regionally.³⁵

Moreover, access to a larger market reduces unit costs and creates excess profits only when the returns to scale are large. If the returns to scale are small, firms limited from reaching MES by small domestic markets will not have higher unit costs than MES firms; they also will not earn excess profits if they expand production. Economies of scale, by definition, require nontrivial returns to larger plant size. Yet the extent of the returns to scale is not captured in home market size or in the MES.

Thus preferences for trading blocs depend on the returns to scale—or, stated technically, the elasticity of unit costs with respect to plant size. The difference in unit costs between producers of different sizes denotes the “penalty,” or the “cost in terms of reduced efficiency,” when economies of scale are not fully exploited.³⁶ This suggests that producers gain more from a marginal increase in plant size the steeper the cost curve: each marginal increase in plant size yields more excess profits the larger the returns to scale. When cost curves are steep, producers reap large benefits from the opportunity to trade in a broader market. When cost curves are flat, an increased scale of output yields little reduction in unit costs and few additional excess profits.³⁷

If firms benefit more from a marginal increase in plant size the steeper the cost curve, then producer support for regional integration increases with the size of the returns to scale. In this case, trading blocs provide two important benefits. On the one hand, regional trade liberalization opens new markets. This allows firms to reduce unit costs as output increases for export to regional partners.³⁸ On the other hand, trading blocs retain barriers against outside competition. External protection ensures that firms in the region fully internalize the scale effects of larger markets,

34. For example, Milner argues that firms with large home markets will be less interested in regional arrangements because “they may be close to efficient scale already.” Milner 1997, 85. However, she later asserts that “IRS industries which lack competitiveness prior to the [Customs Union] . . . are going to be far more hesitant . . . than are the more competitive ones” and will attempt to “block liberalization . . . [because] these industries intensely prefer and demand protection.” See Milner 1997, 97, 99–100.

35. In arguing that the scale firms have attained is not merely a function of home market size, I have not resolved whether firms with unexploited economies of scale might nonetheless oppose regional trade liberalization in anticipation of competitive pressure from larger rivals in the trading bloc. As a result, further empirical testing is needed to determine whether my argument applies only to firms with large domestic markets and to trading blocs with low internal adjustment costs (for example, because of high levels of trade diversion relative to trade creation).

36. Bain 1959, 149.

37. Silberston 1972.

38. Corden 1972.

creating opportunities to leapfrog foreign competitors through “import protection as export promotion.”³⁹

This analytical approach suggests that regional trade liberalization provides benefits not attainable through multilateral trade liberalization: under most-favored nation rules, external trade barriers must be reduced equally for the imports of all countries; trading blocs, however, allow external protection to remain in place. Particularly when barriers to trade and investment have fragmented production in a region, firms will tend to prefer regional trade liberalization to insulate them against external competition during the transition period while manufacturing facilities are being rescaled for a larger market.

In sum, producers are more likely to seek trading blocs the more they anticipate exploitable gains from trade. These gains are first and foremost a function of the returns to scale. If returns to scale are large, producers will support regional trade liberalization to increase output, reduce unit costs, and earn more excess profits. If returns to scale are small, producers will have little interest in the formation of a trading bloc because they derive no benefits from longer production runs or increased capacity utilization.

Regional Production Sharing

Production sharing involves the subdivision of different stages of manufacturing in different countries. This occurs when cross-national differences—usually disparities in factor endowments—allow certain production processes to be completed more efficiently abroad than at home.⁴⁰ In high-wage countries such as the United States, manufactured goods with labor-intensive aspects tend to face competition from developing countries, especially when technology is standardized, production is difficult to automate, and final sales are price-sensitive. In such cases, moving labor-intensive tasks to low-wage areas enables firms to reduce input prices and cut factor costs. When intermediate production moves to a location where it can be performed more efficiently, the capital, skill, and technology-intensive processes remaining in the home country become more profitable.

Firms engaged in production sharing across borders transfer goods between a corporate parent and its foreign affiliates through intrafirm trade, or import these inputs from unaffiliated suppliers.⁴¹ Intermediate components tend to be highly specialized and unique to a production process; many firms invest large sunk costs in products and processes for which no external market exists. Adjusting to any disruption in the flow of inputs across borders requires firms to externalize the market for intermediate goods—in other words, share proprietary technology and informa-

39. Krugman 1993.

40. Differences in institutional, legal, and regulatory environments might also motivate production sharing. For example, restrictions on unionization and lax environmental regimes make export processing zones attractive for firms faced with strict regulatory rules in their home country.

41. Firms rely on intrafirm trade instead of unaffiliated suppliers to retain control over highly specialized capital, technology, and skills. Caves 1996 provides an excellent summary.

tion with local suppliers, which raises the risk of opportunism and market failure—or interrupt the production process altogether. As a result, firms involved in production sharing, especially those that own their suppliers, tend to lack adaptability because their demand for intermediate goods is insensitive to market- or policy-induced changes in price. Measures to reduce the costs and risks associated with cross-border trade, therefore, provide large benefits to firms engaged in production sharing.

Geographic proximity is a key factor in production sharing. Multinationals tend to focus on region-specific sourcing, manufacturing, and marketing because often there are diseconomies of scale in global production networks.⁴² Locations closer to the corporate parent offer a number of benefits: lower transport costs in the movement of goods between home and host countries; easier coordination with components suppliers for firms that maintain low inventories and rely on just-in-time delivery systems; and shorter lead times when firms must adapt quickly to changes in demand or consumer tastes. As a result, production sharing primarily crosses borders between neighboring (or nearby) countries.

Most large U.S. businesses have established regionally integrated production networks in North America during the past thirty years. The geographic proximity of these networks to the U.S. market helps to explain why production sharing promotes interest in trading blocs but not multilateral trade liberalization. The most important concern for firms engaged in production sharing is not to liberalize trade worldwide, but to liberalize trade across the borders that link their separate investments. Moreover, free trade in goods alone is not enough to sustain regional production networks; firms also need to have national standards harmonized, trade-related investment measures eliminated, restrictions on equity ownership relaxed, dispute settlement procedures established, and protection of intellectual property enhanced. Multilateral negotiations on these sorts of behind-the-border trade barriers have not fared well to date. If production sharing is internal to a region anyway, regional and bilateral arrangements will be an attractive institutional framework for liberalizing this sort of trade. The potential benefits of liberalization are maximized, and the negotiating costs minimized, when it occurs regionally rather than through multilateral organizations.

Summary of Expectations

Figure 1 summarizes my expectations about the factors that encourage firms to seek trading blocs. First, business groups are more likely to lobby for regional trade liberalization the larger the returns to scale in production. Second, business groups are more likely to lobby for regional trade liberalization the more closely integrated firms are with foreign suppliers through production sharing across borders. Thus I expect Type 1 sectors to exert the most intense pressure for regional trade liberalization, because this creates opportunities to take advantage of economies of scale and to reduce the costs of outsourcing. Types 2 and 4 also derive

42. Wells 1992.

		Regional production sharing	
		High	Low
Returns to scale	Large	(1) Intense lobbying for trading blocs	(2) Moderate lobbying for trading blocs
	Small	(4) Moderate lobbying for trading blocs	(3) No lobbying for trading blocs (opposition likely)

FIGURE 1. *Hypotheses on business group lobbying for trading blocs*

benefits from a trading bloc, either in terms of longer production runs or increased outsourcing, and are expected to show moderate support for regional free trade. Type 3 sectors have few incentives to seek trading blocs because expanding their scale of output does not reduce unit costs, nor can they move production across borders. While sectors with low comparative costs might nonetheless back regional trade liberalization as a “second-best” option, those with high comparative costs will oppose regional free trade.

Trading Blocs and Capital-Labor Cleavages

This framework complements standard trade models, though it is not derived from them.⁴³ My assumptions about factor mobility are consistent with specific-factors approaches.⁴⁴ Work on industrial organization finds that scale effects and entry barriers tend to coexist.⁴⁵ Studies of the multinational enterprise also emphasize specific assets, entry barriers, and imperfect competition.⁴⁶ While to date these theories have not been formally integrated, they point in the same direction: high levels of factor specificity.⁴⁷

43. Helpman and Krugman 1985 and 1989 emphasize similarities between imperfect competition and standard trade models.

44. My argument differs from studies based on the specific factors model in that it attempts to deduce the trade preferences of sectors from their returns to scale and their involvement in production sharing. These variables, I contend, illuminate elements of trade preferences—lobbying related to trading blocs—that are not fully accounted for by observing levels of import competition and export dependence.

45. See Stigler 1968; and Caves and Porter 1976.

46. Caves 1996.

47. In fact, the framework implies high levels of factor specificity that could produce firm- rather than sector-based lobbying, because these are characteristics internal to firms rather than to sectors as a whole. Hiscox notes that “as economies of scale become more important in production, not only do broad class coalitions become less likely in trade politics, but divisions may also emerge between individual firms within the same sector.” Hiscox 2001, 36. At the same time, the analysis below finds predominantly sector-based lobbying, suggesting that firm-specific characteristics are more likely to operate at the associational level than theory would suggest.

It is also possible to develop the implications of this framework for labor unions. Standard trade models predict that capital and labor divide over trade when factors of production are mobile but unite when factors are industry-specific. Evidence of high factor specificity as economies become more specialized suggests that capital and labor are likely to cohere in their trade lobbying.⁴⁸

In addition to the inter-industry mobility of capital and labor, however, international mobility—especially for capital in an era when foreign direct investment is substantial—is also a consideration. When firms are, like most workers, immobile internationally, capital and labor will tend to unite because of factor specificity at the industry level. But firm-specific capital, embodied in the technology, managerial skills, and knowledge base of a company, is not always nation-specific. As a result, the restructuring opportunities some producers anticipate as a favorable effect of regional trade liberalization often impose dislocation costs on labor, especially low-skill workers in high-wage countries, when corporate activities cross borders.

In the case of production sharing, which occurs when producers in labor-scarce markets move labor-intensive tasks to low-wage areas abroad, antagonism between the interests of capital and labor is apparent. Policies that make it easier to move labor-intensive processes offshore create two kinds of unfavorable labor market outcomes for low-skill workers in high-wage countries. First, outsourcing shifts the demand for labor within industries from low-skill to high-skill workers. This in turn generates wage inequality, as Stolper-Samuelson effects reduce the real wages of low-skill labor and raise the real wages of high-skill labor.⁴⁹ Second, policies that make it easier for firms to substitute foreign for domestic labor increase the elasticity of demand for low-skill labor, which can create localized unemployment or depress the nonwage aspects of compensation.⁵⁰ The prospect that firms are likely to reorganize after regional trade liberalization will cause workers to anticipate changes in wages and benefits favorable to high-skill workers and harmful to low-skill workers. Thus labor unions, which tend to represent low-skill workers, are likely to oppose trading blocs in industries where mobile capital can engage in production sharing.

When specialization is based on economies of scale, labor market outcomes are ambiguous. The gains from trade based on economies of scale are distributed more evenly between capital and labor to the extent that both factors are industry-specific.⁵¹ This suggests that if firms are able to expand output, local labor in the sectors gaining those economies of scale will benefit. In this case, firms and their

48. Magee finds support for the specific-factors model in three empirical tests. Magee, Brock, and Young 1989, chap. 7. Hiscox 2001 suggests these are poor tests, but his evidence of low (and declining) factor mobility and sector-based trade coalitions confirms Magee's preliminary conclusion.

49. This assumes that low-skill foreign workers are substitutes rather than complements for low-skill U.S. labor. If outsourcing increases the demand for low-skill U.S. labor, then the preferences of labor unions are not so clear-cut. Feenstra and Hanson 1996 show that low-skill foreign and U.S. labor are indeed substitutes, not complements.

50. Rodrik 1997.

51. Krugman 1981.

workers will tend to unite in favor of regional trade liberalization—provided that the benefits of liberalization are specific to both sector and location, as they are when firms do not operate factories in multiple countries within a region.

If firms produce at several locations, however, then divisions between capital and labor are likely to emerge.⁵² Multinationals can fully internalize the costs and benefits of restructuring as they rationalize facilities in different places to concentrate production for the regional market, expanding product lines in some plants and closing them down in others. But many of the adjustment costs are externalized to low-skill workers. Even if the net effect of these adjustments on industry-level employment turn out to be positive or neutral, workers experience dislocation costs unless they can easily move between contracting and expanding plants. Moreover, when economic activities shift location in response to the new trading environment, it is impossible to predict at the outset which will concentrate in the core and which will move to the periphery.⁵³ Low-skill workers who might benefit are less likely to organize because it is not known which plants will expand and which will be downsized *ex ante*. Because labor cannot be certain about corporate intentions, unions representing low-skill workers are likely to exhibit a status quo bias against policies that encourage firms to specialize their operations between labor-rich and labor-scarce countries.

In sum, unified support for regional free trade is likely to occur only in industries in which economies of scale are significant and production is country-specific. In industries where offshore manufacturing is common or specialization based on economies of scale crosses borders, cleavages are likely to emerge between capital and labor, and workers will not share the interests of their employers in regional trade liberalization. When production sharing is not an option and economies of scale are absent, capital and labor will tend to join forces *against* regional trade liberalization.

NAFTA Lobbying in the United States: Empirical Analysis

Production sharing and large returns to scale are common in U.S. manufacturing. Yet their importance varies across sectors. It is therefore useful to describe my methods of measurement and to review the data to provide insights into the sectors most likely to benefit from regional trade liberalization.

Economies of Scale: Data and Measurement

Measuring differences across sectors in the size and significance of economies of scale is not easy. “Survivor tests,” which observe changes over time in the distribution of plants across size classes, produce crude (and often indeterminate) re-

52. See Helleiner 1977.

53. Krugman and Venables 1990.

sults. Engineering production functions provide valuable information about the MES and the slope of the average cost curve for various products, but data is available for only a handful of cases.⁵⁴ Recent empirical work on the political economy of trade measures the MES as the percentage of industry output in the typical plant in the median size class. But this does not capture the critical variable, the size of the returns to scale.⁵⁵

This study estimates the slope of average cost curves by measuring how value added per worker varies in plants of different sizes, a method developed by Hufbauer.⁵⁶ In this method, the elasticity of unit costs with respect to plant size is the value of the exponent α in the equation:

$$v = kn^\alpha$$

where v is the ratio of value added per worker in plants employing n persons to the average value added per worker for all plants in the sector;⁵⁷ k is a constant; n is the average number of employees per plant in the given size class; and α is the scale elasticity parameter. Taking the logarithm of both sides:

$$\log(v) = k + \alpha \log(n)$$

Regressing $\log(v)$ on $\log(n)$ for each establishment size class yields an estimate of α . This estimate produces positive values for economies of scale and negative values for diseconomies of scale.⁵⁸

Table 1 displays the results of these calculations for twenty-four sectors. Returns to scale tend to be largest in chemicals, electrical and industrial machinery, transportation equipment, nonferrous metals, and certain consumer goods such as tobacco and grain products. In contrast, textiles, apparel, rubber, plastic, and leather

54. See Bain 1959; Stigler 1968; Scherer 1970; Pratten 1971; and Scherer et al. 1975.

55. This proxy also suffers from measurement error because it assumes the typical plant in the median size class produces at the same level relative to MES in every sector. Variation across sectors therefore reflects the number of plants, the number of distinct products manufactured, and the degree of industrial concentration—not differences in the minimum efficient scale. Trefer 1993 and Milner 1997 use this measure.

56. My discussion follows the exposition in Hufbauer 1970, 178–79.

57. Value added per worker is a standard measure of industry-level rents in work on rent sharing between capital and labor, such as Katz and Summers 1989.

58. Hufbauer discusses possible sources of measurement error. Because we cannot control for exogenous influences on value added, this method might obtain biased estimates for α when there is a systematic relationship between plant size and (1) product type (for example, if larger plants make higher value-added products); (2) factor inputs (for example, if larger plants employ higher-skill labor and use more machinery); (3) technology (for example, if larger plants are more modern); and (4) monopoly power (for example, if firms with larger plants have more freedom to raise prices). Hufbauer 1970, 179–81. Variation in exogenous influences on profits and costs is a problem for all measures of economies of scale, as no two plants are identical in all respects except for size. (On this issue, see Bain 1959; Stigler 1968; Scherer 1970; Pratten 1971; and Scherer et al. 1975.) Thus there could be some randomly distributed measurement error, but any potential bias is not likely to be systematically correlated with the dependent variables examined below.

TABLE 1. Returns to scale in U.S. manufacturing

<i>Economies of scale</i>		<i>Diseconomies of scale</i>	
<i>Sector (SIC)</i>	α	<i>Sector (SIC)</i>	α
Tobacco products (211)	0.393	Fabricated rubber products (306)	-0.017
Flat glass (321)	0.302	Miscellaneous apparel (238)	-0.027
Grain mill products (204)	0.225	Petroleum refining (291)	-0.027
Agricultural chemicals (287)	0.195	Hats, caps, and millinery (235)	-0.037
Electronic components and accessories (367)	0.184	Men's and boy's suits and coats (231)	-0.050
Special industry machinery (355)	0.175	Footwear cut stock (313)	-0.052
Primary nonferrous metals (333)	0.163	Industrial inorganic chemicals (281)	-0.054
Drugs (283)	0.154	Wool fabrics (223)	-0.061
Computer and office equipment (357)	0.152	Men's and boy's furnishings (232)	-0.093
Photographic equipment and supplies (386)	0.148	Girl's and children's outerwear (236)	-0.171
Farm and garden machinery (352)	0.144	Leather gloves and mittens (315)	-0.172
Motor vehicles and equipment (371)	0.141	Women's and children's undergarments (234)	-0.193

tend to have small or even negative returns to scale. While the former group would benefit from access to a larger market through regional trade liberalization, the latter group would derive little or no gain from the opportunity to increase the scale of output.

Production Sharing: Data and Measurement

Since the mid-1960s, production abroad has expanded U.S. trade in intermediate goods, especially with labor-rich countries. Two factors have encouraged firms to integrate vertically across borders to take advantage of factor price differentials. First, many firms were in sectors that began to experience import competition from Asia. Second, most produced goods with technological characteristics conducive to off-shore manufacturing: production techniques divisible into stages that could be performed at different times and locations; low-skill labor-intensive components and processes that could use cheaper foreign labor; and low weight-to-value ratios for intermediate goods, which create low shipping costs between separate locations.⁵⁹

These characteristics are difficult to measure directly. An alternative is to infer production sharing from trade flows. In this analysis, I employ two alternative measures. The first is intrafirm trade: Table 2 presents intrafirm trade by U.S. firms in 1989 as a percentage of domestic sales (columns 1 and 3) and the proportion of

59. Grunwald and Flamm 1985.

TABLE 2. *Intrafirm trade in U.S. manufacturing*

<i>High intrafirm trade</i>		<i>Low intrafirm trade</i>			
<i>Sector (SIC)</i>	<i>Total (1)</i>	<i>Region (2)</i>	<i>Sector (SIC)</i>	<i>Total (3)</i>	<i>Region (4)</i>
Computer and office equipment (357)	27.6%	19.7%	Paper and allied products (261-67)	1.6%	83.7%
Motor vehicles and equipment (371)	24.3%	95.7%	Leather and leather products (311-19)	1.4%	37.6%
Electronic components and accessories (367)	22.6%	31.3%	Miscellaneous manufacturing (391-99)	1.1%	38.9%
Farm and garden machinery (352)	10.4%	24.7%	Apparel (231-39)	1.1%	27.8%
Construction, mining, and materials-handling machinery (353)	9.3%	45.3%	Stone, clay, and nonmetallic mineral products (324-29)	0.9%	69.1%
Drugs (283)	6.7%	20.5%	Plastics products (308)	0.9%	42.3%
Industrial chemicals and synthetics (281-82, 286)	5.8%	45.8%	Textiles (221-29)	0.6%	61.5%
Communications, audio and video equipment (365-66)	5.7%	45.5%	Furniture and fixtures (251-59)	0.6%	80.8%
Household appliances (363)	5.7%	79.9%	Lumber and wood products (241-49)	0.5%	94.7%
Instruments and related products (381-87)	4.6%	27.7%	Ferrous metals (331-32)	0.2%	62.4%

this trade that is cross-national with Mexico and Canada (columns 2 and 4). The data show that firms producing computer equipment, motor vehicles, and electronic components (for example, semiconductors or integrated circuits) engage in the largest amounts of intrafirm trade. Trade with affiliates abroad is less common in furniture, lumber, paper, nonmetallic minerals, and miscellaneous manufactures. Textiles and apparel recorded large increases in intrafirm trade in the 1980s, but levels remain low relative to total sales.

The second measure is U.S. imports entered under the Offshore Assembly Program (OAP).⁶⁰ This measure complements the data on intrafirm trade because it includes subcontracting between unaffiliated parties in addition to trade between affiliated firms. Also, OAP trade is a direct measure of outsourcing for products sold in the U.S. market because these items cross the border twice, as they leave and then reenter the United States. The data is not presented in tabular form because most of the sectors that heavily use the OAP also engage in substantial intrafirm trade—although industries such as apparel, leather, and rubber register moderate levels of OAP trade despite little intrafirm trade. In these industries, many companies outsource abroad, but production processes lack the proprietary capital, technology, and skills that motivate firms to control their suppliers.

Both sets of data show that production sharing, and outsourcing trade more specifically, remains disproportionately within North America. This helps to explain why some firms would be interested in trade liberalization and policy harmonization regionally more than multilaterally. Overall, Mexico and Canada accounted for 60.3 percent of OAP trade in 1987 and 44.0 percent of the foreign content of this trade. Among the industries with above-average levels of offshore assembly, at least one-third of OAP trade occurred in North America in every case except apparel (20.9 percent) and leather (8.9 percent). In addition, 60.5 percent of the intrafirm trade of U.S. firms in 1989 was with Mexico and Canada. As Table 2 illustrates, high levels of intrafirm trade outside the region are prevalent only in computer and office equipment, electronic components, farm and garden machinery, drugs, and instruments—sectors with substantial amounts of trade with North American affiliates as well. While some U.S. firms are closely integrated with affiliates in East Asia, this trade is narrowly concentrated in a few items: computers, consumer electronics, and electronic components.⁶¹ Thus the business constitu-

60. OAP trade is classified under Sections 9802.00.60 and 9802.00.80 of the U.S. Harmonized Tariff System (HTS). Under these chapters, U.S. products exported for processing pay tariffs only on the value added abroad, not on U.S. content, when they are re-imported into the United States. Data from the U.S. International Trade Commission was provided to the author by Robert Feenstra and Deborah Swenson. See Feenstra, Hanson, and Swenson 2000.

61. U.S. firms conducted 7.2 percent of their intrafirm trade with the five principal members of the Association of Southeast Asian Nations (Singapore, Malaysia, Thailand, Indonesia, and the Philippines) and another 3.4 percent with Korea, Taiwan, China, and Hong Kong. In other words, these nine countries amounted to just one-sixth the level of intrafirm trade with Mexico and Canada. Moreover, 93.7 percent of intrafirm trade with ASEAN countries and 71.0 percent of intrafirm trade with Northeast Asia involved machinery and electrical equipment—principally computers, consumer electronics, and electronic components.

ency for agreements to liberalize trade between parent firms and their affiliates outside North America is not as large as the coalition that pushed for free trade with Mexico and Canada.

NAFTA Lobbying: Variables and Data

In this section, I analyze the political debate in the United States over the negotiation and passage of NAFTA to evaluate how well the factors emphasized above explain group preferences toward regional trade liberalization. In 1990, Mexico joined trade negotiations with the United States and Canada. These discussions produced the NAFTA treaty in October 1992. The U.S. Congress ratified NAFTA and its side agreements in November 1993. The treaty was implemented beginning in January 1994.

These three and a half years of negotiation coincided with a lobbying campaign in the United States of equal length, designed to affect the terms of the agreement and then later, its chances for ratification. Because of “fast-track” procedures and the institutional structure of policymaking under the U.S. Constitution, the NAFTA treaty was a product of a three-stage process. In the first stage, interest groups lobbied members of Congress to influence the terms and conditions of delegating trade-negotiating authority to the president. In the second stage, organized interests pressured the U.S. Trade Representative (USTR), the International Trade Commission (ITC), and other executive agencies responsible for formulating trade strategy and conducting negotiations to pursue an agreement favorable to their interests. Proponents of free trade pushed for the elimination of regional tariff and nontariff barriers, as well as other measures relating to intellectual property, foreign investment, and the regulatory treatment of multinationals. Opponents of free trade sought special exemptions for their products and, failing that, the minimum possible trade liberalization. In the third stage, after the treaty and its side agreements were completed, Congress had to approve or reject it.

Congressional committees convened numerous public hearings between June 1990 and November 1993. Many groups testified or provided submissions for the record about their desired objectives for the negotiations and their views of the final treaty. In addition, ITC reports provide information about contacts between organized interests and executive branch agencies. I use this material in Table 3 to evaluate the preferences of sector groups on North American free trade for the dependent variable in an ordered probit analysis. The data are coded at the 3-digit Standard Industry Classification (SIC) level as “1” if representatives of the sector supported regional free trade; “-1” if they opposed regional free trade; and “0” if representatives of the sector did not lobby.⁶²

62. I have used two methods for classifying sectors as support (1) or oppose (-1). First, if one or more industry associations testified or submitted material for the record, their position is used to classify the sector's preferences. In rare cases in which industry groups adopted conflicting positions, I have coded preferences based on whether supporters or opponents produced a larger share of industry

TABLE 3. Definition of variables for NAFTA lobbying

<i>Variable</i>	<i>Measurement</i>	<i>Sign</i>
NAFTA LOBBYING	1 if lobbied in support 0 if did not lobby -1 if lobbied in opposition	DV
ECONOMIES OF SCALE	Elasticity of value added per worker with respect to plant size	+
REGIONAL INTRAFIRM TRADE	Intrafirm trade of U.S. corporations with affiliates in Mexico and Canada divided by U.S. sales	+
OFFSHORE ASSEMBLY	Foreign content of imports from Mexico and Canada under HTS Chapter 9802 divided by U.S. sales	+
IMPORT COMPETITION	Imports divided by U.S. consumption	-
LABOR INTENSITY	Wages divided by value added	-
EXPORT DEPENDENCE	Exports divided by U.S. sales	+
INTRA-INDUSTRY TRADE	Index of intra-industry trade	+

If economies of scale and intrafirm trade are important determinants of support for free trade agreements, these variables will be positively signed and statistically significant. To estimate the importance of economies of scale, I use the data on returns to scale discussed previously. For production sharing, I employ (in separate models) both sets of data described above: intrafirm trade with Mexico and Canada divided by U.S. sales; and the foreign content of U.S. imports from Mexico and Canada entered under the OAP divided by U.S. sales.

The ordered probit analysis includes additional variables to estimate a baseline model and to provide statistical controls. These are discussed below.

IMPORT COMPETITION. Empirical tests of endogenous trade models consistently find a positive relationship between import competition and trade protection, as the specific-factors approach predicts. As a result, I expect a negative association between import competition and support for regional trade liberalization. This variable is measured as imports divided by total consumption.

LABOR INTENSITY. Trade in North America reflects, at least in part, wage differentials between the United States and Mexico. While specific-factors approaches assume that trade patterns reflect the comparative cost considerations underlying trade preferences, import competition also depends on a sector's past success at

sales at the 4-digit SIC level. This occurs with SICs 206 (1), 208 (1), and 349 (-1). Second, when only individual firms but not industry associations testified or submitted material for the record, I have used this material to code sector lobbying if there are observed preferences for at least 2 firms responsible for at least 25 percent of industry output. This occurs with SICs 321 (-1), 322 (-1), 323 (-1), 326 (-1), 351 (1), 352 (1), 353 (1), 363 (1), 381 (1), and 386 (1). Industry associations are matched to SIC groups through the "Associations Unlimited" database at (<http://infotrac.galenet.com>). Firm sales are matched to SIC groups through Gale Research 1990.

securing trade protection and its degree of “natural” protection because of high transport costs or other invisible barriers to trade. Because the NAFTA treaty provoked much debate about labor-cost differences, it is possible that trade preferences responded to the wage structure as well as import competition. Labor intensity, measured as the ratio of wages paid to value added, helps to control for elements of comparative costs not captured in trade patterns. I expect a negative association between labor intensity and support for regional trade liberalization.

EXPORT DEPENDENCE. Specific-factors approaches predict a negative relationship between export dependence and pressure for trade barriers. In addition, case studies establish that groups are more likely to lobby against protection when they have export interests abroad.⁶³ Thus I expect export-dependent sectors to be more favorable to regional free trade. This variable is measured as the ratio of exports to domestic shipments.⁶⁴

INTRA-INDUSTRY TRADE. Economic models find that intra-industry trade produces fewer adjustment costs than inter-industry trade.⁶⁵ In sectors with intra-industry trade, regional trade liberalization allows firms to differentiate their products and specialize for niche markets.⁶⁶ As a result, analysts frequently argue that sectors with high levels of intra-industry trade tend to be more favorable to open trade.⁶⁷ Others, however, suggest that these sectors are also better able to exert protectionist pressures because they tend to be more concentrated.⁶⁸ Thus the effect of intra-industry trade on lobbying for regional trade liberalization is uncertain. This variable is measured as the Grubel-Lloyd index of intra-industry trade.⁶⁹

Statistical Results for NAFTA Lobbying

Statistical results for three ordered probit estimates of NAFTA lobbying appear in Table 4. Model 1 is a baseline version that excludes economies of scale and production sharing. In this model, export dependence is a strong predictor of pro-NAFTA lobbying, as sectors with high export-to-sales ratios were more likely to support regional free trade. Import competition and labor intensity both have a

63. See Milner 1988; and Destler and Odell 1987.

64. An anonymous reviewer has suggested that export dependence and intrafirm trade share variance, because multinational corporations first tend to export before they become involved in intrafirm trade. To alleviate this concern, I regress intrafirm trade on export dependence and enter this variable as the residual.

65. Krugman 1981.

66. Caves 1991.

67. Marvel and Ray 1987.

68. Gilligan 1997.

69. The formula for this index is: $1 - [|\text{exports} - \text{imports}| / (\text{exports} + \text{imports})]$.

TABLE 4. Ordered probit estimates for NAFTA lobbying

Variable	Model 1	Model 2	Model 3
ECONOMIES OF SCALE		4.177*** (1.193)	4.228*** (1.197)
REGIONAL INTRAFIRM TRADE		10.787* (4.299)	
OFFSHORE ASSEMBLY			39.792** (15.104)
IMPORT COMPETITION	-2.217* (0.889)	-2.465** (0.949)	-2.579** (0.953)
LABOR INTENSITY	-3.267** (1.090)	-2.006 (1.152)	-2.497* (1.162)
EXPORT DEPENDENCE	4.339** (1.660)	3.791* (1.755)	4.164* (1.728)
INTRA-INDUSTRY TRADE	0.224 (0.463)	0.362 (0.484)	0.392 (0.485)
THRESHOLD 1	-1.894*** (0.498)	-1.215* (0.577)	-1.476* (0.586)
THRESHOLD 2	-0.665 (0.481)	0.110 (0.567)	-0.122 (0.573)
Log likelihood	-128.28	-119.75	-118.03
Model χ^2	34.10***	51.17***	54.59***
Pseudo R^2	0.117	0.176	0.188

Note: Cell entries are maximum likelihood estimates obtained using ordered probit analysis. Numbers in parentheses are asymptotic standard errors. $N = 134$.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

statistically significant negative effect on NAFTA lobbying. Intra-industry trade is positively signed but not significant.

Economies of scale and regional intrafirm trade are added as regressors in Model 2. Both variables are positively signed and statistically significant, suggesting that the desire to concentrate production and expand regional procurement networks was an important consideration for sectors that supported NAFTA. Export dependence also increases support for regional trade liberalization. Import competition continues to be associated with opposition to NAFTA. Labor intensity is negative but is no longer statistically significant. Intra-industry trade remains positive and also nonsignificant.

Model 3 replaces regional intrafirm trade with offshore assembly in Mexico and Canada under the OAP program. The results are nearly identical to Model 2. Offshore assembly, as with regional intrafirm trade, is positive and statistically significant. All other variables maintain the same signs and significance levels, except that labor intensity is now statistically significant.

		Regional production sharing	
		High	Low
Returns to Scale	Large	(1) Intense lobbying for trading blocs Support: 61.1% Oppose: 5.1%	(2) Moderate lobbying for trading blocs Support: 40.6% Oppose: 13.2%
	Small	(4) Moderate lobbying for trading blocs Support: 28.3% Oppose: 21.8%	(3) No lobbying for trading blocs Support: 13.7% Oppose: 39.8%

Note: Cell entries are predicted probabilities from Model 3, Table 4, minus and plus one standard deviation of economies of scale and offshore assembly, holding all other independent variables constant at their mean values.

FIGURE 2. *Business group lobbying for trading blocs: hypotheses and results*

In sum, the baseline version in Model 1 shows that factor-cost considerations reflected in import competition, export dependence, and labor intensity provide a useful first cut in understanding the pattern of support for regional free trade. Nonetheless, Models 2 and 3 confirm that economies of scale and production sharing were significant factors, statistically and substantively, in pro-NAFTA lobbying. Comparing the log likelihood from Model 2 to the restricted version estimated in Model 1, the effect of economies of scale and regional intrafirm trade is significant at the .001 level. A likelihood ratio test for Model 3 and Model 1 also rejects the hypothesis that the coefficients for economies of scale and offshore assembly are simultaneously equal to zero at the .001 level.⁷⁰

To evaluate the substantive effect of intrafirm trade and economies of scale, I translate the maximum likelihood coefficients in Model 3 into predicted probabilities of NAFTA support. These are presented in the interior cells in Figure 2, which returns to the hypotheses presented above. When economies of scale are significant and OAP trade is large, predicted support for NAFTA is 61.1 percent and opposition is only 5.1 percent. This supports the expectation of intense lobbying for regional trade liberalization among sectors with these characteristics. Sectors are still predicted to lobby for NAFTA 40.6 percent of the time when economies of scale are large but regional production sharing is low. This figure falls to 28.3 percent with a high level of OAP trade and small economies of scale. When both of these variables are low, predicted support drops to 13.7 percent and opposition rises to 39.8 percent. Thus the empirical evidence is consistent with my hypotheses about which sectors lobbied for and against free trade in North America.

70. The likelihood ratio test for Model 2 is LR $\chi^2 = 21.49$, $df = 2$, $p < .001$. For Model 3, it is LR $\chi^2 = 24.31$, $df = 2$, $p < .001$.

TABLE 5. Multinomial logit estimates for NAFTA lobbying

Variable	Lobbied no (-1)	Did not lobby (0)	Lobbied no (-1)	Did not lobby (0)
ECONOMIES OF SCALE	-12.23*** (3.76)	-8.37** (3.10)	-11.90*** (3.63)	-8.01** (2.96)
REGIONAL INTRAFIRM TRADE	-29.96* (12.97)	-22.36† (11.55)		
OFFSHORE ASSEMBLY			-129.77† (72.47)	-48.08† (28.88)
IMPORT COMPETITION	8.37** (3.25)	2.20 (2.55)	8.51** (3.16)	1.84 (2.39)
LABOR INTENSITY	5.01 (3.24)	2.79 (2.42)	6.20† (3.26)	3.69 (2.40)
EXPORT DEPENDENCE	-14.00* (6.75)	-2.39 (3.45)	-13.83* (6.37)	-3.79 (3.37)
INTRA-INDUSTRY TRADE	-0.28 (1.49)	-1.88† (1.03)	-0.31 (1.49)	-1.90† (1.02)
CONSTANT	-1.75 (1.83)	1.20 (1.24)	-2.40 (1.80)	0.67 (1.21)
Log likelihood	-116.97		-116.04	
Model χ^2	56.71***		58.58***	
Pseudo R^2	0.195		0.202	

Note: Cell entries are maximum likelihood estimates obtained using multinomial logit analysis. Numbers in parentheses are asymptotic standard errors. Lobbying in favor of NAFTA is the comparison group. $N = 134$.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

† $p < .10$.

As an additional test of my findings, Table 5 presents multinomial logit results for Models 2 and 3.⁷¹ The purpose is to establish that sectors that lobbied for regional free trade differ in statistically significant ways from both the opponents of regional trade liberalization and groups that did not lobby. In the first model, NAFTA supporters not only have larger economies of scale and more regional intrafirm trade than opponents, they also differ from groups that did not lobby

71. The ordered probit analysis treats sectors that did not lobby as an intermediate outcome between support and opposition. However, it is possible that not lobbying reflects ordering along two dimensions: the intensity of trade preferences and collective action costs. If so, then this coding method assigns the same value on the dependent variable to groups that favored regional free trade but not intensely enough to lobby, groups that opposed regional free trade but not intensely enough to lobby, and groups that had strong preferences for or against regional free trade but faced prohibitive costs of collective action. This can bias the results of ordinal models. The discussion below indicates that the results in nominal models and in ordinal models are no different, which suggests that not lobbying can be regarded as an intermediate outcome in this case. Thus the choice of statistical model amounts to a trade-off between the efficiency and ease of exposition of the ordered probit model and the correction for potential bias in the multinomial logit model. See Long and Freese 2001, chaps. 5–6.

along these two dimensions. The same is true in the second model, where OAP trade substitutes for regional intrafirm trade. In fact, large economies of scale and greater involvement in production sharing with Mexico and Canada appear to be the principal difference between sectors that supported NAFTA and sectors that did not lobby.

These results help to shed light on the motives for groups to lobby in the first place, separate from the question of whether to support or oppose regional trade liberalization. While sectors that did not lobby had smaller economies of scale and less production sharing than sectors that supported NAFTA, their principal difference from sectors that opposed NAFTA is lack of exposure to import competition.⁷² Incorporating additional variables shows that while nonlobbying sectors were less concentrated geographically than NAFTA opponents, they were no less concentrated than NAFTA supporters. In addition, industrial concentration is not statistically significant in any multinomial logit specification. This implies that nonlobbying sectors had no unique difficulty organizing for political activity; they merely had less intense preferences than supporters and opponents of NAFTA.

NAFTA Tariff Phasing: Variables and Data

The preceding analysis provides a demand-side model of lobbying on the NAFTA treaty. But it is also important to know how domestic preferences affect policy outcomes. In a second test of my argument, I examine how sector characteristics filter through the political process to affect the supply of trade protection—or in this case, the supply of trade liberalization.

The dependent variable in this analysis is “NAFTA tariff phasing.” This variable has two components. First, Annex 302.2 of the NAFTA treaty specifies a staging schedule for the elimination of U.S. tariffs.⁷³ The timetable for each item is then weighted by U.S. imports of that item from Mexico in 1992.⁷⁴ This produces a tariff-phasing value that varies from 0 to 15.⁷⁵ Second, the tariff-phasing value is multiplied by the U.S. tariff rate in 1992. The product of tariff phasing and the

72. The results with sectors that did not lobby as the comparison group are not shown, but are available from the author on request.

73. The staging schedule identifies five tariff phase-out categories specifying equivalent annual tariff reductions down to zero: A (immediately); B (five stages, to 1 January 1998); C (ten stages, to 1 January 2003); C+ (fifteen stages, to 1 January 2008); and D (already duty-free). In addition, there are special categories for exceptional items. Those that apply to U.S. manufactures are: C10 (nine stages, with a 20 percent reduction in year one and no reduction in year two); and Sug (special staging schedules for sugar and sugar products).

74. These figures are re-aggregated from 10-digit Harmonized Tariff System (HTS) to 3-digit SIC codes, using files available at (<http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeConcordances.html>).

75. “0” means that all imports were free immediately upon implementation of NAFTA (A), or were already free (D); “15” means that all imports were assigned the maximum 15-year phase-out (C+). In practice, this figure varies from 0 to 12.24. The mean number of years to tariff elimination is 1.54, with a standard deviation of 2.76.

tariff rate is NAFTA tariff phasing. It captures how rapidly each sector was to be exposed to free trade under the NAFTA treaty.⁷⁶

All of the independent variables from the previous section are included.⁷⁷ The method of analysis is ordinary least squares (OLS) regression. A complete model of trade policy outcomes, however, requires specifying not only what organized groups demand of the political system, but also how effectively these preferences are articulated at the socioeconomic level and then channeled through political institutions. Because trade policy is nonexcludable in that it affects all firms in a sector, it resembles a public good. This gives rise to collective action problems. To control for this, I incorporate two variables to capture the ability of business groups to mobilize a lobbying campaign.

INDUSTRIAL CONCENTRATION. Theories of collective action suggest that small groups of large firms can more easily absorb the costs and internalize the benefits of their political activity. As a result, they are less likely to suffer from free riding.⁷⁸ Because political economists commonly assume that protectionist groups tend to be more capable of overcoming collective action problems, I expect industrial concentration to be positively associated with NAFTA tariff phasing. In other words, more concentrated sectors should be able to obtain longer staging periods to delay their exposure to free trade. This variable is measured as the percentage of industry shipments by the twenty largest firms.

GEOGRAPHIC CONCENTRATION. The relationship between geographic concentration and trade policy is less certain. Early empirical work produces inconsistent results for geographic concentration and trade protection.⁷⁹ More recent studies suggest that geographic dispersion is more conducive to trade protection in majoritarian systems, especially those with low party discipline such as the United States.⁸⁰ However, Busch and Reinhart find a positive association between geographic concentration and nontariff barriers.⁸¹ I use their measure of geographic concentration and, accordingly, expect a positive relationship with NAFTA tariff phasing.

76. A phasing measure for nontariff barriers (NTBs) might be preferable, because tariffs paid on U.S. manufactures averaged only 4.4 percent in 1992. However, NTBs are difficult to quantify and data is not readily available. Most empirical studies (for example, Busch and Reinhart 1999) use binary dependent variables to denote the presence or absence of a nontariff barrier. Coverage ratios—the percentage of imports in each sector covered by an NTB—are not necessarily superior, as NTBs vary widely in their severity. Finally, many NTBs against manufacturing imports into the United States were not addressed in the NAFTA treaty. Antidumping and countervailing duties did not change; NAFTA only established trilateral review for *future* administrative trade remedies. Because U.S. tariffs and NTBs tend to complement one another at the sector level, I would expect a measure of NTB liberalization, if one were available, to be correlated with NAFTA tariff phasing. See Ray 1981.

77. Note that NAFTA tariff phasing is reverse-ordered from NAFTA lobbying, so I expect these variables to have the opposite sign from the previous analysis.

78. Olson 1965.

79. See Pincus 1975; Caves 1976; and Lavergne 1983.

80. See McGillivray 1997; and Alt and Gilligan 1994.

81. Busch and Reinhart 1999.

Statistical Results for NAFTA Tariff Phasing

Table 6 presents OLS regression results for NAFTA tariff phasing. Import competition is the strongest factor contributing to a delay in exposure to free trade under NAFTA. Industrial concentration and geographic concentration also contribute to long tariff-phasing schedules, though the latter is not statistically significant. Labor intensity, while positively signed, does not appear to have an important effect. Economies of scale, regional intrafirm trade, and offshore assembly, on the other hand, accelerate a sector's exposure to free trade under the NAFTA treaty. Export dependence and intra-industry trade also are associated with shorter tariff-phasing schedules.

To evaluate the substantive effect of these variables, I use a hypothetical sector that is average in all respects except that it is one standard deviation above the mean on one measure. A one-standard-deviation increase in import competition lengthens the tariff-phasing schedule by 81.0 percent (Model 1) and 75.5 percent (Model 2), or from roughly 3.2 to 5.7 years. Alternatively, a one-standard-deviation

TABLE 6. *OLS regression results for NAFTA tariff phasing*

<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>
ECONOMIES OF SCALE	-0.606* (0.253)	-0.620* (0.256)
REGIONAL INTRAFIRM TRADE	-2.766*** (0.841)	
OFFSHORE ASSEMBLY		-5.280* (2.534)
IMPORT COMPETITION	0.704*** (0.200)	0.670*** (0.202)
LABOR INTENSITY	0.165 (0.274)	0.206 (0.279)
EXPORT DEPENDENCE	-0.854* (0.382)	-0.976* (0.382)
INTRA-INDUSTRY TRADE	-0.152 (0.105)	-0.171 (0.106)
INDUSTRIAL CONCENTRATION	0.398** (0.141)	0.351* (0.140)
GEOGRAPHIC CONCENTRATION	0.435 (0.231)	0.449 (0.235)
Constant	-0.312 (0.199)	-0.317 (0.203)
F-ratio	9.24***	8.62***
Adjusted R^2	0.332	0.314

Note: Cell entries are ordinary least squares (OLS) regression coefficients, with standard errors in parentheses. $N = 134$.

*** $p < .005$.

** $p < .01$.

* $p < .05$.

increase in economies of scale accelerates exposure to regional free trade by 43.9 percent (Model 1) and 45.1 percent (Model 2), or from 3.2 to 1.8 years. An increase in regional intrafirm trade shortens tariff phasing by 1.9 years (60.0 percent). Stated differently, while the typical sector continued to enjoy some trade protection until 1997, sectors with high levels of regional intrafirm trade were exposed to free trade just one year after the implementation of the treaty. Higher OAP trade causes tariffs to disappear 1.2 years sooner (37.5 percent).

These results demonstrate that sectors with large economies of scale and substantial production sharing had no reason to delay their exposure to free trade. Moreover, the immediate implementation of free trade allowed them to stop paying tariffs on their intrafirm imports into the United States. These sectors therefore sought rapid tariff phaseouts and consented to losing their own trade protection quickly, with little time allowed for adjustment to the free trade environment. Tariff-phasing schedules in the NAFTA treaty clearly reflect these anticipated lobbying patterns.

Business Versus Labor

The preceding analysis focuses on how the trade interests of business groups affected lobbying and policy. But NAFTA also produced cleavages between capital and labor that are not well explained in standard trade models. In one of his “Three Simple Tests of the Stolper-Samuelson Theorem,” Magee examined whether capital and labor were united or divided on the 1973 Trade Act. His finding that capital and labor usually lobbied for the same trade policies—nineteen of twenty-one sectors were located along the protection-protection and free trade-free trade diagonal of a two-by-two chart—is often cited as empirical support for the specific-factors model over the mobile-factors model.⁸²

Table 7 replicates Magee’s test for NAFTA lobbying. It shows that political cleavages were neither factor-based nor sector-based. Every labor union that testified opposed NAFTA, so the bottom half of the chart is empty. Sector associations and labor unions united only against, but never for, regional trade liberalization, as the sectors that lobbied are evenly split between the protection-protection category and the protection—free trade category.

Figures on intrafirm trade as a percentage of U.S. sales (located in the interior cells) suggest that production sharing splits the preferences of business groups and labor unions, while business and labor are more likely to entertain similar trade preferences when production sharing is less important.⁸³ Capital-labor divi-

82. Magee’s other tests examined whether factors were unanimous in their trade preferences and whether these preferences were independent of their trade orientation. Magee, Brock, and Young 1989, chap. 7.

83. I present figures on global intrafirm trade rather than regional intrafirm trade because I would not expect labor unions to respond differently to trade liberalization with any other country; workers appear to respond to overall levels of offshore assembly more than cross-national production sharing.

TABLE 7. NAFTA preferences of labor and capital

	Position of business groups			
	Protection	Free trade		
<i>Position of labor unions</i>	Glass products	2.9%	Computers and office equipment	27.6%
	Rubber products	2.9%	Motor vehicles	24.3%
	Leather and leather products	1.4%	Electronic components	22.6%
	Miscellaneous manufactures	1.1%	Farm and garden machinery	10.4%
	Apparel	1.1%	Construction and mining machinery	9.7%
	Stone, clay, and nonmetallic minerals	0.9%	Audio, video, and communications equip.	5.7%
	Plastics products	0.9%	Household appliances	5.7%
	Furniture and fixtures	0.6%	Electrical equip. and machinery	2.3%
	Textiles	0.6%	Steel	0.9%
<i>Free trade</i>				

Note: Cases include industries in which labor unions and sector associations or individual firms testified on NAFTA. SIC groups appear in Table 2 except glass products (321-23), rubber products (302-6), and electrical equipment and machinery (361-62, 364, 369).

sions existed in all but two cases where intrafirm trade exceeds 2.3 percent of U.S. sales. In contrast, business and labor agreed in all but one case with intrafirm trade less than 1.4 percent.⁸⁴

In sectors in which firms engaged in significant production sharing abroad, labor unions emphasized their concern with job losses to foreign countries. In these sectors, workers were particularly apprehensive about H. Ross Perot's "giant sucking sound" of U.S. jobs moving to Mexico. As intrafirm trade declines in importance, however, labor unions and their employers adopted equally protectionist positions. Both suffered from import competition in labor-intensive products, so both benefited from trade restrictions. In these cases, labor unions objected not to the migration of U.S. firms abroad, but to the pain of import competition unleashed through trade liberalization under the General Agreement on Tariffs and Trade (GATT), the Generalized System of Preferences, the Caribbean Basin Initiative, and free trade agreements with Israel, Canada, and Mexico. Business associations in these sectors echoed their complaints.

This suggests that trade-related cleavages have resurfaced between capital and labor when capital can move across borders.⁸⁵ Factor specificity facilitates international mobility when businesses can market proprietary assets through foreign investment. Multinational firms producing across all borders in a region will fully internalize the benefits of increased specialization based on production sharing, because resources are transferred among affiliates and remain within the corporate network. Workers, on the other hand, tend to be immobile between sectors. Production sharing therefore reduces the demand for unskilled labor in high-wage countries, which depresses real wages and generates local unemployment.⁸⁶

NAFTA and Trade Discrimination

The preceding analysis demonstrates that sectors with large economies of scale and substantial production sharing supported regional free trade. This helps to illuminate the more specific considerations that caused U.S. firms to seek trade liberalization regionally instead of globally.⁸⁷ Before NAFTA, increasing returns to scale production in North America was not already concentrated. The need to rationalize production facilities was most acute for U.S. firms that manufactured

84. Many producers of textiles and apparel shifted to a more neutral or supportive position on NAFTA after the terms of the treaty—notably its long tariff-staging schedule and restrictive rules of origin for these industries—were publicly released in the Fall of 1992.

85. Helleiner 1977.

86. Feenstra and Hanson 1996. Their analysis implies that wage inequality does not, however, depend on labor specificity within sectors: outsourcing reduces demand for low-skill workers in high-wage countries across the board.

87. The following discussion focuses on the incentives for a free trade agreement with Mexico. Chase 2002 provides an extended analysis of the motives for free trade between the United States and Canada.

goods with steep cost curves in Mexican factories. Though U.S. multinationals avoided the “miniature replica” problem in the maquiladora sector, most also owned inefficient plants in Mexico’s interior because regional trade barriers compelled production in several locations rather than the optimal level of concentration.⁸⁸

By the 1980s, excess capacity in U.S.-based plants made small-scale factories in Mexico a severe liability. U.S. firms faced intense competitive pressures from Asia and Western Europe. Considerable scope existed to gain economies of scale if manufacturing operations could be streamlined and rescaled for a regional market. But U.S. firms could not specialize their plants in the region and close down inefficient product lines as long as barriers to trade continued to segment the North American market.

Three considerations caused U.S. firms to prefer regional free trade to multilateral liberalization. First, firms with foreign investment in Mexico needed external trade protection to provide “breathing room” while they restructured. These firms especially wanted trade barriers to shelter their Mexican affiliates during this transition. They therefore pushed for gradual movement to free trade to minimize the disruption to their foreign plants. Computer producers IBM, Hewlett-Packard, and Data General, for example, were “strongly supportive” of a free trade agreement, but they wanted “some phase-in of tariff reductions to prevent dislocation to their Mexican operations.”⁸⁹ Automakers also requested long tariff phaseouts for their affiliates, which operated “at less than maximum scale of efficiency.”⁹⁰ In home appliances, GE and Whirlpool (which owned factories in Mexico) sought to delay exposure to free trade, while Amana and Maytag (which did not own factories in Mexico) pushed to accelerate the schedule for tariff elimination.⁹¹ These cases suggest that U.S. firms would not have accepted multilateral tariff reductions which would have undercut their affiliates in Mexico.

Second, trade liberalization is less attractive if third-country multinationals can capture the gains from trade creation by investing in the region. If regional integration induces large-scale entry by outsiders, established producers will be pushed up their cost curves. Because U.S. firms were vulnerable to competitive pressure while they reorganized operations in the region, they wanted guarantees that new entrants would not be able to share in the benefits of free trade without having to pay the same restructuring costs. A regional free trade agreement made it possible to impose entry restrictions on foreign firms.

In the NAFTA treaty, rules of origin to limit the benefits of free trade for Asian and European firms were the principal means for imposing entry requirements. Stringent rules offering NAFTA treatment only to textiles, made of North American yarn, and apparel produced from North American yarn and textiles, muted some

88. See Peres 1990; and U.S. International Trade Commission 1990.

89. U.S. International Trade Commission 1990, 2.7.

90. U.S. House of Representatives 1993, 147–50.

91. U.S. International Trade Commission 1993, 16.2 fn.3.

of the opposition to regional free trade among business associations in textiles and apparel. Automakers received a 62.5 percent origin rule to force Japanese multinationals to source inputs locally in return for free trade privileges. Special provisions also required the production of picture tubes in North America to deny duty-free treatment for “snap-together” television receivers assembled by Asian firms.⁹² These entry requirements could not have been established in a multilateral treaty. Yet a lobbying campaign to liberalize trade would have been more difficult to mobilize without discrimination to ensure excludable benefits for incumbents.

Third, free trade in North America was necessary, but not sufficient, for the restructuring U.S. multinationals desired to occur. These firms also needed freer access to government procurement markets, fewer equity restrictions on foreign investment, and improved standards for the protection of intellectual property. Most importantly, industrial policies and regulatory rules for foreign investors distorted regional production networks by forcing multinational firms to purchase high-cost local inputs or subsidize unprofitable exports to comply with government mandates. The Uruguay Round and the abortive Multilateral Agreement on Investment did not effectively address foreign investment and trade-related investment measures. Thus regional arrangements facilitate more extensive liberalization than is attainable multilaterally.

Pressure from U.S. multinationals for exclusive provisions in the NAFTA treaty highlights the practical difficulty of liberalizing behind-the-border regulatory measures in multilateral negotiations. Mexico’s industrial programs left U.S. multinationals with large sunk costs in poorly specialized, inefficient-scale factories. These firms wanted to rid themselves of the vestiges of import-substituting industrialization but feared that new entrants would build integrated, state-of-the-art production facilities in North America while they attempted to restructure. To prevent foreigners from seizing market shares, they sought discriminatory rules in the NAFTA treaty. For example, computer producers complained that they had “high costs imposed on them by the Computer Decree that would not be borne by new competitors.”⁹³ Likewise, U.S. automakers pushed to delay NAFTA treatment for firms that had not invested in Mexico under its Automotive Decrees.⁹⁴ These provisions were designed to provide transitional protection while firms streamlined disorganized operations, eliminated outmoded factories, and integrated production networks in the region. Multilateral arrangements, however, cannot compensate

92. However, producers of computers and integrated circuits defeated strict origin rules that would have inhibited their ability to source inputs from Asia. GM, Ford, and Chrysler also opposed efforts by parts producers and the United Automobile Workers to impose a 75 percent origin requirement on automotive goods. See Hufbauer and Schott 1992; U.S. International Trade Commission 1993.

93. U.S. International Trade Commission 1990, 2.7.

94. The Big Three sought immediate free trade for incumbent firms (themselves plus Volkswagen and Nissan), staged over ten years for new investors; a 50 percent origin requirement for themselves and 60–70 percent for new investors; and compliance by new investors with Mexico’s value-added and trade-balancing requirements for five years. “Vehicle Dispute Drives a Wedge Through NAFTA Talks,” *Financial Times*, 25 October 1991, 6.

firms for the costs imposed on them by past government intervention, because this would conflict with most-favored nation rules. A small dose of protection is therefore the price of more enduring liberalization when trade-related investment measures applied against specific firms are being phased out.

Conclusion

A number of scholars have discussed the significance of economies of scale and offshore production in the political economy of trade, but to date there have been few systematic empirical explorations of their effects on trade policy. This article explicitly includes these variables in an explanation of trading blocs and demonstrates that they effectively characterize domestic preferences on NAFTA in the United States.

Stated simply, business groups have powerful incentives to seek regional trade liberalization when returns to scale are large and firms engage in production sharing. Economies of scale and cross-border production networks raise a set of issues and problems unique to a particular bilateral (or regional) trading relationship. This makes the creation of trading blocs an attractive framework for liberalizing and regulating this type of trade. The NAFTA treaty is a perfect example: it involved not only free trade, but also rules to govern foreign direct investment, the treatment of foreign corporations, and intellectual property rights.

In finding that economies of scale were a critical factor in industry lobbying in the United States, this study differs from recent studies suggesting that only firms with small domestic markets seek trading blocs. Further empirical testing is required to determine whether economies of scale and production sharing create incentives for regional arrangements in smaller and less advanced countries as well. It is also important to specify the conditions under which firms in trading blocs will seek higher barriers against foreign goods or further trade liberalization. The approach developed here implies that unit costs decline when firms are able to gain economies of scale and outsource more production in a region, reducing the need for protection against outsiders. However, if firms cannot ride down their cost curves and outsourcing remains difficult even after the elimination of barriers to regional trade, then domestic groups are more likely to oppose future liberalization. Whether these considerations strengthen or weaken industry support for global free trade is therefore a question for future research to address.

Appendix 1: Sources of Study Variables

Dependent Variables

NAFTA LOBBYING: Coded from testimony, petitions, and statements in congressional hearings and executive agency reports. In total, thirty-four hearings in the House of Representatives, eighteen hearings in the Senate, and five executive branch reports were consulted. Bibliographic information is available from the author on request.

NAFTA TARIFF PHASING: The tariff phasing schedule appears in "Schedule of the United States," Annex 302.2 of the NAFTA Treaty, at (<http://www-tech.mit.edu/Bulletins/Nafta>). Import weights and duties are from the U.S. International Trade Commission, available at (<http://dataweb.usitc.gov>).

Independent Variables

ECONOMIES OF SCALE: Calculated from U.S. Department of Commerce, Bureau of the Census 1989.

REGIONAL INTRAFIRM TRADE: Calculated from U.S. Department of Commerce, Bureau of Economic Analysis 1992; and data files at (<http://www.bea.doc.gov/bea/ai/iidguide.htm>).

OFFSHORE ASSEMBLY: Feenstra, Hanson, and Swenson 2000, data provided at author's request.

EXPORT DEPENDENCE, IMPORT COMPETITION, INTRA-INDUSTRY TRADE: U.S. Department of Commerce, Bureau of the Census 1991; U.S. International Trade Commission, available at (<http://dataweb.usitc.gov>).

LABOR INTENSITY, INDUSTRIAL CONCENTRATION: U.S. Department of Commerce, Bureau of the Census 1989.

GEOGRAPHIC CONCENTRATION: Busch and Reinhardt 1999, data file at (<http://userwww.service.emory.edu/~erein/research/#geocon>).

Appendix 2: Descriptive Statistics

<i>Variable</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
NAFTA LOBBYING	0.073	0.773	-1.000	1.000
NAFTA TARIFF PHASING	0.142	0.335	0.000	2.042
ECONOMIES OF SCALE	0.082	0.098	-0.193	0.393
REGIONAL INTRAFIRM TRADE	0.018	0.031	0.000	0.256
OFFSHORE ASSEMBLY	0.003	0.010	0.000	0.079
IMPORT COMPETITION	0.155	0.160	0.000	0.640
LABOR INTENSITY	0.377	0.099	0.056	0.549
EXPORT DEPENDENCE	0.072	0.078	0.001	0.544
INTRA-INDUSTRY TRADE	0.510	0.291	0.033	1.000
INDUSTRIAL CONCENTRATION	0.669	0.188	0.214	1.000
GEOGRAPHIC CONCENTRATION	0.438	0.102	0.194	0.774
<i>N</i> = 134				

Note: Sectors excluded because of missing data are textile finishing (226), public building and related furniture (253), and metal services (347). Cigarettes (211), cigars (212), chewing and smoking tobacco (213), and tobacco stemming and redrying (214) were combined into one SIC group.

Appendix 3: Correlation Matrix

	<i>Economies of scale</i>	<i>Regional intrafirm trade</i>	<i>Offshore assembly</i>	<i>Import competition</i>	<i>Labor intensity</i>	<i>Export dependence^a</i>	<i>Export dependence^b</i>	<i>Intra-industry trade</i>	<i>Industrial concentration</i>
ECONOMIES OF SCALE	1.00								
REGIONAL INTRAFIRM TRADE	0.06	1.00							
OFFSHORE ASSEMBLY	0.02	0.74	1.00						
IMPORT COMPETITION	-0.11	0.25	0.24	1.00					
LABOR INTENSITY	-0.35	-0.10	0.06	0.18	1.00				
EXPORT DEPENDENCE ^a	0.01	0.00	-0.10	0.23	-0.11	1.00			
EXPORT DEPENDENCE ^b	0.03	0.24	0.00	0.27	-0.15	0.96	1.00		
INTRA-INDUSTRY TRADE	-0.06	0.08	-0.03	-0.45	0.06	0.28	0.30	1.00	
INDUSTRIAL CONCENTRATION	0.08	0.29	0.13	0.14	-0.39	0.12	0.20	-0.04	1.00
GEOGRAPHIC CONCENTRATION	-0.12	-0.02	0.06	-0.03	0.07	-0.19	-0.20	-0.07	0.09

Note: ^aResidual from regional intrafirm trade.

^bResidual from offshore assembly.

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