Between free trade and protectionism: strategic trade policy and a theory of corporate trade demands

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Ever since Adam Smith and David Ricardo challenged the intellectual foundations of mercantilism, theories of commercial policy have debated the merits of free trade versus protectionism. Since free trade was shown to be superior in terms of efficiency, scholars have long puzzled over why governments would ever choose protectionism. Part of the answer to this debate was usually found by looking at the interests of firms.

Examination of firms' demands has a long tradition in the political economy of international trade. In the extensive literature on the preferred trade policies of firms and corporate influence on setting trade policy,[1] studies have pointed to two findings. First, manufacturing firms in the postwar period have tended to seek either protection or free trade; the choices of firms have been dichotomous. Second, import-competing firms with no foreign operations have tended to battle for protection, while multinational firms and export-dependent corporations tended to prefer lower trade barriers.

One problem with these approaches is that corporate trade demands no longer fit into the traditional free trade versus protectionism dichotomy. Increasing numbers of multinational firms that historically supported uni-

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1. See E. E. Schattschneider, *Politics, Pressures, and the Tariff* (Englewood Cliffs, N.J.: Prentice-Hall, 1935); Raymond Bauer, Ithiel de Sola Pool, and Lewis Dexter, *American Business and Public Policy* (Chicago: Aldine, 1972); Timothy McKeown, "Firms and Tariff Regime Change: Explaining the Demand for Protection," *World Politics* 36 (January 1984), pp. 215–33; and R. Baldwin, *The Political Economy of U.S. Import Policy* (Cambridge, Mass.: MIT Press, 1986).

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laterally opening their home market have publicly advocated a third type of policy—a "strategic" trade policy of demanding trade barriers for the home market if foreign markets are protected. Indeed, recent political events show the growing prevalence of such behavior. For instance, the U.S. semiconductor industry has pressed the American government to threaten Japan with closure of the domestic markets unless Japanese firms buy more American microchips. U.S. commercial aircraft manufacturers have also pursued a similar strategy against their European rival, Airbus. Since these new strategic demands appeal to American governmental norms of fairness in international trade,[2] they could have a greater impact on policy in the late 1980s and 1990s than traditional pleas for protection. Moreover, if these strategic demands, which resemble requests for specific reciprocity, were adopted by the U.S. government, the United States could undermine the current General Agreement on Tariffs and Trade (GATT) regime, which is based on diffuse reciprocity in the form of unconditional most-favored-nation status.[3]

These new strategic demands by firms are not easily comprehensible within traditional models of the political economy of trade. Most studies of corporate trade demands have ignored the possibility of strategic trade policy as an option for firms. Specific reciprocity has usually been studied in the context of political strategies pursued by governments to appease certain domestic groups.[4] In addition, traditional approaches, which look at variables such as the capital and labor intensity of an industry and its position in the product or business cycle, tend to assume that demands for free trade and protectionism are *unconditional*. Yet the willingness of firms to support free trade or protectionism may be contingent upon the behavior of their foreign rivals and their governments. The central purpose of this article is to broaden the theory of corporate trade preferences by explaining why and under what conditions firms will demand contingent rather than noncontingent policies.

We begin by arguing that trade positions of firms can only be studied by enriching the dependent variable to include strategic demands as well as the standard poles of protectionism and free trade. We suggest that new variables must also be considered when predicting which industries are likely to act strategically on international trade. We explain the emergence of industry-wide strategic trade demands with three variables: changes in industry economics, foreign government policy intervention, and variations in industry structure. We show that as industries require greater economies of scale or

2. V. Aggarwal, R. Keohane, and D. Yoffie, "The Dynamics of Negotiated Protectionism," *American Political Science Review* 81 (June 1987), pp. 345–66.

3. Robert Keohane, "Reciprocity in International Relations," *International Organization* 40 (Winter 1986), pp. 1–28.

4. See John Evans, *The Kennedy Round in American Trade Policy: The Twilight of GATT?* (Cambridge, Mass.: Harvard University Press, 1971), chap. 2; and Keohane, "Reciprocity in International Relations."

become subject to significant cumulative learning effects, they become more dependent on access to foreign markets. If that access to world markets is impeded by foreign government protection or subsidies, domestic firms realize that their preferred policies will depend upon the choices of their foreign rivals. They will see themselves in a strategic situation in which the ability of "one participant to gain [its] ends is dependent to an important degree on the choices or decisions that the other participant will make."[5] This interdependence will lead firms that formerly advocated unconditional free trade to demand that free trade at home be contingent on reciprocal access to foreign markets.

Finally, we suggest that the degree of industry segmentation critically affects the speed, intensity, and substance of a given industry's trade response. When firms in an industry follow similar competitive strategies, changes in economics are likely to be widely recognized and translated relatively quickly into strategic trade demands. However, when competition is highly fragmented into numerous "strategic groups,"[6] the industry as a whole will react more slowly to external threats. If a slow industry-wide response is coupled with a rapid deterioration in competitive position, the industry is more likely to turn toward protectionism rather than strategic trade policy.

Theories of corporate trade preferences

Most theories on the political economy of trade have focused on the demand for protection rather than on the more general problem of illuminating the range of corporate trade demands. Many of these theories of protection posit that for a given set of industries, protectionist policies at home are preferable to other trade solutions. They state that firms will seek to maximize their profits via domestic trade barriers if they face comparative disadvantage, if they believe they can capture excessive rents through tariffs, and so forth.[7]

Helen Milner, John Odell and I. M. Destler, and others have recently

5. T. Schelling, *The Strategy of Conflict* (Cambridge, Mass.: Harvard University Press, 1960), pp. 9–10.

6. Michael Porter, "The Structure Within Industries and Companies' Performance," *Review of Economics and Statistics* 61 (May 1979), pp. 214–27.

7. There is a very large theoretical and empirical literature on the subject of which domestic groups seek protection. See, for example, W. Stolper and P. Samuelson, "Protection and Real Wages," *Review of Economic Studies* 9 (November 1941), pp. 58–73; and A. Krueger, "Political Economy of the Rent-Seeking Society," *American Economic Review* 64 (June 1974), pp. 291–303. For empirical tests of similar theories, see, for example, Richard Caves, *Multinational Enterprise and Economic Analysis* (Cambridge: Cambridge University Press, 1976); Baldwin, *Political Economy of U.S. Import Policy;* J. Pincus, *Pressure Groups and Politics in Antebellum Tariffs* (New York: Columbia University Press, 1977); E. Ray, "Determinants of Tariff and Nontariff Trade Restrictions in the U.S.," *Journal of Political Economy* 81 (February 1981), pp. 105–21; and R. Lavergne, *The Political Economy of U.S. Tariffs* (Toronto: Academic Press, 1983).

expanded these arguments by explaining why certain firms prefer free trade.[8] According to their line of reasoning, exporters and multinational firms, especially those with extensive global intra-firm trade flows in the manufacturing sector, will be committed to free trade and opposed to protectionism at home. Since barriers to trade impose higher costs on their business, these firms see free trade as a profit-maximizing strategy. Protectionism imposes costs on these companies by restricting access to low-cost imported inputs, disrupting intra-firm trade flows, and reducing their relative competitiveness vis-à-vis domestically oriented rivals. Protectionism at home could also increase the probability of retaliation against fixed foreign assets or exports. As Milner[9] demonstrated empirically, a number of American manufacturing industries that faced serious foreign competition in the domestic market resisted the temptation to ask for protection. In each case, these industries were dominated by multinational firms that did not want to risk retaliation or jeopardize their significant global intra-firm trade flows.

A gap in the literature exists, however, in that none of these theories has specifically addressed what happened to the preferences of internationally oriented manufacturing industries that were faced with a combination of competitive pressure and foreign protectionism. Underlying most theoretical analyses was an assumption that multinational firms would retain an unconditional commitment to free trade. This was a reasonable assumption because capital was mobile for multinational manufacturing firms, which meant that they could either invest in a local market and circumvent trade barriers or invest in other low-wage countries to reduce their costs.[10] It has never been a surprise that firms in the agricultural sector would demand specific reciprocity, because most farmers lacked mobility when confronted with trade barriers. But there was no reason to expect foreign protectionism to alter the trade preferences of manufacturing firms, since direct investment was an option that did not hurt their international competitive position.[11]

8. Helen Milner, "Resisting the Protectionist Temptation," Ph.D. diss., Harvard University, 1986; John Odell and I. M. Destler, *The Politics of Anti-Protection* (Washington, D.C.: Institute for International Economics, 1987); and T. Pugel and I. Walter, "U.S. Corporate Interests and the Political Economy of U.S. Trade Policy," *Review of Economics and Statistics* 67 (August 1985), pp. 465–73.

9. Helen Milner, *Resisting Protectionism: Global Industries and the Politics of International Trade* (Princeton, N.J.: Princeton University Press, 1988).

10. In addition to direct investment in the competitors' market and investing in other low-wage countries, a third strategy was to license technology and earn a royalty on the firm's fixed research and development investment. As long as multinational firms could earn a substantial return with any of these three strategies, one should expect them to remain committed to free trade.

11. The key variable in this analysis is mobility of factors of production. In the absence of mobility, such as in most agricultural production, it is not surprising that foreign protectionism would produce domestic demands for retaliation or reciprocity. However, in industries in which key factors (such as capital) are mobile and multinational firms have unique products that could not be easily replicated by domestic producers, foreign trade barriers could even be the preferred option. Since protectionism increases local prices, a multinational firm might be able to earn excessive returns behind tariff or quota barriers.

The color television industry in the 1970s is a case in point. Japan's market for televisions was closed to American investment and American products while Japanese firms started to grab market share in the United States. Consistent with traditional expectations, domestic firms (such as Zenith) lobbied for protection, while multinational firms (such as RCA) retained their commitment to free trade, earned royalties from Japanese firms by licensing technology, and simply moved production offshore to improve their cost position.[12] Just as British policymakers assumed in the 1840s that Britain would be better off with free trade at home even if other countries continued to be protectionist,[13] scholars have recently assumed that the profit-maximizing strategy of most multinational firms was free trade at home and that the strategy was independent of actions by foreign rivals and their governments.

Our puzzle was that strategic trade demands were being voiced by exactly the same type of firms that historically were committed to unconditional free trade: the internationally oriented manufacturers. No available theory could explain why some firms, but not others, would develop such strategic trade demands. How, then, can we understand the emergence of these strategic trade demands that make free trade at home contingent on free trade abroad?

A theory of strategic trade demands

Recent economic theories of international trade shed light on the changes in trade demands. Relaxing many of the strict assumptions of neoclassical economics, these new theories of strategic trade policy focus on trade under imperfect competition. While the literature on this subject is diverse, one of its central conclusions is that free trade is not always optimal and that protectionism—policies that restrict imports or promote exports—can increase national income by raising the profitability of firms in certain imperfect markets.[14] As one economist argues: "As a consequence [of imperfect competition], it is possible for firms to earn profits above the rate of return earned

12. David B. Yoffie, "Zenith and the Color Television Fight," Harvard Business School Case no. 9-383-070, rev. April 1986.

13. Arthur Stein, "The Hegemon's Dilemma," *International Organization* 38 (Spring 1984), pp. 355–86; and Keohane, "Reciprocity in International Relations."

14. See J. Brander and B. Spencer, "Tariffs and the Extraction of Foreign Monopoly Rents Under Potential Entry," *Canadian Journal of Economics* 14 (August 1981), pp. 371–89; A. Dixit, "International Trade Policies for Oligopolistic Industries," *Economic Journal* 94 (Supplement 1984), pp. 1–16; B. Spencer and J. Brander, "International R&D Rivalry and Industrial Strategy," *Review of Economic Studies* 50 (October 1983), pp. 707–22; A. Auquier and R. Caves, "Monopolistic Export Industries, Trade, Taxes, and Optimal Competition Policy," *Economic Journal* 89 (September 1979), pp. 559–81; J. Eaton and G. Grossman, "Optimal Trade and Industrial Policy Under Oligopoly," *Quarterly Journal of Economics* 101 (May 1986), pp. 383–406; D. DeMeza, "Commercial Policy Toward Multinational Monopolies," *Oxford Economic Papers* 31 (July 1979), pp. 334–37; and Paul Krugman, *Strategic Trade Policy and the New International Economics* (Cambridge, Mass.: MIT Press, 1986).

in purely competitive industries. Trade policy then emerges as a national attempt to obtain as large a share of these international profits as possible."[15] Although the new economic models are not very robust, conclusions derived from their use have spawned a deluge of research about why protection might help certain industries and thus improve national welfare.

These theories provide a starting point for understanding why corporate demands will become strategic, because they identify three key market imperfections that potentially can be exploited by government policy: (1) large economies of scale, (2) steep learning curves, and (3) sizable research and development (R&D) requirements.[16] From the point of view of firms, the first two conditions are most important because they create the possibility of receiving increased rents. If an industry's production of goods and services has very large economies of scale or significant learning effects, then access to foreign markets and the behavior of foreign firms and governments directly affect the profitability of the domestic industry.[17] Under these conditions, corporate profitability at home becomes interdependent with the actions of other countries.

The logic of this interdependence is that large economies of scale involve higher fixed costs and greater risks for firms. The ability to realize a return on the large initial investment necessitates a growing sales volume. If market share at home is not large enough for all domestic firms to realize the minimum scale necessary to break even, then access to foreign markets via exports becomes critical. Similarly, if the effects of learning (for example, reduced costs of production over time due to greater experience and knowledge of the manufacturing process) are important, the first firm or national industry to build a large sales base will have lower costs that cannot be profitably replicated by competitors. Since one or more of these economic changes can cause barriers to entry to rise over time, foreign protectionism or subsidies could give foreign competitors "first-mover advantages," cost advantages that later entrants could not match.[18] In an industry in which the U.S. market is open and a large foreign market is closed, foreign competitors would be able to achieve more efficient scale as a result of increased volume

15. J. Brander, "Rationales for Strategic Trade and Industrial Policy," in Krugman, *Strategic Trade Policy*, p. 25.

16. Krugman, *Strategic Trade Policy,* chaps. 2 and 4.

17. The third condition, rising R&D requirements, also creates market imperfections. However, these imperfections are not internal to the firm, like scale and learning; rather, they are "external economies" that are typically captured by other parties—not the individual firm—through "spillover" effects. Hence, while strategic trade policy for an industry with high R&D requirements can be used to increase a *nation's* welfare, there is no reason to believe that high R&D requirements will change the incentives for individual *firms* to demand strategic trade policy.

18. This assumes that market size is limited and that no technological innovation would make existing products or processes obsolete. See Pankaj Ghemawat, "Sustainable Advantage," *Harvard Business Review* 64 (September–October 1986), pp. 53–58.

in domestic and overseas sales, while domestic competitors would be squeezed into a portion of the domestic market. And once firms in the industry fall behind, they would be unable to recover profitably.

Under these two economic conditions—large economies of scale and steep learning curves—access to foreign markets and control over the home market would become a firm's top priorities. Firms that were formerly unconditional free traders would have to recalculate their positions on international trade if their industry undergoes these economic changes *and* foreign governments adopt trade or industrial policies that could give foreign competitors first-mover advantages. In the absence of foreign government intervention, internationally oriented firms are likely to continue to support unconditional free trade, since the benefits of strategic trade policy would be small relative to the risk of retaliation. Ceteris paribus, the same would be true if a foreign government fails to create a competitive edge for its firms. Assuming a foreign government has no reputation for successful intervention, internationally oriented industries would not want to incur the potential costs associated with strategic trade policy.[19] But if a foreign government has been successful in creating competitive advantages abroad—for example, increasing its firms' market shares in the United States and reducing U.S. firms' profits—then we should expect even the staunchest supporters of unconditional liberalization to make free trade at home contingent on freer trade abroad. In other words, strategic trade demands would become apparent.

In the absence of these key economic changes, multinational manufacturers would not have strong incentives for strategic trade policy. Without large economies of scale and steep learning curves, a multinational firm facing foreign trade barriers could adjust to increased international competition through conventional direct investment strategies: it could either invest directly in the protectionist country (like automobile firms did in Europe in the 1950s and 1960s) or move offshore to reduce labor costs (like RCA did in the 1970s). With changes in scale and learning, however, direct access via exports to foreign markets is critical. As many economic studies have shown, the building of new plants abroad may be inefficient if there are significant changes in economies of scale or learning effects in production. Direct foreign investment will limit domestic production volumes, and for-

19. Ceteris paribus refers here to the reputation of the foreign government for successfully intervening in its domestic industries. For decades, governments around the world have intervened in their economies. However, most of these interventions, especially by Latin American and European countries, have failed. Numerous factors, including poor government policies and inept management, have produced these failures. Hence, multinational firms that face large economies of scale or steep learning curves would not want to fight half the governments in the world just because those governments were intervening in their own industries. In the absence of some competitive loss, the costs would outweigh any benefits. On the other hand, if a foreign government had a reputation for successful industrial intervention, firms might seek strategic trade policy preemptively, even before their competitive positions suffered.

eign operations may not reach an efficient scale of operations.[20] Large-scale exporting from a domestic base will be the best option.

Hence, the combination of these market imperfections and successful foreign government intervention should lead internationally oriented firms to view unconditional domestic free trade as the worst possible outcome. With the loss of export markets due to foreign protection and the undesirability of investing around the barriers because of learning and scale effects, these firms will increasingly lose sales to their foreign rivals. Similar to the trade position of agricultural exporters, who also do not have the option of investing abroad when faced with foreign protection, internationally oriented firms with large economies of scale or steep learning curves will resort to strategic trade demands in order to pry foreign markets open.

Changing industry economics combined with successful foreign government subsidies or protection should alter the trade demands of individual firms within the industry. However, the speed with which the industry itself acts is also critical. Strategic trade policy is only useful to an industry *before* foreign firms gain long-term sustainable advantages. Once foreign firms achieve first-mover advantages, access of domestic firms to the foreign market would no longer be of interest, since they would be uncompetitive and therefore unable to sell even if the foreign market were open. Thus, if domestic firms fall inexorably behind, their only choices are to exit or to advocate unconditional protectionism.

A simple profit-maximizing model of the firm in perfect competition would assume that all firms are identical and that if collective goods problems could be overcome, all firms would quickly and unanimously advocate a common political position. However, assuming that all firms are identical is invalid in industries characterized by imperfect competition.[21] Firms may have different competitive positions, which means that even an industry with a small number of firms may not have a unified position on trade.

Take two hypothetical examples: one is a three-firm, highly segmented industry that is facing intense import pressure from Korea and Taiwan in one market segment; the other is a fifty-firm commodity industry in which all firms are essentially identical in size and product line, 100 percent of the production is domestic, and all firms compete directly against lower-cost imports. For the sake of clarity, let's say that the three-firm industry produces footwear and consists of one purely domestic footwear firm that competes head-on against Far Eastern producers, one maker of cowboy boots with no foreign competition, and one full-line multinational manufacturer that

20. Caves, *Multinational Enterprise and Economic Analysis,* pp. 43–44. Caves also discusses in this book the alternative approach of technology licensing. However, like direct investment, simply earning royalties would not be attractive in industries that have large economies of scale or significant learning effects.

21. R. E. Caves and M. E. Porter, "From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition," *Quarterly Journal of Economics* 91 (May 1977), pp. 241–61.

sources and distributes a significant percentage of its shoes from the Far East.[22] A priori, one might expect very different trade responses from these two industries. The three-firm industry would start with highly divergent trade interests, while the fifty-firm industry would have strong, immediate incentives to cooperate for protection. As a result, the three-firm industry would probably take longer to reach an industry-wide trade consensus.

Our hypothesis is that the speed and intensity of corporate demands for strategic trade action will be similarly affected by the structure of competition within an industry, especially the level of industry segmentation into strategic groups. A strategic group, as defined by Michael Porter, consists of one or more firms following "similar strategies": "Such a group could consist of a single firm or could encompass all the firms in an industry. Firms within a strategic group resemble one another closely and, therefore, are likely to respond in the same way to disturbances, to recognize their mutual dependence quite closely, and to be able to anticipate each other's reaction quite accurately."[23] If the majority of firms in an industry have relatively similar competitive strategies, they are more likely to respond in a consistent way politically to a change in industry economics and foreign government intervention. The more homogeneous the competitive strategies pursued by firms in the industry—that is, the fewer distinctive strategic groups there are—the greater the likelihood that all firms will identify the threat posed by foreign government intervention and respond similarly to that threat by adopting strategic trade demands.

However, if there are a number of distinctive strategic groups, as in the footwear example described above, then a more complicated pattern should emerge. In highly segmented industries, some firms may be unaffected in the short term by a foreign competitive threat.[24] They may not perceive the foreign threat in a similar way to other firms, or they may not respond to that threat similarly. Indeed, the more distinctive the strategic groups, the less likely a common industry response will develop. Some firms may favor strategic trade policy, while other firms favor outright protectionism and still others advocate free trade. This will necessitate bargaining among the firms and perhaps the making of side-payments to various firms in order to reach

22. While this footwear example is hypothetical, it has some similarities to the actual structure of the American footwear industry. See David B. Yoffie, *Power and Protectionism: Strategies of the Newly Industrializing Countries* (New York: Columbia University Press, 1983), chap. 5. Although there are over 200 American shoe companies, footwear is a highly segmented industry. In *Resisting Protectionism,* Milner also describes how these types of differences within the American footwear industry impeded the creation of a unified trade position.

23. Porter, "The Structure Within Industries," p. 215.

24. Strategic groups have been defined by economists in various ways. The dimensions of strategic groups could range from marketing strategies to dimensions that are only important for international trade (such as global versus domestic production strategies) or for specific product segments. Our analysis of strategic groups focuses only on dimensions of industries that are related to the firms' positions in international trade and competition. For an operational definition, see footnote 26.

a unified position. In highly segmented industries, this process of consensus-building will be costly and time-consuming. It will mean that the development of an industry-wide response to foreign government intervention is slower than when the industry is less fragmented.

If the industry response is slow in these fragmented industries and foreign government intervention leads to a rapid deterioration in net income and market share, then the domestic industry will lose its first-mover advantages and become increasingly uncompetitive. Under these conditions in imperfect markets, strategic trade policy will have little value. Access to foreign markets will no longer solve the industry's problems. If the competitiveness of the industry declines rapidly, only unconditional protection at home will allow its firms to survive. Therefore, rapid losses in industries with large numbers of strategic groups are likely to produce demands for trade barriers, no matter what policies are pursued abroad.

If, on the other hand, there is a slow deterioration in the industry's market position (characterized by lower profits rather than acute losses and by only marginal declines in market share), then there is a greater probability that the industry will have time to bargain its way toward strategic trade policy. As long as most firms in the industry have a substantial domestic market share and continue to be competitive internationally, they will realize that access to foreign markets remains crucial to their future survival. Strategic government action will still be appealing to them.

This argument about corporate demands is presented in Figure 1. Multinational and export-oriented industries start as unconditional demanders of free trade. As the economics of the industry change and foreign governments intervene, the conditions are created for a change in corporate responses to foreign competition. If a foreign government has no reputation for successful intervention and fails to create a competitive edge for its firms, then internationally oriented industries are likely to remain free traders.[25] But if the industry loses some competitiveness (loses domestic market share and profitability), then two possibilities arise. In an industry in which few strategic groups exist and firms follow similar strategies, there should be a quick turn toward strategic trade policy. In an industry that is highly segmented and has distinctive strategic groups, the speed of industry-wide decline will condition the response. If there is rapid deterioration, firms are likely to favor unconditional protection of the home market. If, on the other hand, there is slow deterioration, firms are likely to see advantages of demanding strategic trade policy.

Case studies

To examine this argument, we studied four industries that had a history of supporting free trade: the semiconductor, commercial aircraft, telecom-

25. For a discussion of reputation, see footnote 19.

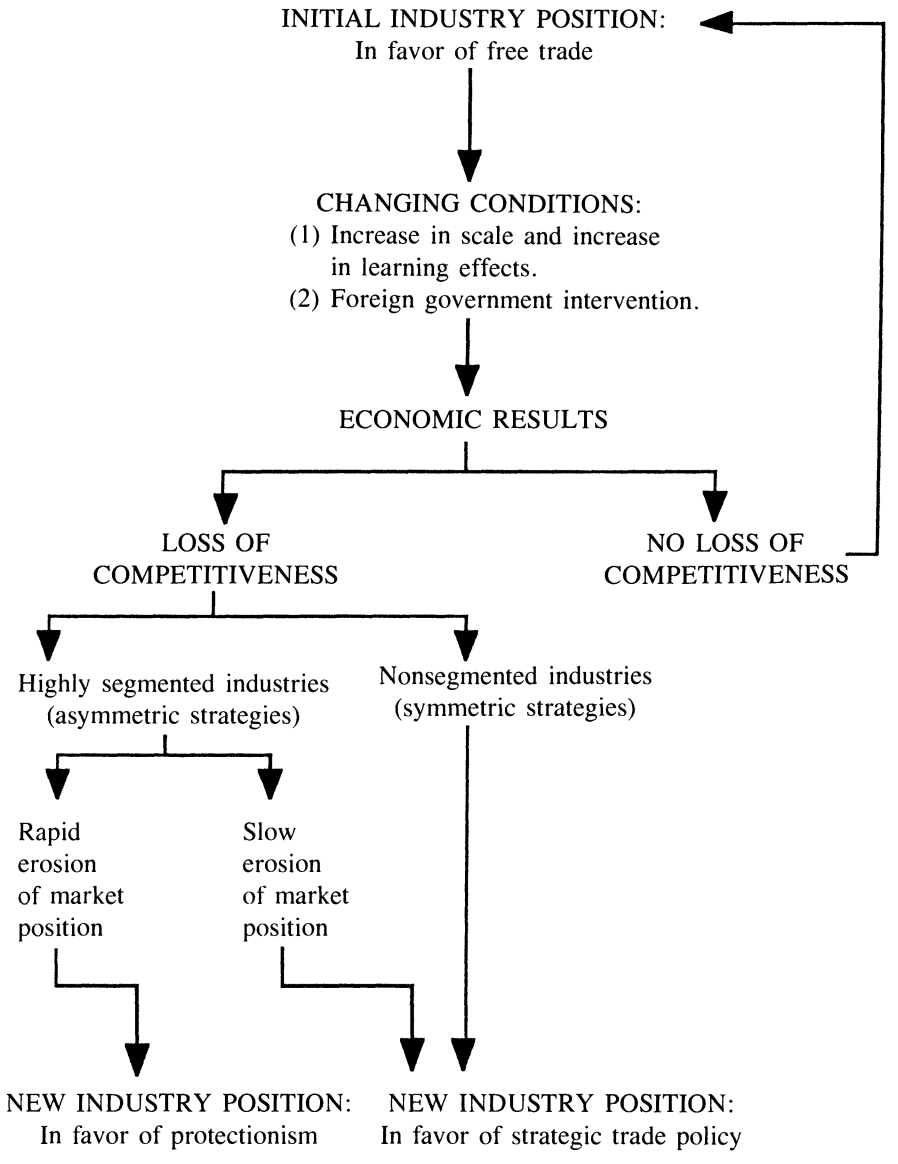

FIGURE 1. *Effects of changing market conditions and government policy on corporate trade demands*

TABLE 1. *Operating indicators for industry samples (as percentage of sales)*

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Semiconductors												
Capital expenditures	6.0	9.0	11.0	14.0	13.0	15.0	18.0	15.0	14.0	21.0	17.0	n.a.
Operating profits	−3.6	10.0	10.6	12.0	13.2	15.5	7.0	3.1	10.1	16.1	−4.2	n.a.
Foreign sales	27.9	29.0	30.4	32.2	32.7	34.9	30.4	30.7	31.7	37.4	37.5	n.a.
Commercial aircraft												
Capital expenditures	2.2	2.0	2.4	4.2	5.4	5.1	4.0	3.4	1.5	2.1	2.3	3.7
Operating profits	6.7	9.4	10.4	7.4	6.6	5.4	2.0	−0.8	0.5	1.0	4.5	3.9
Foreign sales	49.9	59.0	55.8	38.1	45.3	52.8	55.3	39.1	39.7	30.9	37.3	38.1
Machine tools												
Capital expenditures	2.7	3.8	2.9	3.8	4.5	5.3	5.3	4.7	4.1	7.3	3.3	3.0
Operating profits	8.9	9.3	10.1	14.5	16.7	17.1	16.7	11.9	−1.7	0.6	−0.3	−0.1
Foreign sales	35.1	30.6	28.4	29.1	26.6	28.6	24.4	21.2	26.8	16.4	17.0	23.3
Telecommunications equipment												
Capital expenditures	4.2	3.2	3.8	4.2	4.2	5.4	5.3	5.9	7.3	15.2	10.1	8.4
Operating profits	4.8	6.9	12.4	12.3	12.2	12.0	11.3	9.7	4.1	9.7	8.1	7.7
Exports 3661[a]	4.2	4.4	3.6	4.9	4.6	5.0	5.4	7.0	6.7	6.1	5.2	4.7
Exports 3662[b]	9.2	10.7	10.0	9.9	9.6	8.5	8.6	7.9	7.4	6.9	6.4	6.1

[a]Exports 3661 = telephone and telegraph apparatus.
[b]Exports 3662 = radio and television communications equipment.
Sources. For semiconductors, Semiconductor Industry Association (SIA), *Performance of the Semiconductor Industry, 1975 to 1985: Sales, Employment, Capacity, Productivity, and Investment* (Cupertino, Calif.: SIA, 1986), which provides information for over fifty semiconductor firms, including both discrete and integrated circuit producers. For commercial aircraft, Annual Reports and 10-K Reports (filed with Securities and Exchange Commission) of Boeing and McDonnell Douglas, various years. For machine tools, Annual Reports and 10-K Reports of Cincinnati Milacron, Cross and Trekker, Giddings and Lewis, Gleason Works, and Monarch Tool Company, various years; and National Machine Tool Builders' Association (NMTBA), *Economic Handbook of the Machine Tool Industry, 1982–83* (Washington, D.C.: NMTBA, 1984), p. 255. For telecommunications equipment, Annual Reports and 10-K Reports of InteCom, Mitel, Northern Telecom (switching equipment), Rolm Corp., and Western Electric (commercial equipment; name changed to AT&T Technologies in 1983), various years.

munications equipment, and machine tool industries. Since all of the major firms in these industries had significant multinational production, extensive global intra-firm trade, or high levels of exports (see Table 1), the industries would, according to conventional theory, be expected to continue to support free trade, even in times of high import penetration. The case studies would be expected to show no variation on the dependent variable; they should all be free traders. But evidence of their behavior in the mid-1980s is contrary to these predictions. Three of these industries made strategic trade demands on the U.S. government, while the fourth advocated outright protection. We were puzzled by the fact that these particular cases no longer seemed to fit existing models. The cases are used to uncover why firms' demands changed from free trade to strategic trade or protectionism.

Our research strategy involved examining the initial trade demands of these four industries and following their trade positions over time. We interpreted a shift in demands by researching their congressional testimonies, public statements, filings with the International Trade Commission (ITC), and interviews. Interpretation problems could exist in examining publicly stated interests, since demands for protectionism could simply be couched in strategic terms. Therefore, we took two steps to guard against this. First, we defined an industry's demand as strategic only if the industry communicated to the government that its strategy was conditional—that is, the industry indicated that it wanted to close the home market only if the foreign market was not (further) opened. Second, we discounted communicated demands unless we found evidence that firms made efforts to gain access to foreign markets—for example, the firms had high international marketing expenditures or important foreign assembly or sales operations.

Next we traced any shift in demands to shifts in the economics of the industry.[26] We then looked at the degree of openness of the foreign markets and at the evidence of foreign government intervention. Evidence of successful protection or export subsidies abroad was presumably the proximate catalyst for changes in corporate demands. Without evidence of this intervention, the firms' requests for aid were more likely to be disguised appeals for unconditional protection. Finally, we should note that the cases discussed below only represent a partial test: the sample is small because there are few real-world examples, to date, of demands for strategic trade policy; and

26. Measures for these variables come from the literature on industrial organization. For economies of scale, we use minimum efficient scale when possible; otherwise, we use capital expenditure as a percentage of total sales. For learning effects, we use declining average production costs per unit over time. Changes in any one variable alone would increase market imperfections and thereby predispose firms to become more strategic about trade; simultaneous changes in both variables would greatly intensify the demand for strategic trade policy.

For indicators of strategic groups, we have not used conventional concentration ratios, since we do not believe they adequately capture the concept of strategic groups. We define strategic groups in terms of the key structural variables of each industry, which can range from different end uses to different manufacturing strategies. See Caves and Porter, "From Entry Barriers to Mobility Barriers"; and Porter, "The Structure Within Industries."

the relationship between the empirical work and the model was iterative. We continued to refine the model as we learned more about our cases.

The semiconductor industry

The modern semiconductor industry began in 1959 with the invention of the integrated circuit (IC). Initially, the industry had relatively low entry costs, moderate economies of scale but significant learning effects (costs fell as much as 30 to 40 percent with every doubling in volume), and relatively long product cycles. To capitalize on these features, most firms employed global strategies from the beginning. Even the smallest semiconductor companies had international sales offices with exports that averaged about 20 percent of production.[27] In addition, the majority of firms had extensive overseas assembly operations.[28]

Through the mid-1970s, semiconductor producers predictably favored unconditional free trade. American semiconductor firms, working through various associations, supported U.S. government efforts at general trade liberalization during the Tokyo Round negotiations and strongly advocated the reduction of all U.S. tariffs on semiconductors. Although tariff reductions on semiconductors were linked in U.S. government negotiations with reciprocal reductions by Japan, some of the largest semiconductor firms were in favor of tariff liberalization through the early 1980s, even in the absence of Japanese concessions.[29]

In the mid-1970s, several changes occurred in the economics and technology of the industry. First, product innovation slowed and competition became more intense. Second, the industry moved from large-scale integration (LSI) of chips to very large scale integration (VLSI). A result of this change was that microelectronics became much more capital-intensive. Estimates for building a world-class production facility varied, but most analysts concurred that the cost had risen ten- to twenty-fold from 1975 to 1985. Capital expenditures increased from under 10 percent of revenue to almost 20 percent over the same period. Every step in the production process became more capital-intensive, expensive, and intricate.

Another related change was that it became difficult for any firm in the industry to be large and successful without producing high-volume memory chips. High-volume products were considered essential because they acted as "technology drivers": skills learned in manufacturing a high-volume prod-

27. Milner, "Resisting the Protectionist Temptation," p. 347.

28. J. Grunwald and K. Flamm, *The Global Factory: Foreign Assembly in International Trade* (Washington, D.C.: The Brookings Institute, 1985).

29. The chief executive officer of one of the largest merchant semiconductor firms reported in an interview that elimination of tariffs allowed his firm to cut the positions of twenty-one full-time bookkeepers who were responsible for reporting to the U.S. Customs Department on the firm's imports from its overseas assembly operations. He noted that getting tariff cuts from Japan was much less important than his firm's ability to import freely.

uct could be transferred to complicated, higher value-added devices and help "drive" the firm down a very steep learning curve. The production of dynamic random access memory (DRAM) chips—a 1971 American invention—fulfilled this role for the industry. All major firms wanted a "technology driver" such as this to stimulate improvements in quality, reliability, performance, and yield. Yield, or the percentage of usable chips on a wafer, tended to be low for new semiconductors (say 10 percent) but would rise rapidly as volume cumulated. These learning effects were a major determinant of cost and thus were of critical competitive importance in these products.[30]

A third major change was that in the late 1970s and early 1980s, Japan emerged as both a large player and an enormous market for semiconductors. A decade earlier, Japanese firms were largely confined to the licensing of American products and production of ICs that suited Japan's consumer electronics companies. Concerned about dependence on consumer electronics, Japan's Ministry of International Trade and Industry (MITI) began a four-year VLSI program from 1976 to 1979 in order to make Japan an equal in advanced information technology. The most important elements of the program included government provision or coordination of collective goods such as R&D funds, technical education, production and product targets, price controls, and restrictions on access to the domestic market. In capital and R&D expenditures, Japan began outpacing the United States.[31]

The VLSI program was a great success. By the end of 1979, the Japanese held 43 percent of the U.S. market for 16K DRAMs; in 1981, they supplied about 70 percent of the 64K DRAMs in the U.S. market; and in 1984 and 1985, they pre-empted American entry into 256K DRAMs and gathered 90 percent of the market. Japanese dominance of the DRAM and other commodity chip markets had a uniform effect on the major players in the American industry. While smaller firms continued to thrive on the production of one or two specialized types of chips, the largest merchant manufacturers lost enormous sums of money in commodity chips, forcing the majority to stop making DRAMs. Of the largest American semiconductor merchants, only Texas Instruments, which had DRAM production in Japan, remained in the market by late 1985. Japanese efforts to drive their manufacturing processes down the learning curve, combined with a recession in user industries, led to price cuts on commodity chips ranging from 75 to 90 percent in less than 12 months.

Since all large American semiconductor firms believed they needed a "technology driver," the industry as a whole became increasingly disturbed by its inability to penetrate Japan's market. Japan's success in the electronics

30. David B. Yoffie, "The Global Semiconductor Industry," Harvard Business School Case no. 9-388-052, 1987.

31. Dan Okimoto, T. Sugano, and F. Weinstein, eds., *Competitive Edge: The Semiconductor Industry in the U.S. and Japan* (Stanford, Calif.: Stanford University Press, 1985).

industry had made it the world's second largest market for semiconductors (35 percent) in 1985, only slightly behind the United States (38 percent).[32] In the meantime, Japan's share of the U.S. market grew to almost 17 percent by 1985, while the American share of Japan's semiconductor sales had hovered around 10 percent for almost a decade, despite expanded marketing expenditures by American firms.[33]

Rising imports, alone, might have led to any number of trade responses from the semiconductor industry. When imports started to rise in the mid-1970s, the industry remained in favor of free trade, and U.S. firms simply adjusted by moving offshore to reduce labor costs. U.S. semiconductor firms had not anticipated Japanese government success, because Japan's reputation for promoting industry was only in its nascent stages. In addition, U.S. managers were confident that they could "out-innovate" Japan.[34] If the semiconductor industry had been a traditional industry, without huge economies of scale, the mounting Japanese threat could have been met with either additional investment overseas or a turn toward protectionism. In the mid-1980s, however, the industry decided to advocate strategic trade policy. Protectionism was still seen as undesirable, but the combination of huge scale and continued Japanese protection led most large firms to perceive direct access to the Japanese market as necessary for survival. Since all of the large U.S. chip firms followed a similar strategy of relying on "technology drivers," it was also likely that the industry would respond quickly to the Japanese threat.

In June 1985, the Semiconductor Industry Association (SIA) filed a petition under Section 301 of the 1974 Trade Act, charging Japan with unfair trade practices and asking the U.S. government to retaliate against Japanese firms unless there was substantial improvement in the U.S. share of Japan's market. According to the petition, the Japanese market remained closed while Japanese companies were selling products below cost at predatory prices for the sole purpose of building market share.[35]

Not only did the SIA file this trade suit, but individual firms also filed suits later in 1985, charging Japan with dumping erasable programmable read-only memory (EPROM) chips on the U.S. market.[36] Intel, Advanced Micro Devices (AMD), and National Semiconductor—all firms dependent upon exports with extensive overseas operations—were responsible for the EPROM suit. One of the objectives of this suit was to add bargaining power to the

32. Instat, Inc., "Information Company for the Electronics Industry," mimeograph, Semiconductor Industry Conference, New York, 4 June 1987. By 1987, the Japanese market had reached 49 percent of the world market, compared to 39 percent for the United States.

33. Semiconductor Industry Association (SIA), "Japanese Market Barriers in Microelectronics," memorandum in support of a petition pursuant to Section 301 of the Trade Act of 1974 as Amended, 14 June 1985.

34. Yoffie, "The Global Semiconductor Industry."

35. SIA, "Japanese Market Barriers."

36. In 1984, a small semiconductor manufacturer, Micron Technology, also filed a dumping suit against Japanese producers of 64K DRAMs. This suit, however, was not widely supported.

Section 301 negotiations. The firms also stated that if dumping did not stop and the Japanese market was not liberalized, they would ask the government to impose antidumping duties on EPROMs or even request a separate quota.[37]

The SIA's two primary objectives in filing the Section 301 petition were to ensure a U.S. market share of at least 20 percent in Japan by the early 1990s and to stop Japanese dumping of memory products in the United States and third country markets. The SIA made it clear that unconditional closure of the U.S. market was not its goal; rather, it wanted the government to threaten the use of sanctions against Japan for dumping and unfair trade practices in order to force the opening of the Japanese market.[38]

In July 1986, the U.S. government negotiated an agreement with Japan that mirrored the industry's demands. When it appeared that Japan was not honoring the agreement, the SIA requested that the U.S. government retaliate to force compliance. But once again, the request was for strategic action rather than unconditional protectionism. Despite continued losses and severe industry distress, the SIA requested sanctions on products that used semiconductors rather than on the chips themselves. In April 1987, the U.S. government imposed 100 percent tariffs on $300 million worth of Japanese consumer and office goods. Approximately $165 million of sanctions remained in force at the end of 1988 because of the lack of progress in opening Japan's market.

The commercial aircraft industry

The politics and economics of the commercial aircraft industry share similarities as well as differences with those of the semiconductor industry. Production of semiconductors was an emerging technology with many players; however, the commercial aircraft business was relatively mature and highly concentrated, with only four significant players worldwide in the mid-1970s. Three were American firms: Boeing, McDonnell Douglas, and Lockheed (the latter exited the business by the end of the decade). And one was European: Airbus Industrie. The commonalities were that both industries faced steep learning curves and huge capital requirements, making global strategies, large export volumes, and some overseas operations a necessity. The United States also dominated the international market for both products through the mid-1970s.

Perhaps the most notable feature of the commercial aircraft industry was that it could take five years to get a plane from the drawing board to final production, and there was no guarantee of market success. There had never been a case in which advance orders guaranteed the firm would break even when it began production. As a result, the introduction of a new airplane

37. J. Coleman and D. Yoffie, "The Semiconductor Industry Association and the Trade Dispute with Japan," Harvard Business School Case no. 0-387-205, 1987.

38. Interviews with SIA officials, April 1987, Washington, D.C.

was often a decision that risked the company's entire future. Furthermore, through 1980, no firm had broken even before 300 planes were sold. Since 1952, no European jetliner had ever reached that level, and only six U.S. planes had attained that goal.[39]

Almost equally important to achieving sales volume was getting a first order by new customers. Each commercial aircraft remained in service for an average of twenty-two years. Since customers would have to train their engineers and maintenance personnel for particular planes, there were significant economies to sticking with one aircraft type. Therefore, once an airline bought a plane, it usually stayed with the same brand for a decade or more.

The competition for first orders in the aircraft industry was always intense, but through the mid-1970s, companies competed within distinctive strategic groups. Boeing and others designed aircraft to meet very specific needs regarding range and seating capacity. There were enormous differences between a plane that would serve a "long haul" versus a "short haul" and low-density versus high-density routes.[40] As can be seen in Figure 2, there was strong competition between Boeing and McDonnell Douglas for the mid-range, 100- to 150-passenger planes; but Airbus had a distinctive position in the short-to-medium range, 250-passenger planes, and Boeing had the top end of the market to itself.[41]

According to our argument, the American aircraft industry should have been an unconditional supporter of free trade in the 1970s. Since Boeing and McDonnell Douglas were profitable and export-dependent and had extensive overseas connections, both could be expected to oppose any closure of the American market. Although McDonnell Douglas rarely testified before Congress on trade issues, Boeing emphasized at congressional hearings during the 1970s that it opposed import restrictions "or any other constraints to free trade."[42] While Boeing remained concerned with Airbus, it did not seek trade remedies but merely continued its traditional policy of asking for R&D assistance, tax credits, and greater availability of Export-Import Bank export financing.

Between the late 1970s and the mid-1980s, two important changes occurred in the economics and politics of the commercial aircraft industry. First, the

39. M. Salter, "Turbulent Skies: Airbus vs. Boeing," Harvard Business School Case no. 0-386-193, 1987.

40. Laurence Phillips, "Air Carrier Activity at Major Hub Airports and Changing Interline Practices in the United States' Airlines Industries," *Transportation Research* 21A (May 1987), pp. 215–21.

41. We have excluded Lockheed from this discussion for two reasons. First, Lockheed did not compete directly with Airbus in the 1970s; its major competitor was McDonnell Douglas. Second, scandals, bribes, and bankruptcy of Lockheed's core business meant that Lockheed's position on trade policy was relatively unimportant for the commercial aircraft industry.

42. Testimony of Robert Bateman (Washington representative, Boeing Co.), in U.S. Congress, Senate Committee on Commerce, *Hearings Before the Subcommittee on Foreign Commerce and Tourism*, 92d Congress, 2d sess., 1972, p. 350.

cost of launching a new design for large aircraft in the 1980s rose to $5 billion, which was greater than McDonnell Douglas's net worth.[43] Analysts also concluded that minimum efficient scale had increased. Competitive pressure on prices required companies to sell a minimum of 400 planes to break even, with the versions planned for the early 1990s expected to need 600 planes. Given the small size of the market for any particular model, the higher break-even figure meant that if two companies tried to produce a plane for the same category, at least one company would lose money—and probably both would.[44]

Second, deregulation of American airlines and liberalization in European airline routes altered the economics of aircraft manufacturing. Airline routes changed dramatically, leading to demands for smaller planes that offered a wider range.[45] All manufacturers rushed to produce the same type of aircraft, which altered the structure of competition. The once highly segmented aircraft industry became much less fragmented, as all firms invaded each other's territory (see Figure 3). Airbus, in particular, became an aggressive competitor during this period. Founded in 1970 by the French and West German governments, Airbus Industrie developed into a consortium of nine European nations who heavily subsidized R&D, provided export financing, and helped in other parts of the manufacturing process. Although Airbus allegedly never made a profit or recovered any of its R&D expenses, the government-subsidized manufacturer raised its share of the world commercial aircraft market from 3 percent in the early 1970s to 30 percent in 1979. By the mid-1980s, Airbus was successfully attacking McDonnell Douglas and Boeing head-on.[46]

Under these conditions, our argument is that this industry should move from an unconditional free trade position toward strategic trade policy. However, the extreme segmentation of the aircraft industry through the early 1980s suggests a slower response than that of the semiconductor industry. If the aircraft industry had not been characterized by such large economies of scale and steep learning curves, in all likelihood its response would have been different. In the absence of global scale requirements, for instance, American firms might have asked for simple closure of the U.S. market. Alternatively, European intervention might have provoked greater foreign

43. Testimony of James Worsham (vice president, McDonnell Douglas), in U.S. Congress, House Committee on Energy and Commerce, *Hearings Before the Subcommittee on Commerce, Consumer Protection, and Competitiveness,* 23 June 1987, unpublished draft.

44. "Aircraft Industry Survey," *The Economist,* 1 June 1985; and Howard Banks, "Airbus Comes of Age," *Forbes,* 23 February 1987, pp. 36–37.

45. Rex Toh and Richard Higgins, "The Impact of Hub and Spoke Network Centralization and Route Monopoly on Domestic Airline Profitability," *Transportation Journal* 24 (Summer 1985), pp. 16–27.

46. Airbus's share of the world market was approximately 17 percent between 1980 and 1985. See U.S. Department of Commerce, *U.S. Industrial Outlook, 1987* (Washington, D.C.: GPO, 1987), pp. 34–37. However, Airbus reportedly grabbed 44 percent of all new orders during the first quarter of 1987, according to the *Dow Jones News Service,* 7 May 1987.

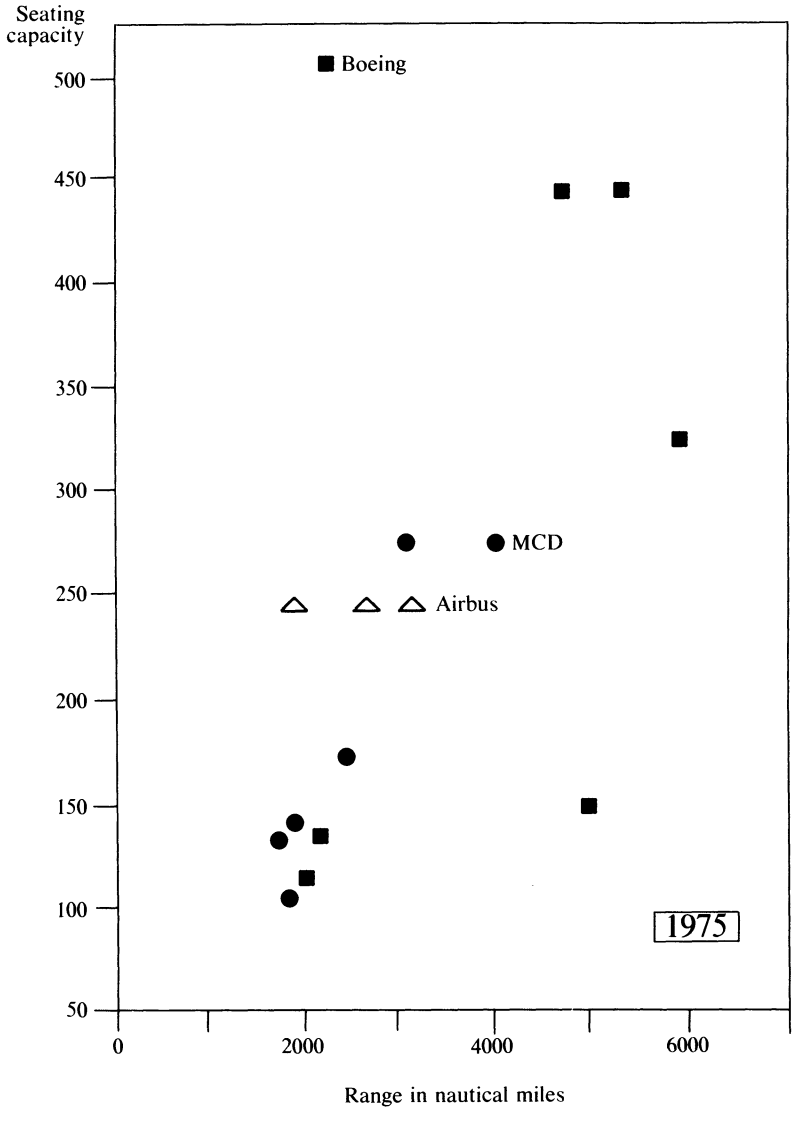

FIGURE 2. *Profile of the aircraft industry, 1975*

Note. MCD = McDonnell Douglas. Figure excludes the Lockheed L1011, which has approximately 250 seats and a range of 5000 nautical miles.
Source. Adapted from R. Moriarty, "The Airframe Industry (M)," Harvard Business School Case no. 9-582-013, 1982.

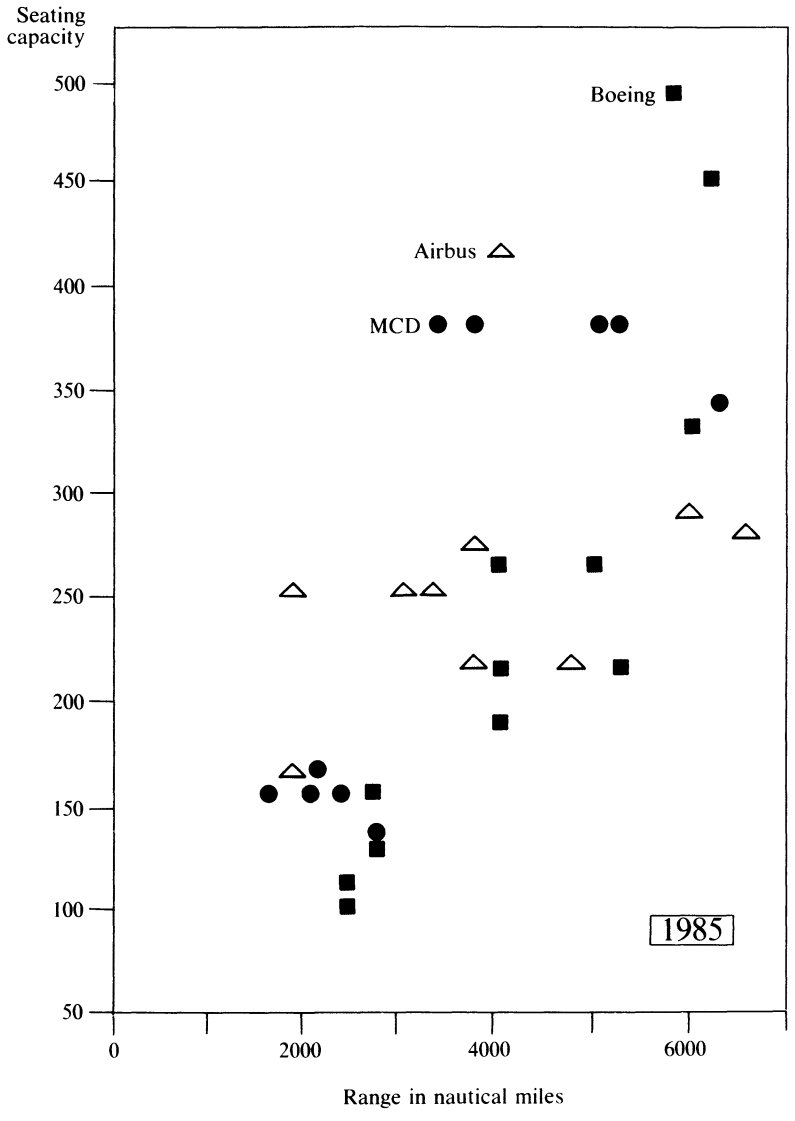

FIGURE 3. *Profile of the aircraft industry, 1985*

Note. MCD = McDonnell Douglas. Profile is from data up to June 1985.
Source. Calculated from data in *The Economist*, 1 June 1985, p. 9.

investment in Europe and elsewhere. In effect, U.S. aircraft manufacturers would have had other, less costly options to deal with European competition if they had not faced large scale and learning effects. A strategic trade response was most likely once these other options were eliminated.

The actual evolution of trade preferences by the commercial aircraft manufacturers followed our expectations. By the late 1970s, U.S. firms increasingly complained about Airbus. At first, the focus was on European export subsidies. Since export subsidies were another form of protectionism that could be used to build market share and drive a competitor down the learning curve, both Boeing and McDonnell Douglas called for a halt to the "predatory export financing war."[47] By the 1980s, Boeing, in particular, made stronger and more complicated demands. Boeing pointed to political interference on Airbus's behalf by its national backers—for example, the promise of landing rights in Paris and promises of a nuclear power plant in Iran in exchange for purchases from Airbus. The charges against Airbus included its willingness to undersell at all costs and its use of political pressure to buy from Airbus.[48] Although Boeing was regarded in the industry as the low-cost producer, Boeing representatives said that they could not profitably sell planes at the Airbus price.

Boeing did not support unilateral closure of the American market. "We have no desire or intent to see Airbus excluded from the U.S. market," Boeing's chief executive officer asserted. Yet following the start of formal U.S.–European negotiations in the GATT meetings in 1987, Boeing officials said they would consider the talks successful only if Europe would eliminate all subsidies, stop political pressure in aircraft sales, and force Airbus to establish prices that would recoup all costs. Failing such an agreement, Boeing threatened to file a Section 301 petition as well as antidumping and countervailing duty suits against Airbus, noting that "under any one of these laws, the U.S. government could negotiate with Airbus to limit the quantity of exports, eliminate subsidies, impose taxes, or reach some other solutions."[49]

In the meantime, McDonnell Douglas intensified its lobbying effort (with some support from Boeing), asking the U.S. government to force Airbus to withdraw plans for a new plane, the A340.[50] When President Reagan put

47. Testimony of Jack Pierce (treasurer, Boeing Co.), in U.S. Congress, Senate Committee on Commerce, *Hearings Before the Subcommittee on Export-Import Bank Extension,* 97th Congress, 2d sess., 1978, p. 551; and testimony of James McMillan (vice president, McDonnell Douglas), in U.S. Congress, Senate Committee on Commerce, *Export Policy, Part 4, Banking, Housing and Urban Affairs: Hearings Before the Subcommittee on International Finance and Commerce,* 97th Congress, 2d sess., 1978.

48. Testimony of T. A. Wilson (chairman, Boeing Co.), in U.S. Congress, House Committee on Ways and Means, *Competitive Conditions in the U.S. Civil Aircraft Industry and Forest Products Industry: Hearings Before the Subcommittee on Trade,* 98th Congress, 2d sess., 1984, pp. 3–5.

49. Testimony of O. M. Roetman (vice president, Boeing Co.), in *Hearings,* 23 June 1987.

50. Paul Lewis, "Airbus Group Acts to Mollify U.S.," *The New York Times,* 24 December 1985.

Europe's support for Airbus on a list of unfair trade practices to be investigated in the autumn of 1985, it was assumed that McDonnell Douglas was the primary instigator.[51] Initially, McDonnell Douglas had attempted a joint venture with Airbus which would have avoided fierce competition between the MD-11 and the A340. When that failed, the company stepped up its charges against the European manufacturer, claiming it was subsidizing deals and stealing customers.[52] In early 1987, American negotiators threatened to curb European aircraft exports under Section 301 of the U.S. trade law.[53] Although McDonnell Douglas did not publicly urge such action, it did emphasize in a congressional hearing that "should the July [1987] GATT discussions fail, then action by the U.S. government to level the competitive playing field will be necessary."[54]

The continued profitability of the two American aircraft firms deterred the industry from making its demands for strategic trade policy as quickly and as strongly as those voiced by the semiconductor industry. Nonetheless, the aircraft industry's trade preferences in the 1980s moved closer to a position of strategic trade policy than to one of unconditional free trade or protectionism. Our argument implies further that continued Airbus success across the board should push the industry toward more unified, tougher strategic trade policy demands.

The telecommunications equipment industry

The economics of the telecommunications equipment industry were unlike those of the semiconductor and commercial aircraft industries before the 1970s. Up to the late 1960s, AT&T had a near monopoly over telecommunications equipment, since it "required that only equipment provided by them [AT&T] could be attached to the telephone lines provided by them."[55] This monopoly position was not due to inherent characteristics of the equipment market; barriers to entry were low for making equipment. Rather, AT&T's legal monopoly over telephone services provided it with a virtual monopoly over telecommunications equipment.[56]

The U.S. telecommunications equipment industry did not face foreign competition until 1968, when the U.S. courts stripped AT&T of its equipment monopoly and made import competition possible.[57] Imports, however, made only marginal gains over the next decade, reaching only 4 percent of the

51. "America Turns Up Heat on Airbus," *The Economist,* 5 July 1986, p. 62.
52. "Airbus Soars on American Anger," *Sunday Times,* 8 February 1987.
53. *The Economist,* 5 July 1986; and Salter, "Turbulent Skies."
54. Testimony of James Worsham, in *Hearings,* 23 June 1987.
55. Gerald Brock, *The Telecommunications Industry: Dynamics of Market Structure* (Cambridge, Mass.: Harvard University Press, 1981), p. 235.
56. Ibid., pp. 235–36.
57. See the Carterphone decision, in U.S. Congress, Senate Committee on Finance, *The Telecommunications Trade Act of 1984: Hearings Before the Committee on Finance,* 98th Congress, 2d sess., 1984, pp. 1–3.

consumption. But by 1983, imports had surged, capturing 11 percent of the U.S. market.[58] Moreover, in customer premises equipment, which included telephones and private branch exchanges (PBXs), imports rose to 19 percent.[59]

As the U.S. market opened up in the 1970s, foreign firms moved into the United States, and American firms moved abroad. Exports rose from 3 percent to 7 percent of domestic production over the decade.[60] The combination of growing exports and stronger international ties led the U.S. telecommunications equipment industry to favor free trade. While not heavily involved in international trade issues before 1979, the industry advocated lower trade barriers through multilateral negotiations.[61] It had a positive trade balance, and its growing export dependence outweighed concerns over import penetration.

In the late 1970s and early 1980s, the structure of the industry began to change. First, U.S. firms increasingly adopted global strategies. International operations became more salient as American companies, including AT&T, realized that foreign sales were important for their future profitability. International marketing efforts also increased as American firms entered into joint ventures with foreign companies.[62] By the mid-1980s, most U.S. firms had become substantial international actors who viewed foreign markets as crucial to their success.

Second, deregulation of the U.S. market affected the telecommunications equipment industry. While initiated in 1968, the most significant deregulation came in 1982 with the decision to divest AT&T of its operating companies. This opened the U.S. market unilaterally to foreign competition. The United States was the first large country in the world to take such a bold step. And once the American telephone operating companies were freed from AT&T, they began switching from domestic equipment suppliers to less costly foreign sources.[63]

Almost all other major telecommunications markets were either controlled by a state-owned firm or heavily subsidized and protected. Most foreign telephone agencies that regulated these markets also had strong regulations to buy domestic goods. Foreign producers having access to the U.S. market,

58. U.S. International Trade Commission (USITC), *Changes in the U.S. Telecommunications Industry and the Impact on U.S. Telecommunications Trade,* no. 1542 (Washington, D.C.: USITC, 1984), p. 19.

59. Ibid., p. 22.

60. Ibid., p. 19.

61. U.S. Congress, Senate Committee on Finance, *Private Advisory Committee Reports on the Tokyo Round of the Multilateral Trade Negotiations,* 96th Congress, 1st sess., 1979; and USTIC, no. 1542, pp. 8–9.

62. J. Paul, ed., *High Technology, International Trade and Competition: Robotics, Computers, Telecommunications, and Semiconductors* (Park Ridge, N.J.: Noyes Press, 1984), p. 115; and *Standard and Poor's Industry Survey: Telecommunications* (New York: Standard & Poor, August 1986), p. 34.

63. *The Washington Post,* 20 May 1984, pp. G1 and G11; and *The New York Times,* 1 June 1984, pp. D1 and D33.

in combination with foreign markets remaining closed, eroded the ability of U.S. firms to compete globally. Japan's world market share in telecommunications equipment rose from 2.7 to 4 percent between 1983 and 1984, while the U.S. share remained stable at about 6.3 percent.[64]

Third, U.S. deregulation intensified competition based on price. Cost competitiveness, which was increasingly linked to the use of electronics and computer technologies, suddenly became a driving force. The need for lower costs and the introduction in the 1980s of new technologies, such as digital switching and fiber optics, raised the importance of scale and learning effects.[65] As Table 1 shows, capital expenditures increased dramatically in the 1980s. All major U.S. manufacturers now faced significant pressure to expand sales: a larger market share would mean in turn lower prices, greater sales, more revenues for R&D, more innovation, and, thus, a more competitive position in the future. Furthermore, virtually every U.S. telecommunications equipment company began to see this race as international. No longer could any firm survive by producing just for the U.S. market.[66]

The combination of changing economics and successful foreign government protection and intervention should lead to the emergence of strategic trade policy demands by U.S. firms, if our argument is correct. The speed with which these demands arise, however, should be influenced by the degree of fragmentation within the domestic industry. Although telecommunications equipment manufacturers were segmented into four distinct product groups, the American industry was actually dominated by a few major firms that had similar strategies in their equipment businesses. AT&T was the giant, controlling at least 20 percent of each market segment; but ITT, GTE, and Rolm (an IBM subsidiary) had secondary positions in most product areas. All of these players, in addition to many smaller specialty firms, such as Motorola in the mobile telecommunications area, perceived the need to compete for global scale economies. Even though their product offerings varied, virtually all of the American firms sought foreign sales and felt similar exclusion from foreign markets.[67]

Indeed, changes in the economics of the telecommunications equipment industry, combined with continued closure of foreign markets, had a profound and rapid political effect on U.S. producers. As early as the late 1970s,

64. *National Journal* 17 (16 March 1985), p. 590.

65. W. Adams, ed., *The Structure of American Industry,* 6th ed. (New York: Macmillan, 1982), pp. 307–14; and Organization for Economic Cooperation and Development (OECD), *Telecommunications* (Paris: OECD, 1983), p. 15.

66. J. Aronson and P. Cowhey, *When Countries Talk: Global Telecommunications for the 1980s* (New York: Ballinger, 1988), pp. 16–18.

67. The industry structure was complicated by its multinationality. Several foreign-owned firms, including Northern Telecom (Canadian), Mitel (Canadian), Siemens (German), and NEC (Japanese), had American manufacturing operations. Northern Telecom, in particular, was a large player in the United States and was occasionally considered an American company in international trade negotiations. For the purposes of this article, however, we are considering the "industry" to be U.S.–owned companies.

industry-wide trade preferences began shifting. During the Tokyo Round when negotiations to open government procurement to foreign companies started, the U.S. telecommunications equipment manufacturers wanted other governments to open telecommunications procurement to foreign competition. According to one study, it was the U.S. industry that "provided the initial impetus to negotiate the [government procurement] code."[68] In particular, the U.S. firms pushed to include Japan in this code, largely because the United States ran a telecommunications equipment trade surplus with most countries other than Japan.[69] When negotiations within GATT over the code broke down, the industry pushed for a bilateral agreement which held that if the Japanese telecommunications monopoly, Nippon Telephone and Telegraph (NTT), continued to discriminate against American goods, Japanese firms would be barred from U.S. government procurement contracts.[70] This was the first explicit industry demand for reciprocity.

In the 1980s, demands for reciprocal access by the American manufacturers became increasingly forceful. As early as 1981, Motorola, a highly multinational firm, started to file antidumping and countervailing duty petitions and to vocally advocate retaliation against Japan in the absence of market liberalization.[71] While Motorola was initially alone among telecommunications manufacturers in speaking out, the majority of larger U.S. firms had adopted similar strategic trade preferences by the mid-1980s. Most firms in the industry felt cheated by the NTT agreement, which produced few sales of American goods. The industry complained bitterly of the "asymmetry" in U.S.–Japanese trade relations, with the U.S. market being open and the Japanese one closed. From their closed, subsidized domestic market, the Japanese could reap economies of scale that gave them competitive advantages abroad.[72] This concern was exacerbated after the dismantling of AT&T's monopoly. As one industry spokesman stated, "By opening our markets and creating economies of scale for our foreign competition, we can expect that they will be more competitive in markets in which we both

68. S. Lenway, *The Politics of U.S. International Trade* (Boston: Pitman, 1985), p. 174.

69. Lenway (ibid., pp. 179–80) describes a split in preferences among U.S. firms, claiming some wanted greater access and some closure of the U.S. market. Timothy Curran, on the other hand, suggested that it was the U.S. Trade Representative, not the industry, that pushed for the negotiations with NTT. He implied that U.S. firms wanted closure of the U.S. market. But this is odd, given that the U.S. firms visited Japan to discuss the NTT case before and during the actual negotiations. See Timothy Curran, "Politics and High Technology: The NTT Case," in I. M. Destler and Hideo Sato, eds., *Coping with U.S.–Japanese Conflicts* (Lexington, Mass.: Lexington Books, 1982); and U.S. Congress, House Committee on Ways and Means, *Trade with Japan: Hearings Before the Committee on Ways and Means,* 97th Congress, 2d sess., 1980, pp. 151–61.

70. Lenway, *Politics of U.S. International Trade,* p. 186.

71. David B. Yoffie, "Motorola and Japan," Harvard Business School Case no. 9-383-070, 1983.

72. International Trade Administration (ITA), *The Telecommunications Industry* (Springfield, Va.: Department of Commerce, 1983), pp. 12–13 and 31; and Paul, *High Technology,* pp. 120–25.

compete."[73] At this point, American companies realized that leaving the U.S. market open while others were closed was the worst choice, since it would make them uncompetitive in the future and worse off than if all markets were closed.

Their mounting concerns led equipment manufacturers to pressure Congress for legislation that would open foreign markets. Every year after 1982, a new telecommunications trade bill was introduced and debated in Congress. While differing slightly, all aimed to create, as the industry demanded, "an international free trade environment."[74] The bills authorized the President to negotiate trade barrier reductions in telecommunications over a certain period and if after that time no progress was made, to close the U.S. market. Through these bills, the industry sought "reciprocal access," which it believed would be forthcoming only if the U.S. negotiators had some "leverage." The industry saw the legislation as "market opening" and felt the United States had to "use access to our market as leverage to secure market opening concessions from [abroad]."[75] Since U.S. firms were actively seeking foreign sales, these demands would not appear to be disguised appeals for protectionism. For instance, AT&T, GTE, and Rolm all expanded their sales operations in Japan in the mid-1980s in an effort to penetrate that market.[76]

Closure of the U.S. market was not the industry's primary demand; indeed, the firms felt that such closure would be "self-defeating." But, having learned from other industries, the U.S. telecommunications equipment manufacturers realized that "if we don't get our act together, and fast, the Japanese are going to do to us in [segments of telecommunications] what they have already done in autos."[77] Between 1980 and 1983, then, the U.S. firms had moved from an unconditional free trade position toward a strong strategic trade policy.[78] If the industry had not needed access to foreign markets to reach an efficient scale of operations, import competition in the United States would have brought a different response. It is likely that the U.S. industry, being largely domestic in orientation, would have sought unconditional protection. But the new economics of the industry made strategic trade demands its best option.

73. Testimony of J. McDonnell (telecommunications group spokesman for the Electronics Industry Association), in U.S. Congress, *Telecommunications Trade Act of 1984: Hearings,* p. 38.

74. Testimony of E. W. Weeks (spokesman for AT&T), ibid., pp. 35–37.

75. U.S. Congress, Senate Committee on Finance, *Export of U.S. Telecommunications Products: Hearings Before the Committee on Finance,* 99th Congress, 1st sess., 1985, pp. 57–67.

76. *Business Week,* 17 June 1985, p. 112a.

77. *Business Week,* 21 May 1984, pp. 179–81.

78. Early in 1981, IBM and ITT both objected to reciprocity legislation; but by 1983, neither openly opposed it. In fact, only two firms, both foreign-owned—Northern Telecom and NEC—testified against the reciprocity legislation. See U.S. Congress, *Telecommunications Trade Act of 1984: Hearings,* pp. 81–109; and U.S. Congress, *Export of U.S. Telecommunications Products: Hearings,* pp. 230–38.

The machine tool industry

In the 1960s, the U.S. machine tool industry was a "craft" industry.[79] It had a large number of small firms that each produced a few, particular machine tools. It was highly segmented and had limited economies of scale; virtually every product segment was unique, and there was little competition among segments. But U.S. producers as a group were global leaders, possessing the most advanced technology and almost a third of all world production in the mid 1960s.[80] The American machine tool builders were also substantial international players, exporting one-fifth of their production and having some overseas operations by the early 1970s.[81] American builders could therefore be expected to promote freer trade.

Throughout much of the 1970s, the U.S. producers did endorse trade liberalization. Despite rapidly rising import competition and other economic difficulties, the American firms supported a liberal international trading system. They approved of the tariff reductions negotiated in the GATT Tokyo Round, and they pressed the U.S. government to relax its export restrictions on Communist countries.[82] Indeed, during the late 1970s, the U.S. machine tool industry's top priority was to promote exports. Despite increased foreign competition at home, U.S. machine tool companies increased exports as well as offshore production. Protectionist sentiment was not evident until the end of the decade.

In the late 1970s, the economics of the industry changed to some extent owing to the advent of numerical control (NC) and computer numerical control (CNC) machine tools, which depended on electronics and computer technology. First, it required larger capital investments to retool and automate factories.[83] Second, it added new "learning curve" effects associated with high-technology electronics.[84] Finally, it reduced the industry's segmentation at the low end of the market by making the characteristics of standard and specialized tools converge.[85] While important within the industry, these changes still left the toolmakers in a fragmented, small-scale industry compared to our other cases.

These changes prompted some reorganization of production by American manufacturers. While the Japanese consolidated their industry in the early

79. B. Carlsson, "Firm Strategies in the Machine Tool Industry in the U.S. and Sweden," unpublished working paper, October 1984; and D. Collis, "The Machine Tool Industry," Harvard Business School Case no. 9-387-087, 1986.

80. Collis, "The Machine Tool Industry," p. 21.

81. National Machine Tool Builders' Association (NMTBA), *Economic Handbook of the Machine Tool Industry* (Washington, D.C.: NMTBA, various years).

82. Milner, "Resisting the Protectionist Temptation," pp. 320–42.

83. D. Collis, "The Machine Tool Industry and Industrial Policy, 1955–82," Harvard Business School Business History Seminar, February 1987, pp. 10–21; and E. Sciberras and B. Payne, *Machine Tool Industry: Technical Change and International Competitiveness* (Essex: Longman, 1985), chap. 8.

84. Collis, "The Machine Tool Industry" (1986).

85. Sciberras and Payne, *Machine Tool Industry,* pp. 153–55.

1970s and began exporting low-cost, standardized NC machine tools in the mid-1970s, structural changes in the American industry started in the early 1980s. At that time, a new wave of mergers occurred, and this reduced the industry's fragmentation and increased its capital base. American firms also started manufacturing NC tools.[86] Most of the large U.S. firms, however, concentrated on the production of specialized, advanced tools for which price competition was limited. The smaller firms that produced standardized NC tools were overwhelmed by Japanese imports, which captured 80 percent of the U.S. market in these tools by the mid-1980s.[87] First-mover advantages thus swung to the Japanese.

Japanese competitiveness in machine tools had been promoted by government programs. Beginning in the 1950s, the Japanese government began subsidizing and protecting the industry in order to create strong domestic firms. Provision of capital at low costs, control of imports and technology, and use of an "administrative guidance cartel" marked this early program. In the early 1970s, a new policy, which attempted to promote the development of standardized NC tools, was devised. This policy involved the creation of a single firm to develop NC units for industry, provision of a broad R&D subsidy, and continued protection of the standardized NC segment.[88] The policy was very successful, and Japanese firms gained increasing control over the U.S. and world market.[89] This successful government intervention in Japan and elsewhere was perceived to be a serious threat to the U.S. industry. As one U.S. toolmaker expressed, "The threat that imports pose to domestic industry is especially ominous because the substantial competitive advantages that imports enjoy are attributable in large part to direct [foreign] government subsidization or the efforts of governmental coordination of machine tool production."[90]

In terms of our argument, this case provides mixed evidence. While the American firms had experienced some changes in their economics (like those in our other cases), the changes for the machine tool firms were of lesser magnitude. But Japanese government intervention had successfully occurred. Thus, some of the preconditions we identify for the emergence of

86. Collis, "The Machine Tool Industry" (1986), pp. 13–18.

87. Sciberras and Payne, *Machine Tool Industry;* and G. Guenther, *Machine Tools: Imports and the U.S. Industry, Economy, and Defense Industrial Base* (Washington, D.C.: Congressional Research Service, July 1986).

88. Collis, "The Machine Tool Industry" (1986), pp. 8–11.

89. Imports into the United States rose from 10 percent of consumption in 1973 to 25 percent in the early 1980s, with the Japanese share rising to about 45 percent of all of these imports. See NMTBA, *Economic Handbook,* p. 126. The Japanese controlled about 70 percent of all U.S. imports of NC lathes and machining centers by 1985. See *Asian Wall Street Journal,* 15 September 1986, p. 4. Moreover, the Japanese share of world exports of machine tools grew from 3.5 percent in 1970 to 15 percent in 1983, while the U.S. share fell from 11.7 to 4.8 percent over the same period. See Collis, "The Machine Tool Industry" (1986), p. 22.

90. Testimony of R. Blakeman (spokesman for NMTBA and Iowa Precision Industries), in U.S. Congress, Joint Economic Committee, *Machine Tool Industry and the Defense Industrial Base: Hearings Before the Joint Economic Committee,* 99th Congress, 1st sess., 1985.

strategic trade demands were apparent. If the economics had changed more dramatically or if Japan had had a strong reputation for successfully promoting these types of industries, we might have expected the U.S. machine tool industry to give up its free trade stance and start pursuing strategic trade policy in the mid-1970s. But by the time machine tool manufacturers agreed on a trade policy in the 1980s, they proposed unconditional protectionism. Although the industry considered filing an antidumping suit in the late 1970s, it remained quiet until 1982, when one firm, Houdaille, launched a suit against the Japanese. Documenting extensive Japanese government intervention in the industry, Houdaille tried to halt Japanese imports by using a little-known section of the U.S. tax code. Houdaille's request was subsequently denied, but the entire industry petitioned in 1983 for import quotas under the national security provision (Section 232) of U.S. trade law. After years of executive indecision and congressional pressure, President Reagan decided in 1986 to negotiate export restraints with Japan, West Germany, Taiwan, and Switzerland. Although the industry wanted imports held to 17.5 percent of the market, these agreements left them at 1981 levels, or about 24 percent.[91]

Thus, the U.S. machine tool industry's preference by the mid-1980s was for protection. While complaining bitterly of foreign government assistance, the industry did not seek to link import quotas to reductions in this assistance, nor did it complain about access to foreign markets. Since the industry had lost its competitive advantage in low-end NC tools, access to foreign markets was not a concern; and in the specialized NC tools, competitors' markets were fairly open.[92]

Why, given rising import competition and extensive Japanese government policy initiatives in the machine tool industry, did the American industry not seek strategic trade policies? Three factors influenced its preference for protection. First, as mentioned above, changes in the economics of the machine tool industry were not as pronounced as those of the other sectors we studied. Scale and learning had become more important, but relative to other industrial sectors, the machine tool sector remained largely small-scale and "craft-like."[93] As Table 1 illustrates, measures of scale economies often ranked below those of the other industries examined and below the average for a larger sample of American industries. Hence, the advantages of strategic trade policy to deal with the Japanese threat were less important for most American machine tool manufacturers.

Second, the American machine tool industry was highly segmented, with

91. R. Gutfleish, "Why Protection? U.S. Corporate and State Responses to a Changing World Economy," Ph.D. diss., University of California at Berkeley, 1987, chap. 7.

92. U.S. Congress, *Machine Tool Industry: Hearings;* and U.S. Congress, House Committee on Ways and Means, *U.S.–Japan Trade Relations: Hearings Before the Committee on Ways and Means,* 98th Congress, 1st sess., 1983.

93. Carlsson, "Firm Strategies," p. 17; and Sciberras and Payne, *Machine Tool Industry,* p. 93.

little similarity in strategies or interdependence among firms. When the Japanese began to invade the low end of the American machine tool market in 1976, it was not universally perceived as a threat. Average profits remained high between 1976 and 1982, in part because of a boom in consumption and in part because the largest U.S. firms concentrated on high-technology, specialized tools, which were initially unaffected by the import invasion. The smaller U.S. firms who competed directly against Japanese imports recognized the threat, but many were forced out of business before they could establish an industry-wide consensus.[94] Thus, despite rapidly rising imports, the extreme fragmentation of the industry slowed its response. It took almost six years before the industry was able to create a unified position on trade. And by that time, many U.S. machine tool companies could not compete at home or abroad.

Finally, the industry's international exposure was no longer as significant by the 1980s. Exports dropped and multinational operations were scaled back.[95] This reduced the industry's resistance to trade barriers, since the costs of protection were lower. As one industry spokesman noted, retaliation was no longer a concern, since the U.S. builders did not export to Japan or West Germany in any quantity.[96] The loss of export markets, combined with rising import competition and only minimal advantages of scale, made unconditional protection of the U.S. market a more preferred strategy than the use of strategic trade demands. The machine tool case provides interesting evidence on the behavior of internationally oriented firms in the presence of moderate economies of scale and learning effects. When faced with the loss of international competitiveness and new foreign competition at home, these firms will be less concerned with access to foreign markets and thus more likely to seek unconditional protection at home. The case then provides interesting counterfactual speculation on what our other industries might have demanded if they had not had very sizable economies of scale, steep learning curves, and important international operations.

Conclusions

As industries have become increasingly global and government intervention more pervasive, corporate trade demands have moved away from the stan-

94. Collis, "The Machine Tool Industry" (1986), p. 14.

95. Sciberras and Payne, *Machine Tool Industry,* p. 49.

96. In 1981, one-third of all U.S. machine tool exports went to three countries: Mexico, Canada, and the United Kingdom. The industry was not asking for restrictions on imports from any of these countries. Moreover, Japan and West Germany—two of the countries affected by U.S. export restraints—took less than 10 percent of all U.S. machine tool exports. See USITC, *Foreign Industrial Targeting,* no. 1517 (Washington, D.C.: USITC, 1984), p. 223 and Table B-25; and testimony of Jack Latona (spokesman for Houdaille Industries), in *Machine Tool Industry: Hearings,* p. 144.

dard poles of free trade and protectionism toward a more complex response, which we have called strategic trade policy. Using a combination of political and economic variables, we have tried to explain this phenomenon and thereby supplement traditional models of corporate trade preferences.

We also conducted empirical research and found evidence of strategic trade demands in three cases: the semiconductor, commercial aircraft, and telecommunications equipment industries. Each of these originally favored unconditional free trade. Yet as the economics of the industries changed, so did their trade demands. Between the mid-1970s and the mid-1980s, all three industries exhibited large and increasing economies of scale as well as steep learning curves. In addition, foreign government intervention had successfully created competitive advantages for foreign firms. The combination of import penetration and foreign government intervention led American firms to believe that they would be at a competitive loss if foreign governments did not stop protecting their markets and subsidizing their firms. Furthermore, American firms in these industries had relatively similar corporate strategies, which led to early industry-wide recognition of the competitive threat. For these industries, free trade at home in combination with protection abroad was viewed as the worst possible outcome.

There were also some important differences among our cases. The timing and intensity of demands for strategic trade policy varied. The semiconductor industry responded the most quickly and with the greatest intensity, followed by telecommunications equipment and then commercial aircraft. The semiconductor industry was the only one to file government petitions, formally asking for retaliation in the absence of foreign market openness. According to our argument, we should have expected this result for two reasons: corporate business strategies were the most similar in the semiconductor industry because of the need for a "technology driver"; and the industry suffered the greatest losses in profitability and share. The telecommunications equipment industry, which pushed annually for reciprocity legislation, could be expected to follow closely behind the semiconductor industry because foreign government intervention in telecommunications was the most obvious and extensive and because the major *American* telecommunications equipment firms had relatively similar competitive strategies. The commercial aircraft industry was the slowest because it started out as the most highly segmented of the three industries. Over the last decade, however, Airbus has slowly eaten into America's market share, while McDonnell Douglas's and Boeing's interests have grown closer. If American aircraft or telecommunications equipment manufacturers suffer increased losses in their market shares or profits, we would anticipate more intense demands for strategic trade policies, similar to those of semiconductor manufacturers.

The machine tool industry did not respond to foreign competition by turning to strategic trade policy. This was also understandable in light of our argument. While the economics of the machine tool industry did change

toward greater scale and learning intensity, these changes were much less significant than for the other industries. In addition, because of its extensive segmentation and dissimilar firm strategies, the industry was very slow to respond to foreign competition. Large firms moved into high-technology segments, avoiding near term competition from the Japanese, while many small firms were forced out of business. By the time the whole industry felt threatened in the early 1980s, it had already lost its competitive edge and was reducing its international operations. Its interest in reducing foreign subsidies or opening foreign markets was gone, and noncontingent protection of the U.S. market was the only hope for its survival. Although this is a negative case of strategic trade policy, it remains consistent with the model.

There are at least three important implications that flow from this discussion of corporate trade demands. First, technological change and the globalization of competition will lead an increasing number of industries to experience economic changes analogous to those we have found in the semiconductor, aircraft, and telecommunications equipment industries.[97] Furthermore, foreign government intervention in these sectors in Japan, Europe, and the newly industrializing countries has also been rising.[98] Therefore, if we are right, increasing demands for strategic trade policy will appear across a broader spectrum of U.S. industries.

Second, the impact of these demands on the state are more likely to be acted upon than previous demands for unconditional protectionism. In the postwar period, the executive branch of the U.S. government has resisted calls for trade barriers unless industries have been able to demonstrate severe economic distress or unfair competitive practices abroad.[99] Strategic trade policy demands, in contrast, are likely to have greater political appeal. Most strategic trade demands will come from high-technology industries, which government trade officials are more apt to favor.[100] Moreover, the demands are for a "level playing field"; they appeal to the norm of rectifying unfair trade practices, a norm embedded in U.S. trade law. Corroborating evidence of this assertion can be seen in our cases. The semiconductor industry received unprecedented government attention, including the first sanctions against Japan in manufacturing trade in the postwar period. In addition, U.S. government trade negotiations with Japan and Europe have focused heavily on telecommunications equipment and commercial aircraft, despite the lack of formal petitions from either industry. The U.S. government thus has been very responsive to the demands of these sectors.

97. Michael Porter, ed., *Competition in Global Industries* (Boston: Harvard Business School Press, 1986), chap. 1.

98. Bruce Scott and George Lodge, eds., *U.S. Competitiveness in the World Economy* (Boston: Harvard Business School Press, 1985), chap. 1.

99. Baldwin, *Political Economy of U.S. Import Policy;* and Aggarwal, Keohane, and Yoffie, "Dynamics of Negotiated Protectionism."

100. David B. Yoffie, "Protecting World Markets," in Tom McCraw, ed., *America Versus Japan: A Comparative Study in Business Government Relations* (Boston: Harvard Business School Press, 1986).

Third, if the U.S. government does turn increasingly toward strategic trade policy, then we may see significant changes in the international trading system. We would expect a global movement away from unconditional most-favored-nation status and toward specific reciprocity and greater bilateralism. To date, the United States has participated in this trend only in an ad hoc fashion. If the United States begins to promote strategic trade policy broadly, new norms in international trade could be established de facto. These norms would be a further move away from those of GATT, since they would promote a trading system based on bilateral and sectoral arrangements involving strict reciprocity. Whether this new system would promote stability or efficiency is highly debatable.