Lobbying as a Private Good with Intra-Industry Trade

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Intra-industry trade—trade in different varieties of the same product between countries with similar factor endowments—has been an important and surprising feature of the postwar international economy. Economists have explained this trade with models of monopolistic competition, which suggest that intra-industry trade does not have the stark distributional consequences that the more traditional “endowments-based” trade does. I do not dispute that claim here, although I do dispute a political implication drawn from it—that intra-industry trade produces less political action than endowments-based trade. I argue that, because firms involved in intra-industry trade are monopolists, lobbying essentially becomes a private good. If intra-industry trade places costs on firms, they do not have less incentive to take political action to stop it, as the conventional wisdom suggests. I provide evidence for this contention from complaints lodged with the International Trade Commission. The results show that the higher the degree of intra-industry trade the more likely an industry will request protection from the ITC.

Political studies of lobbying on trade policy have an important past in political science and economic history, including some of the classic works in the field (Schattschneider, 1935; Bauer, Poole, and Dexter, 1963; Taussig, 1966). More recently, economists and political scientists have applied more formal and quantitative techniques to the issue in the “endogenous tariff literature” (Magee, Brock, and Young, 1989, Baldwin, 1986, Pincus, 1977, and Laverigne, 1983 are only a few examples). However, while the endogenous tariff literature has grown in size, so has another economics literature that suggests that its economic assumptions are irrelevant to most of world trade. Specifically, the endogenous tariff literature relies on models that explain trade by the different factor endowments of the trading countries—either the “mobile factors” version of the Stolper-Samuelson theorem, or the “specific factors” version of the Ricardo-Viner model. Some economists, meanwhile, have wrestled with the fact that the bulk of world trade cannot be explained by those endowments-based models of trade flows. Most of world trade is instead the intra-industry type—trade in different varieties of the same product produced with the same factors of production.

The implications of these newer models for trade-related redistributions of wealth within countries are quite ambiguous. In fact, industries in both the home and the

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foreign countries can gain from such trade. This finding has led some economists to speculate that the rise of intra-industry trade can be credited with the relative smoothness of the dramatic postwar liberalization. Others have speculated that, because intra-industry trade does not have the stark distributional consequences of endowments-based trade, individuals should be less willing to take costly political action on such trade, and trade should be a less salient or controversial issue.

In this article I argue that this political implication of the new trade theory does not necessarily follow. Although the costs of adjustment to intra-industry trade may be lower, they fall not on a single class, not on a single industry, but on a single firm. As such lobbying for protection against intra-industry trade is virtually a private good. With the amelioration of all of the familiar problems of collective action, firms are much more ready to take political action in response to increases in intra-industry trade rather than inter-industry trade, even though the costs to them of that trade may be lower.

In the first section I review the existing state of knowledge on trade policy lobbying. The following section summarizes the findings of the new theory of international trade, which explains intra-industry trade, and I discuss the implications of that theory for firms' incentives to take costly political action on trade policy. I provide evidence for my argument in the next section, taken from cases brought before the International Trade Commission from 1988 through 1992. The concluding section offers some speculations about future research into the importance of intra-industry trade.

The Economic and Political Determinants of Lobbying on Trade Policy

In deciding whether or not to take costly political action, an individual (and throughout this article I will treat firms as individuals) maximizes the following objective function:

\[ U_i = P(d_i) |B_i| - c(d_i) \]

where \( B_i \) is individual \( i \)'s stake in the issue, that is, the good that \( i \) will receive or the ill that \( i \) will suffer if the policy in question passes; \( c \) is the cost of that political action; and \( P \) is the expected probability that \( i \)'s political action will decide the outcome. Both \( c \) and \( P \) are nondecreasing functions of \( d_i \), the level of political action or demand performed by \( i \)—which may include campaign contributions, participating in letter-writing drives, lobbying members of Congress, lodging a case with an independent regulatory commission, and so on. Individual \( i \) will set marginal benefit equal to marginal cost and provide the resulting level of \( d_i \) to his preferred cause as long as doing so covers average costs. The literature identifies at least four sets of variables—two economic and two political—that affect this calculation and, therefore, an individual's incentives to take costly political action. The two political determinants are collective action problems and political institutions, and the two economic determinants are market structure and factor specificity.

Collective action problems refers to a variety of maladies associated with costly political action by groups. These include simple organization costs, of course, but the main interest here is in the public goods nature of lobbying and the means of overcoming it. Political institutions are simply the processes by which trade policy is created by the political system—legislative vote, administrative fiat, or what have you. Market structure refers to the type of competition of the market in question, whether perfectly competitive, monopolistic or oligopolistic in identical products, or monopolistically competitive in different varieties of the same product. Finally, factor specificity refers to the severity of costs to factors of production (such as skilled labor) of moving from one sector or industry in the economy to another. Because
the effect of market structure is the main subject of this article, I devote an entire
section to it following this section. Here I briefly review the other three determinants
of trade policy lobbying.

Collective Action Problems

A variety of factors fall under the category of collective action problems. Most simply,
the benefits or costs of any policy that accrue to a particular industry or class will be
smaller per person for a larger group than a smaller group. For this reason members
of large groups will often have less incentive to take costly political action even in
the absence of the public goods/free-rider effects described by Olson (1965) and
others. Pareto (1927) and Schattschneider (1935) used this fact to explain the
persistence of protection despite its inefficiency and its costs to society as a whole.
When this phenomenon is severe enough, contributions to collective political action
by members of large groups will often not meet the average cost criterion (equation
[1] will be negative), and those members will simply contribute nothing—they will
drop out of the political process entirely, as, in fact, most of us do on trade policy
(Gilligan, 1997:ch. 2). In addition, of course, organizing larger groups—collecting
donations, keeping members informed and motivated, and so on—is simply more
expensive than organizing smaller groups.

The more interesting problem associated with collective political action, though,
is that it is a public good, so group members have an incentive to free ride on the
political action of other members of their group. If there are declining marginal
benefits to collective political action, members of a group will consume less of it than
if it were private, because they also receive the benefits of the contributions of the
other members of their group. Usually this is taken to mean that exogenous
increases in contributions to the group’s lobbying effort by one member will prompt
other members to contribute less. Elsewhere, I have shown that this problem can be
overstated. If contributions by other members of a group raise the chances that any
individual’s contribution will decide the outcome (for instance, if they increase the
probability of enactment of the group’s preferred policy to closer to 50 percent),
then, instead of free riding, there actually may be bandwagoning—contributions by
the other members will increase (Gilligan, 1997:ch. 3). This does not change Olson’s
(1965) point, though, that, to the extent that smaller groups can more easily provide
selective incentives (such as ostracizing noncontributing members from the group
through union shop rules or licensing and certification requirements), they have an
upper hand in political contests.

In sum, then, smaller groups may have advantages over larger groups in
taking costly collective political action. The per-person stakes of their members
(Bi in equation [1]) are higher; the probability that any one of them will affect
the political outcome in their favor is higher, thereby increasing P; their costs
of organization are lower, reducing c; and they may find it easier to provide
selective incentives, which would add a positive term to the total value of
expected net benefit in equation (1).

Political Institutions

There is already a burgeoning literature on the effects of political institutions on
policy outcomes in a variety of public policy areas (see, e.g., Weaver and Rockman,
1993). Alt and Gilligan (1994) and Verdier (1994) have argued that political
institutions must play a role in trade policy formation as well. If the political system
only rewards large mass-based political coalitions then individuals interested in
affecting trade policy will have to muster those coalitions, if they can, with all the
associated collective action problems (Alt and Gilligan [1994] called such institutions
“majoritarian,” while Verdier [1994] speaks of decisions requiring a “large quorum”). On the other hand, if all an interest must do is convince one legislator to add a provision to omnibus trade legislation that is passed by universalistic logroll, then that interest will not waste money building large coalitions, and collective action problems will be somewhat ameliorated. Institutions, then, have important interactive effects with collective action problems. They determine the type of political action that is successful in the political process, and, therefore, they affect the types of political action, if any, that individuals will ultimately take if they can overcome their collective action problems.

Factor Specificity

Of the four determinants I have listed, the second economic one—factor specificity—has received the most study, and predictions based on it are the most developed. There are several capable reviews of the literature (Alt and Gilligan, 1994; Alt et al., 1996); therefore there is no need to go into any great detail here. When factors are mobile (i.e., not very specific—e.g., costs of moving from industry to industry are low) international trade has the same effects on the rewards to particular factors no matter where they are employed in the economy. The wage rate of labor is affected the same way whether it is in the export industry or the import competing industry, as is the rental rate on capital.1 The factor with which the country is endowed relatively abundantly enjoys a real increase in its return, while the country’s scarce factor suffers a real decline in its return from an increase in trade. These are the Stolper-Samuelson theorem’s predictions, and they have been used by many, Rogowski (1989) most prominently, to explain broad patterns in trade policy coalitions throughout history. According to the Stolper-Samuelson theorem, trade policy coalitions should form along factoral or class lines—labor versus capital, urban versus rural, and so on. The clean predictions of the Stolper-Samuelson theorem break down when more than two factors are considered (as Rogowski did in Commerce and Coalitions), but the theorem is often thought to explain broad patterns in trade policy coalitions over the long run.

If factors are specific, on the other hand, factor returns are tied to the industry in which they are employed.2 The specific factors, or Ricardo-Viner assumptions as they are often called, imply that trade policy coalitions should form along industry lines—skilled labor and capital in the same industry should take the same position on trade. The Ricardo-Viner assumptions are behind most of the analyses in the endogenous tariff literature. Magee’s (1980) “simple tests” of the Stolper-Samuelson theorem using these predictions generally came out in favor of the Ricardo-Viner assumptions. Behind both of these sets of factor specificity predictions, markets are assumed to be relatively competitive, so there is already a particular assumption about market structure buried within these models.

However, these solely economics-based explanations of trade policy coalitions ignore or assume away individuals’ incentives to free ride. Like political institutions, factor specificity has important interactive effects with collective action problems in

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1 Greater trade produces a decline in the price of the imported product. As a result, the import competing industry lays off some of its factors of production. However, the rest of the economy wants relatively less of the factor that the import competing industry uses intensively, so the factor rewards to that factor must decline more than proportionally to the decline in the price of the imported good in order to maintain full employment. This is the so-called magnification effect associated with the Stolper-Samuelson theorem.

2 Increases in imports of a product force the product’s price to decline. Because of this, the marginal product of the mobile factor in the import competing industry will fall and that factor will move from that industry to other industries in the economy. As the mobile factor leaves the import competing industry, the factors that are fixed in that industry become less productive and suffer a decline in real income.
determining individuals’ incentives to take costly political action. The Stolper-Samuelson model predicts that an entire class will be affected the same way by trade, while the Ricardo-Viner model suggests only those factors employed in one industry will be, a much smaller group of people. This implies that collective action problems will be inherently more severe in a Stolper-Samuelson world than in a Ricardo-Viner one. In other words, collective action problems will have to be less severe for some exogenous reason for costly political action to be as attractive for individuals when factors are highly mobile as when they are not. Factor specificity, then, determines, in large part, individuals’ stakes in a given trade issue and the size of the group to which they belong. In this way it affects their incentives to lobby given exogenous collective action problems (and their political institution’s propensity to grant protection).

Market Structure and Lobbying on Trade Policy

Market Structure and Trade

Over the last decade the most exciting advancements in the study of international trade have come from exploring the effects of market structure on trade patterns. Economists have recognized, since at least the late 1960s, that traditional models of trade—endowments-based models—did not explain the vast majority of international trade. Those models predicted trade in different products due to countries’ differences in comparative advantage arising from different endowments of the factors of production. Labor-rich countries would export labor-intensive goods and import capital-intensive goods, and capital-rich countries would export capital-intensive and import labor-intensive goods according to these models. Contrary to the predictions of those models, though, the large majority of world trade is between capital-intensive countries in capital-intensive goods. By the 1980s economists set about the task of explaining this substantial anomaly to their body of theory.

The most prevalent form of these models is a monopolistic competition model of international trade. In it, consumers have different tastes for the same products—either tastes for the same product vary across individuals (some people prefer Volvos while others like Chryslers) or the same individuals like variety in consumption of a product (people like to consume Chinese food one night, Mexican the next, and so on). The former model is attributed to Lancaster (1966, 1979), the latter to Dixit and Stiglitz (1977). In the analysis that follows I rely on the Lancaster version of monopolistic competition which was first used as an explanation for intra-industry trade by Helpman (1981).

In this model, products are thought to vary according to some characteristic which can be arranged around a circle (a circle is chosen rather than a straight line continuum because it avoids complications of consumers whose preferences are close to the endpoints [Helpman, 1981]). Firms pick a variety to produce and place themselves somewhere on the circle, and consumers purchase the variety that is closest to their true preferences. The model assumes increasing returns to scale so that each firm is a monopolist in producing its particular variety of the product. In short, monopolistic competition arises because consumers value different varieties of the same product and increasing returns prevent firms from making more than

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3 The other “more exotic” model (Helpman and Krugman, 1992) explains intra-industry trade in identical products. There is no product differentiation. If countries protect their domestic markets for an oligopolistically produced good, firms in each country will engage in market segmentation—reciprocal dumping really. They will sell some of the product at the higher protected domestic price and some of the product for a lower price overseas (Branden, 1981; Branden and Spencer, 1981; Branden and Krugman, 1983).
one of each variety or two firms from making the same variety. The model shows that there will be some \( n \) firms providing \( n \) different varieties under autarky, where \( n \) is determined by the factors of production available in the country.

In equilibrium these \( n \) firms will divide up the market evenly—that is, they will all be evenly spaced around the variety circle. The reason for this is illustrated in Figure 1. For convenience, a segment of the product variety space is shown as a straight line rather than the entire circle—think of it as a straightened-out arc length of a product variety circle. Three evenly spaced varieties produced by three firms are shown, marked 1, 2, and 3, and distributions of the firms’ sales are shown in solid lines. The two midpoints between these three distributions are marked \( m \). Consumers purchase the variety that is closest to their most preferred variety (i.e., on the same side of \( m \) as their true variety). Consumers at the midpoints, \( m \), are indifferent between the two adjacent varieties.

Notice that although consumers are assumed to be distributed evenly over the product variety circle, each firm’s sales are not. This is because consumers closest to a variety that is actually produced gain higher utility from consumption of the product and therefore purchase more of it than consumers whose ideal varieties are farther away (i.e., near the midpoints between two varieties). Now imagine if the firms’ varieties were not evenly spaced, for instance, if the middle firm produced variety \( 2' \) rather than 2. The midpoints would be at \( m' \) rather than \( m \). Such a firm would have a sales distribution like the one shown by the dashed line. It would be foregoing more sales in the dense part of the left side of its sales distribution in return for fewer extra sales in the sparse part of the right tail of its distribution. The firm could increase revenue by moving to the right until its variety was evenly spaced between varieties 1 and 3 (see Lancaster, 1979, ch. 6 for a more formal proof of this argument).

Trade in monopolistically competitive products will be intra-industry trade. There will still be \( n \) firms making \( n \) different products in the home country as before, but consumers will be able to choose between \( n + n^* \) different products, where \( n^* \) is the number of products produced and firms in the foreign country. As in the autarkic case, no two firms will produce the same variety of a product so each country will specialize in a particular mix of varieties of the product. \( n^* \) may be larger or smaller than \( n \) depending on two countries’ relative endowments of the factor used intensively in the production of the good. Domestic firms will sell some of their production at home and some overseas. Intra-industry trade will be welfare enhancing for each country because consumers will have more varieties to choose from and industries will not be harmed because they can sell in both the home and foreign markets (Helpman, 1981; see also Helpman and Krugman, 1985, 1992).

The Conventional Wisdom on Lobbying with Intra-Industry Trade

These salubrious effects of intra-industry trade for the industries in both countries, particularly when compared with the stark distributional consequences of tradi-

![Image](https://via.placeholder.com/150)

**Fig. 1.** Equilibrium product varieties under monopolistic competition.
tional endowments-based trade, have tempted several scholars to speculate that intra-industry trade has enabled the dramatic post-World War II liberalization of developed country markets to proceed very smoothly. Krugman (1981), for instance, used his analysis to support the view of Hufbauer and Chilas (1974) that the remarkable trade expansion of the postwar period was relatively free of adjustment problems precisely because intra-industry trade increased so much during the period. Balassa (1966) and Aquino (1978) both argued that adjustment to trade is easier for increases in intra- as opposed to inter-industry trade.

Adler’s well-known 1970 study of the effects on the European steel industry following the creation of the European Coal and Steel Community offers some relevant empirical evidence in this regard. Before the creation of the ECSC, economists, using a Vinerian model of trade flows, predicted that the European steel industry would become concentrated in Germany and die out in the other member countries. Adler showed that, on the contrary, by 1966 a substantial intra-industry specialization had taken place. Intra-industry trade increased from 49 to 94 percent in Germany, 30 to 69 percent in France, 1 to 54 percent in Italy, 3 to 65 percent in the Netherlands, and 7 to 41 percent in Belgium-Luxembourg. Instead of one country dominating steel production, different countries specialized in different kinds of steel. Adler found product specialization of this type in six of the ten product lines he examined. He concluded:

The significance of these findings lies in their ability largely to allay the apprehensions of the founding six countries; concerns over the welfare issues connected to the disruptive impact of resource reallocation become immediately less wearisome. (p. 190)

The implications of the increasing importance of intra-industry trade for trade politics are seemingly straightforward. Since the distributional effects of this trade are not as stark as those of endowments-based trade, and since adjustment costs from increases in intra-industry trade are low compared to those from inter-industry trade, individuals should not lobby against policies that increase intra-industry trade in the way that they do for endowments-based trade. By extension, increases in intra-industry trade should be fairly uncontroversial.

Anecdotal evidence has been given in support of this contention. It may explain, for example, why trade with Japan is so much more controversial in the U.S. than trade with other developed countries, particularly Canada. Although trade with Canada makes up a much larger proportion of overall U.S. trade than trade with Japan, the latter is much more contentious, it is argued, because the latter is composed of much more inter-industry trade than the former (Alt et al., 1996). Similarly, this may explain why the North American Free Trade Agreement was so much more controversial than the Canada-U.S. Free Trade Agreement—trade with Mexico is much more endowments-based than trade with Canada. Finally, it may explain why agricultural trade is more contentious than manufacturing trade. Agricultural trade is, by its very nature, more endowments-based than manufacturing trade, because agricultural products are not as differentiable as manufactured goods—Mother Nature has given us only a few varieties of cotton or corn, but we have managed to come up with dozens of varieties of candy, or clothing, or computers.

A Critique of the Conventional Wisdom

This, then, is the conventional wisdom regarding the political effects of intra-industry trade. It is a conventional wisdom that I have had some role in disseminating (Alt et al., 1996). However, upon further reflection I increasingly suspect that it is not
necessarily correct. I suspect this for the same reason Alt and Gilligan (1994) criticized studies that use economic models to predict trade policy lobbying without considering the interactive effects of collective action problems and political institutions. The conventional wisdom derives incentives for political action solely from the raw preferences given by an economic model without regard for the interactive effects of the problems of collective action or political institutions.

While the monopolistic competition model of intra-industry trade can determine the volume of production and trade it cannot predict which countries will produce which varieties. This is actually the information that we need in order to know whether firms will be hurt or not by such trade, because it tells us whether individual firms will be forced to adjust to an increase in trade with another country. It is possible that, although the country and the industry as a whole will gain from increases in intra-industry trade, certain firms within the industry may be forced out of business, or at least forced to produce whole new varieties of the product.

In equilibrium, the \( n + n^* \) products that are traded, as I described above, will have to be evenly spaced around the variety circle, just as they were under autarky. Clearly, there is no guarantee that the \( n \) domestic firms will produce exactly the same products with trade that they produced under autarky. In fact, to do so would require that the two countries have the same factor endowments and that the \( n^* = n \) goods produced by the foreign country under autarky were spaced halfway in between the home country’s \( n \) goods under autarky. In fact, there is no guarantee that the same \( n \) firms in the home country will even be producing under trade—some of them may die out altogether and whole new firms may sprout up in a different space on the product variety circle. Once a firm has to adopt a whole new product variety on the variety circle it no longer necessarily has a cost advantage over a new entrant.

These problems are illustrated in Figure 2, which shows a hypothetical product variety circle. Under autarky four firms produce varieties 1, 2, 3, and 4. The dotted lines forming the square in the center of the circle show that the firms are evenly spaced, as is required for an equilibrium according to the standard model. Now suppose trade opens with a foreign country with the same factor endowments that produces varieties 1*, 2*, 3*, and 4*, all equally spaced apart in their foreign market as shown by the off-kilter square in the center of the circle.

The four home firms were in equilibrium under autarky, as were the four foreign firms, but under trade they are not—they are no longer equally spaced apart. In order to maximize profits, the home firms will have to move counterclockwise and the foreign firms will have to move clockwise until equilibrium is reached again. The distance that the home firms must move will be shortest when the foreign firms just happen to be producing at around the halfway point on the variety circle between two home firms. It will be longest when the foreign firms are producing in the neighborhood of the same spot as the home firms.

The costs of this movement may be substantial. They may include retooling and developing a whole new product line, and developing new distribution networks with a whole new set of buyers.

Movement along the product circle may not be the only adjustment cost to the home firms, though. The reason why each firm produces one variety at one spot on the product circle in the first place is that there are increasing returns to scale in these industries—cost advantages in specializing. Once a firm must move to a new place on the circle due to foreign trade it no longer has this cost advantage. An altogether new firm may sprout up and capture the new equilibrium spot on the product circle before the old firm can move there. The increase in foreign trade may actually increase a monopolistically competitive firm’s domestic competition. The
adjustment costs for such an existing firm in this scenario may be quite severe—the firm may actually go out of business.  

Some firms will have to adjust to trade—even intra-industry trade. Economists have recognized this, of course, but they have just felt that these adjustments would be relatively painless compared to those from endowments-based trade. I want to be clear that I am not disputing this claim. After all, n domestic firms do sell some of their product overseas—something which would be impossible under endowments-based trade. As a result, whole industries will not die out, as they might with endowments-based trade, and factors will not be forced to relocate across industry lines. Thus, adjustment costs may very well be lower for the industry and the economy as a whole under intra-industry than endowments-based trade. My only point so far is that there are some nontrivial adjustment costs to individual firms even under intra-industry trade.

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4 This problem would be tempered if there were some sales advantages associated with known brand names, but this would require additional assumptions to the simple models.
The main point I want to stress, though, concerns the interactive effect of these adjustment costs with firms' collective action problems. As shown in Figure 2, each firm competes with a different variety of the foreign product. This is the crucial point, though: firm 1 is really the only firm that has much incentive to lobby against importation of 1*. Firm 2 loses only a tiny share of its sales to 1*. Meanwhile, firm 2 is the only firm with strong incentive to lobby against the importation of 2*; again, 3 has little incentive to do so. This is true for all four of the home firms. Each must adjust to the imports of one variety and not particularly to any other. Unlike the Ricardo-Viner model where all firms in a particular industry would benefit from lobbying, or, even worse, in the Stolper-Samuelson framework where all members of a particular class would benefit from lobbying, under intra-industry trade one firm will benefit disproportionately from lobbying for protection of a particular variety of a particular product. The firm is, after all, a monopolist in that particular variety. Collective action problems essentially disappear under intra-industry trade. Under intra-industry trade, lobbying is virtually a private good.\(^5\)

Some researchers have speculated that intra-industry trade has been fairly noncontroversial because its costs of adjustment are low compared to increases in endowments-based trade. Those costs may indeed be lower, but, low though they may be, they are highly concentrated on single firms who then have strong incentives to try to stop trade of the foreign variety closest to them. The conventional wisdom has made its claim by looking only at adjustment costs, but these costs are only one of the variables that enter into a firm's decision to take political action. Another such variable is the incentive to free ride, and, as I have shown, it is substantially lower under intra-industry trade than endowments-based trade.

The conventional wisdom really takes the wrong basis of comparison in making its claim. It compares the costs to the industry of intra-industry trade compared to endowments-based trade. However, the industry is not the political actor. The economic agents actually taking the political action are firms. Furthermore, this is not the comparison the firm makes. The firm does not compare the costs of adjustment under intra-industry trade to some counterfactual costs of adjustment under endowments-based trade. The firm simply compares its costs of adjustment to trade with expected net benefits of stopping the trade through the political process. Most important, though, this is essentially a private good calculation with intra-industry trade. Since the firms are monopolists, there is no free rider effect to speak of, and the expected net benefits of political action rise accordingly.

In terms of equation (1), the monopolistic competition associated with intra-industry trade affects \(P\), the expected probability of being pivotal to the outcome. Under the Ricardo-Viner and Stolper-Samuelson assumptions this probability would always be lower than the probability of achieving a favorable outcome itself, because firms could suppose that other firms would be contributing to the same cause. Not so with intra-industry trade. Firms cannot expect any other firm to lobby for trade barriers against the particular variety that is closest to them. With intra-industry trade, \(P\) in equation (1) is the same as the probability of getting a favorable outcome from the government, always a higher probability than if others were contributing to the same cause.

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\(^5\) I say "virtually" because, as shown in Figure 1, firm 2 must adjust slightly to the importation of 1*, firm 3 from importation of 2*, and so forth. Furthermore, there will be second-, third-, and fourth-order effects from a firm's movement in response to foreign competition. For instance, firm 4 will move a little in response to firm 1's move; firm 5 will move a little in response to firm 4's response to firm 1's move, and so on. The point that the bulk of adjustment costs fall predominantly on a single firm is correct, though.
Consumer Lobbying and Intra-Industry Trade

As I have just argued, the collective action problems of firms in competition with intra-industry trade will be eliminated almost entirely because the costs of that trade fall predominantly on a single firm. However, the consumers who benefit from this trade are also a smaller group—only those consumers whose tastes are close to the varieties produced in the new post-trade equilibrium. Are not their collective action problems also mitigated, canceling out the effects of the concentration of costs on a single firm? Put another way, \( P \), the probability of determining the outcome is higher under intra-industry trade because only one firm is predominantly affected by the trade. But if the consumer lobby is also more robust will this not reduce \( P \), possibly canceling out the effects of monopolistic competition? The answer is “not likely” for several reasons.\(^7\)

First, there is not a monotonic relationship between one interest’s lobbying effort and the lobbying effort of its opponent. In some cases, increases in lobbying by opponents can actually increase the probability that an individual will be pivotal to the policy outcome because they make the policy outcome more contentious. For instance, if the increased lobbying by opponents reduced the probability of winning the policy outcome (a different probability than \( P \) in equation [1]) from 70 percent to 50 percent, then an individual would find that his own lobbying effort was more likely to change the policy outcome and therefore he would increase his lobbying efforts. (See Gilligan, 1997:ch. 2 for a fuller discussion of these bandwagoning effects.)

The main point I would like to make, though, is that it is still unlikely that any consumer will be important enough to the political outcome to make it worthwhile to contribute. As I mentioned above, for political action to be worthwhile it must meet the average cost criterion, which requires that equation (1) be positive. Since \( P \) is quite small for any single member of a group as large as the group of consumers this condition will generally not be met. For instance, if the number of relevant consumers were several tens of thousands with intra-industry trade compared to several million with endowments-based trade, in neither case will consumers find it worthwhile to contribute. Obviously, the question of whether or not the consumer lobby is strong enough to offset the protectionist lobby is an empirical one, whether we are discussing intra-industry trade or endowments-based trade. My assumption in this article, though, is that even this smaller group of consumers is still too large to make it worthwhile for any single member to contribute. Given the notorious lack of consumer lobbying now as in the past, I think this assumption is a good one.

Finally, even if there were a consumer lobby, it would not speak with one voice in intra-industry trade as it would in endowments-based trade, because not all consumers benefit from the increased varieties of trade. As I described above, those consumers whose ideal variety is close to a variety that is actually produced receive more utility from consuming the product. Those consumers who are close to a variety produced under autarky will actually have reduced welfare from trade as the firm moves away from the variety it produced in autarky. Of course there will also be consumers who benefit from the increased trade—in fact it will be a larger group than the group of those who are hurt—but, again because of the familiar collective action problems, we cannot infer that this will mean that it has a stronger lobby. If any consumers find it individually rational to lobby in favor of intra-industry trade

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\(^6\) I would like to thank one of the anonymous reviewers for raising this question.

\(^7\) There is a problem in discussing the political incentives of consumers because consumers are also factor owners, so some of their incomes may be affected by the trade. Some consumers, even though they benefit from the increased variety of trade, will be in net hurt because of the adjustment costs of that trade. However, this would be true under both intra-industry and endowments-based trade.
there will be some who find it individually rational to lobby against it. This too implies that effects of concentration of the costs of trade on one firm will not be offset by a more robust consumer lobby. I do not want to make too much of this point, though, since I regard it as unlikely that consumers in either group will lobby on trade policy.

In short, it is unlikely that there would be any significant increase in the amount of consumer lobbying with intra-industry trade. If there were there is still no strong reason a priori to expect it to be a great deal stronger because it would be split. Finally, even if it were a great deal stronger it would not necessarily offset the incentives of producers in monopolistically competitive industries which I described above, and may actually increase them. Ultimately, the effect of intra-industry trade on firms' incentives to lobby, net of consumer lobbying, is an empirical issue. It is to that evidence that I now turn.

Evidence

If I am right the monopolistically competitive firms engaged in intra-industry trade should not be less willing to lobby on trade policy as the conventional wisdom would suggest. There is some anecdotal evidence in this regard. For instance, the majority of GATT dispute resolution cases are between countries that have predominantly intra-industry trade with each other. Most of these cases are between the U.S. and the European Community (now Union) (Jackson, 1989). Other anecdotal evidence can be drawn from simply looking at the tariff structure of the United States. The U.S. collects tariffs at highly specific product levels—individual varieties of products really. Tariffs are not placed on an entire industry. This may be because lobbying for protection is done by individual firms on their specific variety of a particular product and not by whole sectors or industries.

There is also some anecdotal evidence from coalitions on intra-industry trade. The Stolper-Samuelson model predicts class cohesion on trade. The Ricardo-Viner model predicts no class cohesion on trade but some industry cohesion. The intra-industry trade model, as I have characterized it, predicts that trade policy coalitions will be made up of individual firms, not industries and certainly not classes. As an example, some firms in an industry may lobby for greater protection, some for greater liberalization, and some may not lobby at all. Lobbying by the apparel industry on the North American Free Trade Agreement seemed to take this form. Some apparel firms lobbied heavily against it, others lobbied for it, and still others simply sat out (Brown, 1993). There was no overall industry position on the agreement. My explanation for this is that apparel is an industry with highly differentiated products. Those firms that produced varieties that were close to those produced in Mexico lobbied against the agreement; those firms that produced varieties very different from those produced in Mexico lobbied for it; and those somewhere in between sat out.

The problem with anecdotal evidence, though, is that other anecdotes can usually be found in opposition (indeed, I cited a few above that suggest that intra-industry trade leads to less policy conflict). We still need rigorously derived evidence about the effects of intra-industry trade on incentives to take political action. The remainder of this article will begin to fill that gap. As I will show below this evidence is not supportive of the conventional wisdom. In fact, it appears that industries characterized by higher degrees of intra-industry trade are significantly more likely to engage in political action than industries characterized by lesser degrees of intra-industry trade.

In the remainder of this section I provide evidence for my argument from cases brought before the International Trade Commission to request protection. I have chosen ITC cases quite purposefully. They are perhaps the most direct measure of
demand for trade policy available in the United States. Other forms of demand such as campaign contributions and so on are quite difficult to measure. However, there are two potential complications to choosing ITC cases as a dependent variable which probably warrant some discussion. First, it may seem to some that labeling the quasi-judicial process by which the ITC grants protection as "lobbying" is to stretch the term too far. However, if lodging an ITC case is not lobbying it is something quite close to lobbying. The objective function in equation (1) is certainly as valid for ITC cases as it is for other, more conventional forms of lobbying. A second problem may be that the costs of lodging a case with the ITC may be lower than those of other forms of demand for protection, say, lobbying Congress. I am not sure I am willing to concede the point about the relative costs of lodging an ITC case versus lobbying a member of Congress, but if for the sake of argument it is true, it is not a cause for great concern for the purposes of this article. First, free-riding is still a potential problem even with ITC cases since if one firm in an industry pays the costs of lodging a case with the ITC the other firms in the industry do not have to. Thus if lobbying is a private good with intra-industry trade it should show up as such in ITC cases as well as in more costly forms of political action. Second, if the costs (net of free-rider effects) of lodging complaints with the ITC are less for firms competing with intra-industry trade they will also be less for firms competing with endowments-based trade. Both types of firms may be more willing to lodge ITC complaints than engage in more costly forms of lobbying, but this will not bias the results in favor of my contention.

When deciding to lodge a complaint with the ITC, a particular firm makes a calculation using an equation like (1)—it assesses its expected utility from taking a case to the ITC. Lodging a case before the ITC will increase both the probability of being pivotal to the outcome, \( P \) (although as I explained above for intra-industry trade this is the same as the probability of receiving a favorable ruling from the ITC), and the costs of political action, \( c \). The expected benefit of not lodging a case is zero—the probability of being pivotal to the outcome is zero as are the costs of political action. Since the expected utility of not lodging a complaint is zero, firm \( i \) will lodge a complaint if (1) is greater than zero. Aggregating the decisions from these expected utility calculations over all the firms in an entire industry and over a particular time period (in this case a year) generates a variable that is distributed according to a Poisson distribution (Alt and King, 1995). The relationships between these variables can be estimated through standard maximum likelihood techniques with a Poisson regression.

According to the argument I made in the last section, \( P \) should be higher when there is a great deal of intra-industry trade because if a monopolistically competitive firm \( i \) does not lodge a complaint against imports of the foreign variety closest to it, no other firm will either. In the Ricardo-Viner model, on the other hand, firm \( i \) may have some expectation that other firms in its industry will lodge a complaint against foreign producers of the good in question and \( i \) will get protection for free. Since \( P \) should be higher for a monopolistically competitive firm facing intra-industry trade, the expected utility of lodging complaints should be higher for firms in those industries, and industries with a large share of intra-industry trade should be more likely to lodge complaints than those that have lower degrees of intra-industry trade, ceteris paribus.

Several studies have already investigated the political economy of ITC decisions (Finger, Hall, and Nelson, 1982; Baldwin, 1986; Hansen, 1990). They are all mainly concerned with determining when the ITC will grant protection, rather than when industries will demand it. Hansen does estimate an equation for the demand for ITC decisions, but only to control for self-selection which would have biased her model of when the ITC grants protection. All the same, any variable that affects the supply
of ITC decisions will affect \( P \) in equation (1) and therefore will affect demand as well, so I will use several variables from these studies as controls.

The dependent variable in this analysis is the number of complaints lodged by a particular industry (specified at the four-digit SIC level) with the ITC in a given year. I can cover only manufacturing industries here due to limitations in the agricultural and mining series, so complaints lodged by those industries are not included. The period covered is 1988 through 1992. The dependent variable was coded from the lists of cases in the U.S. International Trade Commission's *Annual Report* from 1988 through 1994.

A list of the cases reveals that the products about which complaints are lodged are extremely specific—much more specific than the three-digit industry category some economists have argued corresponds to "an industry" (Grubel and Lloyd, 1975), and even much more specific than the four-digit categories I used here. Second, the complainants in this sample were never industry associations—they were always single firms and perhaps their subsidiaries (International Trade Commission, *Annual Report*, 1988–1994). Both of these facts are consistent with the argument regarding monopolistic competition I made above; however, they cannot be taken as confirming evidence without controlling for the industries' degrees of intra-industry trade and other relevant independent variables.

The main independent variable of concern here is the degree of intra-industry trade. Grubel and Lloyd's index is the standard for the field, so it is the one I used here. It is simply:

\[
IIT_i = 1 - \frac{|X_i - M_i|}{X_i + M_i}
\]

where \( X_i \) is the value of exports of industry \( i \), and \( M_i \) is the value of imports of industry \( i \). The index increases with industry \( i \)'s degree of intra-industry trade, and according to Grubel and Lloyd (1975) is fairly insensitive to level of industry aggregation (i.e., SIC level). There is some controversy as to whether Grubel and Lloyd's measure is appropriate, though. In particular, several scholars have suggested that it should be corrected for the overall trade balance of the country in question (see the review in Greenaway and Milner, 1986:ch. 5). This controversy need not concern us since all of the suggested adjustments are order-preserving monotonic transformations of the Grubel and Lloyd measure and should not affect the results presented here.

I also included a measure of "revealed comparative advantage." This is an important control variable for the obvious reason that export industries should be considerably less likely to ask for protection from the ITC than import-competing products. I measured revealed comparative advantage with the following index:

\[
RCA_i = \frac{X_i - M_i}{X_i + M_i}
\]

A variety of other control variables were included in the results to prevent omitted variable bias. For instance, I have also included a variable to control for the degree of import competition facing a particular industry—the industry's import penetration ratio, which is imports divided by imports plus shipments. Most of American trade is intra-industry trade, so we might expect more complaints from intra-industry trade simply because there is more trade to cause complaints. To control for this I included each industry's share of U.S. imports in the specifications.

Some researchers have also suggested that industries that are declining are more likely to ask for (and more likely to be granted) protection, so I included the percent change in employment in the results that follow. It seems plausible that larger
industries will have larger chances of being pivotal to an ITC decision (i.e., have a higher \( P \), ceteris paribus), so I included the aggregate size of the industry measured by its total level of employment in the specifications that follow. I also tested for the effects of concentration of ownership of the industry measured by the industry's four-firm concentration ratio—the idea being that more concentrated industries can more easily overcome their collective action problems, and, therefore, they are more likely to take political action, ceteris paribus. Since both the number of ITC cases and the degree of intra-industry trade have increased over time, I included a trend term in the specifications so that intra-industry trade does not appear significant simply because it is growing at the same time as the number of ITC cases. Finally, since the specifications are estimated over a series of consecutive years, I included a lag of the dependent variable to control for any stickiness in firms’ demand for protection. All independent variables were taken from the U.S. Department of Commerce (1993, 1995). Summary statistics of these variables are presented in Table 1.

The results from the first of these specifications is presented in the first column of Table 2. The intra-industry trade variable is positive and significant at the 1 percent level, consistent with the argument I made in the previous section. It appears that industries marked with a high degree of intra-industry trade are actually significantly more likely to go to the ITC with a complaint against a foreign rival, not less as the conventional wisdom would suggest. The coefficient on the revealed comparative advantage variable is also significant at the 1 percent level. As expected, it implies that industries in which the United States has a comparative advantage are considerably less likely to request protection from the ITC. The import penetration ratio is also the proper sign and significant, suggesting that those industries suffering from a great deal of import competition were more likely to lodge complaints with the ITC. The industry's share of total U.S. imports is also the correct sign and highly significant, which implies that those industries that make up the bulk of U.S. imports were in fact more likely to request protection. This result assures us that the intra-industry trade variable was not significant simply because most of U.S. imports are of the intra-industry trade type.

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>Complaints to ITC</td>
</tr>
<tr>
<td>Intra-industry trade</td>
</tr>
<tr>
<td>Revealed comparative advantage</td>
</tr>
<tr>
<td>Import penetration ratio</td>
</tr>
<tr>
<td>Industry share of total imports</td>
</tr>
<tr>
<td>Percent change in employment</td>
</tr>
<tr>
<td>Total employment</td>
</tr>
<tr>
<td>Four-firm concentration ratio</td>
</tr>
</tbody>
</table>

*number of observations for all variables is 1505
### Table 2. Effects of Intra-Industry Trade on the Demand for Protection

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constant</strong></td>
<td>-3.8879**</td>
<td>-4.1430**</td>
</tr>
<tr>
<td></td>
<td>0.6748</td>
<td>0.6669</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intra-industry trade</td>
<td>1.3164**</td>
<td>1.3438**</td>
</tr>
<tr>
<td></td>
<td>0.4761</td>
<td>0.4818</td>
</tr>
<tr>
<td>Revealed comparative advantage</td>
<td>-0.6723*</td>
<td>-0.6707*</td>
</tr>
<tr>
<td></td>
<td>0.3685</td>
<td>0.3561</td>
</tr>
<tr>
<td>Import penetration ratio</td>
<td>0.7945*</td>
<td>0.7524*</td>
</tr>
<tr>
<td></td>
<td>0.4242</td>
<td>0.4187</td>
</tr>
<tr>
<td>Industry share of total imports</td>
<td>22.2335**</td>
<td>17.6391**</td>
</tr>
<tr>
<td></td>
<td>3.6482</td>
<td>2.9898</td>
</tr>
<tr>
<td>Percent change in employment</td>
<td>1.6906</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>0.9605</td>
<td>—</td>
</tr>
<tr>
<td>Total employment level</td>
<td>4.1 x 10⁻⁶**</td>
<td>4.6 x 10⁻⁶**</td>
</tr>
<tr>
<td></td>
<td>2.1 x 10⁻⁶</td>
<td>2.0 x 10⁻⁶</td>
</tr>
<tr>
<td>Four-firm concentration ratio</td>
<td>-0.0098</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>0.0048</td>
<td>—</td>
</tr>
<tr>
<td>Trend term</td>
<td>0.2852**</td>
<td>0.2498**</td>
</tr>
<tr>
<td></td>
<td>0.1247</td>
<td>0.1242</td>
</tr>
<tr>
<td>One year lag of dependent variable</td>
<td>0.2659**</td>
<td>0.2503**</td>
</tr>
<tr>
<td></td>
<td>0.0349</td>
<td>0.0288</td>
</tr>
<tr>
<td>log likelihood</td>
<td>-553.45</td>
<td>-563.35</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>1505</td>
<td>1505</td>
</tr>
</tbody>
</table>

Estimated from complaints brought before the International Trade Commission.

*significant at least the 5 percent level; **significant at least the 1 percent level

The state of decline of the industry measured by percent change in employment in the industry is the wrong sign. I tried several other measures including percent change in shipments, percent change in value added, and percent change in the average hourly wage. None of them produced significant results. Industries that were experiencing decline by various measures were not more likely to ask for protection than those that were relatively healthy, ceteris paribus. The aggregate size of the industry, measured by its total employment, was highly significant and the proper sign, though. It appears that industries that are large in the economy are more likely to request protection, ceteris paribus, than smaller industries. This result was robust to different measures of size such as total value of shipments.

Four-firm concentration ratio was the wrong sign, suggesting that more concentrated industries did not lodge more cases with the ITC, ceteris paribus. This variable has generally produced mixed results in the other studies in the endogenous tariff literature (e.g., see the review by Anderson and Baldwin, 1981). Other measures of concentration (like the eight-firm concentration ratio and the Herfindahl index) performed poorly too, as did the concentration variables interactive with the other variables.

The trend term is significant and the expected sign. The number of ITC cases has increased over the period. This result gives assurance that the significance of the intra-industry trade variable was not a spurious correlation due to an upward trend in both that variable and the number of ITC cases lodged. Using individual
dummy variables for each year instead of the trend term yielded similar results. Finally, the one year lag of the dependent variable was the proper sign and significant. Industries that requested protection in the previous year were more likely to request protection in the following year as well.

In the specification in column 2 I simply removed the remaining insignificant variables. Finally, although I do not present the results here for lack of space, I also estimated the various specifications separately for each kind of case (i.e., anti-dumping, countervailing duty, etc.), in case the process for granting protection in each type case was different. The results were qualitatively similar to those presented here.

Conclusions and Speculations

One of the startling features of the international economy in the last thirty years has been the dramatic increase in intra-industry trade among nations—trade in different varieties of the same products. This trade was not explained by existing international trade theory which predicted inter-industry trade between countries with different factor endowments. Economists have developed a set of models over the last fifteen years to explain this pattern in trade. The typical model explains this trade with monopolistic competition.

Economists have argued that the adjustment costs to this kind of trade are fairly low. If a country has \( n \) firms under autarky it will also have \( n \) firms under free trade. The literature has been silent on the direction of this trade, though, and therefore on the adjustment process faced by individual firms. I have argued here that, at some point, as trade barriers are reduced, some home firms are going to come into competition with close foreign substitutes, and will have to adjust to the increase in trade. These adjustment costs may be smaller than if the trade were endowments-based, as economists have argued, but, small or not, these costs are going to fall predominantly onto single firms. As a result, there really are no incentives to free ride. If the costs of adjusting to the trade are higher than the expected net benefits of trying to stop it, the firm may as well try the latter. For this reason I have argued that firms facing a large degree of intra-industry trade are not necessarily less likely to take political action than those facing endowments-based trade, as the conventional wisdom suggests. The important factor here is not the intra-industry trade per se but the fact that firms involved in intra-industry trade are monopolists and therefore have no incentive to free ride. As evidence for my contention I provided estimates of the effects of intra-industry trade on industries’ likelihood of lodging a complaint with the International Trade Commission. I found, consistent with my argument, that industries marked with a high degree of intra-industry trade were actually more likely to request protection from the ITC than industries with less intra-industry trade, not less as the conventional wisdom would predict.

The argument I have made here should extend to some other institutional contexts, if there were data for them. For instance, the argument could be used to explain lobbying to include (or exempt) provisions to protect (or liberalize) certain product varieties in a large omnibus trade bill. It could also be used to explain similar lobbying of negotiators by firms during the bargaining stages of an international trade agreement. In both these contexts, like in ITC cases, the monopolistically competitive firms closest to the imports cannot expect other firms to do their lobbying for them. Unfortunately, quantitative measures of lobbying in these other contexts are simply not available.

Finally, I would like to respond to several potential criticisms in advance. First, some may argue that the story presented here does not make sense because it claims that individual firms lobby for protection, but how could a single firm hope to be politically strong enough to garner protection from the government? In response,
Lobbying as a Private Good

one of the insights of the endogenous tariff literature, using a traditional Ricardo-Viner approach, is that protectionism can persist because its benefits fall on a particular industry while its costs are spread throughout the whole rest of the economy (see, e.g., Mayer, 1984). This effect will be even more pronounced with intra-industry trade. The costs of liberalization and the benefits of protection will be even more concentrated than in the Ricardo-Viner approach—they will be concentrated not only on particular industries but on particular firms within that particular industry. This concentration of benefits can lead to greater lobbying by the group with the concentrated interest (Mayer, 1984; Gilligan, 1997: ch. 2). However, if a monopolistically competitive firm competing with intra-industry trade finds its own lobbying insufficient to achieve its political ends it can always join a coalition with other protectionist interests. In such a case the firm’s political action will still be a private good, as I argued above, because no other member of the coalition it joins will have any incentive to seek protection on the variety with which the firm competes unless the firm makes some contribution to the coalition’s efforts. The firm will not be able to free ride on the coalition’s efforts because the coalition will not lobby for protection on the firm’s variety unless the firm supports the coalition.

A second potential problem with my analysis is that it cannot explain why trade was so uncontentious in the postwar period. I would dispute the premise of the question, though. It is important not to equate a stylized impression of “lack of salience” or “uncontentiousness” with a “lack of political action.” Hiscox (1995) has shown that in fact there has actually been a steady increase in the amount of political activity on trade policy since 1934 measured by the number of witnesses testifying before congressional committees on trade legislation. Furthermore, Destler, Odell, with Elliot (1989) have shown that anti-protectionist lobbying is quite robust, and, in fact, rising as well. Finally, the number of cases lodged with the ITC have risen over the last twenty years (U.S. International Trade Commission), as have the number of GATT dispute resolution cases (Jackson, 1989). What is particularly interesting about these findings is not only that the level of activity is as high as ever, but that it has been increasing along with the percentage of American trade that is intra-industry—precisely the opposite relationship that the conventional wisdom implies should exist between these two variables. There is quite a lot of political activity on trade policy, although it may only rarely appear on the front pages of our newspapers.

Finally, while I think the political success of the postwar liberalization is better explained by other factors, the economists’ explanation for the absence of substantial economic dislocation as a result of that liberalization seems to be a good one. It is entirely plausible that the adjustment costs of intra-industry trade really are lower as economists have suggested. The point of this article, though, is that we cannot determine incentives for political action solely from those costs. Collective action problems also determine those incentives, and, as I have argued here, they are considerably less severe for the monopolists facing intra-industry trade than they are for the many firms in an industry facing endowments-based trade.

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8 Elsewhere I have shown theoretically and empirically that reciprocal trade agreements mitigate this effect by also concentrating the benefits of liberalization and the costs of protection on particular exporters (Gilligan, 1997).

9 These would include the use of reciprocity to increase the demand for liberalization, which I mentioned above, as well as several supply-side factors associated with moving trade policy authority from the legislature to the executive (Lohmann and O’Halloran, 1994; O’Halloran, 1994; Gilligan, 1997).
References


