Are Government or Private Enterprises More Likely to Engage in Predation?: Some International Evidence From Dumping Cases

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Abstract

Our paper attempts to provide the first systematic evidence of predation by government enterprises. The empirical evidence confirms the theory that government enterprises face higher returns to engaging in predation than do private enterprises. The economic importance of the effect is quite large. Between 43 and 94 percent of the initiated dumping cases and 54 and 100 percent of the affirmative dumping cases against firms from nonmarket economies can be explained simply by those firms being from nonmarket countries. These results are strengthed when we control either for politically motivated investigations arising from military conflict, or for firms in nonmarket economies competing against domestic producers who were particularly well protected from competition.

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I. Introduction

Considerable research has focused on the theory of predatory behavior by private enterprises.[1] Despite the many efforts to test these theories, there is surprisingly little empirical evidence that private firms actually engage in predation.[2] Recent theoretical work (Lott, 1990a), however, indicates that government enterprises should display a greater tendency to practice predation than their privately-owned competitors. If Niskanen (1971, 1974, and 1975) and Lindsay (1976) are correct that government enterprises are motivated by goals such as output maximization, rather than profit maximization, these enterprises face both higher returns to predation and higher returns to making the credible commitments required for predation to succeed. Obvious situations where predation of this form may occur range from public schooling to the postal service to health care.[3] Yet, to date, there has been no systematic attempt to acquire evidence on the incidence of predation among state owned firms. This paper seeks to fill this gap in the empirical literature by comparing the relative frequencies of predation by public and private enterprises.

Governments around the world have themselves implicitly recognized the predatory threat posed by foreign government enterprises through their willingness to bring "dumping" charges against not only private firms but also state-owned enterprises. In a recent case, the United States accused the Chinese government of following "predatory pricing" in the satellite launch services market (Foley,

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[1] Bork (1978), Carlton and Perloff (1990), and Demsetz (1982) provide excellent surveys of predation's theoretical underpinnings.

[2] Burns (1986), Elzinga (1970), Isaac and Smith (1985), Koller (1971), McGee (1958, 1980), and Yamey (1972) present evidence on the plausibility of predation by private enterprises. While Burns provides one of the few systematic empirical findings of predation, he notes that his results are equally consistent with efficiency explanations (p. 290). Carlton and Perloff (1990, p. 407) also remark on the lack of evidence of successful predation. Our paper will instead take a different tack and investigate whether predation is more likely to occur for private or government enterprises.

[3] For discussions of the output maximizing nature of some other government services see Johnson (1985) and Libecap (1981). For a discussion of what may motivate predation by public schools see Lott (1990b).

August 1, 1988, p. 29).[4] In another widely publicized case, the United States accused Poland of selling motorized golf carts for less than their cost (Ehrenhaft, 1989, p. 303). More typically, trade disputes with nonmarket economies have involved less exotic products where quality is a lesser concern. Products involved in past dumping disputes include candles, cotton towels, wooden clothespins, natural bristle paint brushes, barbed wire, carbon steel wire and sheets, potassium chloride and steel wire nails (United States International Trade Commission, 1984, pp. 227–31). Government-owned firms operating in market economies have also been accused of unfair trading practices. In 1987, the United States filed a formal request with the GATT to investigate charges that the Airbus consortium, which is jointly owned by the British, French and West German governments, had sold wide-body commercial aircraft at prices "below true manufacturing costs" for an extended period of time (Mecham, 1987, pp. 35, 39).[5]

We hope to use these charges of predatory behavior brought by governments against foreign competitors (both private and public) to compare the rates at which these different types of organizations engage in predation. Several considerations favor this approach over relying on cases brought against government owned firms within that country. First, governments are obviously unlikely to bring charges of predation against the very corporations that they own. Second, at least in some countries such as the United States, state-owned or regulated enterprises are explicitly exempt from the antitrust laws (Wiley, 1986). These considerations imply that searching for evidence on domestic predation cases against government enterprises is unlikely to be fruitful. By contrast, we

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4 Chinese launches were estimated to have been 30 to 50 percent cheaper than those offered by American and European competitors. China was allowed to proceed with sales only after agreeing to provide launches at prices "on a par" with Western competitors and to accept an annual quota of 1.5 launches through 1994 (Covault, 1989, p. 37 and *Aviation Week & Space Technology*, December 5, 1988, p. 32). The Chinese argued that one of the reasons for the low prices was to allow them to make investments in creating a reputation for dependability, and thus using a broader definition of costs, their low prices were not really predatory (*Aviation Week & Space Technology*, September 19, 1988, p. 22 and Lott, 1990a).
5 The United States further charged that Airbus' pricing practices threatened to drive McDonnell Douglas out of the commercial aircraft market. The trade dispute has yet to be resolved (Dunne, 1990).

expect governments to be more objective in the relative rates with which they bring predation charges against privately or publicly foreign owned corporations.

The following two sections briefly review why government enterprises are more likely to engage in predatory pricing and our attempt to measure the rate at which firms in market and nonmarket economies practice predation. We then test the relative returns to engaging in predation by these two different types of market organizations by comparing the rates at which government and private enterprises are accused of predation or "dumping." We explicitly control for politically motivated investigations arising from military alliances, for firms in nonmarket economies competing against domestic producers who were particularly well protected from competition, and for the presence of measurement error. While our paper does not so much prove the existence of predation, it will provide evidence that governments believe state enterprises to display a greater tendency to practice predation than their privately–owned competitors.

II. The Theory of Predation by Government Enterprises

In contrast to private firms, government agencies are typically believed to pursue objectives such as maximizing the bureau's size or output (e.g., Niskanen, 1971, and 1975 and Lindsay, 1976).[6] Several reasons have been advanced for why government enterprises will weight output more heavily than private firms. For example, managers of government enterprises may seek compensation in non–pecuniary forms, such as maximizing output or discretionary budgets, because of prohibitions on profit–sharing and the high cost of monitoring their actions.[7] Traditionally, a larger output has been seen as a means of raising salaries, increasing the utility of the bureaucrats who intrinsically

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[6] Borcherding (1971) has argued the reverse of output maximization and noted that public enterprises may actually act as monopsonists in cases where they face upward sloping supply curves. Lott (1987, pp. 491-493), however, provides empirical evidence why that hypothesis can be rejected in the case of public schooling.

[7] Alchian and Kessel (1962) provide evidence that public utilities divert some of their profit possibilities into nonpecuniary forms of income when accounting profits reach the limit set by state regulatory commissions. See Borcherding (1977), Borcherding et al. (1982), and De Alessi (1980 and 1982) for further evidence on the behavior of public bureaucracies.

value the mission of the agency, and increasing prestige from being associated with a larger agency (Niskanen, 1971, p. 38 and Libecap and Johnson, 1989, p. 448).[8]

While maximizing output should presumably be just as visible to the politicians who monitor agency behavior as it is to the economists who study these questions, the empirical evidence suggests that such behavior persists (Niskanen, 1975 and Lindsay, 1976).[9] Policies in nonmarket economies that encourage enterprises to fulfill production targets and increase employment are consistent with output maximizing behavior (Wolf, 1988, pp. 11-13 and Holzman, 1966, pp. 240-41). Full employment is a goal of most socialist economies and nonmarket enterprises generally establish output targets rather than profit objectives (Wolf, 1988. p. 10). Export markets provide one outlet for the increased production that both of these objectives promote.

Alternative arguments, which do not involve systematic mistakes by politicians, include a desire by socialist and communist countries to maximize export revenues to obtain foreign currency (Wolf, 1988, p. 12). If firm demand is elastic because competition exists, export revenue maximization will not lead a firm to reduce its output below the point where price equals marginal cost because that would require increasing prices above the competitive level. By contrast, maximization of foreign currency receipts *is* consistent with output being expanded beyond the point where price equals average cost. The particular reason that government enterprises value output maximization is not important to the arguments presented here. The crucial assumption is simply that government enterprises value output maximization more than private enterprises do.

The elimination of foreign private competitors allows state-owned enterprises to acquire more foreign currency either by subsequently reducing sales and charging the monopoly price, or by engaging in price discrimination. In the case of perfect price discrimination, output maximization and maximizing foreign currency revenues are identical. As with predation by private enterprises, the

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8   Libecap and Johnson (1989) provide some evidence that agency growth significantly increases the salaries of government workers, but the effect is very small.

9   Lindsay (1976, pp. 1072-1073) finds empirical evidence that public enterprises produce more of those outputs that can be easily monitored by politicians (e.g., the number of patient days in a hospital) than will be produced by proprietary enterprises. (See Clark (1988) for some recent evidence supporting Lindsay's hypothesis.)

difficulty with charging higher prices is that government enterprises face the threat of new competitors entering the market. For example, an output-maximizing government firm subject to a zero profit constraint that engages in price discrimination can increase output by using the revenues from the higher priced inframarginal sales to subsidize below average cost production at the margin (Lott, 1990a). However, the higher prices will induce new entry, which will in turn lower output both due to lost sales and reduced rents which restrict the ability to subsidize below cost production. With sufficient entry, an output maximizing government enterprise will even find it desirable to set price equal to average cost so as to increase output.

As opposed to private profit maximizing firms, which find predation very costly, government enterprises are actually made better off by lowering prices in response to new entry and thus do not benefit solely from the long term reduction in competition. Government enterprises thus seem likely to be able to make more credible commitments to respond to new entry with lower prices and thus may even avoid having to lower the prices on these inframarginal units in the first place. While others (e.g., Davies and McGuinness, 1982) have recognized that output maximization by private enterprises implies dumping and also that dumping can be used to deter entry, our point is that government enterprises are much more likely to value output maximization and thus constitute a greater predatory threat.[10]

While the Niskanen-type losses directly borne by the output-maximizing government enterprise are well understood, this increased output also produces a second type of loss — increased social costs of production. The increased output lowers the market price and in doing so can cause more

[10] Davies and McGuinness (1982, pp.176-177) note that output maximization by private enterprises arises because of shirking due to the separation between ownership and control. Surely, such shirking can also arise for government firms. The crucial difference between our discussions, however, is that such output maximization can be the result of conscious decision making on the part of the politicians who oversee the government enterprises. In contrast to public enterprises, output maximization by private firms occurs in this context as the result of some mistake. Alternatively, Davies and McGuinness (pp. 177-179) also note that the threat of dumping may convince a competitor not to enter the market. As we noted earlier, this constitutes a less credible threat on the part of a private firms since while private firms may gain long run benefits from increasing output, such behavior is very costly in the short run. Government enterprises, by contrast, not only receive long term benefits from thwarting entry but also are made better off in the short run by expanding output (see also Lott, 1990a).

efficient firms to be eliminated. Our discussion meets the two conditions usually used to define predation: 1) that "the price charged by the predator [be] lower than would be optimal in a simple myopic (short-run) pricing strategy," and 2) that this "price [have] the effect of preventing entry, or driving out and preventing re-entry, of the prey" (Isaac and Smith, 1985, p. 330). International trade law also provides a similar definition for "dumping." Dumping involves a firm selling a product for "less than its normal value" and thereby "causing or threatening material injury to an established industry" in the importing country (GATT, Art. VI, Sec. 1). Rather than attempting to test whether government enterprises' output maximizing behavior can best explained by shirking or revenue maximization, we will test the theory's prediction that government enterprises are more prone to predatory behavior than private ones.

III. The Criteria for International Dumping Complaints

The General Agreement on Tariffs and Trade (GATT) establishes a general framework under which importing countries investigate alleged dumping by foreign producers. If dumping charges are substantiated, the importing country may impose an offsetting duty. Anti-dumping investigations involve an extensive inquiry into the foreign firms' pricing practices followed by often lengthy administrative hearings before government agencies in the importing country. As noted earlier, a successful anti-dumping complaint must prove both that the imports have been sold for less than their normal value and that they have materially injured domestic competitors. Traditionally, the "material injury" test has been interpreted extremely leniently. Reduced domestic employment, output or profits associated with a rise in imports from the offending country will typically satisfy the material injury requirement. For this reason, in most anti-dumping investigations attention centers on the "below normal value" pricing requirement.

The GATT requires members to measure a good's "normal value" by its customary price in the exporting country's domestic market, provided that this price is regarded as providing a reliable "free

market" benchmark.[11] This price–discrimination definition of dumping is most frequently applied in investigations involving exporting firms from market economies. The GATT explicitly recognizes that domestic prices in nonmarket economies fail to provide a meaningful "normal value" benchmark for comparing export prices (GATT, Ad. Art. VI, para. 1, Sec. 2). For this reason, it offers two alternative definitions of normal value for such cases: 1) the price charged by the exporting firm in a third country and 2) the good's cost of production in the exporting country plus allowances for selling costs and profit. The choice of which alternative definition to apply rests with the investigating country. However, because the price charged in third countries is apt to be unreliable whenever the exporter's domestic price is rejected, most countries have adopted the cost-based definition of normal value for nonmarket economy exports. Thus, Australia, Canada, the European Economic Community (EEC) and the United States consider "sales below [the] fully allocated cost of production ... [that] have been made over an extended period of time and [that] do not permit recovery of all costs within a reasonable period of time" to satisfy the pricing below normal value test (Vermulst, 1989, p. 444). This concept of fully allocated cost in international trade law thus corresponds to economists' understanding of long–run average cost.

The United States estimates nonmarket exporters' long–run costs of production using a constructed–cost methodology. Investigators first identify the amounts of each input that the nonmarket enterprise uses in the good's production and then value these at "free market prices" taken from a third country at the same level of economic development as the actual supplier (Jackson, 1989b, pp. 295–96).[12] The government enterprise's estimated total cost of production is then simply the sum of these components, plus an allowance for selling costs and profit. Australia, Canada and the EEC employ a slightly-modified constructed cost methodology, using the surrogate country's factor proportions as well as its input prices in their calculations.

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11 In practice, the domestic price in the exporting country is viewed as a reliable benchmark when there exists a moderate volume of sales of the product involving arms–length transactions.
12 Similarities in per capita GDP, production technologies and product quality levels are among the criteria used to select an appropriate surrogate economy (Ehrenhaft, 1989, pp. 303–04).

IV. Testing The Theory

While some economists who study nonmarket economies have pointed out that companies from those countries appear to dump more frequently than do firms from market economies, no systematic evidence has been provided.[13] Given that the definition of dumping under international trade law closely accords with the concept of predation in the industrial organization literature, our goal is to see whether governmental or private enterprises are more likely to engage in predatory behavior and to distinguish between possible explanations for such differentials. Unfortunately, measures of the percentage of a country's exports produced by state owned firms, the percentage of different types of exports produced by government enterprises, and data on the number of individual cases brought against private or government enterprises were not available. While some information is available on the percentage of the United States' dumping cases against market economies which focus on state enterprises, we shall leave that discussion until section IV.d. This section will therefore instead ask whether dumping complaints and affirmative actions have been brought at a disproportionate rate against firms in nonmarket economies relative to their counterparts in market economies.

We consider a total sample of 59 countries, ten of which are nonmarket economies: Bulgaria, China, Czechoslovakia, the German Democratic Republic, Hungary, North Korea, Poland, Romania, the Soviet Union, and Yugoslavia.[14] We use three sets of regressions to test our hypothesis relating

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[13] For example, in a case study of Australian dumping complaints between 1961 and 1966, Wilczynski (1969, pp.155–56) noted that the ratio of dumping complaints against non-market to market economies exceeded the ratio of Australia's volume of trade with these two types of economies. However, rather than seeking to explain his empirical observation or to study its extent and its causes, Wilczynski largely dismissed his findings as the product of incorrect measurements of non-market firms' production costs and political biases by Western governments against non-market economies (Wilczynski, 1966, p. 257 and 1969, p. 161). Unfortunately, no evidence is offered to support either of his claims.

[14] The 1988 Trade Act codified the United States Department of Commerce's method of identifying nonmarket economies by using the following criteria: (1) the extent to which the currency is freely convertible; (2) the extent to which wage rates are determined by bargaining between labor and management; (3) the extent to which foreign investment is permitted, including in joint venture form; (4) the extent of government ownership or control of the means of production; (5) the extent of government control over the allocation of resources and the prices or output of the enterprises; and (6) other appropriate factors (Ehrenhaft, 1989, p. 309). The same breakdown between nonmarket and

market organization to dumping complaints. The first and second regression specifications measure the rate at which predatory charges are brought against firms in market and nonmarket economies. In these regressions, the number of anti-dumping investigations against foreign exporters is expressed as a function of the two countries' volume of trade, the exporting country's level of economic development, and the form of its market organization. The third set of regressions control for the possibility that anti-dumping complaints are motivated by defense-related political goals. Finally, we will test to see if a bias exists to the extent that nonmarket economies tend to export goods that are more politically protected from competition by market economies.

a. The Rate of Dumping By Firms from Market and Nonmarket Economies

We compiled a cross-country data set of anti-dumping investigations from tabulations in Finger and Olechowski (1987) and United Nations Conference on Trade and Development (1985 to 1989). The data identify 59 countries whose exporters were subjected to anti-dumping actions by the United States, the EEC, Canada, Australia and Finland over the period 1980 to 1987.[15] Together, these complaints accounted for 93 percent of all anti-dumping investigations initiated during this period (Jackson, 1989a, p.15). The pattern of dumping complaints against market and nonmarket economies by each of these jurisdictions are summarized in Table 2.[16] We attempt to explain the number of complaints initiated by these five jurisdictions using the following regression:

$$(1) \quad INITIATED_{i,j} = \alpha_0 + \alpha_1\ IMPORTS_{i,j} + \alpha_2\ EXPORTS_{i,j} +$$
$$\alpha_3\ REAL\ PERSONAL\ GDP_j + \alpha_4\ NONMARKET_j + u_{i,j}$$

where $INITIATED_{i,j}$ = number of investigations by country i against country j's exporters,

$IMPORTS_{i,j}$ = country i's total imports from country j,

$EXPORTS_{i,j}$ = country i's total exports to country j,

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market economies is obtained by using the Freedom House measure of socialism (Gastil, 1986, p. 15) or Finger and Olechowski (1987, pp. 264-269).

[15] Data for Finland were only available for 1983 to 1987.

[16] Austria, Spain and Sweden are included in our later empirical work in Section IV.b, where we do not require the ability to identify the individual countries that their complaints were brought against.

REAL PERSONAL GDP$_j$ = real per capita GDP in country j, and

NONMARKET$_j$ = a dummy that equals one for nonmarket economies.

In addition to pooling the data across countries to estimate the average relationship between the number of anti-dumping investigations and market organization, we also report separate results for each of the five jurisdictions bringing the dumping complaints.

The data on bilateral trade flows were taken from the International Monetary Fund's *Direction of Trade Yearbook* (1987a and 1989).[17] The total value of imports from each trading partner is the most natural variable to convert the number of anti-dumping complaints into a rate of investigation variable that can easily be compared across countries. The number of anti-dumping disputes is expected to increase as the value of goods subject to investigation rises.

The value of exports to the country whose firm is accused of dumping attempts to measure the cost of imposing sanctions borne by the country imposing them. Previous empirical studies of administered protection in the United States, such as Takacs (1981), Magee and Young (1987) and Salvatore (1989), have found a negative relationship between a country's bilateral trade balance and the number of anti-dumping investigations or other import relief actions that they initiate. One possible explanation for this finding is that, after holding imports constant, countries that have larger exports to a trading partner potentially have more to lose as a result of retaliation to any trade sanctions. The greater the cost of imposing sanctions, the fewer sanctions we expect to be imposed. Presumably, this reasoning is also applicable to imports, although it is impossible for the number of dumping cases to always decline with higher imports since the number of dumping cases is zero when imports are zero. Because the relationship between anti-dumping complaints and exports (or imports) need not be linear, we also estimated alternative regression specifications that included quadratic terms for these two variables.

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17 We deflated the import and export series using, alternatively, a GDP deflator and import and export price deflators to aggregate the trade flow data across the sample years. The qualitative results were not sensitive to the choice of deflator and therefore we report only the regressions using the export and import price deflators.

The real per capita GDP variable included in the regression equation controls for the level of economic development in the exporting country. These data are taken from the Penn World Table (Mark 4) reported in Summers and Heston (1988).[18] Finger, Hall and Nelson (1982) have argued that governments perceive less-developed countries as lacking the requisite resources or skills to exert political pressure on their own behalf in anti-dumping investigations. If this argument is true, governments may be more apt to pursue anti-dumping complaints against firms in countries with lower per capita income.[19] Alternatively, less developed countries are frequently given preferential treatment through lower tariffs designed to assist their economic development.[20] If developed countries also assist these less developed countries by enforcing anti-dumping provisions less rigorously, countries with lower per capita incomes may face fewer dumping complaints.

The final independent variable in regression (1) is a dummy that equals one for nonmarket economies and zero otherwise. Our central hypothesis is that the coefficient on the NONMARKET variable will be positive. We had hoped to find a quantitative measure of the percent of exports from each country in our sample arising from state owned firms, but could not. This regrettably forced us to use instead a dummy variable for nonmarket economies. It is clear that this dummy variable imperfectly measures the extent of government ownership of exporting enterprises across countries. Importantly, while all firms in non-market economies are state-owned, there are many government enterprises that operate in market economies.[21] As we discuss in section (d), using the

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18 These data were only available for 1980 through 1985. However, their superiority relative to other cross-country estimates of real GDP recommended their use. We calculated each country's average real GDP per capita for 1980-85 and used this as our *REAL PERSONAL GDP$_j$* variable in equation (1). Data for North Korea were taken from the CIA's *World Factbook*(1980-1985) and data for the Bahamas were taken from the United Nation's *National Accounts Statistics: Main Aggregates and Detailed Tables* (1986).

19 Real per capita GDP for the market economies in our sample was, on average, 18.3 % higher than for non-market economies.

20 The Generalized System of Preferences established by the GATT is the most important and extensive set of tariff concessions granted by developed countries to less developed countries. Many developed countries have also granted other trade preferences individually. For a discussion, see Jackson (1989b), pp. 278-81.

21 For a partial listing of non-financial government enterprises in different market and non-market economies, see International Monetary Fund (1987b).

NONMARKET dummy variable therefore yields a downward-biased estimate of the impact of market organization on dumping complaints. We discuss later the issue of measurement error more generally.

The results for the initiated cases are reported in Tables 2 and 3. Columns 1 and 2 of Table 2 report the results for the different specifications pooling the data for countries that brought dumping charges. Table 3 breaks down the data by the five government entities bringing dumping charges. As measured by the adjusted R^2 values, a significant portion of the cross-country variation in anti-dumping complaints is explained by the market organization, trade flow and economic development variables. The one consistent finding across all of the regressions is that dumping cases are brought at much higher rates against nonmarket economies than they are against market economies, though the coefficients are not significant for Australia and Canada in Table 3. The results are also economically important. For example, the first specification in Table 2 implies that of the predicted 21.7 predation cases initiated against Bulgaria, 20.3 (or 93.7 percent) were the result of it being a nonmarket economy. Similarly, the shares of predicted dumping complaints against nonmarket economies that can be explained by their form of market organization are: China (43.3%), Czechoslovakia (71.5%), the German Democratic Republic (65.4%), Hungary (76.1%), North Korea (83.9%), Poland (68.0%), Romania (64.6%), the Soviet Union (65.8%), and Yugoslavia (72.2%).

With regard to the other variables, higher imports usually imply that more dumping cases will be filed and this effect is also often quite significant. The evidence for exports is somewhat more mixed, with this variable entering both positively and negatively in Tables 2 and 3's regressions. The mixed coefficient signs suggest that a desire to avoid future retaliation against trade actions may not be the only link between exports and dumping investigations. The fact that the squared terms for the import and export variables often enter significantly (again with varying signs) indicates that the relationship between trade flows and dumping complaints is non-linear. Finally, the coefficient for real per capita GDP is often significant and its sign implies that just as less developed countries are granted lower tariff rates for many of their exports, the probability that dumping charges will be brought against their exports is also lower.

Next, we reran these regressions with two changes: 1) we restricted our attention only to anti-dumping cases with affirmative decisions and 2) we were forced to drop the observations for Finland because of the unavailability of data on the number of affirmative cases for that country. The estimation results for affirmative anti-dumping decisions are reported in Columns 3 and 4 of Table 2 (for the pooled regressions) and Table 4 (for the individual country regressions).

As in the first regressions, dumping complaints are consistently affirmed at much higher rates against nonmarket economies than they are against market economies, though the coefficients are again not significant for Australia and Canada in Table 4.[22] Again, the regression results are also economically important. Using the linear specification in Table 2 implies that of the predicted 12.2 predation cases successfully brought against Bulgaria, 12.3 (or 100.8 percent) were the result of it being a nonmarket economy. For the other sample countries, the corresponding percentage of their predicted affirmative dumping decisions that can be explained by their being a socialist economy are: China (54.1%), Czechoslovakia (79.4%), the German Democratic Republic (74.2%), Hungary (83.4%), North Korea (92.5%), Poland (82.7%), Romania (72.2%), the Soviet Union (67.4%), and Yugoslavia (79.2%). For nonmarket countries the effect of market organization is even more pronounced among affirmative investigations than it is for cases that are simply initiated.

As with the affirmative cases, higher imports and exports are usually associated with more affirmative dumping decisions. As with the initiated cases regressions, the relationship between trade flows and dumping disputes is usually a non-linear one. Finally, the coefficient for real per capita GDP is consistently positive (except for Canada), lending additional support to the hypothesis that lower rates of dumping actions is one channel by which developed countries grant preferential treatment to their less developed trading partners to encourage exports and promote economic development.

A skeptical reader will undoubtedly be concerned by the unavoidable use of the proxy variables (particularly for nonmarket economies) along with their inherent measurement error. The model is

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22 The NONMARKET dummy in Canada's regression is significant at the 10% level for a single-tailed t-test.

thus under–identified since the set of maximum-likelihood solutions contains more than one point. However, as long as the K reverse regressions all yield estimates of the same sign for each variable as in the direct regression, the interval between the maximum and minimum values for a coefficient from this (K + 1) set of estimates will contain the true coefficient (Koopmans, 1937). The problem is further complicated by the presence of measurement error; the proxy variables are assumed to differ from their true values by some unknown scaling factor δ. As long as the sign of δ is known, however, we can infer the sign of the true coefficient, which is our real concern (Leamer, 1978, pp. 237-245). Unfortunately, the minimum and maximum values for these coefficient estimates for either columns 1 or 3 in Table 2 are not bounded.[23]

Klepper and Leamer (1984) suggest one solution to this problem which is to introduce additional information on the size of the R^2 that one would observe if all the measurement error were removed. The lower is one's estimate of the model's explanatory power in the absence of measurement error, the more likely it is that the coefficient estimates can be bounded. Following Klepper and Leamer's lead in introducing prior beliefs, as long as R^{*2}, the R^2 obtained with this model assuming no measurement error, is less than R_m^{*2}, the maximum value of R^{*2} consistent with all of the normalized regressions in the same orthant, the estimates will be bounded. For columns 1 and 3 in Table 2, the values for R_m^{*2} are .9759 and .9720, both of which seem quite high for cross-sectional empirical

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23 For the linear regression on the initiated cases (column 1 in Table 2), the bounds are: -0.229 to 0.0386 for IMPORTS AUSTRALIA, -0.0598 to 0.08165 for IMPORTS CANADA, -0.0105 to 0.00141 for IMPORTS EUROPEAN ECONOMIC COMMUNITY, -0.297 to 0.9247 for IMPORTS FINLAND, 0.00016 to 0.023 for IMPORTS UNITED STATES, -0.0181 to 0.019 for REAL PER CAPITA GDP, -20.064 to 88.075 for NONMARKET, -0.0495 to 0.3793 for EXPORTS AUSTRALIA, -0.1199 to 0.07498 for EXPORTS CANADA, -0.00216 to 0.01055 for EXPORTS EUROPEAN ECONOMIC COMMUNITY, -0.197 to 0.0322 for EXPORTS FINLAND, -0.0218 to -0.0000092 for EXPORTS UNITED STATES, and -95.97 to 128.99 for the intercept.
For the linear regression on the affirmative cases (column 3 in Table 2), the bounds are: 0.0017 to 0.0207 for IMPORTS AUSTRALIA, -0.0162 to 0.0348 for IMPORTS CANADA, -0.00696 to 0.00176 for IMPORTS EUROPEAN ECONOMIC COMMUNITY, -0.01814 to 0.0062 for IMPORTS UNITED STATES, -0.0044 to 0.0113 for REAL PER CAPITA GDP, 3.3468 to 45.947 for NONMARKET, -0.04597 to 0.0081 for EXPORTS AUSTRALIA, -0.0453 to 0.0222 for EXPORTS CANADA, -0.0157 to 0.00658 for EXPORTS EUROPEAN ECONOMIC COMMUNITY, -0.00516 to 0.0153 for EXPORTS UNITED STATES, and -62.3 to 22.3 for the intercept.

work.[24] Thus, as long as the reader believes that our model in the absence of measurement error would not explain more than 97 percent of the variation in the total number of initiated or affirmed dumping actions, our results are not affected by either measurement errors or proxy variable problems.

b. Examining the Political Motives for Charging Firms with Dumping

It is possible that nonmarket economies are subject to a disproportionate number of dumping complaints for political reasons unrelated to their actual export pricing behavior. One important political influence is how defense related competition with nonmarket economies affects the number of dumping cases that these market economies bring against nonmarket economies. This competition seems most likely to have the largest effect on the United States' decision to bring dumping charges. Notably, the United States has been at the forefront of preventing technological transfers to communist countries and has frequently lobbied Western Europe to increase defense expenditures.[25] Likewise, just as the nonaligned countries have the lowest returns to competing militarily with communist countries, they should be the least concerned with imposing trade sanctions on nonmarket countries. Finally, countries allied with the United States should fall in between these two extremes. While these countries attach some additional value towards imposing penalties on these nonmarket countries, free-riding problems reduce the level of penalties that they impose below those of the

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[24] R_m^{*2} is defined by

$$R_m^{*2} = R^2 + (1 - R^2) \min_{i \ j} ((1 - (B_{ij}/b_j))^{-1}),$$

where B_{ij} is the jth coefficient from the ith normalized reverse regression and b_j is the jth coefficient from the direct regression.

[25] For a discussion of disputes between the United States and Western European nations relating to the control of technology exports to the Eastern bloc, see Mastanduno (1988, pp. 263-5). Olson and Zeckhauser (1966) discuss the free-riding problems associated with military expenditures in defense alliances and provide empirical evidence for NATO.

United States (the largest country and the one best able to internalize investments in the West's defense).[26]

We also suspect that those countries that are more likely to go to war against the nonmarket countries have a greater return to not depending upon these nonmarket countries for supplies. Put differently, the countries most likely to be at war with the nonmarket countries have the greatest incentive to protect their firms from predation. Similarly, this higher probability of conflict may put government firms from nonmarket economies at a disadvantage in competing against western private corporations because of the possible interruption of trade. These government enterprises would then have to charge lower prices in order to compensate buyers for relying on less dependable sources of production. As a result, these sellers will face a higher probability of being (falsely) accused of dumping.

To measure any political bias, we use pooled time series and cross sectional data on the number of dumping investigations undertaken by Australia, Austria, Canada, the EEC, Finland, Spain, Sweden and the United States from 1980 to 1987 against firms in market and nonmarket economies.[27] The data for Austria, Spain and Sweden were not included in the earlier regressions since they only recorded whether charges were brought against market or nonmarket economies and did not identify the individual country against whose firms the cases were brought. The dependent variable is now the number of anti–dumping cases that a country initiated against exporters from nonmarket economies in a given year. Besides the country imposing the sanctions, we controlled for the total number of investigations by that country and for the value of exports and imports between the investigating country and its nonmarket trading partners. Regression (2) is specified as:

$$(2) \quad INITIATED\ AGAINST\ NONMARKET_{i,t} = \alpha_0 + \alpha_1\ EUROPEANS\ WITHOUT\ U.S.$$
$$DEFENSE\ TREATY_{i,t} + \alpha_2\ UNITED\ STATES_{i,t} + \alpha_3\ EUROPEANS\ WITH$$
$$U.S.\ DEFENSE\ TREATY_{i,t} + \alpha_4\ NONMARKET\ IMPORTS_{i,t}$$

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26 Again, see Olson and Zeckhauser (1966).
27 Complete data for affirmative decisions were not available in the same format, and therefore we were restricted to considering only initiated cases.

$$+ \; \alpha_5 \; NONMARKET \; EXPORTS_{i,t} + \alpha_6 \; TOTAL \; NUMBER \; INITIATED_{i,t}$$

$$+ \sum_{t=1981}^{1987} \alpha_t \; YEAR_t + u_{i,t}$$

In order to test how the political returns to imposing economic sanctions vary across countries, we included three different dummy variables. *EUROPEANS WITHOUT U.S. DEFENSE TREATY$_{i,t}$* is a dummy that equals one if the country does not have a defense pact with the United States (i.e., Austria, Finland and Sweden) and zero otherwise. To allow for the possibility that the United States' political interests are not perfectly aligned with those of its defense allies, we used a separate dummy for that country, *UNITED STATES$_{i,t}$*. *EUROPEANS WITH U.S. DEFENSE TREATY$_{i,t}$* is a dummy for the Western-aligned nations of Europe (i.e. the EEC and Spain). We also included year dummies for 1981 to 1987, *YEAR$_t$*. The intercept thus represents Australia and Canada in 1980.

In addition to the specification in (2), we also estimated an alternative specification that included the squared value of the country's nonmarket imports and exports, and we attempted to see how sensitive the results were to the removal of the year dummies. The regression results presented in Table 5 strongly reject the simple hypothesis that dumping complaints are motivated by defense concerns and reveal that the United States is never the most likely to charge predation. In fact, the United States is either the *least* likely (columns 2, 3 and 4) or the next to least likely (column 1) to bring anti-dumping charges against nonmarket economies. Even in column 1, where the United States is more likely than nonaligned countries in Western Europe to charge predation, the difference is quite small (only 2.16 cases over the eight year period or just 6.2% of all U.S. nonmarket investigations) and it is not statistically significant. By contrast, the results for the two specifications in which the United States dummy *is* significant indicate that if the United States had behaved as the nonaligned countries do, it would have brought between 48.5 and 55.7 (or 139 and 159 percent) *more* nonmarket anti-dumping cases than it actually did.

Finally, the dummies for aligned Europe and unaligned Europe are both insignificant. Even accepting the coefficient values for these dummies, however, their rankings relative to the United States dummy also support rejection of the defense hypothesis. Given that a defense related political

bias does not explain the United States' pattern of anti-dumping complaints against nonmarket economies, it is hard to accept that the same bias would hold for the allied countries. It is particularly difficult to believe that this defense related competition motivates Australia and Canada (which are not even adjacent to nonmarket economies) so much more than the United States or, as the results in columns 1 and 2 suggest, even more than the European Economic Community. The results in Table 5 provide little if any support for the hypothesis that political motivations underlie countries' anti-dumping complaints against nonmarket economies.

c. Dumping and Political Protection From Competition

Another possible objection to our finding that nonmarket enterprises appear more likely to engage in dumping is that those industries in which nonmarket economy exports are concentrated are also those receiving the most political protection from competition in the importing market economies. Certain industries may be more successful than others in obtaining protection from foreign (and domestic) competition. Baldwin (1988), Finger, Hall and Nelson (1982), Ray (1981), and Ray and Marvel (1984) provide extensive discussions of and evidence on the determinants of industries' success in lobbying for tariffs and other forms of foreign trade protection. For the present paper, the important question is whether the pattern of protection across industries in market economies is positively correlated with the share of those countries' imports accounted for by nonmarket firms. If these variables are positively correlated, nonmarket enterprises might be charged with or found guilty of dumping more frequently than firms in market economies simply because of differences in the composition of their exports.

To test this hypothesis, we compiled data on the share of nonmarket economies' imports of agricultural products, textiles, metals and basic products, chemicals and all other products. These data were broken down by the imports' source: market or nonmarket exporters.[28] We also have data on the number of anti-dumping actions in developed market economy countries by the same five

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28 The data were taken from United Nations Conference on Trade and Development, *Handbook of International Trade and Development Statistics* (1981, 1984, 1985).

product classes.[29] Both sets of data were available for 1979 to 1982. The Pearson correlation coefficient between these two variables is -0.585 and is significant at the 30.6% level. While the limited number of observations acts to lower the significance level, it is worth noting that the two products for which nonmarket exports comprise the largest share of imports by developed market economies — agricultural products and textiles — receive the *least* trade protection in the form of anti-dumping actions. These findings allow us to reject the argument that nonmarket enterprises are more frequently investigated and or cited for dumping merely because of the product composition of their exports to market economies. In fact, the results suggest that the estimates provided in Tables 2 through 4 may *understate* the true effect of market organization on a country's propensity to engage in dumping.

d. Some Biases in the Data

The data have certain biases that can work towards us finding relatively fewer complaints being lodged against nonmarket economies. A major concern is that while the only type of cases lodged against nonmarket economies concern predation, the types of cases brought against market economies unfortunately aggregate together below cost pricing and price discrimination cases. This then biases our results against finding that nonmarket economies engage in relatively more predatory pricing than do market economies. In fact, where it was possible to partially disaggregate the data, we found that only 15 percent of the dumping cases initiated by the United States against market economies in 1987 employed evidence on below cost pricing (United States International Trade Commission, 1987 and Federal Register, various issues in 1987). Unfortunately, however, bringing a case on price discrimination grounds does not rule out that below cost pricing was also occurring. Investigations only analyze cost information if the benchmark price used in demonstrating price discrimination is

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29 These data are reported in Table 5 of United Nations Conference on Trade and Development, *Problems of Protectionism and Structural Adjustment* (1984).

viewed as unreliable.[30] Thus this provides only an upper bound on how much we have overestimated the number of cases brought against market economies.

Finally, since many government enterprises exist in market economies and no private corporations exist in nonmarket economies, our theory implies that using the difference in the number of predation cases brought against the two different types of economies provides a downwardly biased estimate of the difference between private and government corporations engaging in predation. Again, using the dumping cases initiated by the United States against market economies in 1987, we were only able to find two of the thirty complaints which explicitly noted that the firms against whom the complaints were filed were owned by foreign governments. The three government owned enterprises in these two cases were located in Israel, France, and Belgium. Thus, while our estimates of the likelihood of nonmarket organizations being charged with dumping are biased downward, the evidence suggests that the bias is not particularly large.

V. Conclusion

Our paper has attempted to provide the first systematic evidence of predation by government enterprises. The empirical evidence confirms the theory that government enterprises face higher returns to predation than do private enterprises. In fact, the economic importance of the effect is quite large with between 43 and 94 percent of the initiated cases and 54 and 100 percent of the affirmative cases against firms from nonmarket economies being explained simply by those firms being from nonmarket countries. The results were, if anything, strengthened when we controlled either for politically motivated investigations arising from military conflict, or for firms in nonmarket economies competing against domestic producers who were particularly well protected from competition. The results are only weakly affected when the presence of measurement error is explicitly recognized.

Just as many economists believe, with some justification, that the government often brings antitrust cases when the evidence does not warrant intervention, predation may indeed not be as

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30 See footnote 11 for how the term "reliable" is defined by the GATT.

prevalent as the government believes. We are quite happy to accept this response. However, as long as one accepts that some portion of the dumping cases were justified, our evidence implies that firms in nonmarket economies engage in predatory behavior at a higher rate than private enterprises. Our research suggests that economists have misplaced their emphasis on predation by private enterprises given that governments around the world view government enterprises as posing a much greater predatory threat than private firms.

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Data Appendix

The 59 countries in our sample of anti-dumping complaints are: Argentina, Australia, Austria, Belgium-Luxembourg, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Czechoslovakia, Denmark, Dominican Republic, East Germany, Ecuador, Egypt, El Salvador, Finland, France, Greece, Hong Kong, Hungary, Iceland, India, Iran, Israel, Italy, Japan, Kenya, Malaysia, Mexico, Netherlands, New Zealand, North Korea, Norway, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Singapore, South Africa, Spain, Suriname, Sweden, Switzerland, Thailand, Trinidad & Tobago, Turkey, United Kingdom, United States, USSR, Venezuela, West Germany, Yugoslavia, and Zimbabwe.

Table 1

The Distribution of Anti-Dumping Cases by Jurisdiction

Initiated Anti-Dumping Cases (1980–87)

	Austria	Australia	Canada	EEC	Finland	Spain	Sweden	USA	Total
Non-Market	0	26	20	141	9	0	3	35	234
Market	1	436	250	321	13	1	4	381	1407
Total	1	462	270	462	22	1	7	416	1641

Affirmative Anti-Dumping Cases (1980–86)

	Austria	Australia	Canada	EEC	Spain	Sweden	USA	Total
Non-Market	0	13	18	108	0	2	19	160
Market	2	219	140	213	0	0	195	769
Total	2	232	158	321	0	2	214	929

* Unlike the data for Australia, Canada, EEC, Finland, and USA, the data for Austria, Spain and Sweden do not identify the individual countries that the complaints are brought against. Data for Finland are not available for the Affirmative Dumping Cases.

TABLE 2

Explaining The Number of Initiated and Affirmed Anti-Dumping Cases
(Absolute t-statistics in parentheses)

Exogenous Variables	Initiated Cases (1980-87)		Affirmed Cases (1980-86)	
	(1)	(2)	(3)	(4)
Nonmarket	20.28868 (3.7105)	20.91968 (5.3007)	12.27042 (4.182)	12.539420 (4.4910)
Imports USA	0.000712 (2.0516)	-0.001169 (1.9521)	0.000241 (1.5862)	-0.000260 (0.7139)
Imports USA Squared	. . .	0.2583 E-7 (2.8681)	. . .	0.6179 E-8 (1.0888)
Imports European Ec Com	-0.9974 E-4 (0.6629)	-0.000424 (2.0368)	0.1043 E-4 (0.1689)	0.2533 E-4 (0.2369)
Imports European Ec Com Squared	. . .	0.1108E-9 (0.2605)	. . .	-0.1163 E-9 (0.4410)
Imports Australia	0.002619 (1.6494)	0.006386 (2.3623)	0.002079 (3.3547)	0.000750 (0.4483)
Imports Australia Squared	. . .	-0.4170 E-7 (0.1964)	. . .	0.2058 E-6 (1.2529)
Imports Canada	-0.001787 (1.1903)	0.004333 (1.0187)	-0.001465 (-2.1814)	0.002770 (1.0719)
Imports Canada Squared	. . .	-0.3076E-6 (0.8071)	. . .	-0.2649 E-6 (1.0464)
Imports Finland	0.017046 (1.1120)	0.058938 (1.4769)	. . .	. . .
Imports Finland Squared	. . .	0.3158E-4 (1.4125)	. . .	. . .
Exports USA	-0.000565 (1.8400)	0.001250 (2.1411)	-0.000154 (1.2150)	0.000484 (1.3439)
Exports USA Squared	. . .	-0.2057 E-7 (2.8521)	. . .	-0.4840 E-8 (1.1912)
Exports European Ec Com	0.000124 (0.8075)	0.000682 (2.7150)	0.000024 (0.4150)	0.2497 E-5 (0.0266)

Exports European Ec Com Squared	. . .	-0.8750 E-9 (1.7342)	. . .	0.4915 E-10 (0.2493)
Exports Australia	0.000465 (0.2377)	-0.007768 (2.0526)	-0.001245 (1.2684)	0.000519 (0.2225)
Exports Australia Squared	. . .	0.6471 E-6 (1.7214)	. . .	-0.2492 E-6 (1.2573)
Exports Canada	0.002290 (1.2152)	-0.000816 (0.1456)	0.002133 (2.3309)	-002433 (0.5798)
Exports Canada Squared	. . .	0.4541 E-6 (0.7784)	. . .	0.4721 E-6 (1.0388)
Exports Finland	-0.003934 (1.3798)	-0.012050 (2.1858)	. . .	. . .
Exports Finland Squared	. . .	-0.1342 E-5 (1.9670)	. . .	. . .
Real Personal GDP	0.000994 (1.5830)	0.001038 (2.3573)	0.000543 (1.5974)	0.000502 (1.5975)
Constant	0.094559 (0.0224)	-7.054138 (2.2257)	-1.10796 (0.4861)	-3.081474 (1.3528)
Adjusted R^2 =	.7529	.8901	.7243	.7774

TABLE 3

Explaining The Number of Initiated Anti-Dumping Cases by the Individual Country Bringing the Complaint
(Absolute t-statistics in parentheses)

Exogenous Variables	United States (1)	European Econ Com (2)	Australia (3)	Canada (4)	Finland (5)
Nonmarket	3.43955 (2.2615)	12.95112 (6.5296)	0.65498 (0.3956)	1.20800 (0.8480)	1.52672 (4.5128)
Imports	0.00014 (1.5917)	-0.15050 (1.7662)	0.00240 (4.5203)	-0.00075 (1.5831)	0.00130 (0.9730)
Imports Squared	-0.609 E-9 (3.1320)	0.126 E-9 (0.7830)	-0.262 E-7 (3.4263)	0.625 E-7 (2.0039)	-.426 E-6 (0.9537)
Exports	0.810 E-4 (0.9596)	0.000176 (2.2781)	0.00129 (2.3970)	0.00190 (2.9261)	-0.000137 (0.5100)
Exports Squared	0.108 E-9 (0.6531)	-0.165 E-9 (1.2271)	-0.364 E-7 (3.1498)	-0.983 E-7 (2.0444)	0.135 E-8 (0.0764)
Real Personal GDP	0.00014 (0.8247)	0.00062 (2.6028)	0.00029 (1.4913)	0.659 E-5 (0.04098)	0.500 E-4 (1.2819)
Constant	-0.27700 (0.2290)	-1.5288 (0.9565)	-1.36215 (1.0785)	0.85992 (0.8162)	-0.28395 (1.0994)
Adjusted R^2 =	.7259	.4753	.8394	.7241	.2335

TABLE 4

Explaining The Number of Affirmed Anti-Dumping Cases by the Individual Country Bringing the Complaint
(Absolute t-statistics in parentheses)

Exogenous Variables	United States (1)	European Econ Com (2)	Australia (3)	Canada (4)
Nonmarket	2.25662 (2.4053)	7.35900 (6.6010)	0.61832 (0.7444)	1.11367 (1.3112)
Imports	0.00010 (2.0256)	-0.713 E-4 (-1.8450)	0.001435 (5.8312)	-0.00040 (-1.8533)
Imports Squared	-0.312 E-9 (-2.4832)	0.116 E-9 (1.4094)	-0.216 E-7 (-5.3040)	0.596 E-7 (3.5445)
Exports	0.556 E-4 (1.2829)	0.818 E-4 (2.4826)	0.00041 (1.6456)	0.00160 (4.3688)
Exports Squared	-0.989 E-10 (-1.0758)	-0.125 E-9 (-2.1605)	-0.870 E-8 (-1.3631)	-0.110 E-6 (-3.6109)
Real Personal GDP	0.401 E-4 (0.3740)	0.00045 (3.4160)	0.770 E-4 (0.7906)	-0.207 E-4 (-0.2161)
Constant	-0.10856 (-0.1446)	-1.6448 (-1.8144)	-0.35084 (-0.5539)	0.24894 (0.3902)
Adjusted R^2 =	.5776	.5028	.8252	.7211

TABLE 5

Does the Number of Cases Initiated Against Nonmarket Economies Differ Across Countries for Political Reasons? (Absolute t-statistics are shown in parentheses)

Exogenous Variables	Endogenous Variable: Number of Cases Brought Against Nonmarket Economies			
	(1)	(2)	(3)	(4)
Europeans without U.S. Defense Treaty	−1.1420 (0.494)	−0.8745 (0.361)	−0.6969 (0.313)	0.8656 (0.368)
Europeans with U.S. Defense Treaty	−0.5414 (0.212)	−0.3228 (0.122)	1.6636 (0.718)	3.0262 (1.244)
United States	−0.8704 (0.491)	−0.8792 (0.502)	−6.7521 (3.116)	−6.0937 (2.859)
Total Number of Initiated Cases	0.0824 (2.173)	0.0879 (2.111)	0.0851 (2.667)	0.1080 (3.0942)
Imports from Nonmarket Economies	0.0012 (3.844)	0.0022 (3.728)	0.918 E-3 (1.589)	0.586 E-3 (0.979)
Imports from Nonmarket Economies Squared	. . .	. . .	-0.872 E-8 (0.652)	-0.123 E-8 (0.089)
Exports to Nonmarket Economies	-0.835 E-3 (2.650)	-0.819 E-3 (2.547)	0.0012 (2.129)	0.0014 (2.394)
Exports to Nonmarket Economies Squared	. . .	. . .	-0.444 E-7 (3.935)	-0.485 E-7 (4.134)
1981	. . .	3.8345 (1.925)	. . .	2.8958 (1.755)
1982	. . .	0.1730 (0.081)	. . .	−0.8555 (0.489)
1983	. . .	0.1900 (0.093)	. . .	−0.3496 (0.207)
1984	. . .	3.4032 (1.649)	. . .	2.9166 (1.716)
1985	. . .	2.7144 (1.329)	. . .	1.5810 (0.929)
1986	. . .	2.0897 (1.049)	. . .	1.9694 (1.168)
1987	. . .	1.0659 (0.534)	. . .	1.9264 (1.128)
Constant	0.7056 (0.333)	−1.2435 (0.504)	−3.6967 (1.809)	−6.1711 (2.584)
Adjusted R^2 =	.6608	.6686	.7638	.7785

TABLE 6

Are the Products that Nonmarket Economies Export More Heavily Protected from Competition?:
1979 to 1982

Product Class	% of Total Antidumping Actions by Market Economies	% of Developed Market Economy Imports by Nonmarket Firms
Agriculture	4.61	9.50
Textiles	5.70	5.45
Metals	41.50	5.12
Chemicals	22.33	4.12
Other	25.85	4.75

* Sources Finger and Olechowski (1987) and United Nations Conference on Trade and Development, *Handbook of International Trade and Development Statistics* (1981, 1984, 1985) and United Nations Conference on Trade and Development, *Problems of Protectionism and Structural Adjustment* (1984).