The Spread of Antidumping Regimes and the Role of Retaliation in Filings*

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ABSTRACT

Over the past decade, the world-wide use of antidumping has become very widespread – 41 WTO-member countries initiated antidumping cases over the 1995-2003 period. From another perspective, US exporters were subjected to 139 antidumping cases during this period, by enforcement agencies representing 20 countries. In this context, it is natural to consider whether antidumping filings may be motivated as retaliation against similar measures imposed on a country's exporters. This is the focus of our study, though we also control for the bilateral export flows involved and non-retaliatory impacts of past cases, with other motivations – macroeconomic, industry-specific and political considerations – dealt with through industry, country and year fixed effects. Applying probit analysis to a WTO database on reported filings, we find strong evidence that retaliation was a significant motive in explaining the rise of antidumping filings over the past decade, though interesting differences emerge in the reactions to traditional and new users of antidumping.

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I. Introduction and Previous Literature

While business news in the developed world tends to emphasize trade policy enforcement by the two large economic powers, the EU and United States, the use of antidumping has become very widespread – 39 other WTO-member countries (and possibly other non-members) initiated antidumping cases over the 1995-2003 period. From another perspective, U.S. exporters were subjected to 139 antidumping cases during this period, by enforcement agencies representing 20 countries (the EU regarded for these purposes as a single country). In this context, it is natural to consider whether antidumping filings may be motivated as retaliation against similar measures imposed on a country's exporters. This is the focus of our study, though we also control for the bilateral export flows involved and non-retaliatory impacts of past cases, dealing with other motivations – macroeconomic, industry, and political considerations -- through industry, country and year fixed effects.[1]

Antidumping duties are allowed under WTO rules when there is injury or threatened injury to a competing domestic industry from sales by an exporter made at unfairly low prices (usually prices below those charged in the home market, but sometimes below costs). Each country establishes its own antidumping enforcement mechanism, and case filings are brought by domestic companies to their respective

[1] There is a large literature explaining antidumping filings by these industry-specific, political, and macroeconomic factors, starting with Finger (1981), and including work by Feinberg and Hirsch (1989), Knetter and Prusa (2003), and Aggarwal (2004). For an excellent survey see Blonigen and Prusa (2003).

government enforcement agencies. In recent years the lines between this form of "administrative protection" and other forms of trade restrictions have been blurred – at least in the views of many observers. Therefore, in studying motivations for filing antidumping petitions researchers have turned to considering not just case-specific factors, but also more general determinants of the demand and supply for protection against imports. However, until recently little attention has been given to strategic motivations for antidumping.[2]

But given the obvious spread of antidumping enforcement, economists have begun to consider the issue of retaliation in antidumping filings and the increasing globalization of this instrument of trade policy. Miranda et al (1998) and CBO (1998) were the first to document the dramatic growth in the number of countries joining the "antidumping club." Miranda et al. suggest that if the emergence of increased antidumping enforcement by developing countries was a quid pro quo for general trade liberalization, there may be welfare gains from this proliferation of antidumping filings, at least in a second-best sense. The CBO paper acknowledges this possibility as well, though their focus is more on whether U.S. exporters have been harmed by and/or singled out for retaliation by new users of antidumping; on these latter issues they suggest minimal impact to that point, noting however that with continued growth in antidumping by developing countries U.S. exporters may begin to be more affected in the future.

[2] Papers by Prusa (1992) and Staiger and Wolak (1994) discuss strategic motivations for filings from a somewhat different perspective than the more recent work discussed below. Their emphasis was on antidumping as a mechanism to promote tacit collusion between domestic and foreign firms on the price/quantity dimension, rather than focusing on the interdependencies between antidumping enforcement policies in different countries.

Lindsay and Ikenson (2001) highlight the growing threat to U.S. interests posed by new antidumping users. They view these new users as following the "bad U.S. example" of protecting domestic industries from foreign competition under the banner of antidumping, agreeing with earlier authors that developing countries have been increasing the use of antidumping in part as an offset to lower negotiated tariffs. Prusa (2001) focuses in his analysis on the impact of U.S. antidumping on trade flows, but also discusses the data on the spread of antidumping enforcement in the developing world. In the latter context, he briefly discusses the strategic issues involved in a government's decision to adopt an antidumping policy – on the one hand, actions may be aimed at deterring other users of antidumping, but on the other hand, this deterrence may fail with the result a prisoner's dilemma with retaliation occurring instead. Prusa and Skeath (2002) more fully develop this point, finding evidence consistent with strategic motivations behind antidumping filings.

More recent work, and closest to the focus of our empirical work below, is that by Blonigen and Bown (2003), Francois and Niels (2004), and Prusa and Skeath (2004). Blonigen and Bown develop a trigger price model, based on the reciprocal dumping framework, which allows for the threat of an antidumping action against a country to restrain that country's own antidumping activity, and find some evidence consistent with this prediction for the United States. Francois and Niels (2004) suggest that new users may be initiating antidumping actions to retaliate against countries taking antidumping action against their exports. They find that Mexican antidumping petitions were three-

times more likely to be successful when filed against countries that had initiated a case against Mexican exports in the previous year.

Prusa and Skeath (2004) address some of the issues considered in this paper, though their dataset covers an earlier period, 1980-1998, most of which was dominated by traditional users of antidumping. Their stated focus is to explore whether the increase in global use of antidumping was solely due to increased "unfair trading" – and they (not surprisingly – to anyone who has studied the subject) reject this hypothesis. They find that antidumping users are more likely to target other users of antidumping than those without such enforcement, and that countries are more likely to target exporting countries with a past history of bringing cases against them. The latter result Prusa and Skeath interpret as retaliation or tit-for-tat, but one would not generally view a 1995 case by India against the EU following an EU case against India 10 years, or even 3 years, earlier as strategic behavior; most game theoretic models suggest an immediacy of response in order to use retaliation as a means of establishing credibility of threat, or as an effective tit-for-tat mechanism.

Our analysis extends the previous work by examining not merely the impact of threatened retaliation, but the actual patterns of retaliation which seem to have emerged over the past decade in the industry/country-target-specific antidumping actions of 41 countries. We attempt in our analysis to capture both retaliation motivations expanding the use of antidumping and possible threat impacts which may lessen this somewhat. We also allow for the possibility, as noted in a recent working paper by Bown and Crowley

(2004), that past antidumping cases – through their trade-distorting effects, or what they refer to as "trade deflection" – can influence the use of import protection of all types, including antidumping.

II. Empirical and Theoretical Motivation

Before discussing theoretical issues, it is instructive to examine the patterns of the global spread of antidumping, both in terms of cases brought, and number of active national enforcement agencies involved. Looking at Table 1, it may be surprising to some to see that the leading user of antidumping since 1995 has been India, with Argentina and South Africa among the top five. Turning to Figures 1 and 2, the same story is told from a different perspective. We see there that while there has been a significant increase in the number of antidumping cases brought world-wide, a more dramatic increase has occurred in the number of countries getting involved in bringing such cases, roughly a tripling of non-casual enforcers (defined as more than 2 cases brought in a year) between the late 1980s and today, with all of this growth brought about by new enforcement agencies in developing economies.

To motivate our empirical analysis, consider a model (built on Brander and Krugman (1983)) discussed in the Appendix to Blonigen and Bown (2003). There are two quantity-setting firms, one from each of two countries, competing in the two markets (segmented by transport costs). Antidumping filings impose a duty **t**, with a probability of success **f** , requiring a fixed cost **K**. The probability of success is an increasing function of the foreign firm's quantity share of the domestic market. Blonigen and Bown

then consider an infinitely repeated game – with 2 stages in each period – involving the choice of quantities and then the independent decision of each firm to file an antidumping petition or not. Using the trigger strategy to achieve the cooperative outcome of no antidumping filings (with the threat of antidumping infinitely into the future if the rival defects), they find the avoidance of antidumping is supported by sufficiently high punishment costs from the rival's antidumping actions.

However, if these threatened costs are relatively low (or non-existent in the case of a rival without an antidumping enforcement apparatus), the filing of antidumping cases becomes more likely. Furthermore, cost disadvantages by the domestic firm increases their gains from antidumping and the likelihood of a prisoners dilemma result of antidumping by both countries. Not surprisingly for models of this sort, equilibrium outcomes are quite sensitive to the parameters of the model, and we can find the impact of both actual and threatened antidumping by one country against another to provoke either *retaliation* or *deterrence*. From an empirical perspective, it may be true both that *in equilibrium* the increased threat of antidumping by a rival leads to deterrence and that over the period we study a disequilibrium unraveling of retaliation may have occurred.

In what follows we examine the pattern of antidumping filings by particular industries in particular countries against particular target countries in response to past antidumping actions against that particular industry as well as more generally against the country more broadly. We also consider the role of threat, revealed through the target country's recent antidumping activity globally. Of course there are other motivations for

filing antidumping cases, and we control for macroeconomic, industry-specific and political factors via fixed effects, as well as dealing with the concern (presented in Bown and Crowley (2004)) that "trade deflection" caused by third-party antidumping may induce new antidumping filings.

III. Empirical Analysis

We have obtained WTO data from all member countries on their antidumping filings during 1995-2003 by target country and industry category (20 HS sections of which 19 were involved in at least one filing over this period). Counting the EU as one country, there were 41 importing countries filing at least one antidumping case against 83 exporting countries.[3] Limiting our analysis to the years 1996-2003, so we can observe a one-year lag in filings, we have 511,024 importing country/exporting country/industry sector/year observations as to whether an antidumping case was filed or not. Petitions were filed in 1,752 (or 0.34 percent) of these observations.

We seek to explain this filing decision using fixed-effects in a probit binary choice model, with the primary explanatory variables of interest those that will determine whether the filing decision is motivated by the urge to retaliate against certain trading partners.[4] We include a dummy variable that indicates whether the exporting country

[3] Because members are the only countries required to report their filings to the WTO, our dataset may underestimate the number of petitions filed by new WTO members prior to joining, notably Taiwan who used its antidumping law extensively in the earlier period. See Zanardi (2004) for more information about antidumping use by non-WTO members. Our results were virtually unchanged when Taiwan was excluded from the sample.

[4] Some studies suggest that the probit model does not lend itself well to fixed effects because the parameter estimates are biased and inconsistent when the length of the panel is small and fixed (the "incidental parameter problem"). Greene (2003) found that although the upward bias is persistent, it drops off dramatically as the number of time periods increases beyond 3. He concludes that a fixed-effects model

filed an antidumping case against the importing country and industry category during the past year (CAT).

Unfortunately, the industry categories by which our data are organized, HS sections, are too broad for us to be certain that the same firms are involved in a bilateral exchange of cases between two countries in successive years, which would be the conventional notion of retaliation by firms involved. However, anecdotally, this does seem to occur; e.g., a 2001 antidumping case brought by Canada against India in hot-rolled sheet was followed by a 2002 case by India against Canada in hot-rolled coils/sheets/strips/plates. Similarly a 2001 antidumping case filed by the US against EU members in cold-rolled carbon steel flat products was followed in 2002 by an EU case filed against the US in that same narrowly-defined product.

But in general it is likely that a case against an industry category in a particular country the previous year involved a different group of firms than the subsequent case within the same industry category. This may be retaliation, but the mechanism through which it derives is less clear. Especially in a small country there may be close business links between companies in different narrow product lines within the same broad category, and they may also be linked through unions, trade associations, or law firms in common. In addition, retaliation may in part be reflected at the country-level -- the government agency charged with enforcing antidumping statutes may be more likely to make an affirmative determination and impose larger dumping margins against those

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may be preferred if the alternative is a misspecified random effects model or a pooled estimator which neglects the cross-unit heterogeneity.

exporting countries that filed cases against the importing country in the previous year.[5] If so, firms will anticipate higher expected benefits from filing cases against these countries, and will thus be more likely to file antidumping petitions against them.

To expand on the latter point, we also consider whether the exporting country filed a case against any other industry in the importing country in the past year (OTHER). Because broad industry categories may cause the CAT and OTHER variable to both pick up retaliation on the country level, in other specifications we instead include a single variable that indicates whether the exporting country filed at least one case against the importing country in the previous year (RETALIATION).

As a measure of the potential threat from the exporting country's own antidumping enforcement, we include the exporting country's total world-wide filings the previous year (ALL). If countries are deterred from filing cases against those exporting countries with a reputation for using antidumping enforcement, we would expect this variable to have a negative estimated coefficient.

Several control variables are included as well. The likelihood of filing a case clearly should depend on the volume of imports from the potential target, so we also include bilateral imports at the broad HS section level (IMPORTS) in the estimating

[5] Some recent empirical evidence supports this view. As noted above, Francois and Niels (2004) found that Mexican antidumping petitions were more likely to be successful when filed against countries that had initiated a case against Mexican exports in the previous year.

equation.[6] In addition, Bown and Crowley (2004) have discussed the role the spread of antidumping has played in "trade deflection" – cases filed against one country may divert its trade flows elsewhere leading to more import protection being sought by third countries, including antidumping filings. We therefore include a variable (DEFLECTION) which equals the number of global antidumping cases filed the previous year in the particular industry category, excluding those filed against the importer being considered.

In order to control for unobserved macroeconomic, political, and industry factors we use year, industry category and importing country fixed effects in all specifications. We attempt to control for additional exporting country factors by using a dummy variable that equals 1 when the exporting country is a "traditional" antidumping user, which includes Australia, Canada, the European Union, New Zealand and the United States (TRADITIONAL). In other specifications we add fixed effects for additional non-traditional users who have been the leading targets of petitions during the sample period: China, Korea, Taiwan, India and Indonesia.

In Table 2 we present our full sample results, where marginal effects on the dependent variable (likelihood of filing a case) rather than the actual probit coefficients are shown. A statistically significant positive retaliation effect is found in all three specifications, both the direct impact of a case the previous year in the same 2-digit HS

[6] These data are obtained from the United Nation's Commodity Trade Statistics Database. We use a single midsample observation, 1999, for this variable as consistent data were not available for all years in our sample and our primary rationale for including this variable was to capture cross-sectional variation. As noted below, we also present results excluding observations for which bilateral imports were zero, as clearly no antidumping case will be filed where domestic producers feel no pressure from imports.

sector (CAT) and the more indirect impact of a case filed the previous year against a different industry sector of the country (OTHER). These two effects are quite similar (both increasing the likelihood of filing a case by about 10 percent), suggesting that retaliation is often determined at the country level rather than simply by the industries directly involved.[7] Countries are also significantly more likely to file petitions against heavy users of antidumping laws (ALL); the likelihood of filing a case against a particular country increases by approximately 5 percent for every 10 cases the country filed in the previous year. This result seems unlikely to be explained by retaliation; moreover, if antidumping filings successfully deter future cases the impact would be negative.

The volume of industry imports from the exporting country (IMPORTS) is, as expected, an important determinant in the decision to file an antidumping case. Our results suggest that a $1 billion increase in the sectoral volume of imports from the targeted country results in a 0.5 to 1 percent increase in the likelihood of filing an AD case. Countries are slightly more likely to file petitions when there has been significant antidumping activity in the industry – elsewhere in the world -- in the previous year (DEFLECT); this result is consistent with the view that antidumping cases deflect trade to third countries, thus increasing the likelihood that these third countries will seek some form of protection.

[7] The similarity of effects may also suggest that our industry classifications are too broad to effectively capture true retaliation by the same parties targeted by a past antidumping case.

None of these results seem to be driven by any particular industry or correlation with unobserved exporting country effects; results do not change when we allow for differential retaliation effects in the leading user industry (metals), nor do they change when we control for cases against traditional users of antidumping laws and the leading targets of antidumping petitions. In fact, the average retaliation effect associated with a case filed in the same industry sector is nearly three-times higher when we allow this result to differ in the metals industry because the metals industry is less likely to retaliate against a case filed against it than other industry sectors. In contrast, the results suggest that cases are more likely to be filed in the metals industry to retaliate against a case filed in the previous year against some other industry.

Cases do seem more likely to be brought against traditional users of antidumping, which could be interpreted as a type of retaliation for past cases. While the magnitudes of the marginal effects are smaller when we control for the leading non-traditional targets of antidumping actions presented in column 3, the effects of CAT, OTHER, ALL, IMPORTS, and DEFLECTION continue to be positive and significant.

The large marginal effects associated with exporters China, India, Korea, Taiwan, and Indonesia, suggest that highly competitive, low-cost countries such as these are targeted more often than predicted by our other variables. Marginal effects associated with the importing country fixed effects, as presented in Table 3, confirm the summary statistics described above; while traditional users continue to be heavy users of antidumping, non-traditional users such as India and Argentina have grown in importance.

The industry fixed effects show that on average more antidumping petitions are filed in the Base Metals and Plastic & Rubber industries than any others.

Because it is likely that both CAT and OTHER are capturing retaliation on a country-level rather than on a narrowly-defined industry basis, in Table 4 we combine the two effects into a single variable, RETALIATION. The results are similar to those found in Table 2. The retaliation variable is positive and statistically significant, suggesting that the likelihood of a country filing a case is about 10 percent higher against those countries that targeted it in the previous year. There is no indication that the metals industry retaliates more than other industries, reflecting the results above that while the metals industry is less likely to retaliate against same-industry cases it is more likely to be used to retaliate against cases filed against other industries. Estimates associated with other variables, including DEFLECT and ALL, are virtually identical to those discussed in Table 2.

In Table 5, we create several sub-samples for analysis. We examine separately the filing decision by traditional users and new users, both against all countries and those filed only against traditional users. The results from these sub-samples are quite different. When we consider cases brought by either traditional users or new users against all countries, the retaliation effect continues to be positive and significant. When we consider cases brought by traditional and new users against just traditional users, the retaliation effect is no longer statistically significant, although there is still a greater likelihood of filing against heavier users of antidumping. This suggests that while both

new and users believe they may be able to deter future antidumping actions by new users through retaliation, all countries view traditional users as firmly entrenched in the antidumping "club." Therefore, little can be gained from retaliating against these countries.

The sub-sample results confirm that countries are more likely to file against heavy users of antidumping (ALL), while new users target traditional members of the antidumping club more often (TRADITIONAL) even after controlling for the level of antidumping use by these countries. The estimates associated with the trade deflection impact vary differ across sub-samples. Traditional users seem to be somewhat more likely to file against new users in order to protect themselves from deflected trade, while new users are more likely to file against traditional users to protect themselves from trade surges that occur due to increased antidumping activity. This result undoubtedly reflects differing trade patterns between the two groups of users.

One limitation of the sample we have been analyzing to this point is that many of the observations are characterized by no bilateral import flows, and for these observations there is no reason to expect an antidumping filing. In Table 6, we replicate the probit specification reported in Table 4 on a more limited sample, one that excludes zero bilateral import observations.[8] The estimated magnitude of the retaliation effect remains

[8] We also replicated the results of Table 2 and 5, with a similar outcome. In addition, we considered two smaller samples, one of which includes only exporters with active antidumping enforcement agencies and a second which includes only those industry categories in which more than 50 cases were filed during the sample period. Results from both sub-samples are similar to those reported here. In focusing our attention on the fuller sample we are likely to be conservative in our estimates of the retaliation effect (as cases against non-users of antidumping obviously cannot be explained by retaliation).

statistically significant using this sub sample; countries are 5 to 15 percent more likely to file a case against a country that targeted it in the previous year. Other results are unchanged from earlier specifications; ALL, IMPORTS, DEFLECT and TRADITIONAL are positive and significant with approximately the same magnitudes as those reported earlier.

Except when we limit our analysis to cases against traditional users of antidumping, we find strong support for a retaliation motive in filing antidumping petitions. No support is found for a deterrent effect, though we cannot reject that as a possibility. Note that deterrence in the Blonigen/Bown model, as in the standard trigger price result, is an equilibrium concept. There is no reason to think that the period we are observing – looking again at the explosion of active antidumping enforcers around the world during the late 1990s – represents an equilibrium in which deterrence may be supported. It may well be that we now are or soon will be in such an equilibrium; a future study may perhaps capture that relationship.

IV. Conclusion

In recent years many observers have begun to note the proliferation of antidumping regimes and the possibility that established users of this trade policy instrument are being retaliated against. Others have suggested that at some point (if not quite yet) an equilibrium could be reached in which the threat of antidumping provides a deterrent to further cases. In this paper we have used a unique WTO dataset to provide

the strongest evidence to date that a significant share of antidumping filings worldwide can be interpreted as retaliation.

This is not to say that macroeconomic, political, and industry-specific factors are not important – of course they are. But even after controlling for these determinants (largely through fixed effects) and for trade-related rationales for filings, we have shown that retaliation clearly plays a role. This suggests, among other things, that industries considering bringing an antidumping petition may wish to add in to their calculations the possible costs to their exports of future antidumping cases against them.

We have used the term "retaliation" throughout this paper – is it possible that what we are observing is simply "learning"? The theoretical motivations are quite different; retaliation is motivated by the need to maintain credibility in attempting to deter future antidumping (or part of a disequilibrium movement to the prisoners dilemma outcome), while learning simply reflects a changed awareness of the relative costs and benefits of bringing a case. It seems unlikely that learning how to file antidumping cases (or to create an antidumping authority) requires that a prior case be brought against the country (or that country A learns of the wisdom of filing against country B only when country B has filed against A the year before). Our empirical results seem more consistent with some variant of retaliation, though future research should try to disentangle these motivations.

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Table 1
Antidumping Cases Filed by 15 Leading Users 1995-2003

India	379
United States	329
European Union	274
Argentina	180
South Africa	166
Australia	163
Canada	122
Brazil	109
Mexico	73
China	72
Turkey	61
Korea	59
Indonesia	54
Peru	48
New Zealand	42

Source: WTO website and Miranda et al (1998)

Table 2
Marginal Effects of Types of Retaliation on Probability of Filing a Petition

	(1)	(2)	(3)	(4)
CAT	0.000340*	0.000323*	0.000131*	0.000947*
	(0.000151)	(0.000147)	(0.000073)	(0.000321)
CAT*METALS				-0.000297*
				(0.000033)
OTHER	0.000330*	0.000288*	0.000098*	0.000205*
	(0.000085)	(0.000080)	(0.000037)	(0.000074)
OTHER*METALS				0.000348*
				(0.000198)
ALL	0.000017*	0.000016*	0.000007*	0.000016*
	(0.000001)	(0.000001)	(0.000001)	(0.000002)
IMPORTS	0.000039*	0.000037*	0.000017*	0.000037*
(in billions)	(0.000005)	(0.000005)	(0.000003)	(0.000005)
DEFLECT	0.000002*	0.000002*	0.000001*	0.000002*
	(8.17×10^{-7})	(8.09×10^{-7})	(4.59×10^{-7})	(8.13×10^{-7})
TRADITIONAL		0.000169*	0.000486*	0.000192*
		(0.000058)	(0.000093)	(0.000061)
CHINA			0.011232*	
			(0.001281)	
TAIWAN			0.003198*	
			(0.000559)	
INDIA			0.000355*	
			(0.000138)	
INDONESIA			0.002301*	
			(0.000438)	
KOREA			0.004083*	
			(0.000641)	
Year Effects	Yes	Yes	Yes	Yes
Category Effects	Yes	Yes	Yes	Yes
Importer Effects	Yes	Yes	Yes	Yes
Mean Probability	0.00343	0.00343	0.00343	0.00343
Observations	511,024	511,024	511,024	511,024

Standard errors are in parentheses. * denotes those marginal effects significant at the 1 percent level.

Table 3
Marginal Effects of Strongest Category and Importing Country Fixed Effects[1]

Industry Categories	
Base metals and articles thereof (XV)	0.00404*
	(0.00096)
Plastics, rubber and articles thereof (VII)	0.00202*
	(0.00046)
Raw hides, leather, furskins, etc. (VIII)	0.00150*
	(0.00035)
Textiles (XI)	0.00083*
	(0.00023)
Machinery and Mechanical Appliances (XVI)	0.00066*
	(0.00021)
Importing Countries	
India	0.00713*
	(0.00177)
European Community	0.00460*
	(0.00124)
United States	0.00452*
	(0.00123)
Australia	0.00339*
	(0.00098)
Argentina	0.00326*
	(0.00095)
Mean Probability	0.00343
Observations	511,024

[1] Selected fixed effect estimates associated with the first specification presented in Table 2. Standard errors are in parentheses. * denotes those marginal effects significant at the 1 percent level.

Table 4
Marginal Effect of Any Retaliation on Probability of Filing a Petition

	(1)	(2)	(3)	(4)
RETALIATION	0.000409*	0.000359*	0.000120*	0.000360*
	(0.000093)	(0.000087)	(0.000040)	(0.000092)
RETALIATION* METALS				-0.000002
				(0.000084)
ALL	0.000017*	0.000016*	0.000007*	0.000015*
	(0.000001)	(0.000001)	(9.95×10^{-7})	(0.000002)
IMPORTS	0.000039*	0.000037*	0.000017*	0.000037*
(in billions)	(0.000005)	(0.000005)	(0.000003)	(0.000005)
DEFLECT	0.000002*	0.000002*	0.000001*	0.000002*
	(8.09×10^{-7})	(8.01×10^{-7})	(4.55×10^{-7})	(9.01×10^{-7})
TRADITIONAL		0.000159*	0.000475*	0.000158*
		(0.000057)	(0.000092)	(0.000056)
CHINA			0.011175*	
			(0.001276)	
TAIWAN			0.003177*	
			(0.000556)	
INDIA			0.000354*	
			(0.000136)	
INDONESIA			0.002258*	
			(0.000431)	
KOREA			0.004037*	
			(0.000635)	
Year Effects	Yes	Yes	Yes	Yes
Category Effects	Yes	Yes	Yes	Yes
Importer Effects	Yes	Yes	Yes	Yes
Mean Probability	0.00343	0.00343	0.00343	0.00343
Observations	511,024	511,024	511,024	511,024

Standard errors are in parentheses. * denotes those marginal effects significant at the 1 percent level.

Table 5
Marginal Effect of Retaliation on Probability of Filing a Petition: Sub-Samples

	(1)	(2)	(3)	(4)
Importing Country	Traditional	New	Traditional	New
Exporting Country	All	All	Traditional	Traditional
RETALIATION	0.001509*	0.000384*	0.002398	0.000938
	(0.000732)	(0.000108)	(0.004458)	(0.000609)
ALL	0.000131*	0.000014*	0.000609*	0.000131*
	(0.000017)	(0.000001)	(0.000140)	(0.000025)
IMPORTS	0.000245*	0.000077*	0.000574*	0.000171*
(in billions)	(0.000035)	(0.000012)	(0.000201)	(0.000076)
DEFLECT	0.000033*	8.23×10^{-7}	0.000181	0.000030*
	(0.000001)	(8.80×10^{-7})	(0.000113)	(0.000015)
TRADITIONAL	-0.000019	0.000179*		
	(0.000537)	(0.000066)		
Year Effects	Yes	Yes	Yes	Yes
Category Effects	Yes	Yes	Yes	Yes
Importer Effects	Yes	Yes	Yes	Yes
Mean Probability	0.01047	0.00258	0.03320	0.01394
Observations	62,320	425,088	2,560	16,000

Standard errors are in parentheses. * denotes those marginal effects significant at the 1 percent level.

Table 6
Marginal Effect of Retaliation on Probability of Filing a Petition[1]

	(1)	(2)	(3)	(4)
RETALIATION	0.000873*	0.000821*	0.000344*	0.000830*
	(0.000199)	(0.000195)	(0.000109)	(0.000207)
RETALIATION*METALS				-0.000030
				(0.000218)
ALL	0.000038*	0.000036*	0.000019*	0.000036*
	(0.000003)	(0.000003)	(0.000003)	(0.000004)
BILATERAL IMPORTS	0.000105*	0.000010*	0.000054*	0.000010*
(in billions)	(0.000018)	(0.000001)	(0.000007)	(0.000001)
DEFLECT	0.000006*	0.000006*	0.000004*	0.000006*
	(0.000002)	(0.000002)	(0.000001)	(0.000002)
TRADITIONAL		0.000194	0.000928*	0.000193
		0.000119	(0.000179)	0.000119
CHINA			0.018902*	
			(0.001918)	
TAIWAN			0.005660*	
			(0.000926)	
INDIA			0.000825*	
			(0.000321)	
INDONESIA			0.004029*	
			(0.000746)	
KOREA			0.007313*	
			(0.001056)	
Year Effects	Yes	Yes	Yes	Yes
Category Effects	Yes	Yes	Yes	Yes
Importer Effects	Yes	Yes	Yes	Yes
Mean Probability	0.00581	0.00581	0.00581	0.00581
Observations	299,640	299,640	299,640	299,640

[1] Sample excludes those observations in which imports from the potential target were zero in 1999.
Standard errors are in parentheses. * denotes those marginal effects significant at the 1 percent level.

Figure 1. Number of Antidumping Cases Filed Worldwide, 1987-2003
(source: Miranda et al. (1998), WTO website)

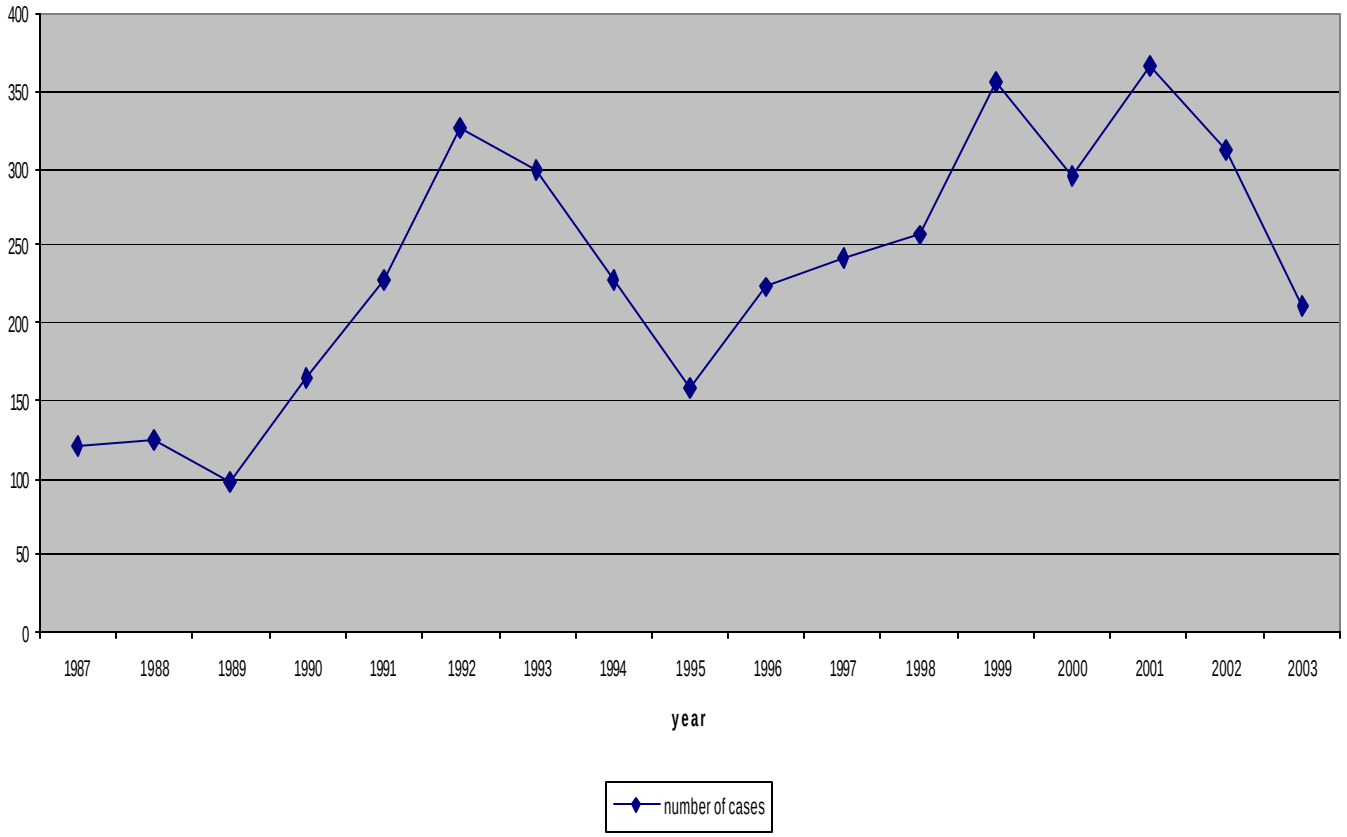

Figure 2. Active Antidumping Authorities Worldwide, 1987-2003
(source: Miranda et al. (1998), WTO website)