SHORTER PAPER

Friendly Fire? The Impact of US Antidumping Enforcement on US Exporters

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Abstract: While there has been considerable interest in recent years in the role of macroeconomic determinants of antidumping actions by the United States and other traditional users, on the one hand, and the determinants of the growing global usage of this trade policy instrument, on the other, there has to date been no systematic exploration of the motivations for the significant number of foreign antidumping cases filed against US exporters. Several observers have remarked that the growing number of foreign users of antidumping might threaten US exporters, but the determinants of these actions have not been examined. That is the purpose of this study. We find that these actions are in part explained by macroeconomic forces and as a response to US export superiority in particular sectors, however a significant role (and larger than found for global antidumping more generally) is played by retaliation for US trade policy actions. JEL no. F13
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1 Introduction

While the European Union and the United States continue to be major users of antidumping laws, this type of "administrative protection" against imports has become very widespread, with 39 other WTO-member countries (plus some non-members) initiating antidumping cases over the 1995–2003 period. Focusing on the United States as target for such cases, during the 1995–2003 period 138 cases were initiated through foreign antidumping agencies against US firms while 302 antidumping cases were filed with the US International Trade Commission against foreign firms.[1]

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[1] This counts cases involving the same product but different countries filed at the same time as distinct cases, with the exception that all such cases filed against EU-15 members

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Between 1995 and 2003, the United States was the third leading target of antidumping actions filed by other countries, following China and Korea, accounting for 6.5 percent of the total number of antidumping cases initiated by member countries of the World Trade Organization (WTO) other than the United States. Cases against US exporters were distributed in a roughly even fashion over the 1995 to 2003 period, with between 12 and 21 cases per year and no clear trend, while US cases against foreign exporters increased in a reasonably steady manner from 14 in 1995 to 63 in 2001 before falling in 2002 and 2003 (to 32 and 36 cases, respectively).

Note that the prevalence of antidumping actions against the United States has not increased in recent years; in fact, while countries filed 163 antidumping petitions against the United States between 1986 and 1994, this number fell to 138 petitions filed in the nine years following this period, as illustrated in Figure 1. The primary instigators of these antidumping actions, however, have changed dramatically since 1986. For example, Canada accounted for over one-quarter of antidumping cases against US exporters between 1986 and 1994. In contrast, the leading sources of cases filed against US exporters in the subsequent period were Mexico (17 percent), India (14 percent), Brazil (13 percent), Canada (9 percent), China (8 percent), and Argentina (7 percent).[2]

The leading targets of US cases in the 1995–2003 period were China (17 percent), Japan and the European Union (10 percent each), Korea (7 percent), and Taiwan and India (5 percent each). The different industry distributions of these cases is quite striking: 59 percent of US cases against foreign exporters involved metal products (HS (Harmonized System) section XV), while 62 percent of foreign cases against US exporters involved HS sections VI and VII (chemicals and plastics).

Others have, of course, noted that foreign antidumping may harm US interests. A US Congressional Budget Office paper (1998) focused on whether US exporters have been harmed by and/or singled out for retaliation by new users of antidumping; they find little adverse effect to that point while noting that continued growth in antidumping by developing countries may have more impact on US exporters in the future. Similarly,

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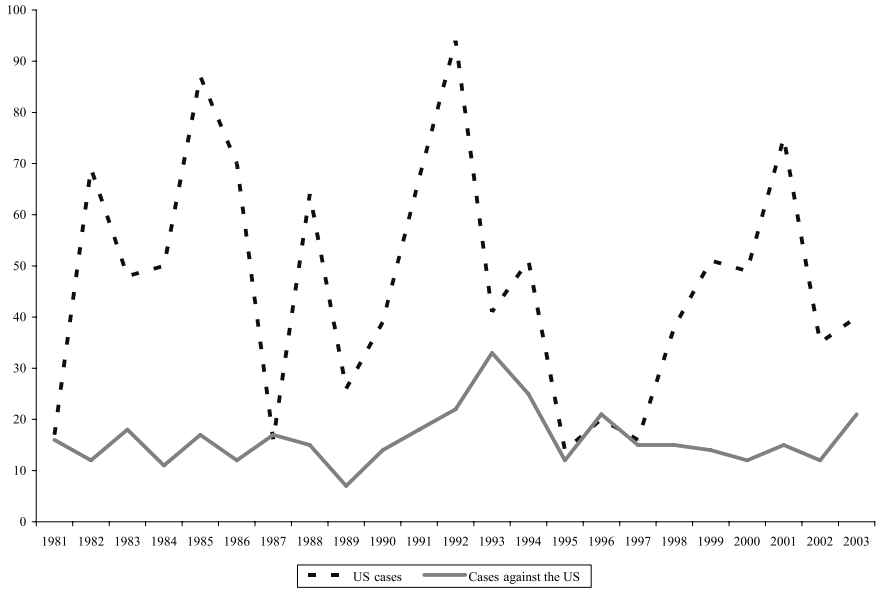
are treated as a single case (this is for consistency with the count of "inbound" antidumping cases in which cases from member countries originate at the EU level).

[2] However, if we look at the distribution of foreign cases in the most recent years, from 2000–2003, the picture is somewhat different—India (20 percent), China (18 percent), and Mexico (16 percent) are now 1-2-3.

Figure 1: *Antidumping Cases Filed by and against US Firms, 1983–2003*



Source: World Trade Organization (2008) and Zanardi (2004).

Lindsay and Ikenson (2001) highlight the growing threat to US interests posed by new antidumping users.

One proposed explanation for the recent surge in antidumping actions against the US is that these actions are initiated by US trading partners to retaliate against US trade policy actions, particularly the extensive use of antidumping protection by the United States. Prusa (2001) briefly discusses the strategic issues involved in a government's decision to adopt an antidumping policy—actions may be aimed at deterring other users of antidumping, but this deterrence may fail resulting in 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.

Blonigen and Bown (2003), applying a trigger price model which allows for the threat of an antidumping action against a country to restrain that country's own antidumping activity, find some evidence consistent with this prediction for the United States. On the other hand, 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. In this situation, what we call retaliation is somewhat broader than the use of strategic behavior; i.e., the expected benefit of a firm from filing an antidumping action is simply higher if its government is seen as more likely to rule in its favor, whatever the explanation.

Prusa and Skeath (2004) 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. They interpret this behavior as retaliation or tit-for-tat, though their measure fails to exhibit the immediacy of response that game theoretic models would require in order to use retaliation as a means of establishing credibility of threat, or as an effective tit-for-tat mechanism.

In Feinberg and Reynolds (2006), probit analysis is applied to a WTO database on reported member-country filings over the 1995–2003 period. The study examines whether antidumping filings may be motivated as retaliation against similar measures imposed on a country's exporter. Strong evidence is found 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.[3] Our focus in this paper is to analyze whether the same patterns explain antidumping cases against the United States, and to what extent US exporters can be seen as victims of the US antidumping regime.

2 Data and Hypotheses

We utilize WTO data on the antidumping filings of all member countries against the United States in particular industry categories between 1995 and 2003.[4] In this research, the "industry category" is defined as one of 20 HS sections, although we limit our data sample to the 14 sections in which at least one antidumping petition was filed against the United States during

[3] An additional motivation which has been proposed for the increased global usage of antidumping is as a post-WTO quid pro quo for general trade liberalization. This is discussed in Miranda et al. (1998) and Feinberg and Reynolds (2007).

[4] We thank Raul Torres of the WTO for assistance in obtaining this data.

the sample period. To avoid any selection bias, the data set includes 39 WTO member countries with active antidumping enforcement during this time period, although only 19 of these countries filed antidumping cases against the United States.[5] In order to observe a one-year lag in filings to account for possible retaliation motivations, we limit our sample to the 1996–2003 period; the final data set includes 4,312 observations. At least one antidumping petition was filed in 2.4 percent of these observations, while the total number of antidumping petitions filed by a particular country/industry/year combination ranged from zero to three.[6]

To study the determinants of the decision to file an antidumping petition against the United States, we estimate a population-averaged probit model in which the dependent variable, $y_{ijt,}$ equals 1 if country i filed at least one antidumping petition against industry j in the United States in year t. Specifically, we assume that that the probability of observing country i filing a case against industry j in the United States in year t is defined by

$$\Pr(y_{ijt} = 1|x_{ijt}, e_{ij}) = \Phi(x_{ijt}\beta + e_{ij}), \tag{1}$$

where x_{ijt} includes various factors that explain the decision to file an antidumping petition, e_{ij} is an error capturing the unobserved factors about country i and industry j that may explain the decision to file an antidumping petition, β includes the parameters to be estimated, and Φ is the standard normal cumulative distribution function.

Instead of specifying a distribution for the unobserved effects contained in e_{ij} as one would need to do to estimate a random-effects probit model, the population-averaged probit model specifies only a marginal distribution.[7] Intuitively, the population-averaged model estimates the conditional parameters using the function:

$$\Pr(y_{ijt} = 1|x_{ijt}) = g(x_{ijt}\beta), \tag{2}$$

where g is a distribution that accounts for correlations across years in particular country-industry combinations by adjusting the covariance matrix

[5] Members are the only countries required to report their antidumping filings to the WTO, therefore the data set may underestimate the number of petitions filed by new WTO members prior to joining. We therefore exclude Taiwan from the data sample, and include China only after its inclusion in the WTO in 2000.

[6] Multiple antidumping petitions were filed in only 18 of the observations in this sample.

[7] Fixed-effects probit models have been shown to suffer from the incidental parameters problem, which leads to inconsistent estimation of the parameters of interest.

of the estimated parameters.[8] Marginal effects from this method can be interpreted as the average effect across the entire sample of a one unit change in the independent variables of interest on the probability that a particular country will file a petition against a particular industry in the United States. Alternatively, the marginal effects can be interpreted as the change in the proportion of observations filing antidumping petitions due to a change in the independent variable.[9]

Our primary interest in this paper is to investigate whether antidumping actions against US exporters can be explained in part as retaliation for earlier antidumping investigations by the United States. Specifically, we hypothesize that foreign industries may choose to file one or more antidumping petitions against their US competitors to directly retaliate for petitions filed by these competitors the previous year. However, as explained in Feinberg and Reynolds (2006), retaliation may also occur at the country level. For example, the government agency charged with enforcing antidumping statutes may be more likely to make an affirmative determination and impose larger dumping margins against US firms if the United States targeted it in antidumping cases filed the previous year. If so, firms will anticipate higher expected benefits from filing cases against the United States, and will thus be more likely to file antidumping petitions against it.

To control for retaliation by specific industries we include a dummy variable that indicates whether the United States filed an antidumping case against the importing country and industry category during the past year (CAT).[10] To control for possible country-level retaliation motives, we include a dummy variable that indicates whether the United States 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

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[8] See Liang and Zeger (1986) for a complete description of the population-averaged model.

[9] We also estimate parameters using a random-effects probit model, which explicitly accounts for unobserved heterogeneity across country and industry combinations by including a country-industry specific, normally-distributed error with a mean of zero and a constant variance. The results were qualitatively similar to those presented here and are available from the authors upon request.

[10] Although the industry categories by which we organize our data are too broad for us to be sure that the same firms are involved in successive antidumping cases, anecdotally this does seem to happen. For example, a 2001 antidumping case filed by US firms against EU member firms, including Germany's Thyssen Krupp Stahl AG, in cold-rolled carbon steel flat products was followed in 2002 by an EU case filed against US producers in that same narrowly-defined product by Thyssen.

specifications we instead include a single variable that indicates whether the United States filed at least one case against the importing country in the previous year (RETALIATION).

We hypothesize that a country will be more likely to be deterred from filing antidumping petitions against the United States if the United States is an important export market for the country, particularly if the United States has proven through its own active antidumping use that it has the ability to retaliate against the importing country. As a measure of the potential threat from the United States' own antidumping enforcement, we include the importing country's total exports to the United States as a share of its total world exports multiplied by the total number of antidumping petitions filed by the United States in the previous year (DETER). If countries are indeed deterred from filing antidumping petitions against the United States due to the US history of antidumping enforcement, we would expect this variable to be negative.[11]

The likelihood of filing a case against the United States in a particular industry category should clearly depend upon the level of imports from the United States in that category. We therefore include the real value of annual bilateral imports in the broad HS section category (IMPORTS) in the estimating equation.[12] In addition, as discussed in Bown and Crowley (2007), antidumping cases filed against one country may divert its trade flows elsewhere leading to more import protection being sought by third countries, including antidumping filings against the United States. We, therefore, include a variable (DEFLECT) 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.

This research also investigates whether the macroeconomic factors that researchers have found to be important determinants in US filings are equally as important in the likelihood that foreign countries will target US exporters in antidumping actions. For example, both Knetter and Prusa (2003) and Feinberg (2005) find that countries are more likely to file antidumping petitions following a real appreciation of a country's currency or a fall in the country's GDP growth, at least in four of the traditional users

[11] An alternative variable might consider only antidumping duties ordered rather than petitions filed, however the two are likely to be highly correlated (and it has been suggested that domestic firms gain from even an unsuccessful petition).

[12] We collected US export and import data from the US International Trade Commission's Trade Dataweb, and adjusted these data to 2000 dollars using the Export and Import Price Indexes of the US Bureau of Labor Statistics.

of antidumping regulations, the United States, Australia, EU and Canada. Intuitively, both of these factors make it more likely that the government will find that the domestic industry has been injured by imports from the targeted country and therefore more likely that the antidumping petition will be successful. To account for these macroeconomic determinants, we include the lagged log bilateral real exchange rate (EXCHANGE) and real GDP growth (GDPGROWTH).[13] The real GDP growth variable is the three-year growth rate, or the three years prior to the filing date. Finally, we include year-specific fixed effects to control for macroeconomic conditions in the United States which may result in an increase in antidumping actions against US exporters. Summary statistics are provided in Table 1.

Table 1: *Summary Statistics*

	Mean	Standard deviation	Min.	Max.
FILE	0.024	0.154	0.000	1.000
CAT	0.033	0.178	0.000	1.000
OTHER	0.287	0.452	0.000	1.000
RETALIATION	0.301	0.459	0.000	1.000
DETER	24.684	20.491	0.646	89.096
DEFLECT	17.727	24.517	0.000	122.000
IMPORTS (billions)	2.181	4.938	0.003	23.782
GDPGROWTH	−0.091	0.074	−0.277	0.168
EXCHANGE	0.018	0.186	−0.961	0.514

3 Results

Marginal effects associated with the population-averaged probit model are presented in Table 2. Specification (1) attempts to decompose the retaliation effect into an industry-specific (CAT) and the country-level (OTHER) retaliation. The marginal effects indicate that while there is no evidence that individual *industries* choose to retaliate, retaliation does occur on a *country*

[13] We calculate the real bilateral exchange rate using nominal exchange rate and consumer price index data from the International Monetary Fund's *International Financial Statistics*. We normalize each series by dividing by its sample mean prior to taking logs. The real GDP growth variable is calculated from data from the World Bank's *World Development Indicators*.

Table 2: *Determinants of the Decision to File Antidumping Petitions against the United States (Marginal Effects Estimated with a Population-Averaged Probit Model)*[a]

	(1)	(2)	(3)
CAT	0.00769	—	—
	(0.01108)		
OTHER	0.01692*	—	—
	(0.00618)		
RETALIATION	—	0.01548*	0.00802
		(0.00594)	(0.00580)
RETALIATION × METALS	—	—	−0.00164
			(0.01214)
RETALIATION × CHEMICALS	—	—	0.09954*
			(0.04231)
DETER	0.00013	0.00012	0.00027
	(0.00029)	(0.00029)	(0.00026)
DEFLECT	0.00029*	0.00028*	0.00017**
	(0.00009)	(0.00008)	(0.00010)
IMPORTS	0.00127*	0.00134*	0.00119*
(billions)	(0.00041)	(0.00042)	(0.00037)
GDPGROWTH	−0.07150*	−0.07375*	−0.07520*
	(0.02970)	(0.03035)	(0.02896)
EXCHANGE	0.02315**	0.02336**	0.02301**
	(0.01193)	(0.01212)	(0.01181)
Year fixed effects	Yes	Yes	Yes
Number of observations	4,312	4,312	4,312
Predicted probability	0.0168	0.01723	0.01588

[a] Standard errors in parentheses. *, ** indicate those marginal effects significant at the 95 and 90 percent level, respectively.

level. Specifically, countries are on average 1.7 percentage points more likely to file an antidumping petition against an industry within the United States if the United States targeted it in an antidumping action the previous year. This represents a 100 percent increase in the predicted probability of filing against the United States.

Given that the estimates suggest that retaliation occurs at the country level rather that at the industry level, the other two specifications in Table 2 combine the industry-specific and country-specific retaliation variables into a single retaliation variable. Results from specification (2) are similar to those in specification (1)—countries are 1.5 percentage points more likely

to file against an industry within the United States if the United States targeted it in an antidumping action the previous year.[14] This result appears to be driven by cases filed against the US chemical industry, as indicated by the results in specification (3), where interaction terms for the chemicals and metals industries are included; while not statistically significant, there is some evidence that petitions filed against other industries may also be driven by retaliation motives.

Comparing these results to those in Feinberg and Reynolds (2006), retaliation appears to play a larger role in a country's decision to file antidumping actions against the United States compared to other target countries. Unfortunately, the estimates from this research are not directly comparable to those presented in Feinberg and Reynolds (2006) due to differences in methodology. Therefore, we replicate the population-averaged probit model using the full sample of antidumping cases filed against the 72 exporting countries used in Feinberg and Reynolds (2006).[15] The results indicate that a country is 0.59 percentage points more likely to file a petition against any country that targeted it with an antidumping action the previous year, considerably less than the 1.8 percentage point increase in the likelihood of filing against the United States.

Of course, because the United States tends to use antidumping regulations more often than many other countries, it is not surprising that cases filed against the United States are in retaliation for an earlier US action more often than those aimed at other countries. Retaliation was a possible motivation in 30.2 percent of observations in the US subsample, compared to only 3.6 percent of observations involving the 72 exporting countries in the full sample (i.e., the mean value of the retaliation dummy variable is considerably higher for the US subsample).

To further investigate the significance of retaliation in the level of antidumping protection against US exporters, we simulate what would happen to actions targeting US exporters if the United States eliminated its own antidumping enforcement. Using the coefficient estimates from the model, we estimate the probability that each country will file at least one anti-

[14] As in Feinberg and Reynolds (2006), specifications that look at the impact of retaliation separately for "new" and "traditional" users of antidumping find that retaliation appears to be significant motivation for new users of antidumping, but is not a statistically significant determinant of the likelihood of filing for the traditional users (including Australia, Canada, the European Union, and New Zealand). The results from these specifications are available from the authors upon request.

[15] We include an importing country-exporting country-industry category-specific error in the estimation. Results from this estimation are available from the authors upon request.

dumping petition against particular US industries in a given year. The probability that individual countries will file against a particular industry ranges from 0.07 percent to 46.0 percent. By summing these probabilities, we find that the model predicts at least 100 cases filed against the United States between 1996 and 2003.[16] Recalculating these probabilities assuming that the United States had no antidumping enforcement during this time period, thus eliminating any possible retaliation motives, we find that the number of antidumping petitions filed against the United States would have fallen to 76—a decrease of over 25 percent.

As noted above, we expected countries to be less likely to file antidumping petitions against the United States if the United States was one of its leading trading partners due to fear of retaliation. However, the marginal effect from the deterrence variable (DETER) is insignificant.[17] All other estimates, however, are significant and of the expected sign. Not surprisingly, the likelihood of filing an antidumping petition against a particular industry within the United States increases with the level of imports from that industry. A one billion dollar increase in imports (IMPORTS) increases the probability of filing by 0.13 percentage points, or 7.8 percent.

Similarly, the estimates also provide evidence to support the hypothesis that the increase in global antidumping activity may be self-perpetuating. The likelihood that a country will file an antidumping action against the United States in a particular industry increases 0.03 percentage points, or 1.7 percent, with each antidumping case filed against the same industry in other countries the previous year (DEFLECT). This may be due to the fact that these earlier cases result in a surge of exports of a particular product to the importing country, prompting the importing country to impose new antidumping protection.

As found in previous research as well, we see that macroeconomic determinants have a significant impact on the likelihood that a country will file an antidumping petition against the United States. A one percent decrease in the importing country's three-year GDP growth rate (GDPGROWTH) increases the likelihood of filing an antidumping petition against the United

[16] This is just slightly less than the 105 actual observations in which antidumping petitions were filed. Because the dependent variable is a dummy variable that equals one if at least one petition is filed in a particular country-industry observation, we cannot predict the exact number of petitions, only the number of country-industry combinations in which petitions will be filed.

[17] Specifications that included the importing country's exports to the United States as a share of its total world exports in addition to the DETER variable also failed to find a significant deterrent effect of cases filed by the United States.

States by 0.07 percentage points. A real appreciation of the importing country's currency also increases the likelihood of filing an antidumping petition against the United States. Specifically, a one-standard deviation appreciation of the importing country's real exchange rate results in a 25.2 percent increase in the likelihood of filing an antidumping petition against the United States.[18]

4 Conclusions

Our results confirm earlier findings explaining antidumping usage (both for the United States and more generally) by macroeconomic forces and export flows in particular sectors. However a significant role (and larger than found for global antidumping more generally) seems to be played by retaliation for US trade policy actions. We have not performed any welfare calculations to judge the societal impact, though there is a general consensus among economists that consumer costs from antidumping policy exceed gains to domestic producers (and their workers) of "like products". It seems likely that the additional costs imposed on exporters identified here will tip the balance still further against antidumping enforcement.

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[18] When this result is compared to the results in Feinberg and Reynolds (2006), it appears that a depreciation of the dollar results in a much larger increase in the likelihood of filing an antidumping case against the United States when compared to depreciations of the currencies of other potential targets of antidumping actions.

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