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## An Empirical Analysis of US and EU Antidumping Initiation and Decision

Mustapha Sadni-Jallab<sup>1</sup>  
United Nations Economic Commission for Africa-GATE

René Sandretto<sup>2</sup>  
University Lyon 2-GATE

Robert M. Feinberg<sup>3</sup>  
American University

### Abstract:

This paper examines the relationship between antidumping procedures and macroeconomic factors, for both the US and EU. While recent research has considered the influence of domestic economic growth and exchange rate pressures on antidumping filings, this paper extends this work by using quarterly data and expanding the set of macroeconomic indicators to include the import penetration rate. Another contribution of this paper is to investigate more fully the rationale for a role of macroeconomic phenomena in explaining antidumping decisions by the relevant enforcement agencies. We use case-specific data for the US and the EU to investigate the macroeconomic and industry-level determinants of success. To the extent that macroeconomic indicators influence AD filing behavior (and success) in both the US and EU - implying that AD has become simply import protection rather than a remedy for unfair practices - it suggests the need for reform of WTO rules governing the administration of trade laws world-wide.

Keywords: Antidumping law; exchange rate pass-through, unfair competition.

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<sup>1</sup> Trade and Regional Integration Division, United Nations Economic Commission for Africa, P.O. Box 3001, Addis Ababa, Ethiopia, Phone: 251-1-44-52-12; Fax: 251-1-51-30-38, e-mail: [msadni-jallab@uneca.org](mailto:msadni-jallab@uneca.org), <http://www.gate.cnrs.fr/equipe/membre.asp?nom=SADNI-JALLAB>

<sup>2</sup> Faculté de sciences économiques et de gestion, Université Lyon 2, 16, quai Claude Bernard, 69007, Lyon, e-mail: [sandrett@univ-lyon2.fr](mailto:sandrett@univ-lyon2.fr), <http://www.gate.cnrs.fr/equipe/perso/sandretto/sandretto.html>

<sup>3</sup> Department of Economics, American University, Washington, DC. 20016-8029 ph. 202-885-3788, fax 202-885-3790, e-mail [feinber@american.edu](mailto:feinber@american.edu), <http://www.american.edu/cas/econ/faculty/feinberg.htm>,

## I. INTRODUCTION: ANTIDUMPING FILINGS AND MACROECONOMIC FACTORS

Antidumping enforcement in both the US and the EU involves case-specific requirements for finding dumping (or sales at less than “fair value”) and injury to a domestic industry. This would suggest that macroeconomic conditions should not be a consideration at all. However, as a practical matter, they are likely to be relevant. If the domestic economy experiences an expansion, we would expect an increased demand for most products. An exporter would likely raise the landed price, *cet. par.*, therefore *reducing* the likelihood of dumping. In a recession, in contrast, exporters would likely reduce price to retain market share, *increasing* the likelihood of dumping.

Similarly, an appreciation of the home currency would *reduce* the likelihood of dumping – and therefore the likelihood of an antidumping case being filed -- if foreign exporters refrain from passing on the full reduction in price dictated by the exchange rate change, taking higher profit margins on sales instead.<sup>4</sup> A depreciation would *increase* the likelihood of dumping as exporters will likely reduce profit margins on foreign sales to avoid having to raise prices in those markets to uncompetitive levels.

Of course, potential domestic petitioners know they also must show injury caused by dumping. It is reasonable for domestic petitioners to anticipate that their chances of convincing the enforcement agency that they have been harmed by dumping are greater the weaker is the industry’s general condition. Similarly, greater import penetration will make a stronger case for injury. Both conditions are more likely to be met as the home currency appreciates.

Business cycle effects on the antidumping filing decision are unambiguous. An expansion, *cet. par.*, should lead to reduced petitions. Similarly, increased import penetration should lead to increased petitions. But, the exchange rate effect is less clear; an appreciation of the local currency may make a showing that dumping exists less likely, but make injury easier to show. Of course, any impact of macroeconomic determinants depends on the willingness of the appropriate government agencies to consider these as relevant to the case (as opposed to purely case-specific determinants).

There has been little previous empirical evidence. Feinberg (1989) found evidence of a negative relationship between U.S. antidumping and countervailing duty petitions (lumped together) against the 4 leading target countries and country-specific real exchange rates. In contrast, Knetter and Prusa (2003) – looking at more recent data (and only at antidumping) – find a positive relationship. One explanation for the difference is to note that over a 20 year period only 3 percent of antidumping petitions have been rejected by the U.S. Department of Commerce; if petitioners anticipate that a finding of dumping is a virtual certainty, and the focus turns to persuading the ITC of injury to the domestic industry, the expected role of exchange rates on the filing decision is more likely to turn to a positive effect of a dollar appreciation.

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<sup>4</sup> See Goldberg and Knetter (1997) for an excellent survey of the pass-through literature. See Kim (2000) for a discussion of the treatment of exchange rate movements in dumping margin calculations, both in the US and more generally under WTO rules. Blonigen (2003) discusses how the growth in the use of discretionary practices by Commerce has led to increasing dumping margins over time in the US.

Knetter and Prusa (2003) find convincing evidence (based on annual target-specific filings in 4 areas- Australia, Canada, the EU, and the US) of both a strong positive impact of currency appreciation and a strong negative impact of growth in GDP.<sup>5</sup> They experiment with limiting their analysis to the sample of target countries and time period used in Feinberg (1989) and find there a *negative* (though not significant) impact, concluding that those earlier results were specific to the sample and time period chosen. In Feinberg (2004), the Knetter and Prusa results are replicated – only for the US – using quarterly data, and the changed patterns of response to macroeconomic phenomena are explained by petitioners learning about US antidumping enforcement over time. Irwin (2005) goes further back in time than other studies in explaining antidumping filings, but continues to find explanatory power in macroeconomic indicators.

Of course, petitioner incentives for *filing* cases should be related to prospects for *winning* these cases. Starting with Finger et al. (1982), economists have empirically examined the political and economic determinants of U.S. antidumping decisions. More recent work along these lines includes Moore (1992), De Vault (1993) and Hansen and Prusa (1997). For the EU, the issue has been studied by Tharakan and Waelbroeck (1991) and Eymann and Schuknecht (1993). While results have varied somewhat from study to study, the basic result is that decisions can be explained by macroeconomic factors, the protection of rents to labor and capital, along with some – but generally not a dominant -- role for political influence. Feinberg (2004), after considering the filing decision, examines 473 U.S. antidumping cases filed between 1981 and 1998 and explains the determinants of a favorable outcome for petitioners, finding both macroeconomic and steel industry effects.

## II. DATA AND THEORETICAL MOTIVATION

Most of the data used in this paper have been drawn from the WTO Trade Policies Review Division. Data on initiations of antidumping actions between 1990 and 2002 come from the WTO antidumping database. The data are available because WTO members are under a continuing obligation to report their antidumping actions to the WTO Secretariat (article VI). Tables 1 and 2 display the number of filings by the US and EU over the period 1990-2002 against selected targets. The figures show that the United States initiated twice as many inquiries as the European Union. If we consider the patterns of bilateral filings (of each initiating country against particular countries), the United States is the most active filer, with 292 actions among which 118 targeted the European Union. Conversely, the European Union aimed few of its initiations at the United States (11 cases out of 133)<sup>6</sup>. The European Union mostly targeted Asian countries and especially China, which is the most affected country, both by the European Union and by the United States<sup>7</sup>. The maximum number of filings in any quarter is equal to 5 for the European Union, while it is equal to 22 for the United States.

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<sup>5</sup>Earlier, Leidy (1997) had found that declines in real GDP led to increases in combined antidumping and countervailing duty petitions in the US over the 1980-95 period (and significant in some specifications was a positive effect of real dollar appreciation). However, the analysis was based on just 16 annual observations on aggregate filing data (and combining the two types of cases is problematic given that -- while the ITC's injury analysis is the same -- the Commerce determination is quite different and may respond to different determinants in the two types).

<sup>6</sup> If we consider the same selected target countries.

<sup>7</sup> Even though the United States is the most important filing country, it is also one of the most targeted countries, followed by China, Japan and Korea. These 4 countries were cited in 30% of the antidumping procedures initiated between 1980 and 1998.

In this study, we choose to focus on three factors among the various macroeconomic phenomena which are liable to influence the triggering of antidumping actions: changes in the exchange rate, fluctuations in the level of economic activity and the rate of import penetration. Monthly data on all of the variables are aggregated to quarters for our analysis because of the large number of months without new petitions<sup>8</sup>. Data on these three potential determinants of antidumping filings are obtained from the OLISNET database of the OECD. The influence of each of these 3 variables is analyzed both in the very short run (one year) and in the short/medium run (three years), except for the exchange rate whose fluctuations are considered only over a one-year period.

The influence of the business cycle is evaluated with variations in real GDP or the index of the industrial production. More precisely, we use the average growth rate of GDP, as well as of the industrial production index, either over the previous year (specification #1) or over a 3-year period before the filing date (specification #2)<sup>9</sup>. The average growth of real GDP of the filing country is denoted  $RGDP(-1)$  for specification #1 and  $RGDP(-3)$  for specification #2. Similarly, the average growth rates of industrial production are denoted  $INDPROD(-1)$  and  $INDPROD(-3)$ .

Economic theory, as well as common sense, suggests that “bad” economic situations reinforce the demand of protection, thus contributing to a resurgence of protectionism, while “boom” periods are likely to further trade liberalization. Nevertheless, the causality relationship is not quite so simple, because trade policy also influences the economic situation. Protection tends to curb economic activity, while trade liberalization stimulates economic growth. Whatever the causal relationship might be, we can expect that filings are negatively related to the business cycle. A glance at the data confirms this relationship. For example, in 1992, an economic slump year, the number of antidumping procedures significantly increased<sup>10</sup>.

The intensity of foreign competition suffered by country  $i$  is measured by the rate of import penetration (denoted  $RIMP_i$ ):

$$RIMP_i = \frac{\sum_j M_{ij}}{DD_i}$$

With  $M_{ij}$  the imports of product  $j$  by country  $i$  (respectively the US and the EU) and  $\sum_j M_{ij}$

its total imports.

For the European Union, we consider the EU, like the US, as one single commercial entity, which means that we take into account only imports from extra-EU countries<sup>11</sup>.  $DD_i$  is the domestic demand in country  $i$ ,  $DD_i = PrC_i + PuC_i + INV_i$ , where  $PrC_i$  is the private consumption in country  $i$ ,  $PuC_i$  is the public consumption in country  $i$ , and  $INV_i$  is the investments in country  $i$ . Logically, an increase in the rate of import penetration should lead to greater demands for protection in the importing country. Consequently, filings should be positively related to the import penetration rate.

<sup>8</sup> The results of our estimations using monthly data can be obtained upon request.

<sup>9</sup> This choice is explained below (see: 4.2). See also Feinberg (2004).

<sup>10</sup> In 1992, the total number of filings in the world was equal to 326 while this number has averaged roughly 200 per year.

<sup>11</sup> Since the antidumping procedures initiated by the EU are targeted at trading partners outside the Union, it makes sense to consider only the intensification of extra-EU competitive pressure.

In our estimations, as for the GDP, we consider both one-year and the three-year average import penetration rates prior to the opening of the antidumping procedure. The rate of import penetration during the previous year is denoted RIMP (-1) while the average rate over the 3-year prior to the filing date is denoted RIMP (-3).

The real exchange rate is the last of the three major macroeconomic determinants that we take into consideration. As noted earlier, appreciation of the domestic currency, reducing the competitiveness of the country, will probably strengthen protectionist claims (although it may make a claim of dumping somewhat more difficult to prove). We therefore test for a positive relationship between the number of quarterly filings and the real exchange rate. Bilateral real exchange rates of the US dollar and the euro *vis-à-vis* each of the target countries' (listed in Tables 1 and 2) currencies are calculated on the basis of consumer prices. The real exchange rate series are normalized by dividing each rate series by its mean so as to offset the scale effect from one exchange rate to the other. We lag the real exchange rate by one year, because the national authorities (both in the US and in the EU) examine pricing issues over a one-year period prior to the opening of investigations<sup>12</sup>. The one-year lagged real exchange rate is denoted RER(-1).

### III. ECONOMETRIC RESULTS FOR ANTIDUMPING FILINGS

The WTO antidumping committee does not provide accurate indications about the time period which has to be taken into account in the investigations aimed at analyzing whether or not dumping is taking place and whether dumped imports are causing material injury. The 1994 GATT agreement states that the period taken into consideration in the investigation about the existence of dumping 'is normally one year, but should not in any case be less than 6 months'. The recommendation of the WTO antidumping committee is representative of the absence of guidelines: according to this committee, the investigations meant for assessing the damages should normally cover at least 3 years, but they also can cover a shorter period<sup>13</sup>. This means that national authorities are completely free to adapt these periods to each specific case. The consequence is a large disparity of practices and legal frameworks from one country to another<sup>14</sup>.

In the US, the Department of Commerce (DOC) is in charge of determining dumping while the International Trade Commission (ITC) is in charge of injury determination. These two government agencies investigate over a three-year period prior to the filing of the case.

In the EU, the European Commission assesses both price behavior and material injury. The usual procedure is to investigate whether or not dumping is taking place over a 6 to 12-month period (in most cases)<sup>15</sup>. After that, injury investigations are carried out by the Commission over a three-year period<sup>16</sup>. However, in some cases, the time period applied to injury determination can be reduced to only one year<sup>17</sup>.

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<sup>12</sup> See Knetter and Prusa (2003) and Feinberg (2004).

<sup>13</sup> WTO recommendation May 5, 2000.

<sup>14</sup> However, the dominant practices of the national authorities – consistent with the recommendations of the WTO antidumping committee – adopt a short period (typically one year) in the pricing behaviors investigations and a longer period (typically 3 years) in the material injury investigations.

<sup>15</sup> This first step includes the calculation of the dumping margin.

<sup>16</sup> In accordance with the WTO antidumping code, a causality relation must be established between dumping and injury to community industry.

<sup>17</sup> See the WTO recommendation, G/ADP/6, May 16, 2000.

Of course, the choice of one year instead of 3 years in injury assessment influences the identification of the determinants of antidumping filings. The choice of time period is an important specification issue. Assuredly, any choice is, to some extent, arbitrary. However, our 2 specifications (respectively based on a one-year period and a three-year period) give a plausible approximation of the actual procedures of the reporting countries. In addition, this choice may be useful to differentiate the practices of the US and the EU. Lastly, it is also justified by the fact that Knetter and Prusa (2003) and Feinberg (2004) consider a one-year lag for the foreign exchange rate and a three-year period for the GDP, which will facilitate the comparison between their results and ours.

Due to the correlations among the growth rate of the GDP, the rate of import penetration and the index of industrial production, we develop three estimation models in which each of these variables is considered separately. These models are applied, for each specification (one or three years), both to the US and the EU, resulting in a total of 6 models to be estimated for each country.

In specification #1, we consider the real GDP growth rate, the average rate of import penetration and the industrial production index during the year prior to the antidumping filing (see columns i, ii, and iii in tables 5 and 6). In specification #2, we refer to these same variables over a three-year period prior to the filing (see columns iv, v and vi in these same tables). The real exchange rate is present in all the specifications.

In order to choose between a Poisson and Negative Binomial model (see Appendix 1 for details) over-dispersion tests are carried out on the average growth rate of real GDP over the three-year period prior to the filing, as well as on the industrial production index over the same period. We find over-dispersion of the number of antidumping filings in these both the US and EU. This result leads us to choose a negative binomial model. Furthermore,  $\alpha$ , the over-dispersion parameter is also positive and significant in the various estimations based on the negative binomial model. The data are thus consistent with this model.

To facilitate the comparison of our results with those of Knetter and Prusa (2003) and Feinberg (2004), we present in Tables 4 and 5 the incidence rate ratios (IRR) associated with the estimated coefficients. The incidence rate (i.e. the rate per unit at which a happening occurs) is a function of some underlying variables as follows:

$$Ir = e^{\beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \dots + \beta_k x_{kj}}$$

The IRR represents the ratio of (1) the counts predicted by the model when the variable of interest is one unit above its mean value and (2) all other variables are at their means to the count predicted when all variables are at their means also. Thus, if the IRR for the real exchange rate is 1.50, then a one unit increase in the real exchange rate (a 100% real appreciation given that we use the log of the real rate) would increase counts by 50% when all other variables are at their means. (Knetter and Prusa, 2003)

The  $t$ -statistics are reported for a test of the null hypothesis that the IRR=1, which would imply no relationship between the dependant variable and the regressor.

### 3.1. US Results

- Specification #1

The IRR estimated for the exchange rate delayed one year  $\text{LogRER}(-1)$  is 1.03 in columns (i), (ii) and (iii) of Table 4. That means a real appreciation of 100 % of the exchange rate would increase the openings of AD procedures to 3%. The average rates of GDP growth, and import penetration and the index of industrial production are not significant. Their effects are thus considered as null, the IRR is fixed to 1.

On the whole, our results show that short variations in the level of general economic activity or in the level of industrial activity or in imports have no significant impact on the number of openings of antidumping procedures. Next we consider the results for longer periods.

- Specification #2

Columns (iv), (v) and (vi) in Table 4 show that an appreciation of 100 % in the lagged real exchange rate would increase openings of antidumping procedures by 25 %.

The IRR of the average GDP growth rate  $\text{RGDP}(-3)$  is 0.09. A decline of a unity of the growth rate would thus increase the number of openings AD procedures of 91 % in the United States. This result is in agreement with our expectations and with the results of the previous studies: the slowing down and, all the more, the decline of the economic activity increases the openings of antidumping actions. In the phases of expansion, we note fewer antidumping procedures.

It is rather different when we take into account the index of industrial production. Indeed, the IRR of  $\text{LogINDEXPROD}(-3)$  is not significant. The IRR of the import penetration rate is 1.615. An increase of 100 % of the import penetration rate would lead to an increase of 61.5% of the number of procedures.

### 3.2 EU Results

- Specification #1

Columns (i) and (ii) in Table 5 show that the IRR of the real exchange rate is 1.02. So, an appreciation of 100 % of the real exchange rate would increase the number of the antidumping procedures to 2 %. The average rate of GDP growth during previous year in the opening of the antidumping procedure is not significant. Short-term variations in general economic activity thus does not seem to affect the openings of antidumping inquiries in Europe. This result is confirmed by the non-significativity of the import penetration rate variable.

This conclusion is qualified by the effect of the index of industrial production. Indeed, an increase of 100 % of  $\text{LogINDEXPROD}(-1)$  would decrease the number of opening procedures by 14 % (because the IRR of the index of industrial production is 0.856) in Europe. Only short-term variations in specific industrial sectors seem to have a significant influence on antidumping filings.

- Specification #2

The real exchange rate always appears as a significant determinant of antidumping actions. According to our estimation, an appreciation of 100 % in the real exchange rate would lead to an increase in the number of the antidumping procedures from 13 % to 24 % (The IRR varies between 1.13 and 1.24). The average rate of growth during the three years, which precede the opening of a procedure, has a negative coefficient but is not significant. Cyclic variations thus seem to have hardly any influence on the openings of inquiries in Europe. This result is in accord with European practice. On the other hand, the IRR of LogINDPROD (3) is 0.796. So, an increase of 100 % in the index of industrial production would reduce the number of antidumping procedures by 20 %. European firms seem more sensitive to industrial production than to GDP growth or import penetration in filing decisions.

### 3.3. Comparison of the results between Europe and the United States

The exchange rate has a significant positive effect in both the United States and the European Union, with similar IRRs, with an appreciation of the currency in each leading to an increase in the number of antidumping inquiries.

We can also note that the period used to approximate damages has a rather significant effect on the estimated response to exchange rate movements. Thus, in Europe, when a period of one year is used to estimate the damage, the level of the IRR of the real exchange rate is around 2 % while it is around 24 % when a 3-year period is used. In the United States, when a period of 1 year is used to estimate the damage, we obtain an IRR from the real exchange rate of about 3 %. The IRR is around 25 % when a 3-year period is used.

The effect of import penetration on antidumping is generally not statistically significant, not very surprising since movements in the real exchange rate may already capture the intensification of international competition.

Finally, the pattern of industrial production does not explain antidumping petitions, but overall economic growth does explain this when the period of evaluation of the damages is 3 years in the United States. On the other hand, industrial production but not economic growth is significant for Europe, both for lags of 1 year and 3 years to estimate damages.

Overall, three main conclusions can be drawn from this comparison:

- Variations in the exchange rate are the best common explanation for both countries.
- The index of industrial production is a good "candidate" to characterize the European Union because it is significant in Europe when the period of damages is 1 year (as is the practice of the European Commission). On the contrary, the growth rate of the GDP has a significant effect only in the United States when we use a period of 3 years to estimate the damages (as is the practice of the American authorities).
- The choice of the period for the evaluation of the damages directly influences the estimate of the probability of opening an inquiry and the response to exchange rate movements.

We now try to identify some possible factors, which could explain the decisions given by the antidumping authority, in Europe but also in United States.



## IV. DETERMINANTS OF REGULATORY AUTHORITY DECISIONS IN US AND EU

Our analysis aims at testing two major propositions:

- Proposition 1: the determinants of the decisions taken by the antidumping authorities are both political and economic.
- Proposition 2: the antidumping authorities are "sensitive" to the demands of the domestic firms.

We specify the agency's decision to protect a domestic firm as a Probit model of the following form:

$$D_i = \begin{cases} 1 & \text{If } D_j^* > 0 \\ 0 & \text{Otherwise} \end{cases}$$

Where, for  $i=1,2,\dots, n$ ,  $D_i$  is the observed dichotomous variable representing the decision of the agency (a value of 1 corresponding to a favorable decision), and  $D_j^*$  is a latent variable which may be interpreted as the propensity of the agency to respond in favor of the domestic firm's petition). We further specify the latent variable as:

$$D_j^* = \beta X_i + \mu_i$$

Where  $X$  is the matrix of the explanatory variables,  $\beta$  is a vector of unknown parameters,  $\mu_i$  is a random term error.

### 4.1. The data used for the European Union

The database is constituted by the decisions given by the European Commission during period 1997-2002 (DECISION).<sup>18</sup> Every case is characterized by the product concerned by the complaint, the number of times when the product is incriminated during period (PROD-PERIOD), the average MFN tariff collected on the product (TARIFF), the country of origin, the number of times when this country is incriminated during the period (COUNTRY-YEAR), the level of development of this country (NIC- LDC- CEEC), the year of the Commission decision, and of a set of sector-based variables which concerns the foreign trade of the European Community. (See Appendix 5)

The variables, which characterize each European AD case, are:

- A dichotomous variable identifying the type of the product concerned by the complaint, by taking the value 1 if the product is intended for community industries using it in their process of production and the value 0 if it is intended for final consumers (TYPPROD).
- A variable indicating the number of complaints put down against the same country having ended in an AD defense in the year (COUNTRY-YEAR)

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<sup>18</sup> Our data do not include pending cases.

- A variable indicating the number of complaints deposited against the same product having ended in an antidumping defense in the year, and accumulated during the period. (respectively PROD-YEAR and PROD-PERIOD)

The decision of the European antidumping authority was codified by a dichotomous variable:

- The value 1 in the cases where the Commission implements a defense
- The value 0 in the cases where the procedure is closed without a defense being implemented.

Variables concerning foreign trade were obtained from Eurostat and the UN Comtrade database.

We also introduced dichotomous variables concerning the target countries:

- A dichotomous variable taking the value 1 if the country of origin of the exporting firm is a developing country and the value 0 in the opposite case. (LDC)
- A dichotomous variable taking the value 1 if the country of origin of the exporting firm is a country with State Trade and the value 0 in the opposite case. (CEEC)
- A dichotomous variable taking the value 1 if the country of origin of the exporting firm is a newly industrialized country and the value 0 in the opposite case. (NIC)

The tariff variable results from the electronic database TARIC proposed by the European Commission. The treatment of variables in value, as far as they are expressed in current prices, required to be deflated in order to neutralize the price effect. We used the GDP deflator, built from the GDP series in current prices and the GDP in volume at the prices of year 1997. Once these variables deflated, we calculated for each of them growth rates as far as these rates appear to have more sense than the "levels" variables.

#### 4.2. The data used for the United States

The database contains the decisions given by the U.S. Department of Commerce and the International Trade Commission during the period 1997-2002. The variables (See Appendix 4), which characterize every antidumping case, are generally identical to the European cases. Data concerning American trade are obtained from the U.S. Census of Bureau, Foreign Trade Statistics, and the UN Comtrade database.<sup>19</sup> TARIFF variable results from the electronic database available on the USITC Internet site.<sup>20</sup> In addition to these variables, we also consider two "political" variables indicating a target country, China, of particular concern to domestic interests in both the US and EU, and an industry sector, Steel, which is generally viewed as possessing political clout in both economies.

#### 4.3. Results of the estimations

We present the results from the authorities' decision model.

##### 4.3.1. In Europe

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<sup>19</sup> The majority of the data relative to the foreign trade of the United States are available on the following address <http://www.census.gov/foreign-trade/www/index.html>

<sup>20</sup> These data are available from the following website: <http://dataweb.usI.T.C.gov/script/tariff2003.asp>. See annex for the description of the variables

By incorporating simultaneously the economic and political factors, the model foresees exactly the endogenous variable in 76.5 % of the cases. More exactly, it foresees that the European firms have more chance to obtain a positive decision in the following situations:

- The more the indication of dependence is raised, the more the decision will have chances to be positive.
- The more relationship between the average tariff and a positive decision seems to be U-shaped (see Figure 1), with both very low and very high tariff sectors having a higher probability of a positive AD decision. One may expect that the former industries may be judged in greater “need” of protection, while the latter industries may possess greater political clout and demand this protection.

Our estimation finds that the more a targeted country is the object of inquiries in the year, the greater the probability that the decision taken by the authorities will be positive. This result demonstrates the role of political factors, as noted by DeVault (1993)<sup>21</sup>. Our estimation finds that if the target country has a well-established antidumping policy the Commission is more likely to make a positive decision. However, the effect of the target country having a competition policy is the opposite. When we look at the sectoral import penetration rate in the explanation of the decisions, it appears very significant. The import penetration rate variable is a good proxy for injury experienced by domestic firms, which is a fundamental determinant of the decisions given by the authorities. Similarly, we find that the sectoral unemployment rate also increases the probability of a positive decision. We find strong positive effects of cases involving China and the Steel sector, suggesting non-economic factors may play a role in these cases.

#### 4.3.2. In United States

The model correctly predicts the endogenous variable in 87 % of the cases. Certain results seem particularly interesting.

First of all, we find that the greater is the total trade balance with the target country, the more likely the decision will be positive. *The larger the sectoral employment is, the less likelihood of a positive decision.* This apparently counter-intuitive result was earlier found by DeVault (1993), who interprets it as suggesting that an industry with many employees is a strong industry, which does not need to be defended by AD procedures. Our study also finds a more intuitive result as regards the sectorial industrial productivity. Indeed, we show that the stronger is industrial productivity, the more the authorities will defend this industry by approving an antidumping measure. This relation confirms the American practice, which consists in defending the very productive sectors, which would be a victim of unfair trade. (Finger and Murray, 1993) The results concerning the TARIFF variable are similar to the EU results (see Figure 2); the relationship is U-shaped with both very high and very low tariff rates leading to a greater likelihood that the authorities will make a positive decision. As found for the EU, the higher is the import penetration rate, the greater the likelihood of a positive decision. Surprisingly, if the target country is a new industrialized country, the less likely is the decision given by the authorities to be positive; this may reflect lessened concern about the threat to domestic interests posed by exporters from these countries. Again, as for

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<sup>21</sup> However, we also find that the more a product is the object of inquiries for the period the less likely that a decision will be positive, which is contrary to our expectations.

the EU, we find that China and Steel are special and the greater likelihood of positive decisions may be explained by non-economic factors

## **V. CONCLUSION**

We find besides the economic factors, evidence of the existence of a political influence. We also have shown that macroeconomic variables have different effects on the numbers of openings of antidumping procedures in the United States and in Europe. An appreciation of the real exchange rate has a positive impact on openings of procedures in the United States and within the European Union. However, the dimension of the effect is greater in the United States. Business cycle effects (measured by GDP changes) have an impact on openings of procedures only in the United States, but a narrower measure of economic activity – the industrial production index – predicts filings better for the EU. A significant role for economic growth and exchange-rate pressures seems contrary to the spirit of antidumping rules – aimed at “unfairly traded” imports, not global or domestic macroeconomic trends.

Future research should go beyond the explanation of openings of antidumping procedures undertaken in this study to take into account the impact of the definition of dumping in the WTO Agreements. A reform, which might be considered, would be that only cases of dumping which lead to a threat of monopolization of the market could be sanctioned in the form of antidumping measures. Taking account of these two factors, world competition and the WTO definition of dumping, would likely be found to have a major responsibility for the current intensification of the use of this form of administered trade protection.

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Table 1: US Antidumping petitions between 1990 and 2002 against selected target countries  
(Number of cases filed per quarter)

	Target countries					
	European Union	Korea	Canada	China	Japan	Five target countries
Average	2.27	0.63	0.42	1.42	0.86	1.12
Minimum	0	0	0	0	0	0
Maximum	22	4	4	4	3	22
Standard deviation	3.62	0.97	0.87	1.30	0.79	1.95
Total	118	33	22	74	45	292

Source: Calculated from data provided by the WTO

Table 2: EU Antidumping petitions between 1990 and 2002 against selected target countries  
(Number of cases filed per quarter)

	Target countries					
	United States	Korea	Canada	China	Japan	Five target countries
Average	0.21	0.61	0.02	1.29	0.42	0.51
Minimum	0	0	0	0	0	0
Maximum	1	3	1	5	3	5
Standard deviation	0.41	0.87	0.14	1.17	0.72	0.87
Total	11	32	1	67	22	133

Source: Calculated from data provided by the WTO

Table 4.IRR in the United States

Variables	Specification#1			Specification#2		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
<i>LogRER(-1)</i>	1.0503 (2.869)	1.0297 (2.496)	1.0336 (2.897)	1.2524 (3.118)	1.2611 (3.107)	1.2533 (3.123)
<i>RGDP(-1)</i>	1.00 (0.268)					
<i>LogRIMP(-1)</i>		1.00 (0,868)				
<i>LogINDPROD(-1)</i>			1.00 (-1.098)			
<i>XGDP(-3)</i>				0.0893 (-2.296)		
<i>LogRIMP(-3)</i>					1.615 (1.981)	
<i>LogINDPROD(-3)</i>						1.00 (-0.844)



Table 5. IRR in Europe

Variables	Specification#1:			Specification#2		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
<i>LogRER(-1)</i>	1.0244 (2.472)	1.114 (2.479)	1.023 (2.516)	1.1351 (2.604)	1.119 (2.917)	1.2431 (3.751)
<i>RGDP(-1)</i>	1.00 (0.676)					
<i>LogRIMP(-1)</i>		1.00 (0.917)				
<i>LogINDPROD(-1)</i>			0.856 (1.965)			
<i>XGDP(-3)</i>				1.00 (-1.228)		
<i>LogRIMP(-3)</i>					1.00 (1.217)	
<i>LogINDPROD(-3)</i>						0.7962 (-2.374)

Table 6: Probit Model  
 Dependant variable: Regulatory Agency decisions in Europe

<i>Explanatory variables</i>		<i>Dependant variable: Regulatory Agency decision</i>	
<i>Number of Observation</i>		285	
<i>Percent correctly predicted</i>		76.5%	
<i>Explanatory variables</i>	<i>Coefficient</i>	<i>t-statistic</i>	
<i>ONE</i>	-8.186	-3.613***	
<i>TARIFF</i>	-11.674	-1.653*	
<i>TARIFF2</i>	97.632	1.995**	
<i>DEPENDAN</i>	20.283	2.461***	
<i>COUNTRY-YEAR</i>	0.359	1.845*	
<i>PROD-PERIOD</i>	-0.315	-2.064**	
<i>COMPETITON-10</i>	0.528	2.614***	
<i>COMPETITION</i>	-0.482	-1.773*	
<i>LRIMP</i>	11.283	3.473***	
<i>LUNEMPLOY</i>	9.662	4.209***	
<i>TRADE-BALANCE</i>	-0.077	-0.339	
<i>DUMMY_CHINA</i>	4.172	3.178***	
<i>DUMMY_STEEL</i>	3.478	3.369***	

\*\*\*=Significant 1%. \*\*= Significant 5%. \*= Significant 10%

Table 7: Probit Model  
 Dependant variable: Regulatory Agency decisions in United States

<i>Explanatory variables</i>		<i>Regulatory Agency decisions</i>	
<i>Number of Observation</i>		259	
<i>Percent correctly predicted</i>		87%	
<i>Explanatory variables</i>	<i>Coefficient</i>	<i>t-statistic</i>	
<i>One</i>	105.8	2.271**	
<i>TRADE-BALANCE</i>	1.326	2.997***	
<i>LDCAPIT</i>	0.46	0.105	
<i>LEMPTOT</i>	-7.739	-1.674*	
<i>LPRODUC</i>	19.523	2.231***	
<i>LCAPAPRO</i>	-0.617	-1.379	
<i>COUNTRY-YEAR</i>	-0.004	-0.025	
<i>TARIFF</i>	-0.477	-1.995**	
<i>TARIFF2</i>	5.9625	2.125**	
<i>LRIMP</i>	31.831	1.984**	
<i>CEEC</i>	-0.633	-0.001	
<i>NIC</i>	-2.124	-2.075**	
<i>COMPETITION-10</i>	0.198	1.943	
<i>COMPETITION</i>	-1.105	-2.147**	
<i>PROD-YEAR</i>	-0.296	-2.269**	
<i>PRODUCT</i>	3.846	1.681*	
<i>LWAGES</i>	-8.481	-2.640***	
<i>DUMMY_CHINA</i>	7.148	4.798***	
<i>DUMMY_STEEL</i>	8.876	6.759***	

\*\*\*=Significant 1%. \*\*= Significant 5%. \*= Significant 10%

Figure 1: Relation between Tariff and the probability to have a positive decision in EU

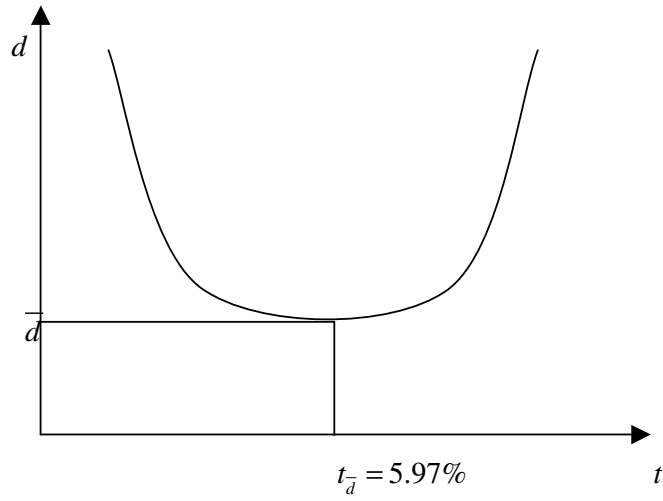
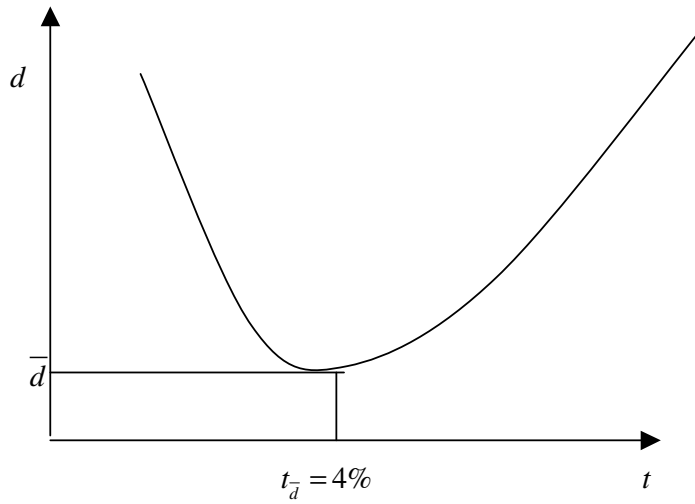


Figure 2: Relation between Tariff and the probability to have a positive decision in US



## Appendix 1: ECONOMETRIC ESTIMATION METHODOLOGY

The number of antidumping procedures is typical of count data. It is a discrete variable. We can model the probability of occurrence of any number of antidumping filing either with a Poisson or with a negative binomial regression.

The Poisson regression model is defined by:

$$\text{Pr ob}(Y = y_i) = \frac{e^{-\lambda_i} \lambda_i^{y_i}}{y_i!}, \quad i = 1, 2, \dots, n$$

With:  $\ln(\lambda_i) = \beta' x_i$  and  $E(y_i|x_i) = \text{Var}(y_i|x_i) = \lambda_i = e^{\beta' x_i}$

So, the estimated equation is:  $\ln E[\text{Case of opening antidumping procedures}] = \beta' x_i$

$\text{Pr o}(Y = y_i)$  is the probability that the quarterly number of filings (random variable Y) is equal to a particular value ( $y_i$ ).

$\lambda_i$  is the parameter of the Poisson distribution. It depends on several exogenous variables. These variables form a matrix-denoted  $x_i$ .  $\beta$  is a vector of coefficients to be estimated. Using a Poisson regression is appropriate if the variance and the expected value of the distribution are equal. Several authors underline the fact that this fundamental feature of a Poisson distribution may be violated in empirical applications<sup>22</sup>. In this paper, we use the test of over-dispersion suggested by Cameron and Trivedi (1990) in order to choose which regression model should be adopted.

We test:

$$H_0: \text{Var}(y_i) = E(y_i) \text{ against } H_1: \text{Var}(y_i) = E(y_i) + \alpha g(y_i)$$

This test is based on the hypotheses that:

$[(y_i - E(y_i))^2 - E(y_i)]$  has an average equal to zero and the Poisson model gives consistent values of  $E(y_i)$ .

Let us denote  $\mu_i = \hat{\lambda}_i$ , where  $\hat{\lambda}_i$  is the predicted value of  $\lambda_i$  from the Poisson regression.

The test is carried out by testing the significance of the single coefficient in the linear

ordinary least squares estimation of  $c_i = \frac{(y_i - \mu_i)^2 - y_i}{\sqrt{2\mu_i}}$  on  $w_i = \frac{g(\mu_i)}{\sqrt{2\mu_i}}$ .

$$\text{If } g(\mu_i) = \mu_i, w_{i1} = \frac{\mu_i}{\sqrt{2\mu_i}}$$

$$\text{If } g(\mu_i) = \mu_i^2, w_{i1} = \frac{\mu_i^2}{\sqrt{2\mu_i}}$$

When  $w_{i1}$  and  $w_{i2}$  are significantly different from 0, an over-dispersion of  $y_i$  is proved and the Poisson distribution must be rejected. As a consequence, we use the negative binomial model as a better alternative than the Poisson model. In the negative binomial model, the conditional variance and the conditional mean of  $y_i$  differ.

<sup>22</sup> See for example Hausman, Hall and Griliches (1984), Cameron and Trivedi (1986).

$$\text{Pr ob}(Y = y_i | \varepsilon_i) = \frac{e^{-\lambda_i \exp(\varepsilon_i)} \lambda_i^{y_i}}{y_i!}, \quad y_i = 0, 1, 2, \dots, n$$

Where  $\ln(\lambda_i) = \beta' x_i + \varepsilon_i$

$\varepsilon_i$  indicates the term of error or some sort of heterogeneity in the data.

The non-conditional probability of  $y_i$  is obtained by integrating with respect to  $\varepsilon_i$ . The choice of the density of  $\varepsilon_i$  defines a non-conditional distribution. The Gamma distribution is often chosen in order to make calculations easier. So, we adopt this distribution.

$E(\exp(\varepsilon_i))$  is supposed to be equal to 1 and  $\text{var}(\varepsilon_i) = \alpha$

In order to simplify the formulation, the probability distribution is redefined with the  $\theta$  parameter.

The distribution function used to optimize the likelihood function is the following:

$$\text{Pr ob}(Y = y_i) = \frac{\Gamma(\theta + y_i)}{\Gamma(\theta) y_i!} u_i^\theta (1 - u_i)$$

Where,  $u_i = \frac{\theta}{\theta + \lambda_i}$  and  $\theta = \frac{1}{\alpha}$

$\alpha$  represents the over-dispersion parameter of  $y_i$ . A negative value of  $\alpha$  suggests that the data are inconsistent with the model.

$\alpha$  is such that :  $\text{var}(y_i) = E(y_i) \times \{1 + \alpha E(y_i)\}$

This relation exhibits the importance of over-dispersion. The over-dispersion rate is given by:

$$\frac{\text{Var}(y_i)}{E(y_i)} = 1 + \alpha E(y_i)$$

Table A.1 presents the results of the over-dispersion tests for the cases of opening antidumping procedures in the US and the EU carried out – respectively - over a one and a three-year period.

Table 8: Over-dispersion test of the number of antidumping procedures (Quarterly data)

Estimation by ordinary least squares				
Dependant variable, $c_i = \frac{(y_i - \mu_i)^2 - y_i}{\sqrt{2\mu_i}}$				
Variables	United States		European Community	
	One year-period	Three year-period	One year-period	Three year-period
$w_{i1}$	0.4749*** (3.172)	0.4654*** (2.865)	0.1377** (2.245)	0.4637** (2.461)
$w_{i2}$	2.0985*** (5.198)	0.5044*** (3.423)	0.8705** (2.626)	0.7478** (2.160)

\*\*\*=significant at the 1% level. \*\* = significant at the 5% level. \* = significant at the 10% level  
The *t*-statistics are in brackets below the estimated coefficients.

Appendix 2: Estimations of the coefficients in the negative binomial model for the US

Variables	Estimation by the method of the maximum of likelihood					
	Specification#1			Specification#2		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
<i>Constant</i>	0.9008* (1.904)	4.1314 (1.068)	-11.0543 (-1.445)	2.4019* (1.890)	11.780* (1.877)	-19.966** (-2.162)
<i>LogRER(-1)</i>	6.3892*** (2.749)	6.2397** (2.486)	6.3722** (2.512)	8.0345*** (2.921)	8.19*** (3.107)	8.2823*** (3.156)
<i>LogTIME* LogRER(-1)</i>	-2.1784*** (-2.945)	-2.1918*** (-2.737)	-2.2351*** (-2.747)	-3.0286*** (-3.388)	-3.09*** (-3.566)	-3.0866*** (-3.577)
<i>RGDP(-1)</i>	0.1280 (0.268)	-	-	-	-	-
<i>LogTIME* RGDP (-1)</i>	-0.2465** (-2.417)	-	-	-	-	-
<i>LogRIMP (-1)</i>	-	1.3112 (0.858)	-	-	-	-
<i>LogTIME* LogRIMP (-1)</i>	-	0.1950* (1.649)	-	-	-	-
<i>LogINDPROD(-1)</i>	-	-	2.7869 (1.522)	-	-	-
<i>LogTIME*LogINDPROD(-1)</i>	-	-	-0.1270* (-1.882)	-	-	-
<i>RGDP(-3)</i>	-	-	-	-2.4174** (-2.298)	-	-
<i>LogTIME* RGDP (-3)</i>	-	-	-	0.2204** (2.108)	-	-
<i>LogRIMP (-3)</i>	-	-	-	-	5.1364** (1.981)	-
<i>LogTIME* LogRIMP (-3)</i>	-	-	-	-	0.1570 (1.052)	-
<i>LogINDPROD(-3)</i>	-	-	-	-	-	4.5338** (2.097)
<i>LogTIME*LogINDPROD(-3)</i>	-	-	-	-	-	-0.0876 (-1.268)
Over dispersion parameter Alpha	0.9979*** (5.123)	1.0532*** (5.500)	1.0445*** (5.558)	0.5611** (2.459)	0.592*** (2.664)	0.5747*** (2.654)

Log likelihood unrestricted. $L_0$	-316.3238	-318.5656	-317.9812	-236.2167	-236.63	-245.7997
Log likelihood restricted. $L_r$	-364.5566	-369.3118	-368.3517	-245.2801	-247.14	-263.9425
Chi-squared <sup>a</sup>	96.46556	101.4925	100.7409	18.1267	21.0202	36.2856
Significance level	0.0000	0.0000	0.0000	0.207E-04	0.4E-05	0.0000
Number of observations	220	220	220	180	180	180
Degrees freedom	1	1	1	1	1	4

a-  $\chi^2 = -2(\text{Log}(L_0) - \text{Log}(L_r))$

\*\*\*=significant at the 1% level. \*\*= significant at the 5% level. \*= significant at the 10% level.

The  $t$ -statistics are in brackets below the estimated coefficients.



Appendix 3: Estimations of the coefficients in the negative binomial model for the EU

Variables	Estimation by the method of the maximum of likelihood					
	Specification#1			Specification#2		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
<i>Constant</i>	28.7587* (1.959)	-7.5772** (-2.047)	26.9755* (1.915)	1.1010 (0.702)	-13.998** (-2.490)	42.7595** (2.326)
<i>LogRER(-1)</i>	2.2779** (2.472)	1.6682** (2.570)	2.1585** (2.516)	2.0702* (2.604)	3.1828*** (3.830)	3.5555*** (3.751)
<i>RGDP(-1)</i>	0.2159 (0.676)	-	-	-	-	-
<i>LogRIMP (-1)</i>	-	-3.0511* (-1.857)	-	-	-	-
<i>LogINDPROD(-1)</i>	-6.3574** (-2.007)	-	-5.9189** (-1.965)	-	-	-
<i>RGDP(-3)</i>	-	-	-	-1.6931 (-1.228)	-	-
<i>LogRIMP (-3)</i>	-	-	-	-	-5.7427** (-2.334)	-
<i>LogINDPROD(-3)</i>	-	-	-	-	-	-9.3559** (-2.374)
Over dispersion parameter Alpha	1.0511** (2.410)	1.04399** (2.376)	1.0525** (2.404)	1.0995** (2.112)	0.9351** (2.096)	0.9255** (2.042)
Log likelihood unrestricted. $L_0$	-208.5098	-209.152	-208.83	-166.22	-163.804	-163.6116
Log likelihood restricted. $L_r$	-216.9596	-217.320	-217.23	-173.40	-169.701	-169.3583
Chi-squared <sup>a</sup>	16.8996	16.335	16.8031	14.3407	11.794	11.4934
Significance level	0.39E-04	0.53E-04	0.41E-04	0.152E-03	0.59E-03	0.698E-03
Number of observations	220	220	220	180	180	180
Degrees freedom	1	1	1	1	1	1
<p>a- <math>\chi^2 = -2(\text{Log}(L_0) - \text{Log}(L_r))</math></p> <p>***=significant at the 1% level. **= significant at the 5% level. *= significant at the 10% level.</p> <p>The <i>t</i>-statistics are in brackets below the estimated coefficients.</p>						

Appendix 4: Description of the variables used for the European Union

Variable	Characteristics	Tested hypothesis	Source
<i>DECISION</i>	Dichotomous variable identifying the decision: 1 if the Authority take a positive decision, 0 else		Annual and semiannual reports of the European Commission to the European Parliament on the antidumping activities
Number of AD cases implying the product for the period 1998-2002 <i>PROD-PERIOD</i>	Numeric variable	The more a product is target of inquiries for the period, the more the authorities will tend to give a positive decision.	Annual reports of the European and American authorities. Notifications deposited in the Secretariat of the WTO, Document quoted <i>G/AD/N/year/ EEC</i>
Average MFN Tariff (calculations of the WTO Secretariat HS Classification) <i>TARIFF</i>	Average tariff in percentage	Increase of inquiries when the Tariff is raised.	Calculations made by the WTO Secretariat, DG Trade, Electronic database TARIC
Number of AD cases implying the country in the year <i>COUNTRY-YEAR</i>	Numeric Variable	The more a country is target of inquiries in the year, the more the authorities will tend to give a positive decision.	Calculations of the authors from the various reports of the Commission
<i>DUMMY-CHINA</i>		Political influence	
Rate of dependence <i>DEPENDAN</i>	Exports towards the target country of the inquiry divided by the total exports.	The more the country is dependent on a partner, the more the probability to have a positive decision is raised.	Calculations made from Eurostat database
<i>DUMMY-STEAL-IRON</i>		Political influence	
Targets Country having an AD policy for more than 10 years <i>COMPETITION-10</i>	Dichotomous variable taking the value 1 in the positive case, 0 otherwise.	If the target country has an AD policy for more than 10 years, these authorities will have an experience in the management of the procedures and the probability to have a positive decision against them will be weaker.	I.Wooton, M.Zanardi, C.E.P.R., 2002
Targets Country having a competition policy. <i>COMPETITION</i>	Dichotomous variable taking the value 1 in the positive case, 0 otherwise.	If the target country has a competition policy, the probability to have a positive decision is weaker. Risk of retaliations.	I.Wooton, M.Zanardi, C.E.P.R., 2002
Unemployment rate <i>UNEMPLOY</i> <i>LUNEMPLOY=LogUNEMPLOY</i>	Numeric Variable	This variable must be positively correlated to the decision taken by the reglementary authority.	Eurostat, OLISNET (O.E.C.D.), Handbook of International Trade
Import penetration rate <i>LRIMP =Log RIMP</i>	Numeric Variable	This variable must be positively correlated to the decision taken by the reglementary authority.	Eurostat, OLISNET (O.E.C.D.), Handbook of International Trade
Total trade Balance <i>TRADE-BALANCE</i>	Exports total less total imports	An overdrawn trade balance increases the protectionist tensions and can incite the authorities to pronounce positive decisions.	European Commission, DG Trade

Appendix 5: Description of the variables used for the United States

Variable	Characteristics	Tested hypothesis	Source
<i>DECISION</i>	Dichotomous variable identifying the decision: 1 if the Authority take a positive decision, 0 else		Annual and semiannual reports of the USDOC and USITC on the antidumping activities
Type of the product <i>PRODUCT</i>	Classification NC	The type of product influences the decisions given by the authorities.	The annual and semiannual reports of the United States on the antidumping activities, WTO Notifications, Bureau of Census, I.T.C., D.O.C
Number of AD cases implying the product in the year <i>PROD-YEAR</i>	Numeric Variable	The more a product is target of inquiries in the year, the more the authorities will tend to give a positive decision to this inquiry.	The annual and semiannual reports of the United States on the antidumping activities, WTO Notifications G/AD/N/(year)/USA. Bureau of Census, I.T.C., D.O.C
Average MFN Tariff (calculations of the WTO Secretariat HS Classification) <i>TARIFF</i>	Average tariff in percentage	Increase of inquiries when the Tariff is raised. Decisions tend to be positive when $DOUANE > \bar{d}$	Calculations made by the WTO Secretariat, Tariff Schedule of the United States, U.S.I.T.C.
Number of antidumping cases implying the country in the year <i>COUNTRY-YEAR</i>	Numeric Variable	The more a country is target of inquiries in the year, the more the authorities will tend to give a positive decision.	Calculations of the authors from the various reports of the USITC and the USDOC.
<i>NIC- LDC- CEEC</i> New Industrialized, Less developed and Central and East European Countries	Dichotomous variable taking the value 1 in the positive case, 0 otherwise.	Does the nature of the target countries influence the decisions?	The annual and semiannual reports of the United States on the antidumping activities.. WTO notifications G/AD/N/(year)/USA
Total trade Balance <i>TRADE-BALANCE</i>	Exports total less total imports	An overdrawn trade balance increases the protectionist tensions and can incite the authorities to pronounce positive decisions.	U.S. Census of Bureau <sup>23</sup>
Targets Country having a AD policy for more than 10 years <i>COMPETITON-10</i>	Dichotomous variable taking the value 1 in the positive case, 0 otherwise.	If the target country has an AD policy for more than 10 years, these authorities will have an experience in the management of the procedures and the probability to have a positive decision against them will be weaker.	I.Wooton, M.Zanardi, C.E.P.R., 2002
Targets Country having a competition policy. <i>COMPETITION</i>	Dichotomous variable taking the value 1 in the positive case, 0 otherwise.	If the target country has a competition policy, the probability to have a positive decision is weaker. Risk of retaliations.	I.Wooton, M.Zanardi, C.E.P.R., 2002
Capital expenditure of the American industries <i>LDCAPIT</i>	Expressed in thousand of US dollars	More the capital expenditures are raised, bigger will be the will of the authorities to defend this industry.	Annual Survey of Manufactures, Bureau of Census <sup>24</sup>
Use of the productive capacity <i>LCAPAPROD</i>	Percentage of the capacity used by firms in the date of the procedure	More production capacities are used, bigger will be the will of the authorities to defend this industry.	Annual Survey of Manufactures, Bureau of Census, Current Industrial Reports, Survey of Plants Capacity.
Number of employees bound to the production <i>LUNEMPLOY</i>	Numeric Variable	The more there is employees in the considered industries, the more this industry will be considered as strategic and thus, more the authorities will be sensitive to their demand of protection	Annual Survey of Manufactures, Bureau of Census
Hourly productivity <i>LPRODUC</i>	Productivity Index by industry	The more the productivity is weak, the more the authorities will be	Annual Survey of Manufactures, Bureau of Census

<sup>23</sup> <http://www.census.gov/foreign-trade/balance/index.html>

<sup>24</sup> <http://www.census.gov/mcd/asm-as1.html>

		"naturally" incited to set up protections.	
Salary by worker <i>LWAGES</i>	Expressed in thousand of US dollars	The more the domestic salaries are raised, the more the authorities will tend to defend positively the national firms.	Annual Survey of Manufactures, Bureau of Census
Import penetration rate <i>LRIMP</i>	Numeric Variable	This variable must be positively correlated to the decision given by the reglementary authority.	OLISNET (O.C.D.E.), Handbook of International Trade, USI.T.C., Trade Data Base
<i>DUMMY-CHINA</i>		Political influence	
<i>DUMMY-STEAL-IRON</i>		Political influence	