US Lobby Activity and Antidumping Outcomes

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Abstract: The aim of this paper is to determine to what extent economic and non-economic factors (especially political ones) affect trade policy, with focus on decisions taken in antidumping investigations' dumping margin and final outcome. The economic variables reflect the state of domestic industries, the non-economic variables contain characteristics of the targeted country in the inquiry and political determinants related to the pressure industries wield on decision makers. The political variable of interest is the "lobby effect." The results show that both economic and non-economic factors have considerably influenced the size of the dumping margin and the final outcome. Additionally, the estimation suggests that lobbying has a strong impact on antidumping, with lobbying industries having a 26% higher probability of obtaining trade relief than their non-lobbying counterparts.

Keywords: antidumping, lobbying, trade protection

JEL Classification: F13, F14, F59.

1. Introduction

With falling tariffs across the world in recent years, domestic industries from both developed and developing countries have had to resort to the remaining forms of trade protection still permitted under the rules of the World Trade Organization (WTO). According to WTO statistics, among temporary trade remedy measures, antidumping (henceforth AD) is undoubtedly the most heavily used. The WTO members reported 2,899 newly-initiated AD cases as opposed to only 180 countervailing cases and 153 safeguard cases between 1999 and 2006, which is the time span covered in this paper. WTO statistics also show that the USA continues to be a major user of the AD policy amounting to around 12% of all initiated cases worldwide, ranking currently 2nd among the most frequent initiators, following India.

In essence, the AD laws allow individual firms or even entire domestic industries to seek import relief against dumped imports. However, the extensive usage of AD and the skyrocketing AD duties might indicate that in some instances domestic industries employed AD practices in order to secure protection against several strong foreign competitors. Thus, out of a total of 298 AD cases initiated in the USA between 1999 and 2006, 134 cases (i.e., 45%) ended in an affirmative outcome with roughly 30% of these cases having imposed duties of over 100% (in fact, there are a few AD petitions in which duties have exceeded 300%), as it appears in Tables 1 and 2. These startling numbers suggest a possible disconnect between AD and the prevention of unfair trade.

AD legislation requires that petitioning industries disclose compelling evidence to the investigating agencies[1], indicating clear deterioration in their economic situation caused by the alleged dumped imports. However, if the true underlying motivation for an AD inquiry is to obtain protection against foreign competitors, then domestic industries need to persuade the ruling administration by applying a different line of arguments related to political pressure, trade retaliation or the domestic industry size.

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[1] AD is a two-track process in the USA. The Department of Commerce has control over dumping determination and the International Trade Commission is responsible for injury determination.

Given the aforementioned magnitude of the AD phenomenon, economists have become increasingly interested in exploring how AD practices affect the protection level received by the petitioning domestic industries. Previous studies have identified a multitude of economic factors that play a role in the AD procedures. Moreover, a good many of papers have found that, in addition to economic criteria accepted as injury evidence, political factors, general state of the economy, and potential retaliatory power of foreign competitors all have a strong impact on the US AD activity.

One strand of AD literature focuses on the interaction between the ruling process and the political pressure wielded by domestic industries in getting trade relief. Thus, in an early empirical study of the International Trade Commission (ITC) injury determination, Finger, Hall, and Nelson (1982) made a distinction between two sets of independent variables (the "political track" and the "economic track" variables). In the "political track" category, they include variables that control for the size of industry (employment, capital stock, value-added, industry concentration) and for "international political influences" (the proportion of US exports to the targeted country, developed vs. developing economy). In the "economic track" category, they analyze the capital-labor ratio, wage, and scale economies variables as part of the economic criteria employed by the ITC in establishing injury through imports. Unsurprisingly, they find that the "political track" variables have a large impact on the ITC injury determination process, especially in the escape clause cases.

Hansen (1990) models the trade protection received by some domestic industries as an equilibrium outcome between the demand for protection coming from industries and the supply of protection granted by the governmental agencies. Her variables for political pressure include various measures of congressional representation (such as the number of Democrats or Republicans on the Ways and Means Committee and trade subcommittees representing the petitioning industries' congressional districts). The estimation results confirm that industries are more likely to obtain protection if they have their representatives on the appropriate committees.

In a more recent paper, Prusa and Hansen (1997) have re-analyzed the process of ITC decision making by including an additional key variable, the Political Action Committee (PAC) contributions. They assert that the PAC contributions paid for the election of the oversight committees' members might put some pressure on the ITC to grant protection via the AD affirmative decisions. The political variable in their regression performs very well (any additional $200,000 in PAC contributions increases the probability of an affirmative outcome by 6% to 10%). Another strand of trade literature (Prusa and Skeath (2002) and (2004)) examines the AD activity as a strategic behavior of US firms, linking their AD practices to a form of retaliation against foreign competitors which, in turn, have initiated AD measures against US exporters.

The central idea of this paper is to investigate the extent to which the political clout of domestic industries contributes to the size of the AD duties and the final outcome of the investigations (either negative or affirmative). An appropriate proxy for the political influence is lobby payments made by the American industries to the governmental agencies in charge of the AD process.

This paper has three main contributions to the existing AD literature. Firstly, the novelty of this paper lies in the way political influence is measured. In order to estimate the "lobby effect," I construct a variable from a dataset which comprises all lobby reports filed as of 1999. Only those reports containing lobbying directed towards the Department of Commerce (DOC) and the ITC by the domestic industries between 1999 and 2006 have been selected from the Lobby Contributions Database. To assess the political contribution in granting trade protection, the lobby dataset proves more appropriate than the data on the monetary campaign contributions used in the previous studies since the expenditure lobby dataset allows pinpointing the precise "object" of lobby activity and the direct governmental agencies in charge of handling the AD administrative process. The main finding is that the "lobby effect" is by no means negligible. Those industries which lobby increase their probability of having an AD case end in an

affirmative outcome by 26% compared with their non-lobbying counterparts. This result clearly indicates that seeking protection from foreign competition by appealing to the political power plays an important role in the AD process.

Secondly, this is the first empirical paper that has analyzed the complete AD decision process in the USA, including both the dumping margin size determination and the injury determination of the final outcome.

Thirdly, this paper uses a comprehensive data set on all industries affected by the AD process in the USA. Due to the lack of data availability, all previous empirical studies have discarded important economic sectors from their analyses. However, sectors such as agriculture, fishing, forestry, and mining were heavily affected by AD and thus their exclusion could seriously bias the findings.

This paper is organized as follows: Sections 2 and 3 proceed with a detailed presentation of both the US AD process and the US lobbying process. Section 4 describes the regression variables, the reasons why they have been included in the analysis, and their construction from various data sources. Section 5 analyzes the regression results and section 6 concludes.

2. The AD Process in the US

AD is defined in the Article VI of the GATT 1994 ("The Antidumping Agreement") of the World Trade Organization as a measure against the imports of a product at an export price below its "normal value" (the price of the product in the domestic market of the exporting country) if such dumped imports cause or are likely to cause injury to a domestic industry in the territory of the importing contracting party. An AD investigation is initiated by an individual firm or a group of firms, business or trade associations or even a labor union, referred to as petitioners. Petitioners file a complaint in which they name foreign competitors (firms or entire industries from a country or a group of countries) that allegedly dumped their products on the US market. Petitioners must also provide evidence of how these dumped imports have caused or threaten to cause "material injury." US AD is a two-track process where each petition is filed with both the DOC and the ITC, taking on separate functions in the dumping and injury ruling.

The DOC's role in an AD investigation is to determine whether dumping actually occurred and, if so, to calculate the corresponding dumping margin. Article VI GATT 1994 provides general guidelines for methods to determine dumping. The first method to be used is to verify if the export price in the US market is below the "normal value," defined as the price charged in the exporter's domestic market. The difference, if any, is called the dumping margin.

If the volume of the good sales on the exporter's own domestic market is too low, then an "appropriate" third country's price method could be considered. However, when both the domestic market and the third country market prices cannot be used as "normal value price" because the volume of the sales on these markets is too low to be considered relevant in an AD investigation, the DOC may employ what is called a "constructed normal value" method based on the construction of a price starting from production and administrative costs to which a "reasonable" margin for profits is added. A special case arises when the exporter comes from a non-market economy where the domestic price is set by the state and, therefore, cannot be considered a reliable source of comparison. Article VI of the GATT 1994 AD Agreement allows "importing countries to exercise significant discretion in the calculation of normal value of products imported from such economies." This has definitely dramatic implications since China represents the most targeted country both globally and in the US AD investigations.

The ITC's role in an AD complaint is to judge whether the dumped imports have created or threaten to create material injury to the domestic petitioners. As part of the injury determination process, the ITC needs to investigate whether there has been a significant surge in the dumped imports, either in absolute or relative

value to domestic production and consumption. Other factors that may be considered when examining the impact of the dumped imports on the state of the domestic industry are the "actual or potential decline in sales, profits, output, market share, productivity, return on investment, utilization of capacity, actual or potential effects on cash flows, inventories, employment, wages, growth, ability to raise capital or investments, and the magnitude of the margin of dumping" (Art. 3, Paragraph 4 of GATT 1994 AD Agreement).

Article VI of GATT 1994 also requires that the investigating authorities (in the US, the ITC) demonstrate the causal link between the dumped imports and the material injury or threat of material injury. However, the ITC does not need to verify if the dumped imports represent the main source of the injury in order to rule that AD duties are necessary to remedy the situation.

Typically, each investigation is conducted in two stages, a preliminary and a final stage. If both the DOC and the ITC rule affirmatively in the preliminary stage, i.e., if they find evidence of dumping and injury, a preliminary antidumping duty is levied, equal to the dumping margin calculated by the DOC. However, if either or both agencies rule negatively, the petition is rejected and does not reach the final stage, in which case the domestic industry is not granted any import relief. When the inquiry reaches the final phase of the investigation, the DOC and the ITC need to reconsider the case once more and, in the light of supplemental evidence collected between the preliminary and the final stages, maintain the preliminary duty level or rule differently, either rejecting the case or imposing a different final duty level.

3. US Lobby Process

The lobbying process I focus on in this paper is the monetary payment made by individual firms or industries to lobby incumbent Governmental Agencies in exchange for the support obtained in promoting firms' or industries' interests. The legal framework which ensures the transparency of the lobby activity is the Lobbying Disclosure Act of 1995 (LDA) and its amendment, the Honest Leadership and Open Government Act of 2007 (HLOGA). These laws mandate that registered lobbying firms file lobby reports with the Clerk of the House of Representatives and the Secretary of the Senate in which they are required to provide a host of details regarding the lobbying process. In particular, the reports disclose the name of the lobbying firm and the lobbyist filing the report, as well as the name of the client on behalf of which the report is filed. A client can be an individual, a domestic or a foreign firm, a business or a trade association, a labor union or any other form of organization which employs or retains a lobbyist or a lobby firm to conduct lobby activity. The lobby report specifies the general issues lobbied for from a list of 79 possible issues. Given the topic analyzed in this paper, the focus will be on "Trade Issue." A lobby report also indicates the governmental agency and/or the House and/or Senate towards which the lobbying is directed. The list contains about 260 governmental entities.

It is common practice in economic research to proxy the political support process using PAC contributions which are monetary donations made towards all candidates vying for initial election or re-election during political campaigns. Although there is a high correlation between the PAC and lobby contributions in terms of both clients and amounts donated, as documented by Ansolabehere (2002), lobby contributions are more appropriate within the framework of this study for at least two reasons. The first one is related to the availability of information on the exact issue for which political support is sought (namely, trade in this context). The second one considers lobbying activity as a continuous process whereby domestic industries demand specific advantages by lobbying the exact incumbent agencies which have the power to grant these advantages.

4. Non-Economic and Economic Determinants of the AD Process in the USA

The AD outcome process is shaped by the interaction between non-economic and economic considerations. This section discusses the variables included in the empirical estimation of the AD outcome determination.

For both the dumping margin and the outcome determination, the empirical analysis is conducted at the 4-digit SIC and targeted country level since the US administration regards product-country pairs as single cases for which it carries out separate investigations. The study spans eight years, from 1999 to 2006, and this choice has been dictated by the limitation of data availability (lobby data is reported as of 1999 and the detailed product-level import data run up to 2006). Variables that proxy the performance of the petitioning industry (the employment size, productivity, import penetration measures) enter the empirical estimation models lagged one year from the AD initiation moment since the ITC makes its injury assessment by taking into account the evolution of the economic parameters in the years preceding an AD initiation.

The Global AD Database (GAD) collected by Bown (2015) on the US represents the most comprehensive source of the AD related variables and allows us to identify the initiating industry and the year, as well as the result of the final outcome (negative or affirmative and the size of the dumping margin) of an investigation. The targeted product is recorded at its corresponding 8 or 10-digit HTS (Harmonized Tariff System) identification code. In order to assign a 4-digit SIC code for these products, Peter Schott's (2009) SIC-HTS concordance database has been used.

Non-economic Determinants: This category of variables plays a crucial role in the AD outcome, since the more politically influential an industry is, the more complaints it files and, conditional on filing, the more likely to obtain trade relief through AD. The focal political variable is the "lobby effect," a measure of whether the industry lobbied during a certain year or not. The aim of this paper is to prove that there exists a positive correlation between the AD outcome and lobbying activities. Therefore, a lobbying petitioning industry has higher chances to obtain an affirmative outcome with larger dumping margins than a non-lobbying petitioning industry.

The Lobby Effect: To construct this variable, I select all reports filed by domestic clients on a trade issue which made payments towards lobbying the DOC and the ITC, from all lobby reports filed between 1999 and 2006 in the database made public on the US senate website. Thus, the database indicates that from 1999 to 2006, 18,070 reports were filed on a trade issue, 13,144 reports were filed with DOC, and 794 reports were filed with ITC. 6,386 reports were filed with DOC on a trade issue (that accounts for 49% of all the reports filed with the DOC and 35% of all the reports filed on trade) and 664 reports were filed with the ITC on a trade issue (which represents 84% of all the reports filed with the ITC and 4% of the reports filed on trade). The lobby dataset also discloses the name of the client filing the report. I have used the Lexis-Nexis Business Directory and Compustat in order to match these clients' names with a 4-digit primary SIC code. Due to the nature of this research, I retain only those clients who were matched with SIC codes from the manufacturing, mining, agriculture, forestry and fishing sectors and drop the rest of the SICs related to service sectors.

When matching the AD outcome data with lobby data (Table 3), lobby levels appear to be very high irrespective of the outcome of the investigation. Out of 143 unique country-product pairs for which the AD case ended in an affirmative outcome, there was lobby activity in 123 cases (i.e., 86%) and out of the 154 unique country-product pairs which ended in a negative outcome, 135 cases (i.e., 88%) lobbied as well.

However, given the fact that an affirmative outcome leads automatically to non-negative dumping margins and higher domestic prices, the downstream industries for which the output of the filing industry represents an important input will likely counterattack by opposing the complaint and pressuring the officials through their own lobby. In this situation, the lobby efficiency of the petitioning industry is diminished and we would expect that the filing industries with powerful downstream industries have lesser chances of success.

The Downstream Industries Lobby: To construct this variable, I have used the 2002 release of Benchmark Input-Output detailed level data and the lobby dataset. First, I selected the upstream AD filing industries and their corresponding downstream industries, the top 3 main inputs of which (in terms of the dollar value) come from the upstream AD suppliers. Then, for each petitioning industry, I construct the ratio between the number of their lobbying downstream industries and all of their downstream industries.

Another political factor with a potentially strong impact on the AD outcome is represented by the industry size (proxied by industry employment). Large industries are able to exert greater pressure on politicians insofar as they can afford to spend more resources in order to weather foreign competition.

To my knowledge, this is the first study on AD that includes all 4-digit SIC codes while all previous studies have focused exclusively on the manufacturing industries. This constitutes a major improvement over previous studies given the fact that a large number of AD petitions are initiated against products which are not classified as manufacturing.

Employment Data Construction: Data for employment in the manufacturing sectors (i.e., all SIC codes beginning with 20-39) were constructed using the US Census of Manufactures (available for the census years 1997 and 2002) and the Annual Survey of Manufactures (available for the remaining non-census years of the analysis).

The agriculture data on employment (SIC codes beginning with codes 01 and 02) were derived from the Census of Agriculture corresponding to the years 1997, 2002, and 2007. Since there are no other data sources for employment in agriculture in the non-census years, the necessary data were calculated by linear interpolation using the census years.

The data in the mining sector (SIC codes beginning with 10-14) and the fishing, hunting, timber, forestry, and logging sectors (SIC codes beginning with 08 and 09) were obtained from the Statistics of U.S. Businesses which provides yearly employment data.

Another factor that might determine the final outcome (both in terms of the dumping size and injury) is how petitioning industries organize themselves in filing a complaint. Multiple firms or firm associations signing a petition can present the case more convincingly and might signal a larger support for the case. The Petitioners' Organization Variable: For this dummy, I have used the AD dataset collected by the US International Trade Administration (ITA) which provides information on the name of the petitioners. Petitions are filed on behalf of individual firms (for these cases, I assign 0 to the dummy variable) or on behalf of any combination of multiple firms, trade or business associations, or labor unions.

In addition to all considerations mentioned so far, domestic industries can secure trade protection if they file "wisely". This refers mainly to the targeted foreign countries in the US investigations. In a one-good complaint, petitioners can name several importer-countries and each of these good-country pair becomes a separate case. Specifically, the targeted developing countries' rate of affirmative outcomes might exceed that of developed countries for several reasons. On the one hand, the main exports of developing countries might overlap with the products of those manufacturing sectors in the USA that perceive threats stemming from imports. This is the case for sectors like steel, timber, fishing, agriculture that use AD intensively. On the other hand, developing countries might not have the same retaliatory power as the developed countries in making counter-threats with their own AD cases initiated against US exporters in their domestic markets. Additionally, in calculating the dumping margins for the imports from developing countries, the DOC accepts the non-market economy and the constructed value methods which inherently induce more arbitrariness and possibly larger dumping margins.

The Developing Country Dummy: I have used the World Bank country classification by income groups in creating the dummy value for the countries named in US AD investigations. I assigned 1 for the developing countries (in the terminology of the World Bank, low income, lower middle income, and upper middle income countries) or 0 for the developed country (high income countries).

The Constructed Price Dummy: It is a binary variable collected from the administration AD reports which detail whether the normal value is calculated by using the home market price or a third country market price or a constructed value (in the case when the first two measures were not considered viable or the targeted country was a non-market economy). The binary variable takes value 1 if a constructed price method is used and 0 otherwise. Data for 1999 for market economies are not available which excludes the corresponding 38 observations from the full sample of 297 observations. As reported in Table 4, the constructed value is the most frequently used method (with 199 observations) and the third market price the least frequently used (with only 5 observations). I included these 5 observations in the home market price category since the normal value is also calculated by using an actual price, as in the case of the home market price method.

The targeted country's type (developed or developing) coupled with retaliation considerations may increase considerably the chances of an affirmative outcome if, for no other reason, but for the public outcry and amplified sensitivity in tit-for-tat trade matters. As Prusa and Skeath (2002) and (2004) show, some cases initiated by the US might be a response to AD measures previously taken by the targeted country against US exporters and a cross-check conducted to see whether the US has been named in these countries' AD investigations is expected to yield support for the retaliation motive theory.

The Retaliation Dummy Variable: This variable is constructed using the data on the worldwide AD activity provided by the GAD and the WTO AD statistics. I have cross-checked US AD data and targeted country AD data assigning value 1 for the retaliation dummy whenever the targeted country filed an AD case against some US imports in the year previous to the year when the targeted country itself was named in a US investigation.

The size of the targeted country as a worldwide exporter of the targeted good (proxied by the share of a country's exports of the targeted good in total global exports of the same good) is yet another strategic determinant. A big exporter has a higher probability of exporting large volumes of the good to the US market and therefore comes up more often in the US investigations.

The Big Exporter Variable: For the construction of this variable, I have used the United Nations Statistics Division-Commodity Trade Statistics Database (Comtrade). For each observation country-product-year, I calculated the ratio between the named country's total exports of the named good to the world and the total worldwide exports of the same good. The imported good was identified by using the HTS Codes provided by the GAD database. Since the Comtrade database does not provide public information on Taiwan's exports which are frequently under investigation in the US AD (more specifically, in 9 inquiries), I used export data provided by Taiwan's Ministry of Economic Affairs.

The Economic Determinants: The injury determination stage is greatly influenced by economic factors that pertain to the specific situation of the industry seeking protection. While the ITC has discretion over the selection of a wide range of economic indicators, as per Art. 3, Paragraph 4 of GATT 1994, the empirical analysis cannot include them all for practical reasons. Many economic variables are highly correlated in our sample (for instance, the employment and shipment data). Their inclusion increased other variables' standard errors without adding any valuable information to the model. Employment and shipment estimates were not statistically significant and the size of all other estimates did not substantially change. Therefore, the results reported in this paper include variables such as productivity, change in employment, and a series

of import-related variables (as a percentage change in value and as a penetration ratio of imports from domestic production or at the targeted country level and total imports of the targeted good).

The Change in Imports and Import Penetration Variables: Import variables are constructed using Robert Feenstra's US Imports database (1996). Imports were aggregated at the 4-digit SIC level both for the total imports of the targeted good and then for the importing country and targeted good.

The data for the dependent variables in the dumping size estimation and the final AD outcome estimation are described below.

The Dumping Margin Variable: It is the final duty imposed in an affirmative investigation or the preliminary duty when in the final stage DOC rules affirmatively, but ITC rejects the case, and 0 for all other cases.

The AD Outcome Variable: In straightforward cases that end in an affirmative or negative outcome, value 1 is assigned to affirmative final outcomes and 0 to rejected final cases. However, there are a few exceptions: 4 cases were concluded in a so-called final Suspension Agreement (the importer commits to increasing the importing price to the point where dumping is eliminated). These cases are included in the affirmative category since the imported products end up being sold in the US market at the same price as they would have been sold, had the AD duties been collected. Other categories of the final outcomes are the withdrawn and/or terminated cases. Since the only piece of information available in these cases indicates either that no tariffs are charged or that price increases are officially negotiated, consequently they are put in the negative outcome category and assigned value 0 to the outcome dummy variable.

5. Empirical Strategy

5.1 Dumping Margin Determinants

A Tobit model is set up to estimate the dumping margin determinants, since the dependent variable takes value 0 in 86 cases out of 259 observations in the sample. The model is:

DumpingMargin* = β_0 + β_1*ConstructedPrice + β_2*LobbyEffect +
+ β_3*DownstreamIndustryLobby + β_4*PetitionersOrganization +
+ β_5*IndustrySize + β_6*DevelopingCountry + β_7*BigExporter +
+ β_8*Retaliation + YearDummies + ε

Where $\varepsilon \sim N(0, \sigma^2)$ and DumpingMargin=max (DumpingMargin*, 0)

A detailed description of the variables is given in the Appendix.

The regression results and Tobit partial effects are reported in Table 6. Partial effects are calculated using the entire sample of 259 observations (from 2000 to 2006, as explained in section 4). The adjustment factor 0.6659 is obtained by setting the explanatory variables at their sample mean values (in Table 5).

The constructed price dummy has a large effect on the dumping size and is statistically significant at 1%. The AD cases that use the constructed price method to derive the normal value have an expected dumping size 25.7% larger than those cases which use the home market price or third country market price. This result confirms the hypothesis that the constructed price method introduces more arbitrariness (which undoubtedly works in favor of the petitioners) because the method does not rely on an actual price, but builds one which can be subject to errors and/or manipulations.

The lobby effect variable estimate does not have the expected sign, it is neither statistically significant. A possible explanation is that in claiming a certain dumping margin, the petitioning industry considers the method of normal value calculation and the targeted country of utmost importance.

Another set of variables with a strong influence on the dumping determination is related to the targeted country. A petition which targets a developing country has on average 35.5% higher duties than one initiated against a developed country. The strong effect related to the targeted country type on the dumping size (after the constructed price variable is controlled for) might support the assumption that most of the developing countries do not have the retaliatory power to fight back and they become the easy "target" of the high AD duties. The size of the targeted country in the world's exports of the targeted good also matters, thus the big exporter variable is significant at 1% and its increase by one-standard deviation (i.e., 11.3%), increases the dumping margin by 10.4%.

The industry size variable is negative and it is statistically significant at 10%. The negative effect of these variables on the dumping margin (a drop of 8.7% in the dumping margin when the employment variable increases by one standard deviation) might be attributed to a selection issue, with larger industries filing weaker cases which do not involve a great deal of dumping. For robustness check and given the ease of interpreting the OLS estimates, the results of an OLS regression are also reported in Table 6. The OLS estimates' partial effects are in line with the results from the Tobit regression.

5.2 AD Final Outcome Determinants

The ITC injury ruling and AD final outcome refer to the same decision since ITC has the final word in accepting or rejecting a case. A final negative outcome coincides with an ITC rejection whereas a final affirmative outcome coincides with an ITC positive ruling.

In analyzing the relationship between the AD outcome and a series of economic and non-economic determinants, I consider 3 specifications, as shown in Table 8. The first specification includes all variables, the second specification drops the non-economic variables, and the third one drops the economic factors. These specifications are estimated by using a logit model with the AD outcome as the dependent variable. For robustness check, two additional regressions were run, a probit and a linear probability model (LPM). The logit model is:

Probability {ADoutcome =1} = 1/(1+e^{-z})   where

$z = \beta_0 + \beta_1*LobbyEffect + \beta_2*DownstreamIndustryLobby + \beta_3*PetitionersOrganization +$
$+ \beta_4*BigExporter + \beta_5*DevelopingCountryDummy + \beta_6*Retaliation + \beta_7*DumpingMargin +$
$+ \beta_8*Productivity + \beta_9*\Delta CountryImportPenetration + \beta_{10}*\Delta Employment +$
$+ \beta_{11}*\Delta CountryImports + \beta_{12}*\Delta ImportPenetrationRatio + YearDummies$

A detailed description of the variables is given in the Appendix.

The Non-economic Variables Performance: The lobby variable performs very well across all full specifications in all models. It has the predicted positive sign and it is statistically significant at 5% in the logit and probit regressions and at 10% in the LPM regression. In the unrestricted logit model, the lobby estimate has a large effect. Thus, as illustrated in Table 9, the lobbying industries have a 26% higher predicted probability of an affirmative outcome compared with their non-lobbying counterparts. A similar partial effect (i.e., a 19% increase in the probability of an affirmative outcome) is obtained in the LPM estimation whose results are also reported in Table 8. This result reinforces this paper's central idea that lobbying is an important determinant in the AD ruling process.

In all full specifications, the downstream industries' lobby has the expected negative sign and it is significant at 10%. A one standard deviation increase of 9.5% in the downstream industries lobby variable reduces the probability of an affirmative outcome by 5.9%. This result suggests that downstream industries regard AD as a serious threat which increases their input price, therefore lobbying the authorities against it is effective.

The regressions also yield good results for the estimate of the targeted country's importance as a worldwide exporter. The big exporter variable has the anticipated sign and it is statistically significant across all specifications. Its increase by one standard deviation (11.4%) will boost the probability of an affirmative outcome by 7.6%.

While the petitioners' organization, the targeted country dummy, and the retaliation variables have the predicted sign across all specifications, individually they do not appear to have any impact on the final outcome since they are not statistically significant at any reasonable level.

To test for the significance of the non-economic variables as a group, I compare the goodness of fit (log likelihood) of the unrestricted logit model that contains all variables with the goodness of fit of the model that drops the non-economic determinants. The log likelihood test is distributed χ^2_k where k is the number of variables dropped from the model, in this case all 6 non-economic variables. Twice the difference of the log likelihood values corresponding to the two models is 5.9 and the p-value for χ^2_6 is 0.063336. This makes the difference statistically significant at the 10% level substantiating the claim that, as a group, non-economic factors have an impact on the AD outcome determination.

The Economic Variables Performance: In the economic variables category, the dumping margin, productivity, and the percentage change in the targeted country's import penetration ratio all have the expected sign across all specifications and are significant at various percentage levels. Partial effects on the final outcome are substantial when these variables change by one-standard deviation. Thus, a surge by one standard deviation in the dumping margin (72.9%) raises the probability of an affirmative outcome by 14.95%. Also, a drop of one standard deviation in the productivity of an industry would increase by 15% its chances of getting trade relief. Additionally, if the percentage change in the country's import penetration increases by one standard deviation (61.75%), this will push up the probability of a positive result by 31%.

The variable measuring the percentage change in employment is statistically significant across all specifications. The variable percentage change in the targeted country's imports is statistically significant only in the probit and LPM. But both these two variables do not have the expected sign. A possible explanation is that domestic industries cannot tie some changes in their economic conditions to competition from abroad. Since the GATT VI art. does not require the petitioners to show deteriorating conditions in all variables listed as possible factors used to prove injury, many industries could pick and choose only those indicators that serve their cases.

To measure the goodness of fit of the model that drops all 6 economic variables, the log likelihood ratio test is used. The difference between twice the log likelihood values of the full model and restricted model is significant at 1% (with a p-value of 0.000016). This suggests that the economic variables as a group have a strong impact on the AD outcome.

6. Conclusions

In this paper, I have investigated the impact of economic and non-economic criteria on the AD process during the stages of the final decision. This paper contributes to the existing literature in a few ways. Firstly, the measure of the lobby activity proxies more appropriately the political pressure that the industries apply on the officials in charge of AD investigations. Secondly, I analyze both the DOC's and the ITC's decisions

which should offer a better understanding of the dual ruling process in the AD initiations in the US. Thirdly, the paper provides comprehensive results of the AD process by including in the empirical analysis all economic sectors that can use the AD as a trade instrument.

The empirical estimates show that the authorities' decision to grant trade protection is guided by both non-economic considerations and economic factors stipulated by the US AD statute. In the dumping determination process, the price method used to gauge the dumping size and the country to be targeted seem to be very important determinants that substantially increase the size of the dumping margin. In the final outcome and injury determination, lobby expenditure has a large influence: the industries that lobby more have higher chances of AD duties being levied on similar imports.

These results have implications in the wider context of trade protection. They provide additional evidence on how some domestic industries succeed better than others in getting shielded from foreign competitors. The estimates show that industries with political clout which spend their resources on lobbying the officials benefit more from trade protection than the non-lobbying domestic industries.

Endnotes

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Appendix

Lobby Effect: binary variable that takes value 1 if a 4-digit SIC petitioning industry filed a trade related issue lobby report with DOC or ITC and 0 otherwise

Downstream Industries' Lobby: share of lobbying downstream industries in total downstream industries that use the AD petitioning industry's products as one of their top 3 inputs

Industry Size (Employment): at 4-digit level SIC industry in year t-1

US Petitioners' Organization: dummy that takes value 1 in an AD case when there is more than one petitioner (group of firms, trade/business association, labor union) and 0 otherwise

Big Exporter: ratio between targeted country's exports of the targeted good and total world exports of the targeted good

Developing Country: dummy that takes value 1 if the targeted country is a developing country and 0 if developed

Retaliation: dummy that takes value 1 if the US was previously named in an AD case initiated by the country targeted in a US AD investigation

Dumping Margin: dependent variable that equals the dumping margin set by DOC in an AD case

Productivity: ratio of value of shipments to employment for the domestic industry in year t-1

% Δ Employment: for the domestic petitioning industry from year t-1 to year t

% Δ Country Imports: targeted country's imports of targeted good in US from year t-1 to year t

% Δ Country Import Penetration: change in targeted country's import penetration (country imports of the targeted good in US to value of shipments of the targeted good) from year t-1 to year t

% Δ Import Penetration: change in import penetration (total imports of the targeted good in US to value of shipments of the targeted good) from year t-1 to year t

Table 1. US AD Total Initiated Cases and Their Outcomes, 1999-2006

Year	Total AD Cases	ITC Affirmative Final Decision		DOC Affirmative Final Decision	
		Number of Cases	% of Total Cases	Number of Cases	% of Total Cases
1999	51	22	43%	36	71%
2000	49	31	63%	35	71%
2001	75	29	40%	58	79%
2002	35	12	34%	17	49%
2003	40	16	40%	21	53%
2004	27	16	59%	21	78%
2005	13	6	46%	9	69%
2006	8	2	25%	5	63%
Total	**298**	**134**	**45%**	**202**	**68%**

Source: Bown, Chad P., Global Antidumping Database, The World Bank, June 2015, available at http://econ.worldbank.org/ttdb/gad/

Table 2. AD Duty Level Imposed on US Cases Initiated between 1999-2006

AD Ad-Valorem Duty Range	Final Decision	
	Number of Cases	% of Total Cases
300% - 400%	4	3%
200% - 300%	10	8%
100% - 200%	23	17%
50% - 100%	24	18%
25% - 50%	23	17%
Below 25%	49	37%
Total Cases	**133**	**100%**

Source: Bown, Chad P., Global Antidumping Database, The World Bank, June 2015, available at http://econ.worldbank.org/ttdb/gad/

Table 3. Lobby and AD Outcome Dummies Frequency Table for Years 1999-2006

	Lobby Dummy = 0	Lobby Dummy = 1	Total
AD Outcome Dummy = 0	19	135	**154**
AD Outcome Dummy = 1	20	123	**143**
Total	**39**	**258**	**297**

Notes:
AD Outcome Dummy = 1 if the outcome of a pair country-product targeted in an AD investigation is affirmative
AD Outcome Dummy = 0 if the outcome of a pair country-product targeted in an AD investigation is negative
Lobby Dummy = 1 if a 4-digit SIC code industry filed at least one lobby report in year t
Lobby Dummy = 0 if a 4-digit SIC code industry filed no lobby report in year t

Table 4. Normal-value-calculation Method Cases Breakdown

Normal-value-Calculation Method	Number of Cases	% of Total
Home Market Price	55	21%
Third Market Price	5	2%
Constructed Value Market Economy	113	44%
Constructed Value Non-market Economy	86	33%
Total	**259**	**100%**

Table 5. Dumping Margin Determination Summary Statistics

Variable	Obs.	Mean	Standard Dev.	Min.	Max.
Dumping Margin	259	53.647	76.621	0	383.6
Constructed Price	259	0.7683	0.4227	0	1
Lobby Effect Dummy	259	0.8649	0.3425	0	1
Downstream Industries Lobby	259	15.969	9.8042	0	50.0
Petitioners' Organization	259	0.7992	0.4014	0	1
Industry Size (Employment)	259	96.738	72.834	1.3584	285.88
Developing Country Dummy	259	0.6834	0.4661	0	1
Big Exporter	259	8.8238	11.308	0.0003	71.267
Retaliation	259	0.4788	0.5005	0	1

Table 6. Dumping Margin Determination Tobit and OLS Regression Results

Parameter	Tobit Estimates	Tobit Partial Effect	OLS Estimates
Intercept	-42.184		-15.283
	(34.736)		(27.823)
Constructed Price (+)	41.787***	25.725	33.414***
	(14.220)		(7.7795)
Lobby Effect Dummy (+)	-1.7122		-1.9202
	(17.388)		(12.273)
Downstream Industries Lobby (-)	-0.4077		-0.3683
	(0.6254)		(0.5094)
Petitioners' Organization (+)	25.206		17.042
	(17.074)		(15.116)
Industry Size (Employment) (+/-)	-0.1731*	-0.1153	-0.0940
	(0.1040)		(0.0924)
Developing Country Dummy (+)	57.529***	35.526	48.647***
	(13.117)		(8.7126)
Big Exporter (+)	1.3811***	0.9197	1.2034**
	(0.5315)		(0.5844)
Retaliation (+)	10.910		6.8395
	(12.015)		(9.1199)
Sigma	85.118		N/A
	(4.5659)		
Year Dummies Included	YES		YES

(OLS robust) standard errors in parentheses, * Statistically significant at 10%, ** Statistically significant at 5%, *** Statistically significant at 1%

Table 7. AD Outcome Summary Statistics

Variable	Obs.	Mean	Standard Dev.	Min.	Max.
Outcome	297	0.4815	0.5005	0	1
Lobby Effect Dummy	297	0.8687	0.3383	0	1
Downstream Industry Lobby (%)	297	16.020	9.5447	0	50
Petitioners' Organization	297	0.8080	0.3945	0	1
Developing Country Dummy	297	0.6599	0.4745	0	1
Retaliation	297	0.4579	0.4991	0	1
Big Exporter	297	8.9398	11.403	0.0003	71.267
Dumping Margin	297	49.551	72.916	0	383.60
Productivity ($1000*Value of Ship./Emp.)	297	392,605	243,392	12,386	1,820,024
% Change Country Import Penetration Ratio	297	12.276	61.754	-90.533	556.91
% Change in Employment	297	-4.7220	5.5838	-26.509	23.779
% Change in Country Imports	297	12.154	69.058	-90.468	655.64
% Change in Import Penetration Ratio	297	0.9649	14.878	-28.854	43.986

Table 8. AD Outcome Logit, Probit, and LPM Regression Results

Parameter	Full Specification LOGIT	Drop Non-economic Variables	Drop Economic Variables	Full Specification PROBIT	Full Specification LPM
Intercept	-0.2607	0.4190	-0.09078	-0.1436	0.4340
	(0.7178)	(0.4686)	(0.63240	(0.4310)	(0.1626)
Lobby Effect Dummy (+)	1.1249**		0.0638	0.6205**	0.1901*
	(0.4827)		(0.3845)	(0.2796)	(0.1009)
Downstream Industries Lobby (-)	-0.0248*		-0.0217	-0.0153*	-0.0054*
	(0.0149)		(0.0136)	(0.0090)	(0.0031)
Petitioners' Organization (+)	0.1241		0.2785	0.0697	0.0252
	(0.4118)		(0.3867)	(0.2417)	(0.0935)
Big Exporter (+)	0.0267**		0.0290**	0.0158**	0.0056*
	(0.0132)		(0.0120)	(0.0076)	(0.0030)
Developing Country Dummy (+)	0.1629		0.3517	0.0918	0.0449
	(0.3137)		(0.2829)	(0.1883)	(0.0695)
Retaliation (+)	0.2023		0.2823	0.1174	0.0423
	(0.2812)		(0.2602)	(0.1714)	(0.0589)
Dumping Margin (+)	0.0082***	0.0089***		0.0048***	0.0014***
	(0.0023)	(0.0021)		(0.0013)	(0.0004)
Productivity (-)	-2.52e-06***	-1.72e-06**		-1.44e-06***	-3.70e-07***
	(9.33E-07)	(7.35E-07)		(5.37E-07)	(1.08E-07)
% Δ Country Import Penetration (+)	0.0200**	0.0178*		0.0120*	0.0038*
	(0.0102)	(0.0107)		(0.0063)	(0.0021)
% Δ in Employment (-)	0.1103**	0.0706*		0.0638***	0.0217***
	(0.0320)	(0.0280)		(0.0182)	(0.0076)
% Δ in Country Imports (+)	-0.0162	-0.0149		-0.0097*	-0.0030*
	(0.0094)	(0.0098)		(0.0058)	(0.0018)
% Δ in Import Penetration Ratio (+)	-0.0026	0.0004		-0.0019	-0.0004
	(0.0125)	(0.0115)		(0.0074)	(0.0027)
Year Dummies Included	YES	YES	YES	YES	YES
Log pseudo-likelihood	-174.34036	-180.31002	-192.96039	-174.56547	
(Pseudo) R^2	0.1496	0.1205	0.0618	0.1481	0.1806

Standard errors in parentheses, * Statistically significant at 10%, ** Statistically significant at 5%, *** Statistically significant at 1%

Table 9. Change in Probability for Statistically Significant Variables

Variable	Probability Change
Lobby Effect	+25.96%
Downstream Industries Lobby	-5.90%
Big Exporter	+7.60%
Dumping Margin	+14.95%
Productivity	-15.31%
% Change in Country Import Penetration	+31.00%
% Change Employment	+15.37%
% Change Country Imports	-27.85%

Note: All variables are set at their mean. Probability changes for binary variables are calculated as changes from 0 to 1. Probability changes for continuous variables are calculated as one standard deviation change from their mean.

Table 10. Likelihood Ratio Test Results

Model Specification	-log likelihood value	p-value of χ^2_k
Unrestricted Model	-174.34036	N/A
Drop Non-Economic Variables (k = 6)	-180.31002	0.063336
Drop Economic Variables (k = 6)	-192.96039	0.000016